

Development and Validation of Triarchic Construct Scales From the Psychopathic Personality Inventory

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The Triarchic model of psychopathy describes this complex condition in terms of distinct phenotypic components of boldness, meanness, and disinhibition. Brief self-report scales designed specifically to index these psychopathy facets have thus far demonstrated promising construct validity. The present study sought to develop and validate scales for assessing facets of the Triarchic model using items from a well-validated existing measure of psychopathy—the Psychopathic Personality Inventory (PPI). A consensus-rating approach was used to identify PPI items relevant to each Triarchic facet, and the convergent and discriminant validity of the resulting PPI-based Triarchic scales were evaluated in relation to multiple criterion variables (i.e., other psychopathy inventories, antisocial personality disorder features, personality traits, psychosocial functioning) in offender and nonoffender samples. The PPI-based Triarchic scales showed good internal consistency and related to criterion variables in ways consistent with predictions based on the Triarchic model. Findings are discussed in terms of implications for conceptualization and assessment of psychopathy.

Keywords: psychopathy, Triarchic model, Psychopathic Personality Inventory, construct validity

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Psychopathy is a complex form of personality pathology entailing salient features in the domains of affect, interpersonal style, and behavioral functioning. With the aim of reconciling and integrating contrasting historic conceptions and approaches to assessment, a Triarchic model of psychopathy (Patrick, Fowles, & Krueger, 2009) was advanced that characterizes the disorder in terms of three intersecting but distinguishable phenotypic con-

structs: *boldness*, *meanness*, and *disinhibition*. A brief self-report inventory, the Triarchic Psychopathy Measure (TriPM; Patrick, 2010) exists for directly assessing these three constructs and has recently demonstrated promising evidence of construct validity (Drislane, Patrick, & Arsal, 2013; Marion et al., 2013; Patrick, 2010; Sellbom & Phillips, 2013; Stanley, Wygant, & Sellbom, 2013). As a complement to the TriPM, it may also be useful to establish scales for indexing boldness, meanness, and disinhibition from the item sets of other commonly used psychopathy self-report instruments. The most widely used and best-validated measure of this kind (Poythress et al., 2010b) is the Psychopathic Personality Inventory (PPI; Lilienfeld & Andrews, 1996) and its revision, the Psychopathic Personality Inventory–Revised (PPI-R; Lilienfeld & Widows, 2005). The central aim of the present study was to develop and validate PPI-based scales for assessing boldness, meanness, and disinhibition in both offender and nonoffender samples.

The Triarchic Model of Psychopathy

Conceptualizations and approaches to the assessment of psychopathy have historically varied in the degree to which tendencies toward cruelty, violence/criminality, and emotional coldness have been emphasized (e.g., McCord & McCord, 1964; Robins, 1966) relative to dispositions toward relative fearlessness, charm/social-

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bility, and interpersonal dominance (e.g., Cleckley, 1941/1976; Karpman, 1941; Lykken, 1995). Likewise, two of the most commonly used psychopathy assessments—the interview-based Psychopathy Checklist—Revised (PCL-R; Hare, 2003) and the PPI—differ in the emphasis they place on deviant emotional detachment and criminogenic features as compared with features of social potency and low fear/anxiety. The Triarchic model, which describes psychopathy in terms of phenotypically distinct constructs of boldness, meanness, and disinhibition, was introduced in an effort to integrate and reconcile these and other contrasting approaches to defining and measuring the psychopathy construct.

The boldness component of psychopathy, emphasized prominently in conceptions of “primary” psychopathy advanced by Cleckley (1941/1976), Lykken (1957, 1995), and Karpman (1941), entails tendencies toward fearlessness, tolerance for novelty and risk, resilience to life stress, interpersonal dominance, and high self-confidence. In assessment terms, boldness is captured directly and to a substantial degree by the Fearless Dominance factor of the PPI, and to a lesser degree by the interpersonal items of the PCL-R (e.g., superficial charm, grandiosity, conning/deception; Patrick et al., 2009).

By contrast, meanness (featured more prominently in the conceptions of psychopathy offered by McCord & McCord [1964], Robins [1966, 1978], Mealey [1995], and Hare & Neumann [2008]) entails tendencies toward callousness and lack of empathy, deliberate cruelty, shallow emotional attachment, exploitativeness, instrumental/predatory aggression, and excitement seeking through destructiveness. Meanness is assessed most directly by the Affective facet of the PCL-R (e.g., lack of empathy/remorse, shallow affect), and to a lesser degree by the more exploitative features of the Interpersonal facet (i.e., conning/deceptiveness). Meanness is also captured to some degree by the PPI, particularly its Coldheartedness and Machiavellian Egocentricity subscales, which reflect lack of sentimentality and willingness to exploit others for personal gain, respectively. In the developmental literature, meanness is conceptually similar to the construct of callous-unemotional traits as captured by the content of measures such as the Callous-Unemotional facet of the Antisocial Process Screening Device (Frick & Hare, 2001) and the Inventory of Callous-Unemotional Traits (ICU; Frick, 2004).

Disinhibition, as described in the Triarchic model, refers to deficient impulse control, poor self-regulation, failure to delay gratification, low frustration tolerance, and undercontrol of negative emotion. This construct, which corresponds directly to externalizing proneness (Achenbach & Edelbrock, 1978; Krueger et al., 2002) or disinhibitory psychopathology (Gorenstein & Newman, 1980), is featured in most major conceptual models of psychopathy. Disinhibition is captured directly and substantially by both Factor 2 of the PCL-R (and in particular, the Lifestyle facet, which assesses an impulsive, irresponsible, and chronically unstable lifestyle) and the Self-Centered Impulsivity factor of the PPI.

