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This study evaluates the validity of derived measures of the psychopathic personality traits of Fearless Dominance and Impulsive Antisociality from the NEO Personality Inventory–Revised (NEO-PI-R; Costa & McCrae, 1992) using data from the Collaborative Longitudinal Personality Disorders Study (baseline $N = 733$). These 3 issues were examined: (a) the stability of the measures over a 10-year interval, (b) their criterion-related validity, and (c) their incremental validity relative to an alternative NEO-PI-R profile-rating approach for assessing psychopathy. NEO-PI-R Fearless Dominance and Impulsive Antisociality scales were relatively stable across 10 years and demonstrated differential associations with measures of personality pathology and psychopathology generally consistent with past research and theoretical considerations. Moreover, these measures demonstrated an appreciable degree of incremental validity over the NEO-PI-R profile-rating approach.

Keywords: psychopathy, personality, NEO-PI-R, fearless dominance, impulsive antisociality

Although psychopathy has been conceptualized as a discrete syndrome in the past, recent research has suggested that it is a dimensional construct (Edens, Marcus, Lilienfeld, & Poythress, 2006; Marcus, John, & Edens, 2004; Murrie et al., 2007). More-over, many of the dimensional attributes associated with psychopathy—such as impulsivity, interpersonal antagonism, and an absence of nervousness—appear to be extreme versions of common personality characteristics (see e.g., Benning, Patrick, Blonigen,

Hicks, & Iacono, 2005; Gaughan, Miller, Pryor, & Lynam, 2009; Lynam & Widiger, 2007; Miller & Lynam, 2003; Miller, Lynam, Widiger, & Leukefeld, 2001; Walton, Roberts, Krueger, Blonigen, & Hicks, 2008; Witt, Donnellan, & Blonigen, 2009). In line with the contemporary interest in the personality dimensions associated with psychopathy, the goal of this study was to evaluate the reliability and validity of recently created self-report measures of psychopathic personality attributes (Witt, Donnellan, & Blonigen, 2009) using data from the Collaborative Longitudinal Personality Disorders Study (CLPS; Gunderson et al., 2000).

Personality Attributes Associated With Psychopathy

Researchers have taken varying approaches to identifying and measuring the personality attributes associated with psychopathy. One approach uses the lower order dimensions or facets of personality associated with the five-factor model (FFM; e.g., McCrae & Costa, 2008) to generate a personality profile of the "prototypical psychopath" through consensus ratings provided by experts (Miller et al., 2001; see e.g., Table 1 in Lynam & Widiger, 2007). This expert-generated personality profile describes psychopathic individuals as low in Agreeableness and facets of Conscientiousness such as Dutifulness, Self-Discipline, and Deliberation. These individuals are also described as high in facets of Extraversion other than Warmth and low in some facets of Neuroticism, such as Anxiety and Self-Consciousness, but high in others, such as Angry Hostility and Impulsiveness. Last, psychopathic individuals are somewhat high in most aspects of Openness to Experience. Generating scores for an individual respondent involves calculating a congruence coefficient that indexes how strongly an individual's personality profile matches the profile of a prototypical psychopath. Validation studies of the profile index have indicated that these congruence scores predict self-reported deviance and aggression in laboratory experiments (Miller & Lynam, 2003).

A second approach to understanding the personality attributes associated with psychopathy has focused on creating targeted self-report personality scales using items derived from theoretical descriptions of psychopaths. One of the most comprehensive examples of this approach is the Psychopathic Personality Inventory (PPI; Lilienfeld & Andrews, 1996) and the Psychopathic Personality Inventory–Revised (PPI-R; Lilienfeld & Widows, 2005). Lilienfeld and Andrews (1996) identified 24 focal personality constructs associated with psychopathy and then created eight scales that captured those dimensions through an iterative process of exploratory test construction and refinement following procedures outlined by Loevinger (1957).

Although Lilienfeld and Andrews (1996) had no preconceptions about a higher order structure for their inventory, factor analytic work suggests that the PPI measures at least two higher order factors (Benning, Patrick, Hicks, Blonigen, & Krueger, 2003; Berardino, Meloy, Sherman, & Jacobs, 2005; Ross, Benning, Patrick, Thompson, & Thurston, 2009; Witt, Donnellan, & Blonigen, 2009; Witt, Donnellan, Blonigen, Krueger, & Conger, 2009; but see Neumann, Malterer, & Newman, 2008, for an alternative factor solution). The first factor captures social dominance, immunity to stress, and thrill seeking, whereas the second factor indexes a general susceptibility to deviance and antisocial behavior. Benning, Patrick, Blonigen, et al. (2005) labeled the first PPI factor

Fearless Dominance (FD) and the second PPI factor *Impulsive Antisociality* (IA).

Importantly, FD and IA seem to correspond well to the two major dimensions in the dual process theory of psychopathy proposed by Patrick and Bernat (2009). According to this model, psychopathy stems from separate psychobiological processes: one governing the susceptibility to distressing emotions such as fear (viz., FD) and a second system that confers a broad susceptibility to antisocial behaviors (viz., IA). The dual process model helps to explain the "mask of sanity" long associated with psychopathy, or the idea that psychopathic individuals appear psychologically well adjusted despite committing serious offenses (cf. Cleckley, 1955), and likewise focuses research attention on two core personality dimensions associated with the clinical syndrome.

