Three-Pronged Assessment and Diagnosis of Personality Disorder and its Consequences: Personality Functioning, Pathological Traits, and Psychosocial Disability

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Abstract

The alternative dimensional model of personality disorder (PD) in the *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5*; American Psychiatric Association, 2013), Section III, has two main criteria: Impairment in personality functioning and one or more pathological personality traits. The former is defined as disturbances in self functioning (viz., identity, self-direction), and/or interpersonal functioning (viz., empathy, intimacy). Distinguishing personality functioning and traits is important conceptually, because simply having extreme traits is not necessarily pathological. However, adding personality functioning to PD diagnosis represents an empirical challenge, because the constructs overlap conceptually. Further, there is debate regarding whether diagnosis of mental disorder requires either distress or disability, concepts that also overlap with maladaptive-range personality traits and personality dysfunction. We investigated interrelations among these constructs using multiple self-report measures of each domain in a mixed community-patient sample (*N* = 402). We examined the structures of functioning (psychosocial disability and personality), and personality traits, first independently, then jointly. The disability/functioning measures yielded the three dimensions we have found previously (Ro & Clark, 2013). Trait measures had a hierarchical structure which, at the five-factor level, reflected neuroticism/negative affectivity (N/NA), (low) sociability, disinhibition, (dis)agreeableness, and rigid goal engagement. When all measures were co-factored, a hierarchical structure again emerged which, at the five-factor level, included (1) internalizing (N/NA and self-pathology vs. quality-of-life/satisfaction), (2) externalizing (social/interpersonal dysfunction, low sociability, and disagreeableness), (3) disinhibition, (4) poor basic functioning, and (5) rigid goal engagement. Results are discussed in terms of developing an integrated PD diagnostic model.

Keywords

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An alternative, dimensional model for personality disorder (PD) diagnosis appears in the *Diagnostic and Statistical Manual, Fifth Edition* (*DSM-5*; American Psychiatric Association [APA], 2013) with two primary criteria: (A) impairment in personality functioning and (B) pathological traits. The former is defined by self-functioning—identity and self-direction— and interpersonal functioning—empathy and intimacy, whereas the latter is represented by a hierarchical five-domain, 25-facet pathological-trait model. The former is to capture general personality dysfunction severity, and the latter provides information about personality style and trait levels. Personality functioning was introduced by the *DSM-5* model because we cannot define personality pathology based on trait elevation alone. Yet, as with any new model, this framework presents both great opportunity and significant theoretical and empirical challenges for reconceptualizing and assessing PD.

Theoretical and Empirical Challenges

Theoretical Challenges

Although personality functioning and traits are *conceptualized* as distinct aspects of personality pathology, *empirically* they have common elements. Thus, to harmonize our conceptualization of personality pathology with empirical reality, we must clarify the nature and degree of the overlap versus independence of its two primary components. For example, difficulty in developing and maintaining close interpersonal relationships is a feature of impaired capacity for intimacy, which is both a component of interpersonal dysfunction and of the trait domain of Detachment. A primary goal of the larger research project from which this article derives is to advance understanding of the nature and extent of overlap between these two PD components. The findings presented here are an initial step towards that goal.

A second theoretical challenge concerns the role of functioning—conceptualized more broadly to include psychosocial disability—in psychological disorder. This question has been debated virtually since the publication of *DSM-III*, in that it involves the definition of mental disorder. For example, in his *harmful dysfunction* conceptualization, Wakefield (e.g., 1992, 2008) distinguishes and emphasizes that both (a) *dysfunction* of an evolutionarily based (i.e., "innate") aspect of the person and (b) a social value judgment that the dysfunction is *harmful* are necessary to consider a condition a disorder. In contrast, the World Health Organization (WHO), in its International Classification of Diseases (WHO, 2008) and International Classification of Functioning (WHO, 2001), also distinguishes "disease" (cf. dysfunction) from "disability" (cf. harm), but considers disability to be a *consequence* of disease that is important in clinical decision-making, but that is *not* used to *define* disease, which it defines solely in terms of dysfunction, understood in essentially the same way as Wakefield.

In this context, it is important to note that the conceptual distinction between a disorder and its consequences is commonplace for physical disorders—for example, restriction of range of joint movement is considered an observable consequence of arthritis, not part of its definition per se—although it seems that Wakefield would not consider the condition a disorder unless the restricted movement caused "harm."[1] The Co-Chairs of the *DSM-5* Task Force grappled with these issues and revised the *DSM* definition of mental disorder from that in *DSM-IV*, clarifying that a mental disorder "reflects a dysfunction in the

psychological, biological, or developmental processes underlying mental functioning" and that they "are *usually* associated with significant distress or disability in social, occupational, or other important activities" (emphasis added, APA, 2013, p. 20), which reflects the WHO framework more clearly than does the *DSM-IV* definition but still does not clarify completely whether the associated psychosocial disability should be understood as a consequence, part of the definition, or possibly both depending on the disorder.

The lack of clarity in—or perhaps lack of consensus on—the *DSM-5*'s definition of mental disorder may account for the fact that most *DSM-5* disorders—including the PDs in Section II—still include what in *DSM-IV* came to be known as the clinical significance criterion: "The symptoms *cause* clinically significant distress or impairment in social, occupational, or other important areas of functioning" (emphasis added; e.g., see General Personality Disorder Criterion C, APA, 2013, p. 646), which conforms more closely to Wakefield's harmful dysfunction conceptualization than to the WHO's or *DSM-5*'s own definition. In stark contrast, the *DSM-5*, Section III alternative dimensional PD model does *not* include a clinical significance criterion, thus giving rise to the opportunity—and the challenge—of measuring disability distinct from functioning, and contributing to the debate regarding whether disability *should* be considered distinct from, or an element of, a diagnosis.

It now is generally agreed that extreme trait levels per se do not constitute personality disorder. Two decades ago, Livesley, Schroeder, Jackson, & Jang (1994) introduced the idea that an independent judgment of impairment is also required for PD diagnosis and, subsequently, a number of others have developed arguments along these same lines (e.g., Leising & Zimmerman, 2011; Parker et al., 2002, 2004, Tyrer, 2005; Widiger, Trull, Clarkin, Sanderson, & Costa, 2002; see Clark, 2007, for a discussion of those published before 2007). However, the proposals vary in the degree to which the impairment component is defined in terms of *consequences* (most clearly: Leising, Widiger) versus dysfunction *in* the individual (most clearly: Livesley, Parker, and *DSM-5*, Section III PD). This article's findings are relevant to this debate.

Empirical Challenges

Hand-in-glove with these theoretical challenges are empirical-measurement challenges: Conceptual understanding cannot advance beyond our ability to measure the relevant constructs (Loevinger, 1957; Tellegen & Waller, 2008). Over the last 2 decades, research on adaptive and maladaptive personality traits has converged on a general hierarchical model of personality traits composed of at least four higher order dimensions—Negative Affectivity/ Neuroticism versus Emotional Stability (NA/N), Detachment versus Extraversion (DET), Antagonism versus Agreeableness (ANT), and Disinhibition versus Constraint (DIS) (e.g., Widiger & Simonsen, 2005). Additional dimensions that have not yet attained full consensus include (1) Openness to Experience (O) and Psychoticism/Oddity (PSY), with the primary question being whether these are best considered two domains or one domain with subcomponents (DeYoung, Grazioplene, & Peterson, 2012; Watson, Clark, & Chmielewski, 2009); and (2) Honesty/Humility, a dimension that in the HEXACO model (Ashton & Lee,

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[1]This raises multiple interesting questions regarding the determination of the threshold for considering a limitation to constitute "harm," but these are beyond the scope of this paper.

2007) is distinct from ANT. Moreover, there is not yet consensus regarding the trait set that comprises the lower order facets. Advancing our measurement—and thus our understanding—of the higher and lower order dimensions of adaptive- and maladaptive-range personality traits is also a major goal of our broader research project, but is not a focus in this article.

Measurement of personality functioning/impairment lags considerably behind that of trait assessment. This is due, in part, to the fact that the concept of personality functioning is relatively novel, as is assessing PD in terms of the two prongs of personality functional impairment and traits. As noted earlier, the idea that PD diagnosis requires more than just pathological traits emerged in mainstream literature only 2 decades ago, and the vast majority of research has continued to be conducted in the *DSM*'s categorical PD model framework, which does not make clear distinctions—either conceptually or empirically—between personality functioning and traits. Moreover, to our knowledge there are only three self-report measures of personality functioning and no interview-based assessments. With the separation of personality functioning and traits in the alternative *DSM-5* PD model this situation surely will change; that is, new measures of personality functioning will be developed that will allow us to explore this construct and its relations with personality traits more fully. Meanwhile, this article presents an initial step in this direction by examining all three existing self-report instruments of personality functioning, both their interrelations and their relations with an extensive personality trait battery.