Self-Report Assessment of Boldness, Meanness, and Disinhibition

To provide for direct and efficient assessment of boldness, meanness, and disinhibition as distinct constructs, Patrick (2010) developed the TriPM, a 58-item self-report measure. In recent work by Patrick and colleagues (Drislane et al., 2013; Patrick,

2010) and others (Marion et al., 2013; Sellbom & Phillips, 2013; Stanley et al., 2013), the three scales of the TriPM have demonstrated robust relations with other psychopathy measures, as well as external personality trait scales, in a manner largely consistent with the theoretical underpinnings of the constructs they were designed to measure. Specifically, TriPM Boldness shows selective positive associations with the Interpersonal facet of the PCL-R, PPI Fearless Dominance, and trait variables including dominance and extraversion, and negative relations with measures of neuroticism and behavioral inhibition (“punishment”) system functioning. TriPM Meanness shows positive and selective associations with the Affective facet of the PCL-R, the Coldheartedness and Machiavellian Egocentricity subscales of the PPI, and trait variables of callous-unemotionality and narcissism; TriPM Meanness also shows negative associations with measures of empathy, agreeableness, conscientiousness, and openness. TriPM Disinhibition shows positive associations with the Lifestyle facet of the PCL-R, the Self-Centered Impulsivity factor of the PPI, negative affectivity, and behavioral activation (“reward”) system functioning, and negative relations with traits of conscientiousness and planful control. Notably, all three TriPM scales show positive associations with total scores on Zuckerman’s (1979) Sensation Seeking Scale, with Boldness relating most to the thrill-adventure seeking facet, and Meanness and Disinhibition more so to the disinhibition and boredom susceptibility facets (Sellbom & Phillips, 2013). Additionally, all three TriPM scales contribute uniquely to the prediction of PCL-R total scores when considered concurrently as predictors (Patrick, 2010), suggesting that boldness, meanness, and disinhibition are each essential to a complete account of the psychopathy construct. These findings are important, especially in view of recent claims (e.g., Miller & Lynam, 2012) that PPI-assessed boldness is irrelevant, or at best peripheral, to psychopathy.

In sum, the TriPM has demonstrated promising convergent and discriminant construct validity in both undergraduate and offender samples. However, the Triarchic model is intended to transcend specific measurement approaches, and it would be valuable to establish other methods for operationalizing the constructs of the model. One potential approach is to derive scales for assessing these constructs using items from existing psychopathy self-report inventories. A benefit of this approach is that it would provide a basis for examining correlates of the Triarchic model facets in already existing data sets, allowing for more rapid and efficient evaluation of the model’s validity. The PPI appears well suited to this approach, because (a) it is among the most commonly used self-report psychopathy instruments, thus enabling many investigative groups to undertake follow-up validation work; (b) strong evidence exists for the construct validity of the PPI, and the measure includes internal validity scales for detecting feigned or inconsistent response styles (Lilienfeld & Fowler, 2006); (c) the item pool of the PPI is large (187 and 154 items in the original and revised versions, respectively) and diverse in terms of its coverage of psychopathy-relevant features (encompassing eight distinct trait domains of relevance to psychopathy).

In line with the objectives of the present study, recent work by Sellbom and colleagues (Marion et al., 2013; Sellbom & Phillips, 2013) provides preliminary evidence for effective coverage of the Triarchic model constructs by the PPI. In separate samples consisting of undergraduate students and incarcerated offenders,

TriPM and PPI scales were included jointly in exploratory factor analyses along with other self-report psychopathy scales. In both of these samples, (a) TriPM Disinhibition loaded on a first factor (~15% and 36% variance accounted for, respectively) along with three of four subscales associated with the PPI's Self-Centered Impulsivity factor (Rebellious Non-conformity, Carefree Nonplanfulness, Blame Externalization), (b) TriPM Meanness loaded on a second factor (~35% and 18% variance accounted for) along with PPI Coldheartedness and Machiavellian Egocentricity subscales, and (c) TriPM Boldness loaded on a third factor (~10% and 11% variance accounted for) with the three PPI subscales comprising its Fearless Dominance factor (Fearlessness, Stress Immunity, and Social Potency).

At the same time, the higher order factor structure of the PPI has come under question (e.g., Neumann, Malterer, & Newman, 2008), with some authors arguing that the Fearless Dominance and Self-Centered Impulsivity Dimensions may not be robust structurally within the PPI itself. Because the PPI was not initially developed with a specific higher order factor structure in mind (Lilienfeld & Andrews, 1996), it is perhaps unsurprising that the PPI two-factor model would not satisfy strict confirmatory model criteria (Hopwood & Donnellan, 2010). In view of these issues, the availability of scale measures of the Triarchic model constructs based on the PPI item set may provide a useful complement to the PPI two-factor approach for researchers interested in psychopathy facets.

The Present Study: Deriving and Validating Triarchic Construct Scales From the PPI

The aim of the present study was to develop and validate PPI-based scales to assess boldness, meanness, and disinhibition. As described in greater detail below, we used a consensus-based approach to select items for inclusion in the PPI-Triarchic (PPI-Tri) scales. The validity of the resultant PPI-based Triarchic scales was evaluated in relation to a range of psychopathy-relevant criterion variables in two existing data sets consisting of undergraduate (Sample 1) and offender (Sample 2) participants. In addition, based on prior research suggesting a link between childhood exposure to trauma/abuse and both the antisocial deviance (Poythress, Skeem, & Lilienfeld, 2006) and emotional deficit (Kimonis, Frick, Munoz, & Aucoin, 2008) features of psychopathy, we conducted exploratory analyses to examine how the PPI-Tri scales relate to self-reported history of exposure to trauma and abuse, as well as dissociative tendencies (which are often viewed as a consequence of abuse; Chu & Dill, 1990). Further, in light of prior research suggesting a modest positive association between the interpersonal features of psychopathy and psychosocial functioning (Hall, Benning, & Patrick, 2004), we conducted exploratory analyses to examine relationships between the PPI-Tri scales and measures of intelligence and education level.

On the basis of elements of the Triarchic model and prior research using the TriPM, we hypothesized that (a) PPI-Boldness would be positively related to TriPM Boldness, Factor 1 of the PCL-R and its Interpersonal facet, and self-report indices of interpersonal dominance, and negatively related to trait anxiety, fear, and behavioral inhibition system (BIS) functioning; (b) PPI-Meanness would be related positively to TriPM Meanness, Factor 1 of the PCL-R and its Affective facet, the Primary scale of the

Levenson Self-Report Psychopathy Scale (LSRP), antisocial personality disorder (ASPD) symptomatology, and measures of callous-unemotional traits, antagonism, and aggression; and (c) PPI-Disinhibition would be related positively to TriPM Disinhibition, Factor 2 of the PCL-R and its Lifestyle facet, both Primary and Secondary subscales of the LSRP, symptoms of ASPD, and measures of impulsivity, negative emotionality, and behavioral activation system (BAS) functioning. Additionally, we hypothesized that all three PPI-based Triarchic scales would uniquely predict PCL-R total scores in regression analyses. As we did not have any a priori hypotheses regarding relations between the PPI-Tri scales and intelligence/education, history of abuse, or dissociative experiences, these analyses were considered exploratory.

Method

Participants

In the present study, we used two different samples. For the development and initial validation of PPI-based Triarchic scales, participants were 650 undergraduate psychology students (M age = 18.8, SD = 1.63) who completed study questionnaires for course credit. Participants were 55.6% female, with the following racial composition: 75.9% Caucasian, 8.9% African American, 1.4% Asian, 14.3% Hispanic, 0.3% Native American, 2.7% biracial, and 10.8% missing racial data. Participants with missing data for more than 25% of the questionnaire items (n = 19) were excluded from analyses, resulting in a final sample of 631.