Accumulating evidence regarding the nomological net for FD and IA seems to fit Patrick and Bernat's (2009) dual process model. In general, IA is broadly associated with a range of externalizing problems (Benning, Patrick, Blonigen, et al., 2005; Blonigen et al., 2010; Edens, Poythress, Lilienfeld, Patrick, & Test, 2008), whereas FD is generally negatively associated with internalizing psychopathology (e.g., Benning, Patrick, Blonigen, et al., 2005; Blonigen et al., 2010; Patrick, Edens, Poythress, Lilienfeld, & Benning, 2006; Witt, Donnellan, Blonigen, Krueger, & Conger, 2009). FD and IA are also associated with existing personality constructs in ways that are consistent with the dual process model. FD is associated with high Extraversion, low Neuroticism (especially low Anxiety and low Vulnerability), and "normal" Narcissism (e.g., Gaughan et al., 2009; Lynam & Derefinko, 2006; Ross et al., 2009; Witt & Donnellan, 2008; Witt, Donnellan, Blonigen, Krueger, & Conger, 2009), whereas IA is associated with low Agreeableness, low Conscientiousness, high Neuroticism (especially Angry Hostility, Depression, and Impulsiveness), and Machiavellianism (Gaughan et al., 2009; Lynam & Derefinko, 2006; Ross et al., 2009; Witt & Donnellan, 2008; Witt, Donnellan, Blonigen, Krueger, & Conger, 2009).

The pattern of correlates for self-report measures of FD and IA with criterion variables measured with methods other than self-report is also consistent with the dual process model. For example, Edens et al. (2008) found that IA was positively correlated with both aggressive and nonaggressive infractions in an incarcerated sample. Witt, Donnellan, and Blonigen (2009) found that self-reported IA scores predicted a measure of laboratory aggression in college students. Behavioral outcomes have been less frequently studied for FD. However, Benning, Patrick, and Iacono (2005) found that higher scorers on FD had a deficient fear-potentiated startle reflex relative to their low-scoring peers. Thus, there is evidence that FD and IA capture important personological features of psychopathy and demonstrate differential patterns of association with other constructs in a meaningful and conceptually sensible fashion.

To a considerable degree, both the profile-rating and dual process approaches to identifying the personality attributes associated with psychopathy converge with Cleckley's (1955) classic clinical descriptions (for a review see Hare & Neumann, 2008). Both approaches highlight that psychopathy involves impulsivity, sensation seeking, low self-control, hostility, and interpersonal antagonism, along with dominance and low levels of anxiety (see also Lynam & Widiger, 2007). Nonetheless, important practical differences also characterize the two approaches. Most concretely, the

prototype-rating approach yields a single score, whereas the FD and IA approach yields scores for two conceptually distinct attributes. Consequently, the dual process approach makes a clear distinction between the seemingly "positive" personality attributes associated with psychopathy such as emotional stability and the more socially toxic elements of personality such as disagreeableness and lack of planning. As it stands, these two approaches are also linked to different instruments: the FD and IA framework to the PPI/PPI-R and the prototype-matching approach to the NEO Personality Inventory–Revised (NEO-PI-R; Costa & McCrae, 1992). However, one practical limitation of the PPI/PPI-R is that the inventory is relatively new; hence few longitudinal studies have yet to incorporate direct measures of FD and IA into the assessment batteries, which makes it difficult to study the development and stability of these constructs.

Given this concern, researchers have attempted to derive direct measures of FD and IA using items from general personality inventories (Benning, Patrick, Blonigen, et al., 2005; Blonigen, Hicks, Krueger, Patrick, & Iacono, 2006; Walton et al., 2008; Witt & Donnellan, 2008; Witt, Donnellan, & Blonigen, 2009). The most widely known example of this "reengineering" approach to measuring FD and IA used items from the Multidimensional Personality Questionnaire (MPQ; Tellegen, 1982) to directly assess these constructs (Blonigen et al., 2006; see also Benning, Patrick, Blonigen, et al., 2005; Walton et al., 2008). Witt, Donnellan, Blonigen, Krueger, and Conger (2009) demonstrated strong convergence between these MPQ-based scales and the corresponding factors from the PPI-R in a sample of college students (i.e., $rs > .70$). Extending this line of work, Witt, Donnellan, and Blonigen (2009) used procedures similar to those used by Blonigen et al. (2006) and Walton et al. (2008) to create direct measures of FD and IA using items from the NEO-PI-R and found these measures strongly correlated with the MPQ-based scales in a separate study of college students ($rs > .70$). Importantly, the use of the NEO-PI-R to assess FD and IA provides an opportunity to directly compare these dimensions against the prototype-matching approach using the same measurement method.