Distinguishing personality functioning from traits, however, is only one of two challenges in the measurement of overall functioning. The other is distinguishing personality functioning from other types of functioning, including quality of life/life satisfaction and daily functioning (vs. psychosocial disability). Several studies (besides those that explicitly used a measure of personality functioning) have tackled the challenge of assessing impairment independently of personality traits or style, but they either have used a measure that confounded traits, internal dysfunction, and disability (e.g., Hopwood et al., 2011, used the first principal component of all DSM-IV PD criteria) or have conceptualized impairment simply as disability. For example, Hill Harrington, Fudge, Rutter, and Pickles (1989) developed Adult Personality Functioning Assessment interview which, despite its title, assesses social dysfunction (work, interpersonal relationships); Mullins-Sweatt and Widiger (2010) used a battery of self-report measures of "personality-related problems in living" (p. 230); Skodol et al. (2005) used the Longitudinal Interval Follow-Up Evaluation; (Keller et al., 1987), an interview that assesses functioning in work, interpersonal relationships, and recreation; Ullrich, Farrington, and Coid (2007) developed a "standardized social interview" to assess "life success" (p. 657); Leising and Zimmerman (2011) compiled a list of consequences of disorder based on measures used in other studies as well as a literature review of a range of individual functioning measures (e.g., violence) and PD (Smith & Benjamin, 2002); and, most recently, Boudreaux, Piedmont, Sherman, and Ozer (2013) developed the Multi-Context Problems Checklist to assess personality-related problems in living. Thus, other than our own work, we are unaware of studies that have jointly and explicitly examined measures of personality impairment and its associated consequences.

Previously (Ro & Clark, 2009; Ro & Clark, 2013), we have shown that although the vast majority of self-reported functional outcome measures can be classified rationally into one

of three content categories—quality of life/life satisfaction, daily functioning (vs. psychosocial disability), and personality functioning—from an empirical structural perspective, these measures realign to form three broad dimensions: Low Well-Being includes measures of pathological self-functioning and most quality of life/life satisfaction measures, Poor Social/Interpersonal Functioning includes measures assessing the interpersonal area of poor personality functioning, and Poor Basic Functioning includes measures of psychosocial disability and the quality of one's environment. Since completing those studies, a third measure of personality functioning has appeared in the literature (i.e., General Assessment of Personality Disorder; Livesley, 2010), and in the current study we examine whether the previously obtained structure replicates when we include this additional measure.

Our data have indicated that although Poor Basic Functioning (i.e., Disability) can be distinguished from the two other dimensions of functioning (which aligned respectively with the two areas of personality functioning), it was sufficiently intercorrelated with these dimensions (*r*s ranged from .34 to .50) to suggest an overarching higher order factor of good-versus-poor functioning (the other two factors correlated .47 and .49 in both non-clinical and psychiatric outpatient samples, respectively). These results suggest that (1) it is reasonable to conceptualize "intrinsic" (i.e., personality) and "extrinsic" (i.e., disability) dysfunction as distinct, yet empirically correlated constructs, (2) personality dysfunction may serve as the dysfunctional component needed to diagnose PD in addition to elevated traits, and (3) psychosocial disability is a related, but perhaps not a necessary component of PD. Thus, as is often the case in long-standing debates, our data do not provide unequivocal support for either the WHO's clear distinction between the diagnosis and consequences of mental disorders or for Wakefield's conceptualization, which requires both dysfunction and harm to diagnose mental disorders; rather, they fall closest to the equivocal *DSM-5* definition of mental disorder. However, we have no illusions that this is the last word on the matter, and the current study is but another step in exploring the path to understanding relations among the various components of PD. What we add here is a joint analysis of an extensive battery of both self-report measures of traits and functioning of all three dimensions.

In sum, we present, in an independent sample from our previous studies, with a similar but not identical set of self-report measures, new data regarding the nature and extent of relations among maladaptive traits, personality dysfunction, and psychosocial disability, with the goal of further clarifying and extending our understanding of the nature and degree of conceptual and empirical overlap among these three domains. In addition, another primary goal of the larger research project is to identify a set of measures to assess the key constructs of personality disorder that will be clinically useful; that is, are sufficiently brief that they can be completed as part of routine clinical assessment. This article also presents data relevant to that goal.

Method

Participants and Procedure

All study procedures were approved by the Institutional Review Board of the University of Notre Dame. Participants were drawn from two populations: 150 community adults not currently in mental-health treatment and 252 psychiatric outpatients[2]. Some patients were referred from a community mental health center and local practitioners; other patients and community adults were recruited using listservs, newsletters, and mass emails sent to University of Notre Dame staff, faculty, and graduate students, as well as by word of mouth. All participants came to the research facility of the Center for Advanced Measurement of Personality and Psychopathology (CAMPP) and gave written informed consent before beginning the study. The vast majority completed the questionnaires alone on a computer; the rest were assisted by a team member, because of unfamiliarity with computers, poor eyesight, or other reason.

Demographics—Mean age was 42.2 years (*SD* = 13.0; range = 18–69) with no difference between the subsamples. The community sample had a significantly larger percentage of women (75.3% vs. 58.3%; 64.7% overall) and racial/ethnic minorities (56.0 vs. 34.5%; 42.5% overall), with Black/African-American being the largest minority group (45.3% of the community and 25.0% of the patient subsamples; 32.6% overall). The modal participant had a high school education (31.3% of the community, 43.0% of the patient subsamples; 38.7% overall), with a greater percentage of the community than patient subsample having at least a college degree (38% vs. 21.5%). Half (50.3%) the community and 84.4% of the patient subsamples had a family income less than $30,000. The modal community participant was married or living with a partner (47.3% vs. 24.6% of patients; 25.2% overall), whereas the modal patient was single (42.9% vs. 36% of community participants; 40.3% overall).

Measures

The self-report battery used in this study comprised 14 instruments. To enable using such an extensive measure set, and also to ensure that the measures assessed reliable and structurally valid constructs, we used replicated factor analysis as a data reduction technique for seven of the functioning measures. We used the personality trait measures in their original forms because self-reported personality trait structure has been thoroughly studied over the past half-century or more and is well established, whereas consideration of the structure of self-reported functioning is new (see Ro & Clark, 2009). The structure of all the revised measures was replicated in four samples: the two reported on in Ro and Clark (2013; see this article for further methodological detail), that used in this article, and a fourth sample (*n* = 277) composed of 103 patients who also were part of this article's sample and 174 new community adults who were screened in for being at high risk for PD. When samples were drawn from two populations (as in the fourth sample), the data from each sub-sample were standardized within sample before being combined for analysis.

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[2]Data were collected from 406 participants, but four participants were dropped due to completing less than 75% of the battery.

Measures of personality functioning—The self and interpersonal functional domains were assessed with three measures, two of which had only two subscales. See Table 1 for descriptive statistics of all measures.

General Assessment Personality Disorder (GAPD; Livesley, 2010): The 83-item GAPD contains 15 subscales to assess Self Pathology and four to assess Interpersonal Pathology. Items are rated on a 5-point Likert-type scale (very unlike me—very like me). However, scale-level factor analysis indicated a maximum of two factors, and subsequent analyses indicated that almost all the variance of these factors was captured by a 15-item Self-pathology (e.g., wonder who real me is, powerless to influence what happens to me) and an 11-item Interpersonal-pathology (e.g., no close relationships, don't work to cooperate with people) scale, which we used in all analyses.

Measure of Disordered Personality Functioning (MDPF; Parker et al., 2004): We administered the same 30-item version of this measure that we did previously (Ro & Clark, 2013), and retained two scales (22 items) that represent the core of Parker's Non-coping (e.g., fail more often than succeed, cope poorly) and Non-cooperativeness (e.g., can be difficult in dealing with others vs. nice, good-hearted, caring) scales; that is, they correlate with each other similarly to Parker's original scales (in the .36–.40 range) but are less broad and thus have higher reliabilities. The MDPF uses a 4-point Likert-type format (definitely false—definitely true) and a general time frame.

Severity Indices of Personality Problems-Short Form (SIPP; Verheul et al., 2008): We reduced the 60-item SIPP-Short Form to 44 items via replicated factor analysis, to assess Self- (Identity [e.g., confused about kind of person I am]) and Interpersonal- (Relationships [e.g., hard to show affection], Social Concordance [e.g., hard to control aggression towards others], and Responsibility [e.g., not as reliable as should be]) pathology. The measure uses a 4-point Likert scale (fully agree—fully disagree) with a past-3-months time frame.

Measures of daily functioning/psychosocial disability—This domain includes six scales from three measures.

Social Functioning Questionnaire (SFQ; Tyrer et al., 2005): We used this 8-item measure to assess general social functioning (e.g., interpersonal relations, finances, leisure activity). It uses a past-2-weeks time frame, and a 4-point Likert-type scale, with scale points adjusted as needed for the items' content (e.g., severe problems—no problems; most of the time—not at all).