Following development and validation of the PPI-Tri scales, the convergent and discriminant validity of the resultant scales was evaluated using existing data from a large sample of incarcerated male offenders (N = 1,413; M age = 30.31, SD = 6.60) recruited from correctional facilities and forensic substance abuse treatment centers in Florida, Nevada, Oregon, Texas, and Utah. Detailed characteristics of this sample have been reported in several prior published reports (e.g., Poythress, Edens, et al., 2010; Poythress, Lilienfeld, et al., 2010). There were roughly equivalent numbers of participants from prisons (52.5%) and substance abuse treatment sites (47.5%). The majority of the sample was Caucasian (63.9%) and non-Hispanic (88.1%). African American participants accounted for 34.2% of the sample, with the remaining 1.9% reporting mixed or other racial backgrounds. A subset of participants who were missing data for the PPI (n = 72) were excluded from analyses, resulting in a final sample of 1,341.

Procedure

All participants provided written consent prior to questionnaire administration and were informed of the general purposes of each study and advised that their participation was voluntary and confidential. For the undergraduate participants, questionnaire measures were administered in two rounds of data collection. The first 197 participants were administered the questionnaire protocol in person via paper-and-pencil in groups of five to 20. The remaining participants (n = 453) completed the questionnaires electronically using a secure Internet-based survey system. There were no significant differences in age, race, or gender between those participants who completed the questionnaires on paper versus electron-

ically. Upon completion of the questionnaires, participants were offered their choice of research participation credit, \$15, or a combination of the two.

The PPI, which served as the source of candidate items for the creation of PPI-based Triarchic scales, was administered to all 1,341 forensic participants. Completion of the PPI took place in the context of a larger protocol that also included diagnostic interviews, review of official criminal records, and completion of a battery of self-report inventories. Participants received \$20, deposited to their institutional accounts, for completing the self-report inventories. They received an additional \$10 for completing follow-up interviews.

Collection of questionnaire data from the undergraduate sample was approved by the Institutional Review Board (IRB) of Florida State University. Collection of questionnaire, interview, and file data from the offender sample was approved by IRBs at the following institutions: University of South Florida, Sam Houston State University, and University of Nevada, Las Vegas. Data collection with offenders was also approved by the Research Review Committees of the following organizations: Florida Department of Corrections; Drug Abuse Comprehensive Coordinating Office, Tampa, Florida; Gateway Foundation, Huntsville, Texas; Nevada Department of Prisons; Odyssey House, Salt Lake City, Utah; Operation PAR, Pinellas Park, Florida; Oregon Department of Corrections; Texas Department of Criminal Justice – Institutional Division; Utah Department of Corrections; Volunteers of America, Portland, Oregon; and WestCare Nevada, Las Vegas, Nevada.

Scale Construction

Construction of the PPI-Tri scales proceeded in three phases: a development phase for the selection of candidate items, a refinement phase, and a final psychometric evaluation phase. Scale-level psychometric properties and relations with external validation criteria presented herein reflect findings from the final phase of scale construction.

Development phase and candidate item scale construction.

Five clinical psychology doctoral students were provided with narrative descriptions of the boldness, meanness, and disinhibition phenotypes of the Triarchic model (Patrick et al., 2009). The Construct Definition Form provided to raters is available as an online supplement to the present article. Raters were familiar with the psychopathy construct and with the PPI, but were naïve to (a) predictions regarding which subscales of the PPI would relate to the Triarchic facet constructs; (b) which subscales of the PPI load on Fearless Dominance versus Self-Centered Impulsivity factors; (c) the source subscales of individual PPI items. These raters were asked to judge the degree to which each individual item of the PPI appeared relevant to each of the three Triarchic constructs. For all 187 items of the PPI, raters were asked, “To what extent does this item represent the construct of ‘X’ as defined on your Construct Definition Form?” where X represented boldness, meanness, or disinhibition. Raters selected from five choices: unrelated to X; strongly represents HIGH X; somewhat represents HIGH X; somewhat represents LOW X; and strongly represents LOW X. This rating process was repeated for all 187 items and for all three constructs.

Candidate items for each PPI-Tri scale were selected on the basis of these consensus ratings. Items that were preferentially related to (i.e., rated as strongly indicative of) only one of the

Triarchic constructs, and that were judged to be strongly indicative of high or low levels of that construct by at least four of the five raters, were included as initial scale indicators. Items reflecting low levels of a construct were reverse coded. There were roughly equivalent numbers of positively and negatively worded items in each scale. The number of initial candidate items for each scale was 28 (Boldness), 21 (Meanness), and 22 (Disinhibition).

Refinement phase. Refinement of items for each PPI-Tri scale was undertaken on the basis of item-total correlations for candidate items within scale, and cross-correlations of candidate items for each scale with candidate-item sums for other PPI-based Triarchic scales. Items were dropped from scales if they contributed to decrements in the internal consistency (Cronbach’s alpha) of the target scale or if they demonstrated preferential associations with scales other than the target scale. Following deletion of poorly performing items, further items were evaluated for inclusion in each scale, so as to maintain the overall scale length and stability. Items considered for inclusion at this point had been rated as strongly indicative of a target construct by at least three of the five raters, and as somewhat indicative by the other two. However, as with the initial candidate items, these supplemental items were retained only if they demonstrated preferential relations with the target scale and did not reduce internal consistency of the target scale. Four of the initial candidate items for the Boldness scale were dropped (three Fearlessness, one Social Potency) and two other items (both Social Potency) were added. For the Meanness scale, five initial candidate items were dropped (two Machiavellian Egocentricity, two Rebellious Nonconformity, and one Coldheartedness) and four alternative items (three Coldheartedness, one Machiavellian Egocentricity) were added. The greatest number of changes occurred for the Disinhibition scale, with 10 initial candidate items dropped (four Carefree Nonplanfulness, two Rebellious Nonconformity, two Machiavellian Egocentricity, one Alienation, and one Fearlessness) and eight other items added (five Alienation, two Carefree Nonplanfulness, one Rebellious Nonconformity).