The Present Study

The goal of the present study is to investigate the psychometric properties of the FD and IA measures derived from the NEO-PI-R in the CLPS—a longitudinal study of personality and personality pathology in a demographically diverse clinical sample. The use of a clinical sample is notable because all previous work with the NEO-PI-R measures of FD and IA utilized college student samples. In particular, we evaluated these four questions:

1. *How stable are the NEO-PI-R measures of Fearless Dominance (FD) and Impulsive Antisociality (IA) across intervals of up to 10 years?* Our first goal, in addition to assessing the internal consistencies of the NEO-PI-R derived measures, was to examine their rank-order stability over 10 years. Using the MPQ measures of FD and IA, Blonigen et al. (2006) reported appreciable stability coefficients for these traits over a 6-year time span during the transition from adolescence to adulthood (FD = .60, IA = .53). Using the same MPQ inventories, Witt, Donnellan, Blonigen, Krueger, and Conger (2009) found similar stability coefficients over a 9-year time span (FD = .52, IA = .50). Therefore, we expected to find levels of stability $\geq .50$ for the NEO-PI-R

measures of these traits. We also evaluated the degree of mean-level and individual stability for these measures.

2. *How are the NEO-PI-R measures of FD and IA associated with other measures of personality pathology and psychopathology?* Answering this question would strengthen evidence for the criterion-related validity of the NEO-PI-R measures of FD and IA and, more generally, the construct validity of the two-factor model of psychopathic personality attributes. We hypothesized that FD would be positively linked with emotional stability and largely unrelated to antisocial behavior or substance use disorders. In contrast, we expected IA to be positively linked with disinhibition and social dysfunction. Likewise, we expected IA to relate to personality disorders (PDs) that are partially characterized by impulsivity and antagonism, such as borderline PD, antisocial PD, and narcissistic PD. Conversely, we expected FD to be negatively associated with PDs characterized by inhibition and anxiety (e.g., avoidant and dependent PDs), because this personality dimension captures affective stability and social potency.

3. *How well do the NEO-PI-R measures of FD and IA predict interpersonal, recreational, and occupational functioning?* We expected that, consistent with previous research, FD would be positively associated with measures of adjustment, whereas IA would be negatively associated with adjustment across interpersonal, recreational, and occupational domains of functioning.

4. *How do the NEO-PI-R measures of FD and IA compare with the FFM psychopathy profile-rating approach?* We contrasted the criterion-related validity of direct NEO-PI-R measures of FD and IA with the FFM psychopathic personality profile score for all outcomes. Specifically, we examined whether the newly created NEO-PI-R scales provide incremental validity beyond the FFM expert-generated profiles of psychopathy (Lynam & Widiger, 2007; Miller & Lynam, 2003; Miller et al., 2001) for predicting functional outcomes.

Method

Participants

Participants were 733 patients (at baseline) who were recruited from multiple clinical sites for the CLPS project (see Gunderson et al., 2000, for study procedures and McGlashan et al., 2000, for comorbidity patterns). The CLPS is a naturalistic follow-along study in which participants were selected if they met the criteria for a PD ($n = 629$; 86%) or for major depression without a PD ($n = 104$; 14%). Participants were interviewed by trained raters and completed multiple self-report measures at baseline and multiple follow-up assessments. The mean age of participants at baseline was 32.50 years ($SD = 8.11$; range = 18–45). Women represented 64% ($n = 467$) of the sample; 69% ($n = 506$) of participants were white, 15% ($n = 108$) black, and 13% ($n = 94$) Hispanic (25 participants reported some other ethnic group membership).

Measures

NEO-PI-R. The NEO-PI-R (Costa & McCrae, 1992) is a 240-item self-report measure designed to comprehensively assess the FFM. Participants completed it at baseline; 6 months ($n = 523$); and 1 ($n = 504$), 2 ($n = 478$), 3 ($n = 456$), 4 ($n = 497$), 6

($n = 422$), 8 ($n = 306$), and 10 ($n = 315$) years. Baseline internal consistency reliabilities for the five domains (Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness) in this sample ranged from .87 to .92 (Morey et al., 2002). Witt, Donnellan, and Blonigen (2009) created targeted measures of FD (17 items; $M_{baseline} = 43.62$, $SD = 9.77$) and IA (17 items; $M_{baseline} = 47.80$, $SD = 8.51$) from the NEO-PI-R item content (a list of these item numbers are provided in the Appendix). Participants with data at the 10-year assessment had modestly but significantly lower scores on IA ($M_{present} = 42.41$, $SD = 9.73$; $M_{missing} = 44.51$, $SD = 9.71$), $t(731) = 2.79$, $p < .01$, $d = 0.22$, and FD ($M_{present} = 46.81$, $SD = 9.09$; $M_{missing} = 48.51$, $SD = 8.00$), $t(731) = 2.60$, $p < .05$, $d = 0.20$, at baseline. Baseline FD and IA scores did not differ across ethnicities ($ps > .05$). FD was similar across genders, but IA was higher among men than women at baseline, $t(731) = 7.28$, $p < .01$, $d = 0.21$. Neither IA nor FD was significantly correlated with age ($rs < .08$, $ps > .05$).