WHO Disability Assessment Scale–II (WHODAS; WHO, 1988): The 36-item self-report version of the WHODAS-II (WHO, 1988) was completed in its original form per copyright agreement, but we used 26 items to score four factor-based scales for analyses assessing impairment in: Communication/Interpersonal Skills (e.g., difficulty starting/maintaining conversation, making friends), Basic Life Activities (e.g., self-care, mobility), Household Responsibilities (difficulty doing quickly and well), and Difficulties due to Health (e.g., financial drain, affected emotionally). Participants rate their degree of difficulty performing

each behavior in the past month using a 5-point Likert-type scale, ranging from None to Extreme/Cannot do.

The Medical Outcomes Study 36-item Short Form (SF-36) (Ware & Sherbourne, 1992): We used the 30 specific items of this widely used measure to score two factor-based scales, Physical (e.g., limited walking/bending/stairs; pain interferes with work) and Emotional (e.g., blue, nervous, accomplish less vs. happy, full of energy) Limitations. Item format is Likert-type with either a past 4 weeks or general time frame. The number of points varies as needed for the items' content, but all are converted to a common 0–100-point scale for analysis.

Measures of quality of life/life satisfaction—For all measures, higher scores indicate greater quality of life/satisfaction.

WHO Quality of Life-Brief Form (WHOQOL-BREF; Bonomi, Patrick, Bushnell, & Martin, 2000; WHOQOL Group, 1998): This 26-item measure was completed in its original form per copyright agreement, but we used 20 items to score three factor-based scales: General Satisfaction (e.g., extent to which feel life is meaningful), satisfaction with Health (general, psychological, and physical) and Environment (e.g., satisfaction with health services access, information availability). It uses a past-2-weeks time frame and a 5-point Likert-type format, with scale points adjusted per the items' content (e.g., completely—not at all; always—never).

Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985): This widely used five-item measure uses a 7-point Likert format and a general time frame.

Psychological Well Being (PWB; Ryff & Singer, 1996): We reduced this 54-item measure to 26 items via replicated factor analysis to assess three functional domains—Life-and-Self Satisfaction (e.g., pleased how things have turned out in my life), Autonomy (e.g., change decisions if friends/family disagree [reverse keyed]), and Actualization (e.g., life is continuous process of change/growth). The measure uses a 6-point Likert format (strongly disagree—strongly agree) with a general time frame.

Measures of personality traits—This domain included 34 scales from five measures.

Schedule for Nonadaptive and Adaptive Personality, 2nd Edition (SNAP, Clark, Simms, Wu, & Casillas, in press): The SNAP-2 is a factor analytically derived T-F format measure that assesses personality traits across the normal—abnormal range. Its 15 scales form three broad higher order dimensions: Negative Affectivity (NA), Positive Affectivity (vs. Detachment [DET]), and Disinhibition (vs. Constraint [DvC]).

Temperament and Character Inventory-140 (TCI, Cloninger, 1999): This short form of the widely used TCI assesses four temperament (Harm Avoidance, Novelty Seeking, Reward Dependence, Persistence) and three character (Self- Directedness, Cooperation, and Self-transcendence) traits using a 5-point Likert-type format (definitely false—definitely true).

Zuckerman-Kuhlman Personality Questionnaire-50 (ZKPQ; Aluja et al., 2006): This T-F format 50-item version assesses the "alternative" Five-Factor Model (FFM): Neuroticism-Anxiety, Sociability, Activity, Aggression-Hostility, and Impulsive Sensation Seeking.

International Personality Item Pool FFM facets (IPIP-FFM; Goldberg et al., 2006): We used the IPIP to assess five FFM facets that were not tapped by other measures: Immoderation (Negative Urgency), Excitement-seeking, Altruism, Tendermindedness, and Orderliness. Each scale had 10 items in a 5-point Likert format (strongly disagree—strongly agree).

Dimensional Assessment of Personality Pathology (DAPP; Livesley & Jackson, 2010): We used the Insecure Attachment and Intimacy Problems scales from the DAPP to assess two traits that were not covered otherwise. Each scale had 16 items in a 5-point Likert format.

Data Analytic Strategy

Preliminary analyses: Missing data and subsample differences—For the 402 participants who completed at least 75% of the battery, we used SAS PROC MI—which includes a random error component so as not to yield data that are more systematic than the actual data—to multiply impute missing data at the item level if participants were missing < 20% of items for a given measure. Otherwise, we multiply imputed data at the scale level.

All measures were tested for significant subsample mean differences. Using alpha level $p <$ .01 due to the large number of comparisons, outpatient means were higher on all scales except SNAP Exhibitionism and Propriety; ZKPQ-50 Activity, and IPIP-FFM Excitement Seeking, Orderliness, and Tendermindedness. Therefore, to control for level differences, all scale items and means were standardized within subsample prior to further analyses.

Primary data analyses—First, we examined the structure of functioning by factor analyzing the more traditional (i.e., psychosocial disability and quality of life/satisfaction) and personality functioning measures together, hypothesizing that the same three factors we found in our previous work would emerge. Second, we examined the personality trait measures' factor structure; and third, we jointly factor analyzed the functioning and trait measures to determine the overall structure of the personality-relevant domains of traits and functioning. In all cases, we conducted an exploratory factor analysis (EFA), specifically a principal-factors analysis (PFA) with varimax rotation. We used EFA (vs. CFA) because concerns have been raised regarding CFA (e.g., Hopwood & Donnellan, 2010) when the models being examined—as in this case—are rather complex (e.g., involving cross-loadings among lower order scales), given that simple CFA models only fit simple structure well. We used PFA (vs. PCA) to examine the latent factors underlying the observed scores (vs. the structure of the observed scores themselves), and we used varimax rotation because oblique rotations require the additional specification of power, which sets the angle of the axes, and we had no non-arbitrary, a priori, theoretical or empirical bases on which to determine the angles. Nevertheless, solely for the purposes of considering how correlated the factors' might be, we also ran promax rotations with the default power=3.

To determine the number of factors to extract, we considered (1) the maximum number indicated by (a) parallel analysis, applying O'Connor's SAS program to permutations of the original data set https://people.ok.ubc.ca/brioconn/nfactors/nfactors.html), which preserves the distributions of the original variables exactly and yields results that O'Connor stated were "highly accurate and most relevant," (b) the Kaiser criterion, and (c) the point at which the common variance was exhausted, as well as (2) the point of the "elbow" in the scree plot. If more than one solution was plausible per these indices, we ran multiple analyses and ultimately chose the number of factors to extract on the basis of general theoretical and empirical issues (e.g., the FFM's robustness), and rational considerations, such as interpretability of the factors.

In addition to the goal of furthering our understanding of the structure of functioning and its relations with personality traits when both are measured via self-report questionnaires, we also aimed to replicate these structures with a small set of measures that might be used in a clinical setting. Thus, in a final analysis we calculated the congruence between a single measure from each factor and factor scores derived from the full measure set minus those scales, to determine the extent to which single measures reflected the broad dimensions.

Results

Preliminary analyses: Psychometrics

Table 1 provides means and standard deviations of all measures by subsample, and internal consistency indices (alpha coefficients and average interitem correlations) for the whole sample, with the items first standardized within subsample. Median alpha was .85 (range = .59 to .95), with similar mean values across the 4 domains (range = .81 for personality traits to .91 for basic functioning scales). Moreover, the alpha of only one functioning and trait scale fell below .70. Mean average interitem correlation (AIC) was .27 (range = .12 to .83); functioning measures generally were narrower than personality trait scales (mean AICs = .46, .23; ranges = .19–.83, .12–.39, respectively) due, at least in part, to the fact that most were short forms. Nevertheless, for both types of scales, most AICs fell in the recommended range (.15 to .50; Clark & Watson, 1995). Thus, overall, the measures had strong psychometric properties.

Structure of Psychosocial Functioning

A PFA with varimax rotation was run using the seven daily functioning/psychosocial disability scales, seven quality-of-life/satisfaction scales, and eight personality functioning scales. The scree revealed a large general factor with three smaller, but still substantial, factors (accounting for 76%, 14%, 7%, and 4% of the common variance, respectively); extracting more factors exceeded the common variance. Parallel analysis indicated a maximum of three factors. As we had found a three-factor structure in our previous work (Ro & Clark, 2013) with an overlapping, though not identical, set of measures, we extracted three factors.

As shown in Table 2, the first two factors were marked by the quality-of-life/satisfaction and personality-functioning measures. Specifically, all five interpersonal (personality)

functioning measures loaded strongly (≥.59) on the first factor, with one (SIPP Responsibility) having a secondary loading of −.39 on the second factor. Five of the seven quality-of-life/satisfaction measures and the SFQ, a very broad and general functioning measure, had their strongest loadings on the second factor (the exceptions were PWB Actualization which loaded more strongly on the first, interpersonal factor and WHOQOL Health Satisfaction, which loaded on the third factor). Importantly, the three self-functioning measures all split across the first two factors, with SIPP Identity loading most strongly on the second factor, GAPD Self Pathology loading somewhat more strongly on the first factor, and MDPF Non-coping splitting fairly evenly between the two factors. Thus, the first factor, which we previously termed Poor Social/Interpersonal Functioning, reflects not only negative experiences with and feelings toward others, but also the tendency to have identity issues, perhaps reflecting poor self-other boundaries; thus, it is more accurate to say it taps dysfunction of "self in relation to others," but given the cumbersomeness of this phrase, we kept our original term.