Psychometric evaluation phase. The resultant PPI-Tri scales demonstrated acceptable to good internal consistency, as measured by Cronbach’s alpha. Internal consistency was highest for Boldness ($\alpha = .86$ undergraduate sample, $\alpha = .82$ forensic sample; 26 items), followed by Meanness ($\alpha = .82$ undergraduate sample, $\alpha = .80$; 20 items), and then Disinhibition ($\alpha = .75$ undergraduate sample, $\alpha = .74$ forensic sample; 20 items). Scores on PPI Boldness and Disinhibition were uncorrelated in the student sample ($r = -.03, p > .41$) and demonstrated a modest negative association in the forensic sample ($r = -.24, p < .001$). Scores on PPI Disinhibition and Meanness were positively correlated in both the undergraduate ($r = .21, p < .001$) and forensic samples ($r = .37, p < .001$). Finally, scores on Meanness and Boldness were positively correlated in the undergraduate sample ($r = .21, p < .001$), but were uncorrelated in the forensic sample ($r = -.02, p > .53$).¹

¹ Confirmatory factor analysis was performed to evaluate the fit of a correlated three-factor model to the data. This model provided good absolute fit to the data as indicated by root-mean-square error of approximation (RSMEA = .06) and markedly improved fit over the baseline model, $\Delta\chi^2(69) = 19542.01, p < .001$; however, indices of incremental fit (i.e., comparative fit index, Tucker-Lewis Index) were not appropriate to evaluate for the three-factor model, as RSMEA of the null model was less than .158 (Kenny, 2012).

Content evaluation. During the initial scoring phase, raters were not provided with information concerning the loadings of items on specific subscales of the PPI. Nevertheless, the final PPI-Tri scales largely conformed to expectation (Marion et al., 2013; Sellbom & Phillips, 2013) in terms of which PPI subscales related most to each of the Triarchic constructs. Specifically, items for the PPI-based Boldness scale (26 items total) were derived from the Social Potency (11 items; e.g., “If I really wanted to, I could convince most people of just about anything”), Fearlessness (eight items; e.g., “I bet that it would be fun to pilot a small airplane alone”), and Stress Immunity (six items; e.g., “I am easily ‘rattled’ at critical moments” [reverse scored]) subscales of the PPI, which collectively comprise the higher order Fearless Dominance factor of the PPI (Benning et al., 2003). Items for the PPI-Meanness scale (20 items total) were derived primarily from the Coldheartedness (11 items; e.g., “It bothers me greatly when I see someone crying” [reverse scored]) and Machiavellian Egocentricity (eight items; e.g., “I always look out for my own interests before worrying about those of the other guy”) subscales. The Meanness scale also contains one Fearlessness item (“I get a kick out of startling or scaring other people”). Finally, items for the PPI-Disinhibition scale (20 items total) were derived primarily from subscales associated with the PPI’s Self-Centered Impulsivity, including Carefree Nonplanfulness (10 items, e.g., “I generally prefer to act first and think later”), Impulsive Nonconformity (three items, e.g., “I get restless and dissatisfied if my life becomes too routine”), and Blame Externalization (five items; e.g., “I often get blamed for things that aren’t my fault”). The PPI-Disinhibition scale also contains one item each from the Machiavellian Egocentricity (“I have sometimes ‘stood up’ a date or a friend because something that sounded like more fun came up”) and Stress Immunity subscales (“I tend to have a short temper when I am under stress”). Table 1 provides a summary of the composition of the final PPI-Tri scales in the form of a list of the numberings for the items as they appear in the original and revised versions of the PPI, along with the PPI subscale source for each item.

External Validation Measures: Undergraduate Sample

The TriPM. The TriPM (Patrick, 2010) is a 58-item self-report inventory designed specifically to index the three phenotypic facets of the Triarchic model (Patrick et al., 2009). Items are scored using a 4-point Likert scale ranging from 0 (*False*) to 3 (*True*). Items comprising Disinhibition and Meanness scales are derived from a measurement model of the externalizing spectrum (Krueger et al., 2007), and items of the Boldness scale are derived from a measurement model of the fearless dominance domain (Patrick, Vaidyanathan, Benning, Hicks, & Kramer, 2014). In the present undergraduate sample, internal consistency for each of the TriPM subscales was adequate (α s for Boldness, Meanness, and Disinhibition = .79, .83, and .79, respectively).

Multidimensional Personality Questionnaire (MPQ). A 35-item version of the MPQ (Tellegen, 2011) was used in the present study that had been created for use in the Midlife in the United States-II (www.midus.wisc.edu), an epidemiological study of health and well-being in older adulthood. Items on the MPQ-35 were scored using a 4-point Likert scale, which ranged from 1 (*Strongly disagree*) to 4 (*Strongly agree*). The MPQ-35 yields scores for 10 of 11 trait scales included in the full-length MPQ:

Table 1
List of PPI and PPI-R Items Comprising Each PPI-Tri Scale

Variable	PPI item number	PPI-R item number	PPI/PPI-R scale
Boldness	5R	3R	Fearlessness
	26	12	Fearlessness
	42R	47R	Fearlessness
	59	57	Fearlessness
	98R	69R	Fearlessness
	111R	79R	Fearlessness
	142	115	Fearlessness
	181	137	Fearlessness
	14R	21R	Social Potency
	22*		Social Potency
	31R	135R	Social Potency
	35R*		Social Potency
	72R	68R	Social Potency
	90	1	Social Potency
	102	78	Social Potency
	114R	87R	Social Potency
	149R	113R	Social Potency
	155R*		Social Potency
	157	64R	Social Potency
	1	2	Social Potency
	63R	10R	Stress Immunity
	73	54	Stress Immunity
	121R	96	Stress Immunity
	136	140	Stress Immunity
	144R	141R	Stress Immunity
	169R	32	Stress Immunity
Meanness	13R	9R	Coldheartedness
	45R	27R	Coldheartedness
	74R	75R	Coldheartedness
	78R	153R	Coldheartedness
	88	131	Coldheartedness
	93R	110R	Coldheartedness
	95R	120R	Coldheartedness
	130R	31R	Coldheartedness
	132R	71R	Coldheartedness
	28R	5R	Coldheartedness
	128R	142R	Coldheartedness
	107*		Fearlessness
	40R	109R	Machiavellian Egocentricity
	65	49	Machiavellian Egocentricity
	75	45	Machiavellian Egocentricity
	133*		Machiavellian Egocentricity
	137	67	Machiavellian Egocentricity
143R	83R	Machiavellian Egocentricity	
150	147	Machiavellian Egocentricity	
170	125	Machiavellian Egocentricity	
Disinhibition	80	62	Alienation/Blame Externalization
	141	122	Alienation/Blame Externalization
	165	134	Alienation/Blame Externalization
	67	60	Alienation/Blame Externalization
	92R	100R	Alienation/Blame Externalization
	10R	130R	Carefree Nonplanfulness
	15R	89R	Carefree Nonplanfulness
	56R	143R	Carefree Nonplanfulness
	62	7	Carefree Nonplanfulness
	68R	51R	Carefree Nonplanfulness
	97	111	Carefree Nonplanfulness
	164	66	Carefree Nonplanfulness
	184R	145R	Carefree Nonplanfulness
	77R	101R	Carefree Nonplanfulness
87R	133R	Carefree Nonplanfulness	