A prototype score for psychopathy ($M_{baseline} = -0.31$, $SD = 0.19$; range $= -0.77$ to 0.44) based on work by Miller and Lynam (2003; see also Lynam & Widiger, 2007) was also derived from the NEO-PI-R. Miller and Lynam (2003) provided values on the 30 NEO-PI-R facets that reflect consensus ratings of the prototypical psychopath used to develop this index. The prototype score measures the correspondence between individuals' actual scores on the 30 facets of the NEO-PI-R and their scores on the expert-generated profile using an intraclass correlation. In other words, the prototype score is a single number ranging from –1.0 to 1.0 that represents the similarity of each individual's NEO facet profile to that of the prototypical psychopath. FD and IA were moderately to strongly correlated with the psychopathy profile at both baseline and 10 years (FD: $r_{baseline} = .41$, $r_{10 years} = .45$; IA: $r_{baseline} = .46$, $r_{10 years} = .37$), indicating that the FFM profile overlaps with both of these dimensions. As with FD and IA, this score was somewhat lower for participants who participated in the study through the 10-year follow-up ($M_{present} = -0.32$, $SD = 0.19$; $M_{missing} = -0.25$, $SD = 0.19$), $t(731) = 4.13$, $p < .001$, $d = 0.37$. The profile was correlated significantly with age ($r = -.14$, $p < .001$) and was higher among men, $t(731) = 23.56$, $p < .001$, but the profile coefficient was unrelated to ethnicity ($p > .10$) at baseline.

Schedule for Nonadaptive and Adaptive Personality (SNAP). The SNAP (Clark, 1993) is a 375-item self-report questionnaire designed to assess personality traits in both the higher order/temperamental (Negative Temperament, Positive Temperament, and Disinhibition; Mdn internal consistency = .89; Morey et al., 2003) and lower order/abnormal (Mistrust, Manipulativeness, Aggression, Self-Harm, Eccentric Perceptions, Dependency, Exhibitionism, Entitlement, Detachment, Impulsivity, Propriety, and Workaholism; Mdn internal consistency = .84; Morey et al., 2003) range. Baseline scores for this instrument were used for this study.

Diagnostic Interview for *DSM–IV* Personality Disorders (DIPD-IV). The DIPD-IV (Zanarini, Frankenburg, Sickel, & Yong, 1996) is a semistructured interview that assesses PD criteria according to the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.; *DSM–IV*; American Psychiatric Association, 1994), which must be present over at least the previous 2 years and characteristic of the person to count toward the diagnosis. Adequate interrater reliability was found for all disorders diagnosed five times or more in a baseline subsample (Zanarini et al., 2000).

Antisocial behavior. A previous CLPS study (Hopwood et al., 2009) developed indicators of rule breaking and aggression—constructs thought to comprise empirically and etiologically separable influences on antisocial behavior (Burt, 2009)—using items from the DIPD-IV and SNAP designed to measure antisocial personality characteristics and conduct disorder. These constructs were assessed at baseline for this study. The 11-item DIPD-IV (interview) Rule Breaking scale had an internal consistency of .80; the nine-item Aggression scale had an internal consistency of .77. The 18-item SNAP (self-report) Rule Breaking scale had an internal consistency of .83; the six-item Aggression scale had an internal consistency of .65.

Psychopathology. The Structured Clinical Interview for *DSM–IV* Axis I Disorders (SCID-I; First, Spitzer, Gibbon, & Williams, 1996) is a structured interview assessing *DSM–IV* Axis I disorders. Baseline depression and substance use disorder were used as dependent variables in this study.

Functioning. Two measures—the Longitudinal Interval Follow-Up Examination (LIFE) and the Social Adjustment Scale, Self-Report (SAS-SR)—assessed functioning at baseline. LIFE (Keller et al., 1987), a structured interview, assesses functioning in interpersonal, recreational, and occupational domains and several other outcome variables. The SAS-SR (Weissman & Bothwell, 1976) is a self-report instrument that yields estimates of interpersonal, occupational, and recreational functioning. Scores from these instruments for each functional domain were collapsed through principal components analysis to derive indicators of interpersonal, occupational, and recreational functioning that are free from method effects (i.e., self-report vs. interview; see Hopwood et al., 2008).

Results

What Is the Rank-Order Stability of the NEO-PI-R Measures of FD and IA Across Intervals of Up to 10 Years?