The second factor, which we previously termed Low Well-Being, represented the tendency to be satisfied with one's life versus to experience problems in living related to a weak sense of self and of agency, poor coping skills, and self-perceived inherent flaws. To reflect more clearly that the factor encompasses both the more traditional functioning dimension of quality-of-life/satisfaction and the more recently recognized dimension of self (dys)function, and to emphasize the dimension's bipolarity, we expanded this label to "Well-Being versus Self Pathology." Finally, the third factor comprised measures assessing limitations due to physical health problems and difficulty with basic life activities and household chores, for which we retained our label Poor Basic Functioning. Not surprisingly, (low) WHOQOL Health Satisfaction and MOS SF-36 Emotional Limitations factors both had strong secondary loadings on this factor, as did WHODAS Communication (its primary loading was on Poor Social/Interpersonal Functioning).

To examine the degree of interrelations among the three functioning factors, we ran a promax rotation with default power=3. Well-Being versus Self Pathology correlated −.62 with Poor Social/Interpersonal Functioning, and −.45 with Poor Basic Functioning, which correlated .28 with Poor Social/Interpersonal Functioning. Thus, Poor Basic Functioning appears to be reflected somewhat more in dissatisfaction with oneself and life in general than specifically in one's interpersonal relations. Moreover, the first two factors being so strongly correlated provides support for the alternative *DSM-5* PD model, which considers impairment in self- and interpersonal functioning to be aspects of a broad, higher order dimension of personality functioning. In addition, the fact that the second factor encompasses both general life satisfaction/well-being and self pathology suggests that—at least when assessed via self-report questionnaires—the conceptualization of both these factors needs to be broadened to reflect their close interrelation. We discuss this further subsequently.

Structure of Personality

The scree plot from a PFA with varimax rotation of the 34 personality scales suggested a four-factor solution (the first 10 eigenvalues were 8.8, 4.6, 2.55, 1.99, 1.0, 0.74, 0.66, 0.48,

0.42, and 0.29), the Kaiser criterion and a parallel analysis both indicated a maximum of five factors, and six factors exhausted the common variance. Given the prominence of the FFM, but also the fact that the trait set did not include multiple markers of either Openness or Psychoticism[3], such that only four of the FFM dimensions were well represented in the measure set, we examined both the four- and five-factor solutions. The four-factor solution yielded a mixed Sociability/Agreeableness factor that split apart in the five-factor solution, so we chose to present the latter, shown in Table 3 (see Supplemental Table S1 for the four-factor solution).

The first factor clearly represents Neuroticism/Negative Affectivity (N/NA), marked most strongly and clearly by ZKPQ Negative Emotionality-Anxiousness and SNAP Negative Temperament versus TCI Self-directedness. The second factor taps Disinhibition, marked most strongly and cleanly by TCI Novelty Seeking, ZKPQ Impulsive Sensation-seeking, and SNAP Disinhibition (non-overlapping version) and Impulsivity. The third factor, Agreeableness versus Antagonism, was most strongly and clearly marked by TCI Cooperativeness and IPIP-FFM Sympathy and Altruism versus SNAP Aggression and ZKPQ Aggression-Hostility. Sociability versus Detachment (i.e., Extraversion) was the fourth factor, most clearly and strongly marked by ZKPQ Sociability and SNAP Exhibitionism versus SNAP Detachment. It is noteworthy that this factor was more strongly characterized by scales reflecting Extraversion's Social/Interpersonal aspect than its Positive Emotionality component, a point we discuss further later. Because of this, we refer to the factor as Sociability/Detachment rather than Extraversion. TCI Reward Dependence split across the Agreeableness and Sociability factors.

The fifth factor, which we termed Rigid Goal Engagement, was marked most strongly and clearly by TCI Persistence, SNAP Workaholism and Propriety, ZKPQ Activity, and TCI Self-transcendence. SNAP Positive Temperament split across this factor and Sociability. A similar factor has been considered to reflect agentic positive emotionality (Tellegen & Waller, 2008), and also sometimes emerges as the opposite of Disinhibition (e.g., Dindo, McDade-Montez, Clark, Sharma, & Watson, 2009). In these data, however, when we ran a promax rotation with default power=3 to examine the degree of interrelation of the factors, it was the only factor that was at most only modestly correlated with the other factors (*Mean r* = |.13|, range = |.01| to |.30|). Except for a .05 correlation between Disinhibition and Sociability/Detachment, the other factors otherwise were moderately intercorrelated (range = |.32| to |.46|, *M* = |.37|), with two scale pairs correlating > .40: N/NA correlated −.46 with Sociability vs. Detachment, and Agreeableness correlated −.46 with Disinhibition.

To some extent, the scales' interrelations may reflect a common, undifferentiated psychopathology factor, so the low correlations with Rigid Goal Engagement (and between Sociability/Detachment and Disinhibition) suggest the possibility of a suppressor effect (see Watson, Clark, Chmielewski, & Kotov, 2013). That is, the scales with low correlations may contain both variance that is positively related (i.e., undifferentiated, general

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[3]A reviewer questioned the lack of inclusion of multiple markers of Openness/Psychoticism, given the inclusion of Psychoticism in the alternative *DSM-5* PD model. The answer is simply that the study was designed well before the *DSM-5* model was even proposed, and was begun early in the *DSM-5* model's development. Given the already extensive protocol, it was not possible to add measures.

psychopathology) and variance that is negatively related (e.g., Persistence is the opposite of Impulsivity; Workaholism is opposite to Sociability).

Personality Traits—Functioning Relations

We next examined the interrelations of functioning and personality traits. Based on our prior work with a much smaller set of trait scales (Ro & Clark, 2013), we anticipated that functioning scales marking the first two functioning dimensions would form factors jointly with personality traits. Specifically, we hypothesized that (1) scales marking Well-Being versus Self Pathology would factor with trait scales marking N/NA and Sociability/ Detachment, and (2) the scales of Poor Social/Interpersonal Functioning would load with those of Agreeableness/Antagonism and Disinhibition. We also hypothesized that (3) measures of Poor Basic Functioning would interrelate negatively with Rigid Goal Engagement traits. Given that the measures derive from two conceptually distinct domains that have been studied very little together, that traits have a well-established hierarchical structure (Markon, Krueger, & Watson, 2005), and that the functioning factors, being interrelated, also may reflect aspects of a higher order factor, we also thought it would informative to examine how these two scale sets overlap at different hierarchical levels.

The scree plot suggested five-to-seven factors and the Kaiser criterion a maximum of seven factors. The seventh factor was marked by only two variables and, given the large number of variables (54), the two- and three-factor solutions were so broad they were difficult to interpret, so we focus primarily on the four- through six-factor solutions. The five-factor solution is shown in Table 4 and the two-, three, four, and six-factor solutions are provided in Supplemental Tables S2a–S2d. The two-factor solution reflected, broadly speaking, Internalizing functioning and traits, including traits marking N/NA versus PA/E and Well being/ Positive functioning versus low basic and self functioning (e.g., TCI Harm Avoidance, SIPP Identity, MDPF Non-coping vs. PWB Life-and-Self Satisfaction, SNAP Positive Temperament, WHOQOL Health) for the first factor, and Externalizing traits, including both Disinhibition and Agreeableness/Antagonism (e.g., SNAP Disinhibition vs. TCI Cooperativeness) with only two functioning scales (SIPP Social Concordance and Responsibility) for the second. In the three-factor solution, the second factor of the two-factor solution (all trait scales, except for SIPP Social Concordance) formed the second factor, whereas the large Internalizing factor split into a bipolar factor with positive traits (e.g., TCI Persistence, IPIP FFM Altruism) on one end and Interpersonal (Personality) Dysfunction on the other, and a large Internalizing factor characterized by N/NA and the remaining functioning measures.

In the four-factor solution, clearer factors began to emerge: The first factor was formed from functioning scales marking Well-Being versus Self Pathology and Poor Basic Functioning, respectively, and trait scales reflecting N/NA. Functioning scales marking Poor Social/ Interpersonal Functioning and trait measures of Agreeableness and Sociability comprised the second factor, whereas the third and fourth factors were formed, respectively, from traits of the Disinhibition and Goal-Engagement factors. Thus, the first two factors blended functioning and personality-trait scales, whereas the latter two were, respectively, a pure personality-trait factor and (mostly) functioning factor.