(table continues)

Table 1 (continued)

Variable	PPI item number	PPI-R item number	PPI/PPI-R scale
	91	70	Impulsive/Rebellious Nonconformity
	124	15	Impulsive/Rebellious Nonconformity
	187	127	Impulsive/Rebellious Nonconformity
	96*		Machiavellian Egocentricity
	6*		Stress Immunity

Note. Entries marked with an asterisk denote Psychopathic Personality Inventory (PPI) items with no corresponding item in the Psychopathic Personality Inventory-Revised (PPI-R). Entries marked with an R are reverse scored. Boldface values denotes items that are worded in opposite directions in PPI versus PPI-R.

Wellbeing, Social Potency, Achievement, Social Closeness, Stress Reaction, Aggression, Alienation, Control, Harm avoidance, and Traditionalism. The 11th trait scale, Absorption, is not represented in the 35-item version. Internal consistencies for the 10 trait scales in the current sample ranged from $\alpha = .49$ (Traditionalism) to $\alpha = .74$ (Control). Using the items of the MPQ-35, we also computed MPQ-estimated scores for Fearless Dominance (FD) and Impulsive-Antisociality (IA; an earlier term used to refer to Self-Centered Impulsivity—see Benning et al., 2005).

NEO Personality Inventory—Revised (NEO-PI-R): Antagonism. The NEO-PI-R (Costa & McCrae, 1992) is a 240-item self-report questionnaire that assesses the constructs of the five-factor model (FFM) of personality. In the present study, we administered only the 48 items of the Agreeableness scale. Items were reverse scored using a 5-point Likert scale ranging from 1 (*strongly agree*) to 5 (*strongly disagree*) such that higher scores indicated higher Antagonism. NEO-PI-R Antagonism reflects the relative absence of lower order Agreeableness facets including trust, straightforwardness, altruism, compliance, modesty, and tendermindedness. The Antagonism scale demonstrated good internal consistency ($\alpha = .89$).

The ICU. The ICU (Frick, 2004) is a 24-item self-report scale developed to assess the construct of “callous-unemotional traits” reflecting lack of empathy and guilt, shallow affect, and unconcern about one’s actions, all of which are central to the conception of meanness. The ICU, although developed to index psychopathic-like affective tendencies in children, has also demonstrated effective psychometric properties in young adult samples (e.g., Kimonis, Branch, Hagman, Graham, & Miller, 2013). Items of the ICU are scored using a 4-point Likert scale ranging from 0 (*not at all true*) to 3 (*definitely true*). Total scores on the ICU demonstrated good internal consistency ($\alpha = .84$) in the present sample.

External Validation Measures: Forensic Sample

The PCL-R. The PCL-R (Hare, 2003) is a 20-item measure of the core traits and associated features of psychopathy. Items are scored on the basis of information obtained through a semistructured clinical interview and review of institutional records, with total scores ranging from 0 to 40. In the present sample, the mean score on the PCL-R was 23.22 ($SD = 7.23$), with 21.9% of the sample scoring in the psychopathic range (PCL-R ≥ 30 ; $n = 286$). Items of the PCL-R can be organized into two higher order factors, which are further divisible into facets (Hare, 2003). Factor 1 (encompassing the Interpersonal and Affective facets) indexes the

core emotional and interpersonal traits associated with psychopathy, including glibness/charm, manipulateness, lack of remorse, and lack of empathy. Factor 2 (encompassing the Lifestyle and Antisocial facets) indexes the impulsive and criminal features of psychopathy, such as impulsivity, need for stimulation, juvenile delinquency, and criminal versatility. In the present study, the two Factors of the PCL-R were moderately correlated ($r = .45$, $p < .001$). Internal consistencies (alphas) for PCL-R total, Factor 1, and Factor 2 scores were .82, .81, and .68, respectively. Based on dual ratings for a subsample of 51 cases, interrater reliability (ICC) for the PCL-R total score was .88.

The LSRP. The LSRP (Levenson et al., 1995) is a 26-item self-report measure designed to assess the defining personality and behavioral features of psychopathy, through subscales reflecting the distinction between “primary” and “secondary” variants of psychopathy (Karpman, 1941). Items comprising the first, primary psychopathy subscale, index traits related to a callous/manipulative interpersonal style, whereas items comprising the other, secondary psychopathy subscale, more strongly reflect the behavioral deviance features of psychopathy. In the present offender sample, internal consistencies were adequate for both the primary ($\alpha = .84$) and secondary ($\alpha = .73$) psychopathy subscales, and scores for the two were moderately intercorrelated ($r = .50$, $p < .001$).

Structured Clinical Interview for DSM-IV Axis II (SCID-II): APSD. Symptoms and diagnoses of ASPD were assessed using the ASPD module of the SCID-II (First, Gibbon, Spitzer, Williams, & Benjamin, 1997). The prevalence of ASPD in the present sample was 55.9%, consistent with previous findings of high levels of ASPD in criminal samples (Lilienfeld, 1994). Participants were also rated separately for symptoms of conduct disorder (CD) and adult antisocial behavior (AAB), which collectively contribute to an ASPD diagnosis. There was acceptably high interrater reliability for ASPD diagnoses in the present sample ($\kappa = .74$; $n = 50$), as well as for ASPD symptom counts (ICC = .86; $n = 46$), for which internal consistency was adequate ($\alpha = .83$).

Personality Diagnostic Questionnaire-4+ (PDQ-4+). The PDQ-4+ (Hyler, 1994), a 99-item self-report inventory designed to index the 10 personality disorders in the *Diagnostic and Statistical Manual of Mental Disorders*, fourth edition (DSM-IV; American Psychiatric Association, 2000), was used to assess for symptoms of ASPD, CD, and AAB in the domain of self-report. The items of the PDQ-4+ correspond to specific DSM-IV criteria. In the present sample, scores on the Antisocial Personality Disorder subscale of the PDQ-4+ were strongly correlated with SCID-II ASPD symptoms counts ($r = .67$, $p < .001$). This was also true for symptoms of CD ($r = .68$, $p < .001$) and AAB ($r = .45$, $p < .001$). The internal consistency for PDQ-4+ ASPD symptoms as a whole was good ($\alpha = .85$).