Table 1 displays the internal consistencies, test–retest correlations, and intercorrelations for the NEO-PI-R measures of FD and IA. As the table illustrates, both scales demonstrated appreciable estimates of internal consistency over nine different measurement occasions ($\alpha_{FD} = .81–.84$; $\alpha_{IA} = .72–.80$). Similarly, both scales demonstrated appreciable test–retest correlations from baseline levels ($r_{FD} = .64–.79$, $r_{IA} = .56–.75$). As a point of comparison, the 10-year stability coefficient for the psychopathy profile was .63. Thus, both approaches to measuring psychopathic personality attributes suggest similar levels of differential stability. Age did not significantly ($p > .05$) moderate the 10-year stability of FD, IA, or the psychopathy profile. As can also be seen in the table, the two measures were slightly negatively correlated with each other. Although the PPI factors are often found to be moderately positively correlated ($r \sim .30$; e.g., Witt, Donnellan, Blonigen, Krueger, & Conger, 2009), the MPQ measures of these factors were designed to be orthogonal, given that the two dimensions are thought to be conceptually independent. These MPQ measures were used in Witt, Donnellan, and Blonigen (2009) as the basis for the creation of the NEO measures used in the present study. The item-selection process used in Witt, Donnellan, and Blonigen

Table 1

Internal Consistencies, Test–Retest Correlations, and Intercorrelations for Fearless Dominance (FD) and Impulsive Antisociality (IA)

Wave	FD			IA			$r_{FD/IA}$
	N	α	Test–retest r	N	α	Test–retest r	
Baseline	682	.81		692	.76		−.20
6 months	529	.82	.79	538	.74	.72	−.21
1 year	509	.84	.75	506	.77	.75	−.25
2 years	478	.82	.71	482	.76	.66	−.24
3 years	459	.83	.70	457	.79	.68	−.31
4 years	502	.84	.69	501	.72	.68	−.30
6 years	428	.83	.69	427	.74	.58	−.32
8 years	304	.84	.64	306	.80	.62	−.33
10 years	321	.84	.69	322	.79	.56	−.32

Note. Test–retest correlations are computed with baseline scores.

(2009) resulted in two uncorrelated NEO scales in the development sample. However, in a subsequent replication (Study 2; Witt, Donnellan, & Blonigen, 2009) they were negatively correlated ($r = -.24$), and in an unpublished sample of college students (Donnellan & Witt, 2009) they were negatively but not significantly correlated ($r = -.10$, *ns*). Therefore, the magnitude of the intercorrelations presented in Table 1 is more or less consistent with previous research on these scales in college students. Nevertheless, the dual process model of psychopathy posits two orthogonal systems, and thus an overlap between these measures might raise concerns. Accordingly, we also conducted multivariate analyses to account for any empirical overlap.

What Is the Absolute Stability of the NEO-PI-R Measures of FD and IA Across Intervals of Up to 10 Years?

Table 2 contains means and standard deviations for the scales at each wave. We also calculated *d*-metric effect sizes with respect to the baseline scores using the baseline standard deviations. As seen in Table 2, average levels of FD increased over the 10-year interval, whereas average levels of IA declined. We supplemented these analyses using the reliable change index (RCI; Jacobson & Truax, 1991) procedure, which provides a way of classifying

individuals who reliably increased or decreased over the 10-year time frame. For these analyses, we used the 6 month test–retest coefficients from Table 1 when calculating reliable change indices for FD and IA. As can be seen in Table 3, RCI data are consistent, with mean changes showing a decrease on IA and an increase on FD.

How Are the NEO-PI-R Measures of FD and IA Associated With Other Measures of Personality Pathology and Psychopathology?

Table 4 reports the concurrent associations between the FD, IA, and SNAP scales at baseline. As can be seen in the table, the FD scale strongly correlated with Positive Temperament and negatively correlated with Negative Temperament, whereas the IA scale most strongly correlated with Disinhibition and Negative Temperament. The correlations involving the SNAP traits point to even more specific differences between the FD and IA scales. The FD scale was negatively associated with traits indicating maladjustment such as Self-Harm and Detachment and was positively related to Exhibitionism and Entitlement. This pattern of positive adjustment coupled with egocentric traits corroborates previous research examining FD (e.g., Witt & Donnellan, 2008). The trait associations for the IA scale are also consistent with previous

Table 2

Average Levels of Fearless Dominance (FD) and Impulsive Antisociality (IA)

Wave	FD			IA		
	M	SD	d	M	SD	d
Baseline	43.62	9.77		47.80	8.51	
6 months	44.89	9.81	0.13	46.72	7.96	−0.13
1 year	45.23	10.38	0.16	47.04	8.65	−0.09
2 years	45.38	9.71	0.18	46.08	8.44	−0.20
3 years	46.51	10.10	0.30	45.08	8.59	−0.32
4 years	46.43	10.15	0.29	45.36	8.38	−0.29
6 years	46.59	10.07	0.30	44.52	8.58	−0.39
8 years	46.24	10.14	0.27	43.76	8.70	−0.47
10 years	47.11	10.18	0.36	43.10	8.53	−0.55

Note. The *d* was calculated using the baseline standard deviation.

research, with strongest associations to Manipulativeness, Impulsivity, Aggression, Self-Harm, and Mistrust.

Table 4 also presents associations between the FD and IA scales and baseline measures of antisocial behavior and psychopathology. As expected, the FD scale was unrelated to both self- and interviewer reports of aggression and rule breaking; substance use disorder; and depression. By contrast, the IA scale was moderately positively correlated with self- and interviewer reports of aggression and rule breaking and exhibited a small positive correlation with substance use disorder diagnoses. The IA scale was unrelated to depression. Table 4 also shows the baseline associations between FD, IA, and the *DSM–IV* PDs. As expected, IA was correlated with PDs involving interpersonal animosity, alienation, and impulsive controls: viz., antisocial, borderline, and narcissistic PDs. Also as expected, FD was strongly negatively associated with avoidant and dependent PDs. These results suggest that FD and IA have different associations with a variety of outcome measures. As noted earlier, we examined both zero-order correlations and standardized regression coefficients to address concerns over any overlap between FD and IA. Overall, controlling for the other trait had a limited impact on the validity correlations.