At the five-factor level, the first, second, and fourth factors remained largely the same, whereas the third factor broke into a more focused disinhibition trait factor and another trait factor that was loaded most strongly with two scales each from the previous second and fourth factors that reflected rigidity (e.g., SNAP Propriety) and goal engagement (e.g., TCI Persistence) along with the positive, unusual perceptivity content from the third factor. Thus, the first two factors now resembled the first two functioning factors, but integrated with relevant personality traits. Specifically, the N/NA traits factored with the Well-Being/Self-Pathology scales, forming a broad Internalizing factor, and the Sociability and Agreeableness/Antagonism trait scales factored with the functioning scales that mark Poor Social/Interpersonal Functioning, thus forming a broad Externalizing factor. Interestingly, in this solution, the trait scales marked four factors in almost exactly the same way as they did in the four-factor structure of just the personality traits (i.e., without the functioning variables; see Supplemental Table S1), suggesting that poor interpersonal functioning is a broad dimension that encompasses different types of maladaptive behavior, including both detached/mistrustful behavior and antagonistic behavior. Thus, when interpersonal functioning measures were included in the analysis, they helped to "pull together" the two trait-based interpersonal factors of detachment and antagonism, whereas when the traits were factored on their own and a fifth factor extracted, these two traits separated from each other.

In this five-factor solution, therefore, two of our hypotheses were supported: Scales marking Well-Being versus Self Pathology factored with trait scales marking N/NA, and the scales of Poor Social/Interpersonal Functioning loaded with those of Agreeableness/Antagonism. However, it is interesting that there are notable cross loadings in both directions, against suggesting that these are correlated facets of a higher order factor. Moreover, contrary to our expectation, traits marking Sociability/Detachment loaded with the latter interpersonal factor rather than the former internalizing factor, most likely because (1) as mentioned earlier, in this measure set the scales marking the Sociability/Detachment factor emphasize the interpersonal aspect of Extraversion rather than the positive emotionality component and (2) the interpersonal functioning measures brought the two most interpersonally relevant traits together, despite their behavioral differences.

Moreover, again contrary to our expectations, Disinhibition formed its own factor rather than loading with Poor Social/Interpersonal Functioning. Moreover, Rigid Goal Engagement and Poor Basic Functioning each formed their own factors rather than loading on the same factor. This latter finding differed from our previous results, in which we found that the single trait measure of FFM Conscientiousness (Ro & Clark, 2013) related to basic functioning. Further research is needed to explicate exactly what it is about FFM Conscientiousness versus our Rigid Goal Engagement factor that leads to these different results. In the six-factor solution, the scales of the five-factor solution's first two factors realigned themselves into three factors with multiple cross loadings that were difficult to interpret and thus appeared to be overextracted.

Thus, the five-factor solution seemed to be the best representation of interrelations between the two domains. Specifically, the functioning and trait scales jointly formed two factors that appear largely to reflect Internalizing and Externalizing/Poor interpersonal relationships,

whereas Poor Basic Functioning and two other trait factors—Disinhibition and Rigid Goal Engagement—formed independent dimensions.

Factor Replication with Selected Measures

As mentioned, a second primary goal of this research project is to identify a clinically useful set of measures to assess the key PD constructs, specifically a battery that is brief enough to complete as part of routine clinical assessment. We first identified the "best" marker of each factor, considering both psychometric (e.g., internal consistency, convergent and discriminant validity) and "practical" factors (e.g., scale length, ease of scoring and availability). The five markers we chose were from PWB, IPIP, ZKPQ, WHOQOL, and SNAP. We then re-ran the factor analysis shown in Table 4 after removing these scales and correlated the factors derived from the full and reduced measure sets to ensure that the factor structure had not changed as a result of removing the strongest marker scales. The correlations between corresponding factor scores ranged from .91 to .99 (*Mdn* = .96), indicating virtually no change in the factors.

We then correlated the selected scales with the two sets of five factor scores—those calculated with and without the marker scales included. As can be seen in Table 5, the part-whole correlations between the scales and their corresponding factor scores, not surprisingly, were quite strong, ranging from |.71| to |.90| (*M* = |.81|); the independent correlations were also strong, although naturally somewhat less so, ranging from |.60| to |.80| (*M* = |.69|). Thus, it may be possible to obtain an approximate measure of the five factors with only 76 items—one-tenth of the total items in our full battery. We word this cautiously because it is unknown whether—and, if so, how—what the scales assess would change if they were administered independently rather than as part of a larger battery. Additional practical issues, such as whether the measures' owners would consent to their scales being used in this way also need to be addressed.[4]

Discussion

This is the third independent sample in which we have replicated the three-factor structure of self-reported functioning, using overlapping—but not identical—sets of measures. Strengths of these studies are that the samples generally were large and taken together included students, community adults, and patients, and that the measure sets were extensive, so this self-report structure is robust and, we believe, now well-established. Therefore, we are on solid ground for exploring the implications of our results for understanding personality, functioning, and psychopathology. First, although personality functioning is a newer construct in the literature—compared to basic life activities and quality-of-life/satisfaction—it clearly belongs in this domain, as evidenced by its strong overlap with the latter. Thus, these data suggest that we need both to broaden our conceptualization of

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[4]For research purposes, more robust measures of the factors may be desirable, so we also identified a reduced set of 26 measures (fewer than half the full battery) with which we were able to replicate the five-factor structure with high fidelity (e.g., convergent correlations with factors scores based on the full battery ranged from .90 to .97). The five-factor solution using this reduced measure set is shown in Supplemental Table 3. It seems likely that other carefully chosen scale combinations also will be able to yield the factors, which is important because our analyses include scales that may not, by copyright, be given separated from the parent measure.

functioning to incorporate personality functioning and also to revise it to reflect empirically derived dimensions rather than content areas.

More specifically, when personality functioning entered the literature, the field tended to draw a broad line between the two traditional areas of functioning (i.e., quality-of-life/ satisfaction and impairment in life activities) and personality functioning was a third area with the two subdomains of self and interpersonal functioning. In contrast, however, our data indicate that the primary division is between functioning in basic life activities on the one hand, and quality-of-life/satisfaction and personality functioning on the other. Indeed, if only two factors are extracted, the first factor contains the quality-of-life/satisfaction and all the personality functioning measures, whereas the WHODAS and MOS SF-36 scales form the second factor. When a third factor is extracted, the first large factor splits, *not* into a quality-of-life/satisfaction factor and a personality functioning factor but, instead, into correlated dimensions of quality-of-life/satisfaction vs. self-pathology and one that reflects impairment in how one functions in social and interpersonal relations. We interpret this to mean that quality-of-life/satisfaction is part and parcel of self functioning and, given their correlation, that self and interpersonal functioning are both facets of a broader, higher order personality functioning factor that encompasses quality-of-life/satisfaction.

It is important to consider these data in the context of the *DSM-5* Section III alternative dimensional PD model which requires both personality pathology (self or interpersonal) and maladaptive traits for diagnosis. First, our data lend support to the decision of the *DSM-5* Personality and Personality Disorder Work Group to allow Criterion A (impairment in personality functioning) to be met with any combination of two of its four subareas. That is, a person need not exhibit both self and interpersonal dysfunction; rather, for example, impairment in both aspects of self functioning (i.e., identity and self-direction) is sufficient. Given the strong correlation between self and interpersonal functioning, "above threshold" dysfunction in one domain typically will be associated with at least some dysfunction in the other, so *requiring* that both be present may be unnecessary.

Second, our data suggest that if individuals' pathological traits are in the Negative Affectivity, Detachment, or Antagonism domains, there is a high likelihood that they also will have impairment in personality functioning, but that that may be less true in the case of Disinhibition (and, as noted earlier, our dataset contained too few markers of Psychoticism to consider that domain here). On the other hand, in the structure of personality traits alone, disinhibition and antagonism form a common dimension at the three-factor level (e.g., Markon, Krueger, & Watson, 2005). Thus, interesting avenues for future research are (1) to examine differences between individuals who are similarly high in trait disinhibition, but differ in whether they exhibit impairment in personality functioning and (2) to determine whether individuals high in disinhibition but not other maladaptive traits meet criteria for PD less frequently than those who have high levels of only one of the other trait domains.

Limitations of the study include that all measures were self-report, so it will be important to determine whether others' views of the different aspects of functioning are similarly structured. A difficulty here is recruiting informants to complete a sufficiently large battery of measures for structural analyses but, fortunately, we do know that structure is seldom

different across different types of groups, including informants (e.g., Ready & Clark, 2002), so this is unlikely to be a major problem. However, there often are differences between self and informant reports in terms of trait levels and, presumably therefore, also functioning levels, but the latter has not been established, at least for personality functioning, so these differences do need to be examined. We currently are collecting data to address this issue.