The Barratt Impulsivity Scale—Version 11 (BIS-11). The BIS-11 (Patton, Stanford, & Barratt, 1995) is a 30-item self-report inventory that measures impulsivity in a number of domains, including attentional deficits, motor restlessness, and nonplanfulness. BIS-11 total scores provide an index of an individual’s overall level of impulsivity. In the present sample, BIS-11 total scores demonstrated good internal consistency ($\alpha = .86$).

Behavioral Inhibition System/Behavioral Activation System (BIS/BAS) scales. The BIS/BAS scales (Carver & White, 1994) comprise a 24-item inventory, designed to index the components of Gray’s (1982) BIS and BAS constructs. The BIS scale measures

the likelihood that an individual experiences anxiety in negative or novel situations. BAS encompasses three scales: Reward Responsiveness, Drive, and Fun-Seeking. The Reward Responsiveness scale measures an individual's motivation to pursue positive rewards. The Drive scale, in contrast, indexes the *intensity* of one's pursuit of positive rewards. Finally, Fun-Seeking indexes the tendency to seek out novel/exciting situations. Internal consistencies (alphas) were .75, .82, .85, and .78 for the BIS, Reward Responsiveness, Drive, and Fun-Seeking scales, respectively.

Harm Avoidance. The 28-item Harm Avoidance scale of the MPQ (Tellegen, 2011) measures the propensity to avoid risky or potentially harmful situations. Low scores on Harm Avoidance reflect fearless temperament and index a preference for physically dangerous and thrilling experiences over safe or dull activities. Internal consistency for the Harm Avoidance scale in the current offender sample was good ($\alpha = .86$).

Dissociative Experiences Scale (DES). The DES (Bernstein & Putnam, 1986) is a 28-item self-report measure that assesses several forms of dissociation, including depersonalization, derealization, dissociative amnesia, and gaps in awareness. Internal consistency for total scores on the DES was very high in the present sample ($\alpha = .93$).

Child Abuse and Trauma Scale (CATS). The CATS (Sanders & Giolas, 1991) is a 38-item retrospective self-report assessment of adverse childhood experiences, including neglect, sexual abuse, and punishment/physical abuse. Total scores on the CATS demonstrated very high internal consistency ($\alpha = .95$).

QuickTest IQ. The QuickTest (Ammons & Ammons, 1962) was used to obtain an IQ estimate for each participant. The QuickTest is primarily an index of verbal intelligence. Participants are shown four pictures depicting various scenes and are asked to match the picture to a corresponding word from a list of 50 words of increasing difficulty.

Educational attainment. Participants were asked to provide their highest level of education from among the following choices: no high school diploma, GED, high school diploma, some college, completed college, or any graduate/professional school. A second measure of the highest level of education was scored using data obtained from institutional records based on this same rubric. Self-reported and file-based indices of educational attainment were strongly correlated ($r = .84, p < .001$), with self-reported levels of education somewhat higher than those identified in the file, $t(1305) = 4.24, p < .001$. The majority of participants had at least

a high school diploma or GED (73.5% from file; 71.7% from self-report).

Data Analytic Approach

In order to evaluate the construct validity of the PPI-Tri scales in relation to external criterion variables, we computed Pearson correlation coefficients between the PPI-Tri scales and the criterion variables described above. In addition, to evaluate the unique contribution of each PPI-Tri scale to prediction of criterion variables after controlling for the other two PPI-Tri scales, we conducted multiple regression analyses in which all three PPI-Tri scales were entered simultaneously as predictors. To reduce the likelihood of familywise Type I error, we used a conservative alpha of $p < .001$ for all tests of statistical significance.

Results

Undergraduate Sample

Correlation coefficients for the PPI-Tri scales with their corresponding TriPM scales in the undergraduate sample are presented in Table 2. For purposes of comparison, this table also presents r s for the three factors of the PPI (Fearless Dominance, Self-Centered Impulsivity, and Coldheartedness) with the TriPM scales. Results for correlational and regression analyses quantifying associations between the PPI-Tri scales and other self-report criterion variables (including MPQ, Antagonism, and ICU scores) in the undergraduate sample are presented in Table 3.

Boldness. As predicted, PPI-Boldness was associated strongly and preferentially with TriPM Boldness, and weakly with TriPM Meanness. The correlation between PPI-based Boldness and TriPM Boldness was comparable in magnitude to that between PPI Fearless Dominance and TriPM Boldness. Scores on PPI-Boldness also exhibited predicted associations with Social Potency, Harm Avoidance (–), and Stress Reaction (–) scales of the MPQ, and were related strongly ($>.6$) to MPQ-predicted Fearless Dominance scores. In addition to these predicted relationships, PPI-Boldness scores were also associated with MPQ Wellbeing, and to a lesser extent MPQ Achievement, Control (–), and Social Closeness. Scores on PPI-Boldness were also weakly associated with NEO-PI-R Antagonism, but this relationship was nonsignificant when

Table 2
Correlations Among PPI-Triarchic Scales, TriPM Scales, and PPI Factor Scores in Undergraduate Participants

Variable	PPI-Bold	PPI-Mean	PPI-Dis	PPI-FD	PPI-CH	PPI-SCI
TriPM Boldness	.79	.20	–.07	.82	.23	.06
TriPM Meanness	.23	.54	.38	.30	.41	.54
TriPM Disinhibition	–.03	.24	.64	.01	.04	.66
PPI-FD	.96	.26	.01	—	—	—
PPI-CH	.23	.78	.03	.27	—	—
PPI-SCI	.11	.49	.86	.17	.17	—

Note. $N = 631$. PPI = Psychopathic Personality Inventory; TriPM = Triarchic Psychopathy Measure; Bold = Boldness; Dis = Disinhibition; FD = Fearless Dominance; CH = Coldheartedness; SCI = Self-Centered Impulsivity. Dashes indicate intersections of variables with themselves ($r = 1$), or correlations that are redundant with others shown.