How Well Do the NEO-PI-R Measures of FD and IA Predict Interpersonal, Recreational, and Occupational Functioning? How Do Their Validities Compare With That of the FFM Psychopathy Profile-Rating Approach?

Table 5 contains the associations between FD; IA; and baseline social, occupational, and recreational functioning. As expected, FD was positively associated with all measures of functioning, whereas IA was negatively associated with all of these measures.[1] These relations did not appear to be moderated by functional domain. Table 5 also reports those associations for the FFM psychopathy profile, which showed a consistent pattern of modest but positive relations to functioning.

To provide a context for comparing the validity coefficients in this context, we first quantified the degree of overlapping variance between the prototype score and measure of FD and IA by regressing the FFM profile on FD and IA. The multiple R for this analysis was .68 ($\beta_{FD} = .51$, $\beta_{IA} = .56$; both $ps < .05$). However,

Table 3

Individual-Level Change in NEO-PI-R Scales From Baseline to 10 Years (Reliable Change Index)

Change	Fearless dominance		Impulsive antisociality	
	N	%	N	%
Decreased	20	6.2	129	40.1
Same	197	61.4	157	48.8
Increased	104	32.4	36	11.2

Note. Calculated using the baseline to 6 months retest coefficient. Only participants who participated through 10 years are considered. Sample sizes are somewhat smaller than total of participants who completed 10-year data because scores were not computed for participants with missing item-level data. NEO-PI-R = NEO Personality Inventory–Revised.

Table 4

Concurrent Associations Between the FD, IA, and FFM Psychopathy Prototype Profile With Measures of Abnormal Personality, Antisocial Behavior, Psychopathology, and PDs

Measure	FD	IA	FFM psychopathy
SNAP			
Negative Temperament	−.41* (−.30*)	.40* (.36*)	−.13*
Mistrust	−.27* (−.28*)	.38* (.31*)	.15*
Manipulativeness	−.07 (−.04)	.60* (.65*)	.50*
Aggression	−.12* (−.06)	.57* (.59*)	.45*
Self-Harm	−.47* (−.43*)	.43* (.30*)	−.15*
Eccentric Perceptions	−.05 (−.06)	.26* (.27*)	.12*
Dependency	−.25* (−.20*)	.28* (.27*)	−.23*
Positive Temperament	.62* (.57*)	−.16* (−.18*)	.30*
Exhibitionism	.56* (.56*)	.10* (.19*)	.45*
Entitlement	.38* (.38*)	.08* (.13*)	.45*
Detachment	−.63* (−.69*)	.21* (.17*)	−.07
Disinhibition	−.07 (.00)	.64* (.64*)	.48*
Impulsivity	−.06 (.06)	.59* (.61*)	.32*
Propriety	.02 (−.01)	−.06 (−.10*)	−.15*
Workaholism	.11* (.04)	−.08* (−.15*)	−.01
Antisocial behavior			
Interview[a]			
Aggression	−.03 (−.04)	.28* (.36*)	.29*
Rule Breaking	−.08* (−.10*)	.35* (.36*)	.29*
Self-report[b]			
Aggression	−.02 (.02)	.45* (.47*)	.39*
Rule Breaking	−.09* (−.11*)	.53* (.53*)	.42*
Psychopathology[c]			
Substance use disorder +	−.02 (.10*)	.16* (.20*)	.12*
Depression +	−.05 (.00)	.09* (.06)	−.09*
DSM PDs[d]			
Paranoid	−.26* (−.26*)	.29* (.23*)	.16*
Schizotypal	−.20* (−.23*)	.22* (.15*)	.09*
Schizoid	−.30* (−.32*)	.17* (.06)	−.01
Avoidant	−.59* (−.60*)	.22* (.05)	−.27*
Dependent	−.27* (−.05)	.19* (.13*)	−.22*
Obsessive−compulsive	.07 (.08*)	.02 (−.01)	.14*
Histrionic	.03 (.13*)	.26* (.28*)	.19*
Borderline	−.22* (−.09*)	.39* (.29*)	.07
Narcissistic	.06 (.16*)	.30* (.25*)	.36*
Antisocial	−.08* (.08*)	.37* (.40*)	.32*

Note. Coefficients in parentheses are standardized regression weights accounting for the dependency between FD and IA. FD = Fearless Dominance; IA = Impulsive Antisociality; FFM = five-factor model; PD = personality disorder; SNAP = Schedule for Nonadaptive and Adaptive Personality; *DSM* = Diagnostic and Statistical Manual of Mental Disorders.
[a] Measured with the Diagnostic Interview for *DSM–IV* Personality Disorders Rule Breaking and Aggression scales. [b] Measured with the SNAP Rule Breaking and Aggression scales. [c] Measured with the Structured Clinical Interview for *DSM–IV* Axis I Disorders. The + variable is dichotomous, and correlations for this variable are point-biserial. [d] PDs are dimensionalized (i.e., symptom counts).
* $p < .05$.

it is important to note that the current measures of FD and IA and the psychopathy profile are ultimately calculated from the same item content (albeit in separate ways) because they are all NEO-based. Nonetheless, there is a considerable amount of overlapping

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[1] The interaction between FD and IA was tested in hierarchical regressions with standardized variables. The interaction term did not explain additional variance above and beyond FD and IA for any functioning variable.