In addition to informants' perspective, it will be important to examine trait–functioning relations from a clinical perspective.[5] Specifically, the functioning measures we used are all context neutral, whereas real-life functioning is always context specific in at least two different ways: the environment per se and individuals' trait levels. Moreover, these two contexts are likely to serve not only as main effects, but also as interactions in the degree and manner that they affect functioning. Future research is needed to determine first whether it is possible to develop trait-sensitive measures of functioning. That is, our participants all responded to all functioning measures, regardless of their trait levels, but there may be ways of assessing functioning that only make sense if one is high in NA or ANT, respectively. One can see the relevance of this issue most clearly in our data in examining the second factor when all functioning and trait measures were factored together. It was extremely broad and encompassed both detachment/withdrawal from interpersonal relationships and aggressive behavior in interpersonal relationships—clearly distinct constructs. If we could develop measures of functioning that were differentially sensitive to distinct trait levels, then further research would be needed, second, to determine whether they would co-factor differentially with functioning measures that became relevant only if one had high levels of the traits, respectively.

Relatedly, we also need further research into the issue of the separability of traits and functioning. That is, it is conceptually sound to posit that different functioning levels are possible given the same trait level (i.e., that more than trait extremity is needed for personality dysfunction), but this is not well supported using self-report assessments, at least for the domains of self-functioning/quality of life and interpersonal functioning. Thus, to confirm this conceptually appealing notion with regard to *DSM-5,* Section III criteria A and B, there remains the empirical challenge of showing that we can assess traits and functioning distinctly and reliably. In contrast, these data do support a trait-functioning distinction for measures of basic functioning/disability. However, this gets us back to the question of whether disability should be considered an integral, inherent aspect of a psychological diagnosis or represents a consequence that is important to consider in treatment planning, but not in diagnosis per se. Our leaning is toward the latter, but we acknowledge that the jury is still out on this issue.

Another limitation is that our data are all from a single time-point. Although personality traits are known to be relatively stable across time (e.g., Clark, 2009; Morey et al., 2012), less is known about the stability of functioning, although existing data suggest that it also is relatively stable (e.g., Gunderson et al., 2011; Seivewright, Tyrer, & Johnson, 2004; Skodol et al., 2005). Moreover, the interrelations of personality trait and functioning measures also

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[5]We are grateful to an anonymous reviewer for bringing this issue to our attention.

suggest stability, but the question needs further empirical research, which we currently are conducting.

In addition to informant, clinical, and longitudinal data, our results suggest other fruitful directions for future research. Recent studies have examined latent associations between symptom dimensions and psychosocial disability especially in the internalizing domain (e.g., Foley, Neale, Gardner, Pickles, & Kendler, 2003; Markon, 2010). Given the known interrelations of personality traits and psychological symptoms (e.g., Kotov, Gamez, Schmidt, & Watson, 2010), it will be important to expand such research to examine three-way relations among personality traits, functioning, and symptoms, with the goal of developing a comprehensive structural model of these conceptually distinct but empirically overlapping domains. For example, Internalizing and Externalizing are well-known symptom/behavioral dimensions that have strong personality trait correlates (e.g., NA and ANT/DIS, respectively), so it seems likely that there will be significant triadic relations among these domains.

Longitudinal data can provide information about not only stability but also the predictive validity of the observed personality/functioning domains. For example, are some dimensions more predictive of good or bad outcomes than others? If so, to what extent is it possible to intervene to change individuals' personality/functioning levels and thus affect outcomes? It also seems likely that there are specific relations between certain dimensions and different types of outcomes. For example, existing data make clear that substance use, pathological gambling, and related behaviors are most likely to be related to externalizing personality traits and functioning.

Finally, we demonstrated that it is possible to represent the three factors that are marked by both personality and functioning with reasonable adequacy (rs = .69 to .80) with only one measure for each factor. The two factors marked by only personality measures were represented less well by just one scale each (rs = .60–.64). Interestingly, although we did not consider this when selecting them, the five scales all came from different instruments: the PWB, IPIP, ZKPQ, WHOQOL, and SNAP, respectively. If the authors and publishers of these scales were to grant permission for researchers and clinicians to use the one scale from each of their instruments, the field could form a "standard" clinical battery for assessing the five personality-and-functioning dimensions. Researchers and clinicians then would have a common metric that could be used for a wide range of comparative purposes. For example, it could be used (1) to compare the relative validity of other measures, (2) as a standard outcome measure for treatment trials, (3) to assess the relative severity and provide personality-functioning profiles of research samples or individual cases, and so on.[6] We will continue to examine further the convergent and discriminant validity as well as other psychometric properties (e.g., temporal stability) and validity indices (e.g., with informant-based information) of these and other scales. An important issue will be to determine the limitations of relying on single scales to assess broad factors, because gains in parsimony inevitably decrease the richness of information that may be useful for clinical purposes. One

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[6] We acknowledge that we first heard a similar idea from Mark Zimmerman many years ago. Given the many changes in the field since then, perhaps it is an idea whose time finally has come.

possibility would be to use a relatively brief battery as a screening instrument and then to follow up with more extensive assessment in the domains most relevant for individual patients.

In conclusion, the field has progressed rapidly to converge on a consensual model of personality traits across the adaptive—maladaptive spectrum and to acknowledge the importance of personality—self and interpersonal—functioning in PD diagnosis. Further, whether one considers psychosocial disability to be an intrinsic element of PD diagnosis or a consequence of pathological personality functioning and traits, it is universally accepted as a central target of PD assessment and treatment. We have taken the next step and shown that whereas the domains of psychosocial functioning (both quality of life/satisfaction and disability), personality functioning, and personality traits are conceptually distinguishable, empirically they form an interrelated, hierarchical structure—at least in self-report. Deeper understanding of this structure, its components, and its generalizability to other modes of assessment is needed to shed light onto the processes by which pathological personality develops and is maintained, including both the biological underpinnings of personality and psychopathology, as well as the environmental/psychosocial forces that shape their development and behavioral expression which, in turn, will facilitate development of better treatments for those who suffer from the pain and difficulties of personality pathology.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgments

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Table 1

Descriptive Statistics for All Study Measures Grouped Rationally

Measure	Scale (# items)	Community Adults		Outpatients		Total Sample	
		Mean	SD	Mean	SD	alpha	AIC
	Personality Functioning						
GAPD	Self Pathology (15)	1.81	.65	2.78	.94	.93	.47
GAPD	Interpersonal pathology (11)	1.82	.55	2.32	.69	.81	.28
MDPF	Non-coping (12)	.69	.56	1.53	.74	.91	.46
MDPF	Non-cooperativeness (10)	.61	.42	.88	.51	.88	.42
SIPP	Identity (11)	1.43	.49	2.25	.73	.90	.45
SIPP	Relationships (9)	1.80	.53	2.37	.70	.85	.39
SIPP	Responsibility (9)	1.65	.56	2.30	.74	.89	.47
SIPP	Social Concordance (15)	1.51	.43	2.07	.63	.90	.38
	Quality of Life/Life Satisfaction[a]						
WHOQOL	General Satisfaction (9)	3.92	.71	3.02	.88	.89	.47
WHOQOL	*Health (4)*	*4.24*	*.75*	*3.28*	*1.03*	*.82*	*.53*
WHOQOL	Environment (7)	3.85	.71	3.24	.78	.81	.38
SWLS	5-item scale	4.68	1.41	3.21	1.64	.89	.62
PWB	*Life-and-Self Satisfaction (12)*	*4.61*	*1.02*	*3.25*	*1.22*	*.90*	*.43*
PWB	Autonomy (6)	4.43	.91	3.77	.93	.59	.19
PWB	Actualization (6)	5.05	.77	4.66	.95	.71	.29
	Daily Functioning/Psychosocial Disability Measures						
SFQ	8-item scale	1.73	.40	2.33	.59	.73	.25
WHODAS	Commun/Interpers (10)	.44	.53	1.22	.83	.92	.53
WHODAS	Basic Life Activities (6)	.35	.66	.81	.81	.91	.62
WHODAS	Household Responsibilities (4)	.72	.76	1.30	1.10	.95	.83
WHODAS	Diffic. due to Health (6)	.59	.67	1.63	.92	.90	.60
MOS SF-36	Physical Limitations (16)	81.6	26.0	60.0	29.8	.95	.54
MOS SF-36	Emotional Limitations (14)	72.2	19.5	45.2	22.6	.91	.42
	Personality Trait Scales						
SNAP	Negative Temperament (28)	49.0	9.5	61.4	10.3	.92	.29