Table 3
Relations Between PPI-Triarchic Scales and Personality Trait Measures in Undergraduate Participants: Correlations and Regression Coefficients

Measure	PPI-Boldness	PPI-Meanness	PPI-Disinhibition	Model <i>R</i>
	<i>r</i> / β	<i>r</i> / β	<i>r</i> / β	
Multidimensional Personality Questionnaire				
MPQ-estimated PPI-FD	.64/.65^a	.09/-.02	-.07/-.07	.65
MPQ-estimated PPI-IA	.15/.12	.38/.22	.54/.50^a	.62
Social Potency	.47/.47^a	.10/.00	.02/.03	.47
Wellbeing	.35/.38	-.08/-.13	-.13/-.09	.40
Stress Reaction	-.36/-.34^a	.02/-.01	.34/.35^a	.50
Achievement	.28/.29	-.11/-.11	-.29/-.24	.40
Harm Avoidance	-.43/-.45^a	-.10/.05	-.19/-.22	.48
Social Closeness	.15/.20	-.20/-.24^a	-.07/-.02	.28
Aggression	.07/.01	.43/.33^a	.42/.34^a	.54
Alienation	-.13/-.12	.10/.01	.39/.40^a	.42
Control	-.24/-.24	-.25/-.07	-.46/-.46^a	.54
Traditionalism	-.12/-.10	-.15/-.13	-.05/-.03	.18
NEO-PI-R Antagonism				
Total Antagonism score	.14/.03	.68/.61^a	.39/.22	.71
Inventory of Callous-Unemotional Traits				
Total ICU score	.12/.02	.52/.49^a	.25/.11	.53

Note. $N = 631$. Zero-order correlations (r) reflect bivariate correlations for each PPI-Triarchic subscale score with each criterion measure. Standardized regression coefficients (β) are from regression models incorporating all three PPI-Triarchic scales as predictors of criterion measures. Model R = Multiple R from these regression models. PPI = Psychopathic Personality Inventory; MPQ = Multidimensional Personality Questionnaire; FD = Fearless Dominance; IA = Impulsive Antisociality; NEO-PI-R = NEO Personality Inventory—Revised; ICU = Inventory of Callous-Unemotional Traits. Bolded coefficients are significant at $p < .001$.

^a Entries denote hypothesized relationships.

controlling for the other two PPI-Tri scales using multiple regression.

Meanness. Scores on PPI-Meanness were strongly and preferentially associated with TriPM Meanness, but were also modestly correlated with TriPM Boldness and Disinhibition. The correlation between scores on PPI-Meanness and TriPM Meanness scales ($r = .54$) was higher than that between PPI Coldheartedness and TriPM Meanness scores ($r = .41$). PPI-Meanness also showed strong positive associations as predicted with scores on MPQ Aggression, NEO-PI-R Antagonism, and ICU total scores, as well as a more modest negative association with MPQ Social Closeness. In addition to these predicted relationships, PPI-Meanness scores were modestly associated with MPQ-predicted IA scores, as well as with MPQ Control (–) and Traditionalism (–), although these latter two relationships became nonsignificant after controlling for the other two PPI-Tri scale scores using multiple regression.

Disinhibition. PPI-Disinhibition scores were strongly and preferentially related to scores on TriPM Disinhibition, and more modestly associated with TriPM Meanness. The correlation between PPI-Disinhibition and TriPM Disinhibition scales was comparable in magnitude to the correlation between scores on PPI Self-Centered Impulsivity and TriPM Disinhibition. PPI-Disinhibition also demonstrated predicted relationships with scores on MPQ Control (–), Alienation, Stress Reaction, and Aggression, as well as MPQ-estimated IA. In addition to these predicted associations, PPI-Disinhibition scores demonstrated modest negative correlations with MPQ Achievement and Harm

Avoidance scores, and positive correlations with NEO-PI-R Antagonism, and ICU total scores; however, the latter of these relationships became nonsignificant after controlling for PPI-Tri Boldness and Meanness scores.

Forensic Sample

Table 4 presents results of correlational and regression analyses for PPI-Tri scales with criterion measures of (a) psychopathic tendencies (PCL-R and LSRP scores) and (b) ASPD features (SCID-II and PDQ-4 + scores) in the forensic sample. We predicted that all three PPI-Tri scale scores would uniquely predict PCL-R total scores when entered concurrently in a regression analysis, and this hypothesis was supported, although effect sizes were generally modest in magnitude compared with relations for self-report criterion measures (Blonigen et al., 2010).

Table 5 presents results for correlational and regression analyses involving self-report measures of impulsivity (BIS-11), BIS/BAS, fearfulness (MPQ Harm Avoidance), history of abuse and associated problems (CATS and DES scores), and indices of intelligence/education (QuickTest IQ scores and self-reported/file education level) in the forensic sample.

Boldness. Consistent with prediction, PPI-Boldness scores showed preferential associations with PCL-R total, Factor 1, and Interpersonal facet scores. Indeed, PPI-Boldness emerged as the only significant predictor of PCL-R Interpersonal facet scores when entered concurrently with the other two PPI-Tri scales in a regression model. Scores on PPI-Boldness also showed negative

Table 4
Relations Between PPI-Triarchic Scales and Measures of Psychopathy and Antisocial Personality Disorder in Forensic Participants: Correlations and Regression Coefficients

Measure	PPI-Boldness	PPI-Meanness	PPI-Disinhibition	Model <i>R</i>
	<i>r</i> / β	<i>r</i> / β	<i>r</i> / β	
Psychopathy Checklist Revised				
PCL-R Total Score	.17/.21^a	.25/.19^a	.20/.17^a	.34
PCL-R Factor 1	.19/.20^a	.17/.16^a	.06/.05	.26
PCL-R Factor 2	.08/.14	.26/.17	.29/.25^a	.36
PCL-R Interpersonal facet	.22/.23^a	.11/.09	.04/.06	.25
PCL-R Affective facet	.12/.13	.19/.19^a	.06/.02	.23
PCL-R Lifestyle facet	.04/.13	.24/.11	.35/.34^a	.39
PCL-R Antisocial facet	.09/.12	.20/.17	.14/.10	.24
Levenson Self-Report Psychopathy Scale				
LSRP Primary subscale	.00/.07	.65/.56^a	.43/.24^a	.69
LSRP Secondary subscale	-.29/-.16	.34/.12	.65/.57^a	.68
SCID-II Antisocial Personality Disorder				
SCID-II ASPD Total symptom count	.05/.12	.36/.27^a	.33/.26^a	.43
SCID-II CD symptom count	.07/.11	.31/.24^a	.25/.18^a	.36
SCID-II AAB symptom count	.00/.07	.32/.21^a	.35/.29^a	.41
Meets SCID-II ASPD diagnostic criteria (Y/N)	.04/.09	.27/.19^a	.25/.20^a	.32
Personality Diagnostic Questionnaire				
PDQ Antisocial Personality Disorder total	-.03/.07	.44/.29^a	.48/.39^a	.56
PDQ Conduct Disorder	.01/.08	.37/.27^a	.36/.28^a	.45
PDQ Adult Antisocial Behavior	-.10/.02	.42/.24^a	.57/.48^a	.61

Note. $N = 1,341$. Zero-order correlations (r) reflect bivariate correlations for each PPI-Triarchic subscale score with each criterion measure. Standardized regression coefficients (β) are from regression models incorporating all three PPI-Triarchic scales as predictors of criterion variables. Model R = Multiple R from these regression models. PPI = Psychopathic Personality Inventory; PCL-R = Psychopathy Checklist-Revised; LSRP = Levenson Self-Report Psychopathy Scale; SCID-II = Structure Clinical Interview for DSM-IV Axis II Personality Disorders; ASPD = antisocial personality disorder; CD = conduct disorder; AAB = adult antisocial behavior; PDQ = Personality Diagnostic Questionnaire. Bolded coefficients are significant at the $p < .001$ level.