Table 5
Incremental Validity of NEO-PI-R Measures of FD and IA Over the FFM Psychopathy Profile for Indicating Baseline Functioning

Outcome	r (β)			R^2_{total}	ΔR^2	
	FD	IA	FFM psychopathy		Step 1: Scales Step 2: Profile	Step 1: Profile Step 2: Scales
GAF	.30* (.16*)	−.26* (−.31*)	.11* (.20*)	.15*	.02*	.14*
Social functioning	.30* (.19*)	−.32* (−.34*)	.04 (.16*)	.18*	.01*	.17*
Occupational functioning	.22* (.11*)	−.22* (−.26*)	.08* (.16*)	.09*	.01*	.09*
Recreational functioning	.35* (.21*)	−.26* (−.31*)	.14* (.20*)	.18*	.02*	.16*

Note. NEO-PI-R = NEO Personality Inventory–Revised; FD = Fearless Dominance; IA = Impulsive Antisociality; FFM = five-factor model; GAF = Global Assessment of Functioning (American Psychiatric Association, 1994).
* $p < .05$.

variance between the profile and measures of FD and IA taken from other inventories. For example, these results are more or less consistent with Ross et al. (2009), who examined overlap between the PPI and NEO-PI-R and reported partial coefficients of .50 and .38 for the PPI FD and IA scales, respectively.

In light of the shared variance between FD and IA on the one hand and the psychopathy prototype on the other, we evaluated whether the NEO-PI-R measures have incremental validity over and above FFM psychopathy profile, and vice versa. For each relevant criterion variable we performed two sets of hierarchical regression analyses. In the initial set we entered FD and IA in the first step and the FFM psychopathy profile score in the second step. In the second set of analyses, the FFM psychopathy profile was entered first, and FD and IA were entered second. The results of these analyses appear in Table 5. The FD and IA scales demonstrated substantial incremental validity over the NEO-PI-R psychopathy profile in all cases. Moreover, using direct measures of FD and IA appeared to capture more variance in these outcomes than did the profile-rating approach.

Discussion

The purpose of this study was to evaluate the stability and validity of NEO-PI-R measures of psychopathic traits created by Witt, Donnellan, and Blonigen (2009) using a clinical sample. Measures of Fearless Dominance (FD) and Impulsive Antisociality (IA) derived from the NEO-PI-R item pool demonstrated appreciable rank-order consistency over a decade in this sample, consistent with results in community samples using MPQ measures of these constructs (Blonigen et al., 2006; Witt, Donnellan, Blonigen, Krueger, & Conger, 2009). This finding suggests that these dimensions, as measured with NEO-PI-R items, are fairly stable individual difference constructs. In addition, the NEO-PI-R-based measures demonstrated a pattern of correlations with measures of psychopathology consistent with previous research on FD and IA. Specifically, FD was negatively associated with inhibited or anxious personality pathology, whereas IA exhibited small positive correlations with internalizing symptoms and moderate associations with externalizing problems and was most strongly related to personality pathology characterized by impulsivity and interpersonal antagonism. Furthermore, FD was positively associated with social, occupational, and recreational functioning, whereas IA was globally and negatively associated with functioning. This supports the previous suggestion (Patrick, 2007) that FD captures personality dispositions that are largely linked to positive adjustment

that appear in classic descriptions of the clinical syndrome (Cleckley, 1955).

All in all, these results extend the nomological net of FD and IA using a large, longitudinal clinical sample and demonstrate that measures of "normal" personality can be used to assess personality features associated with psychopathy (see also Walton et al., 2008). These findings further indicate that the "re-engineering" approach of taking items from omnibus personality inventories to measure psychopathic traits can be used with existing data sets to inform the current understanding of psychopathic personality traits. An important caveat is that much extant work using this reengineering approach has studied either college students or individuals sampled from the community (e.g., Blonigen et al., 2006; Witt, Donnellan, Blonigen, Krueger, & Conger, 2009). The fact that previously observed patterns of criterion-related associations were largely duplicated in the current clinical sample should increase confidence in the robustness of the nomological net surrounding FD and IA.