Measure	Scale (# items)	Community Adults		Outpatients		Total Sample	
		Mean	SD	Mean	SD	alpha	AIC
SNAP	Mistrust (19)	52.8	11.5	63.9	13.0	.88	.28
SNAP	Manipulativeness (20)	47.5	8.7	53.5	12.2	.79	.16
SNAP	Aggression (20)	5.0	8.0	57.8	13.9	.84	.21
SNAP	Self-harm (16)	48.8	8.2	68.9	17.6	.85	.26
SNAP	Eccentric Perceptions (15)	49.4	10.0	58.7	12.9	.84	.26
SNAP	Dependency (18)	48.5	9.7	57.9	11.6	.77	.16
SNAP	Positive Temperament (27)	49.6	10.1	44.4	12.1	.89	.23
SNAP	Exhibitionism (16)	47.9	8.1	47.6	10.6	.80	.20
SNAP	Entitlement (16)	52.0	9.5	48.4	11.5	.79	.19
SNAP	Detachment (18)	48.3	9.2	56.9	11.7	.86	.25
SNAP	Disinhibition (35)	46.7	7.6	53.1	11.0	.83	.12
SNAP	Impulsivity (19)	46.0	7.0	51.9	10.6	.78	.16
SNAP	Propriety (20)	55.4	7.4	54.6	8.6	.78	.15
SNAP	*Workaholism (18)*	*51.9*	*9.7*	*55.4*	*10.5*	*.78*	*.16*
TCI	Harm Avoidance (20)	2.60	.61	3.31	.72	.88	.16
TCI	Novelty Seeking (20)	2.64	.44	2.89	.53	.76	.14
TCI	Reward Dependence (20)	3.56	.47	3.26	.57	.80	.17
TCI	Persistence (20)	3.60	.59	3.31	.69	.90	.31
TCI	Self- Directedness (20)	3.92	.59	3.14	.72	.89	.29
TCI	Cooperation (20)	4.00	.47	3.70	.59	.85	.22
TCI	Self-transcendence (16)	2.81	.68	3.01	.71	.85	.26
ZKPQ	Neuroticism-Anxiety (10)	.44	.26	.44	.28	.82	.31
ZKPQ	Sociability (10)	.34	.24	.48	.28	.72	.20
ZKPQ	Activity (10)	.31	.24	.43	.29	.75	.23
ZKPQ	Aggression-Hostility (10)	.24	.24	.58	.31	.75	.23
ZKPQ	*Impul. Sensation Seeking (10)*	*.55*	*.23*	*.37*	*.26*	*.77*	*.25*
IPIP-FFM	*Altruism (10)*	*3.05*	*.45*	*2.82*	*.54*	*.76*	*.25*
IPIP-FFM	Excitement Seeking (10)	1.58	.58	1.72	.75	.81	.30
IPIP-FFM	Negative Urgency (10)	1.86	.53	2.26	.69	.75	.23
IPIP-FFM	Orderliness (10)	2.61	.57	2.54	.61	.76	.24

Measure	Scale (# items)	Community Adults		Outpatients		Total Sample	
		Mean	SD	Mean	SD	alpha	AIC
IPIP-FFM	Sympathy (10)	2.73	.45	2.65	.54	.68	.17
DAPP	Intimacy Problems (16)	2.37	.67	2.90	.84	.91	.39
DAPP	Insecure Attachment (16)	2.07	.53	2.40	.77	.88	.31

Notes. Community adult *N* = 150; Outpatient *N* = 252. Scales in italics are marker scales for subsequently identified factors. See Table 6 and accompanying text.

[a] Higher scores indicate better functioning.

Patients scores indicate significantly worse functioning, *p* < .01, except for SNAP Exhibitionism and Propriety; ZKPQ-50 Activity, and IPIP Excitement Seeking, Orderliness, and Tendermindedness. AIC = Average interitem correlation; GAPD = General Assessment of Personality Disorder; MDPF = Measure of Disordered Personality Functioning; SIPP = Severity Indices of Personality Problems-Short Form; WHOQOL = WHO Quality of Life; SWLS = Satisfaction with Life Scale; PWB = Psychological Well-being; SFQ = Social Functioning Questionnaire; WHODAS = WHO Disability Assessment Schedule-II; Commun/Interper = Communication and Interpersonal Skills; MOS SF-36 = Medical Outcome Scale Short-Form 36; Diffic. = Difficulties; SNAP = Schedule for Nonadaptive and Adaptive Personality, 2nd Edition; TCI= Temperament and Character Inventory-140; ZKPQ= Zuckerman-Kuhlman Personality Questionnaire-50; IPIP = International Personality Item Pool; DAPP = Dimensional Assessment of Personality Pathology.

Table 2

Varimax Factor Loadings for All Functioning Variables

Measure	Scale	Poor Social Interpersonal Functioning	Well-Being versus Self Pathology	Poor Basic Functioning
GAPD	Interpersonal pathology	**.78**	−.26	−.12
SIPP	Social Concordance	**.72**	−.19	−.12
SIPP	Relations	**.70**	−.31	−.09
MDPF	Non-cooperativeness	**.61**	−.08	−.10
SIPP	Responsibility	**.59**	−.39	−.13
WHODAS	Communication	**.56**	−.30	**−.47**
PWB	Actualization	**−.56**	.28	.15
GAPD	Self pathology	**.68**	**−.53**	−.13
MDPF	Non-coping	**.63**	**−.59**	−.19
SIPP	Identity	**.57**	**−.67**	−.16
PWB	Life-and-Self Satisfaction	**−.51**	**.75**	.11
WHOQOL	General Satisfaction	−.30	**.78**	.28
SWLS	Total score	−.19	**.66**	.24
PWB	Autonomy	−.29	**.39**	−.09
SFQ	Total score	.35	**−.64**	−.36
MOS SF-36	Emotional Limitations[a]	−.28	**.63**	**.46**
WHOQOL	Environment Satisfaction[a]	−.19	**.48**	**.40**
MOS SF-36	Physical Limitations[a]	−.03	.12	**.84**
WHOQOL	Health Satisfaction	−.01	.27	**.83**
WHODAS	Household Responsibilities	.17	−.10	**−.60**
WHODAS	Difficulties due to Health	.09	−.33	**−.75**
WHODAS	Basic Life Activities	.25	.02	**−.76**

Notes.

[a]Higher scores indicate better functioning.

Factor 1 = Well-Being vs. Self pathology; Factor 2 = Poor Social/Interpersonal Functioning; Factor 3 = Poor Basic Functioning. Loadings > .40 are in **bold.** Scales are ordered to show cross-loading patterns clearly. PWB = Psychological Well-being; Communication = Communication/ Interpersonal Skills; WHOQOL = WHO Quality of Life; SWLS = Satisfaction with Life Scale; SFQ = Social Functioning Questionnaire; SIPP = Severity Indices of Personality Problems-Short Form; GAPD = General Assessment of Personality Disorder; MDPF = Measure of Disordered Personality Functioning; WHODAS = WHO Disability Assessment Schedule-II; MOS SF-36 = Medical Outcome Scale Short-Form 36.

Table 3

Varimax Factor Loadings for All Personality Trait Variables

Measure	Scale	N/NA	Disinhibition	Agreeableness	Sociability vs. Detach	Goal Engag.
ZKPQ	NE-Anxiousness	**.80**	.08	−.07	−.24	.02
SNAP	Negative Temperament	**.78**	.19	−.24	−.22	.05
TCI	Harm Avoidance	**.68**	−.13	−.05	**−.45**	−.30
SNAP	Self-harm	**.53**	.30	−.09	**−.40**	−.06
DAPP	Insecure Attachment	**.58**	.18	−.11	.12	.17
SNAP	Dependency	**.52**	.09	.00	.03	−.17
SNAP	Mistrust	**.50**	.19	−.34	−.30	.29
TCI	Self-directedness	**−.65**	−.35	.19	.38	.07
TCI	Novelty Seeking	.15	**.80**	−.12	.06	−.00
ZKPQ	Impulsive Sensation-seeking	.06	**.73**	−.07	.14	.28
SNAP	Disinhibition[a]	.23	**.72**	−.34	.04	−.06
SNAP	Impulsivity	.24	**.71**	−.21	−.13	−.15
IPIP-FFM	Excitement Seeking	−.05	**.66**	−.06	.25	.20
SNAP	Manipulativeness	.30	**.53**	−.36	.02	−.05
IPIP-FFM	Negative Urgency	.34	**.49**	.01	−.07	−.05
ZKPQ	Aggression-Hostility	**.40**	.30	**−.51**	.05	.02
SNAP	Aggression	.39	.25	**−.56**	−.03	−.05
TCI	Cooperativeness	−.29	−.22	**.78**	.21	.09
IPIP-FFM	Sympathy	.06	−.14	**.74**	.15	.08
IPIP-FFM	Altruism	−.11	−.12	**.70**	.30	.20
TCI	Reward Dependence	−.04	−.10	**.53**	**.64**	.04
ZKPQ	Sociability	−.22	.05	.11	**.72**	.02
SNAP	Exhibitionism	−.08	.32	−.09	**.59**	.21
DAPP	Intimacy Problems	−.02	−.05	−.33	**−.49**	−.10
SNAP	Detachment	.27	.00	−.29	**−.75**	−.06
SNAP	Positive Temperament	−.34	.14	.05	**.49**	**.59**
TCI	Persistence	−.20	−.04	.25	.23	**.70**
SNAP	Workaholism	.06	−.03	−.03	−.13	**.70**

Measure	Scale	N/NA	Disinhibition	Agreeableness	Sociability vs. Detach	Goal Engag.
SNAP	Propriety	.14	–.23	.10	.02	**.56**
ZKPQ	Activity	–.15	.11	–.02	.18	**.54**
TCI	Self-transcendence	.07	.18	.15	.07	**.53**
SNAP	Entitlement	–.04	.09	–.28	.37	**.45**
SNAP	Eccentric Perceptions	.32	.32	–.22	–.23	**.38**
IPIP-FFM	Orderliness	–.03	–.27	.18	.02	**.37**

Notes.