Broadly speaking, the current results highlight the fact that approaches used to study normal personality can help inform the study of psychopathy. The FFM psychopathy profile was arguably the first normal personality approach for studying psychopathic personality attributes, and it successfully demonstrated that tools for studying normal personality can be used to study aspects of abnormal personalities. However, the FFM profile may have a few drawbacks relative to a more direct approach to measuring psychopathic personality traits with scales that assess seemingly separable dimensions of personality. In the current study, the direct measures of FD and IA are based on responses to two 17-item scales, whereas prototype congruence coefficients are a single score based on the degree of similarity between a vector of expert ratings on 30 facets of personality and a given individual's score on those same 30 facets. Despite greater economy, we found that the NEO-PI-R-based measures of FD and IA had appreciable incremental validity over the psychopathy profile approach to measurement for characterizing dysfunction.

We also maintain that, in addition to superior criterion-related validity, "direct" measures of psychopathic traits may be easier to interpret than the profile approach because these direct measures do not combine largely distinct attributes into a summary score but are rather composed of theory-specific, content-valid indicators of the putative constructs (Loevinger, 1957) of FD and IA. Indeed, these direct measures of FD and IA have more nuanced and theoretically congruent (e.g., Blonigen et al., 2010; Patrick & Bernat, 2009) patterns of correlations with outcome criteria than is found with a single

profile congruence coefficient. For instance, in the present study the FFM profile was positively correlated with disinhibition and positive temperament, a seemingly counterintuitive finding. However, when one looks at FD and IA separately, it is clear that IA is strongly associated with disinhibition, whereas FD is strongly associated with positive temperament. This kind of nuanced pattern helps to explain paradoxes in the literature that are difficult to isolate using a single score that combines information across diverse attributes, as appears to be the case with the profile coefficient.

For these reasons, we suggest that using targeted measures of personality constructs implicated in psychopathy has advantages over a profile-similarity coefficient score for conceptualizing psychopathy. Nonetheless, the prototype-matching approach might have a good deal of utility for illustrating how the NEO-PI-R can be used to study psychopathy—something that is likely to have considerable value in applied contexts. Furthermore, the limitations of the profile-rating approach observed here may have been affected by the fact that the sample had a high representation of personality pathology. For instance, in college student or community samples, the psychopathy profile may not correlate positively with functioning, as was observed in this sample.

At a broader level, ongoing research on models of psychopathy could inform the diagnostic assessment of antisocial behavior. The *DSM* has long been criticized as overemphasizing behavioral, and particularly criminal, aspects of antisocial personality disorder (Hare & Neumann, 2008; Lilienfeld & Andrews, 1996). The dual process model might be preferable for such critics in that it is informed by a compelling theoretical account of the personality characteristics underlying psychopathic and antisocial behavior and has been linked to specific neurobiological mechanisms (Patrick & Bernat, 2009). The dual process approach is also bolstered by an accumulating set of findings that point to the criterion-related validity of measures of FD and IA. All in all, additional pieces of personality-linked information may prove invaluable in terms of the diagnosis and treatment of individuals who are antisocial.

Several study limitations are notable. First, the use of an archival data set, and particularly the sampling strategy of the CLPS, may have affected results. For instance, correlations between FD and IA with some internalizing dimensions were limited, perhaps because unlike in other studies, most participants in this sample had substantially higher levels of internalizing problems than would be anticipated in the typical psychopath. As just discussed, this may also have limited the potential validity of the psychopathy profile. However, as we noted earlier, the patterns of associations observed here were largely consistent with previous research using community and college samples. Second, direct comparisons of various FD/IA measures—including the PPI/PPI-R, MPQ, and NEO-PI-R operationalizations—are needed in clinical samples. Further work should also examine the relations of such instruments to measures of similar constructs, such as the NEO-PI-R psychopathy prototype, measures of aggression and rule breaking, the Revised Psychopathy Checklist (Hare, 2003), and measures of *DSM* antisocial personality disorder in diverse samples. In particular, researchers should focus on how these models of psychopathy and antisocial behavior could be integrated in a manner that is scientifically viable and clinically useful.

Overall, the present results extend the growing literature suggesting that measures designed to assess normal personality can be used to assess psychopathic personality attributes such as FD and IA (Witt, Donnellan, & Blonigen, 2009). The current study also points to conceptual advantages in directly measuring psychopathic personality attributes over the single summary prototype-rating approach. Practically, evidence of the utility and validity of these NEO-PI-R-based measures suggests that additional existing data sets might be used to directly study the psychopathic attributes associated with Patrick and Bernat's (2009) dual process model. Indeed, we believe these promising initial findings suggest that it is possible to expand the scope of psychopathy research by examining the numerous data sets that include the NEO-PI-R to further elaborate the nomological network of FD and IA.

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(*Appendix follows*)

Appendix

NEO-PI-R Item Numbers and Scoring Instructions

Fearless Dominance: 7*, 11, 16*, 37, 46, 71, 72, 102*, 127*, 132, 142, 152, 162*, 167, 192, 227, 232
Impulsive Antisociality: 14, 29*, 44*, 45, 50*, 60*, 65*, 66, 95, 99, 159, 169, 189, 201, 205, 229, 240*

* Indicates a reverse-scored item (based on original item content). NEO-PI-R = NEO Personality Inventory–Revised (Costa & McCrae, 1992).

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