*
Highest loading for each variable.

All primary loadings, and secondary loadings > .40, are in **bold**. ZKPQ = Zuckerman-Kuhlmann Personality Questionnaire-50; SNAP = Schedule for Nonadaptive and Adaptive Personality, 2nd Edition; TCI = Temperament and Character Inventory-140; DAPP = Dimensional Assessment of Personality Pathology; IPIP-FFM = International Personality Item Pool-Five Factor Model; N/NA = Neuroticism/ Negative Affectivity; Detach = Detachment; . Engag. = Engagement.

Table 4

Varimax Factor Loadings of a Five-Factor PFA for All Functioning and Trait Scales

Measure	Scale	Internalizing	Intrprs Dysfx/Externalizing	Disinhibition	Basic Func.	Rigid Goal Engag.
SIPP	*Identity*	**.79**	.31	.12	−.22	−.07
ZKPQ	NE–Anxiousness	**.76**	.14	.10	−.19	.09
MDPF	*Non-coping*	**.75**	.38	.16	−.23	−.04
TCI	Harm Avoidance	**.75**	.24	−.19	−.18	−.23
SNAP	Negative Temperament	**.72**	.27	.25	−.12	.12
SNAP	Self-harm	**.64**	.23	.18	−.23	−.04
SFQ	*Total score*	**.60**	.23	.13	**−.42**	−.07
SIPP	*Responsibility*	**.53**	.26	**.44**	−.18	−.17
SNAP	Dependency	**.50**	−.04	.16	.09	−.13
DAPP	Insecure Attachment	**.47**	.01	.32	−.02	.23
SWLS	*Total score[a]*	**−.57**	−.13	.01	.34	.19
PWB	*Autonomy[a]*	**−.60**	.02	−.07	−.10	.09
MOS SF-36	Emotional Limitations[a]	**−.64**	−.11	−.06	**.52**	.08
WHOQOL	*General Satisfaction[a]*	**−.69**	−.20	−.04	.39	.14
TCI	Self-directedness[a]	**−.76**	−.31	−.29	.14	.04
PWB	Life-and-Self Satisfaction	**−.82**	−.29	−.07	.19	.12
GAPD	*Self pathology*	**.72**	**.41**	.23	−.17	.01
SNAP	Mistrust	**.46**	**.40**	.21	−.19	.32
GAPD	*Interpersonal pathology*	**.42**	**.71**	.16	−.12	−.14
SNAP	Detachment	**.48**	**.63**	−.20	−.06	−.03
SIPP	*Relations*	**.50**	**.61**	.06	−.09	.11
ZKPQ	Sociability[a]	**−.44**	**−.46**	.28	.05	.00
MDPF	Non-cooperativeness	.16	**.66**	.07	−.09	−.27
DAPP	Intimacy Problems	.09	**.53**	−.16	−.23	−.10
PWB	Actualization[a]	−.36	**−.50**	−.02	.17	.35
IPIP-FFM	Sympathy[a]	.09	**−.69**	−.25	.01	.09
IPIP-FFM	Altruism[a]	−.13	**−.76**	−.18	.07	.20

Measure	Scale	Internalizing	Intrprs Dysfx/Externalizing	Disinhibition	Basic Func.	Rigid Goal Engag.
TCI	Cooperativeness^a	−.23	**−.76**	−.35	.03	.07
TCI	Reward Dependence^a	−.19	**−.79**	.04	.10	.04
SNAP	Aggression	.23	**.46**	**.41**	−.08	.00
SIPP	Social Concordance	.38	**.55**	**.45**	−.11	.12
TCI	Novelty Seeking	.17	.05	**.76**	−.06	−.12
SNAP	Disinhibition^b	.18	.26	**.76**	−.06	−.06
ZKPQ	Impulsive Sensation-seeking	.06	−.03	**.71**	−.02	.25
IPIP-FFM	Excitement Seeking	−.02	−.07	**.66**	.18	.17
SNAP	Impulsivity	.28	.22	**.64**	−.16	−.16
SNAP	Manipulativeness	.24	.27	**.62**	−.03	−.04
SNAP	Exhibitionism	−.27	−.23	**.54**	.12	.18
ZKPQ	Aggression-Hostility	.22	.39	**.47**	−.08	.05
IPIP-FFM	Negative Urgency	.37	−.01	**.45**	−.10	−.06
WHOQOL	Health^a	−.17	−.01	−.04	**.86**	.00
MOS SF-36	Physical Limitations^a	−.08	−.04	.01	**.83**	−.01
WHOQOL	Environment^a	−.36	−.20	−.10	**.47**	.03
WHODAS	Communication	**.45**	**.42**	.07	**−.47**	.06
WHODAS	Household Responsibilities	.12	.08	.03	**−.61**	−.09
WHODAS	Basic Life Activities	.03	.24	.02	**−.74**	.10
WHODAS	Difficulties due to Health	.28	.02	.01	**−.77**	.02
TCI	Persistence	−.25	−.31	−.03	.17	**.69**
SNAP	Workaholism	.06	.07	−.05	−.06	**.69**
SNAP	Propriety	.08	−.12	−.18	−.06	**.58**
SNAP	Positive Temperament^a	**−.48**	−.26	.27	.21	**.56**
TCI	Self-transcendence	−.02	−.16	.18	−.13	**.53**
ZKPQ	Activity	−.16	−.04	.15	.16	**.53**
SNAP	Entitlement	−.28	.02	.32	−.06	**.45**
SNAP	Eccentric Perceptions	.27	.29	.31	−.24	**.40**
IPIP-FFM	Orderliness	−.03	−.16	−.29	.11	**.39**

Notes.

[a] High scores indicate better functioning.

[b] Non-overlapping version.

All primary loadings ≥.35 and secondary loadings ≥.40, are in **bold.** Names of functioning scales are *italicized.* PFA = Principal-factors analysis. Intrprs Dysfx = Interpersonal Dysfunction; Func. = Functioning; Engag. = Engagement; SIPP = Severity Indices of Personality Problems-Short Form; ZKPQ = Zuckerman-Kuhlmann Personality Questionnaire-50; MDPF = Measure of Disordered Personality Functioning; TCI = Temperament and Character Inventory-140; SNAP = Schedule for Nonadaptive and Adaptive Personality, 2nd Edition; GAPD = General Assessment of Personality Disorder; SFQ = Social Functioning Questionnaire; SWLS = Satisfaction with Life Scale; WHOQOL = WHO Quality of Life; PWB = Psychological Well-being; IPIP-FFM = International Personality Item Pool–Five-Factor Model; WHODAS = WHO Disability Assessment Schedule-II; MOS SF-36 = Medical Outcome Scale Short-Form 36.

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Table 5

Marker Scale–Factor Score Correlations, With and Without the Marker Scales

Factor	Correlation	PWB Life/Self Satisfaction	IPIP Altruism	ZKPQ Impulsive Sens-Seek	WHOQOL Satisf c/Health	SNAP Workaholism
Internalizing	Part-Whole	**−.90**	−.37	.10	−.35	.03
Internalizing	Independent	**−.77**	−.12	.08	−.18	.09
Externalizing	Part-Whole	−.56	**−.81**	.06	−.18	.04
Externalizing	Independent	−.33	**−.69**	−.05	−.04	.06
Disinhibition	Part-Whole	−.14	.24	**.75**	−.05	.02
Disinhibition	Independent	−.11	.28	**.64**	−.04	−.10
Basic Functioning	Part-Whole	.42	.22	−.05	**.80**	−.07
Basic Functioning	Independent	−.24	−.08	.03	**−.80**	.08
Rigid Goal Engag.	Part-Whole	.19	.24	.34	.02	**.71**
Rigid Goal Engag.	Independent	.19	.21	.30	−.00	**.60**

Notes. Part-Whole correlations include the marker scales in the factor analysis. Independent correlations omit the marker scales in the factor analysis. PWB = Psychological Well-Being; IPIP = International Personality Item Pool; ZKPQ = Zuckerman-Kuhlmann Personality Questionnaire-50; WHOQOL = WHO Quality of Life; Sens-Seek = Sensation-Seeking; Satisf c/ = Satisfaction with; SNAP = Schedule for Nonadaptive and Adaptive Personality, 2nd Edition; Engag. = Engagement.