^a Superscripted entries denote hypothesized relationships.

associations with BIS (behavioral inhibition) and MPQ Harm Avoidance scores in the forensic sample. In addition to these predicted associations, PPI-Boldness scores showed a weak positive correlation with PCL-R Affective facet scores, and a modest negative correlation with LSRP Secondary scores. Further, after controlling for PPI-based Meanness and Disinhibition scores, PPI-Boldness scores exhibited weak positive relations with Factor 2 of the PCL-R and its Lifestyle and Antisocial facets, and also with child (CD) and overall ASPD symptoms and diagnoses of ASPD as assessed by the SCID-II. By contrast, PPI-Boldness correlated negatively with BIS-11 impulsivity, CATS Neglect, and DES total scores (although the latter two associations became nonsignificant after controlling for scores on the other two PPI-Tri scales), and positively with scores on BAS Drive and Fun-Seeking. PPI-Boldness also showed a positive association with scores on the QuickTest IQ inventory and both self-report and file-based indices of educational achievement.

Meanness. Scores on PPI-Meanness exhibited predicted positive associations with PCL-R total, Factor 1, and Affective facet scores; in the regression analysis predicting Affective facet scores using all three PPI-Tri scales, PPI-Meanness emerged as the strongest predictor, although betas for the other two PPI-Tri scales remained significant. PPI-Meanness also exhibited predicted positive relationships with LSRP Primary subscale scores, and ASPD symptoms/diagnoses as assessed both by interview (SCID-II) and self-report

(PDQ-4+). PPI-Meanness emerged as the strongest unique predictor of SCID-II CD symptoms in regression analysis, including all three PPI-Tri scales. In addition to these predicted relationships, PPI-Meanness also showed positive associations with PCL-R Factor 2 and its constituent facets (Lifestyle and Antisocial), and a lesser positive association with the PCL-R Interpersonal facet, which became nonsignificant after controlling for scores on the other PPI-Tri scales. PPI-Meanness also showed positive correlations with the LSRP Secondary subscale and BIS-11 Impulsivity scale, but these associations were also reduced to nonsignificance when the other two PPI-Tri scales were included as concurrent predictors. PPI-Meanness scores were negatively related to BIS scores, weakly and negatively related to BAS Reward Responsiveness scores, and positively related to BAS Drive scores; PPI-Meanness was also positively associated with the Fun-Seeking facet of BAS, but this association became nonsignificant when controlling for the other two PPI-Tri scales. Finally, PPI-Meanness scores were weakly and positively related to dissociative tendencies (as measured by DES total scores), but this relationship was again significant only at the zero-order level.

Disinhibition. As predicted, PPI-Disinhibition scores were associated with total, Factor 2, and Lifestyle facets from the PCL-R. Disinhibition emerged as the strongest unique PPI-Tri predictor of PCL-R Lifestyle facet scores in a regression analysis, although beta weights for the other two PPI-Tri scales were also significant. As

Table 5
Relations Between PPI-Triarchic Scales and Measures of Personality, Abuse History, Intelligence, and Education in Forensic Participants: Correlations and Regression Coefficients

Measure	PPI-Boldness	PPI-Meanness	PPI-Disinhibition	Multiple <i>R</i>
	<i>r</i> / β	<i>r</i> / β	<i>r</i> / β	
Barratt Impulsivity Scale				
BIS-11 total score	-.26/-.11	.31/.06	.71/.66^a	.72
BIS/BAS				
BIS Scale score	-.44/-.39^a	-.18/-.26	.20/.21	.51
BAS Reward	.08/.10	-.11/-.14	.00/.07 ^a	.15
BAS Drive	.20/.24	.21/.16	.15/.15^a	.32
BAS Fun-Seeking	.15/.25	.19/.04	.36/.40^a	.44
Harm Avoidance				
Harm Avoidance total score	-.30/-.36^a	-.18/-.08	-.21/-.26	.42
Self-Reported Abuse History				
CATS Total score	-.10/-.03	.07/-.04	.28/.29	.29
CATS Neglect Scale score	-.11/-.04	.05/-.06	.28/.30	.29
CATS Sexual Abuse Scale score	-.01/.03	-.01/-.07	.14/.17	.16
CATS Punishment Scale score	-.06/-.02	.07/.01	.18/.17	.18
Dissociative Experiences				
DES Total score	-.14/-.07	.12/.01	.32/.29	.32
Intelligence and Education				
QuickTest IQ	.17/.18	-.03/-.04	-.03/.02	.18
Highest Level of Education (file)	.12/.10	-.07/-.03	-.13/-.09	.16
Highest Level of Education (self-report)	.14/.11	-.09/-.04	-.16/-.11	.19

Note. $N = 1,341$. Zero-order correlations (r) reflect bivariate correlations for each PPI-Triarchic subscale score with each criterion measure. Standardized regression coefficients (β) are from regression models incorporating all three PPI-Triarchic scales as predictors of criterion variables. Model $R =$ Multiple R from these regression models. PPI = Psychopathic Personality Inventory; BIS-11 = Barratt Impulsivity Scale-11; BIS/BAS = Behavioral Inhibition System/Behavioral Activation System scales; CATS = Child Abuse and Trauma Scale; DES = Dissociative Experiences Scale. Bolded coefficients are significant at the $p < .001$ level.

^a Superscripted entries denote hypothesized relationships.

predicted, PPI-Disinhibition was positively correlated with Primary and Secondary subscales of the LSRP, and with ASPD symptoms as assessed both by self-report and interview, emerging as the strongest unique predictor of adult and overall symptom symptoms of ASPD (when assessed by self-report, in particular) in regression analyses. PPI-Disinhibition scores were also strongly related to BIS-11 Impulsivity, moderately correlated with BAS Fun-Seeking, and weakly correlated with BAS Drive scores. In addition to these predicted relationships, PPI-Disinhibition showed a modest positive association with BIS scale scores, and a contrasting negative association with MPQ Harm Avoidance. PPI-Disinhibition also showed a positive relationship with self-reported history of abuse as measured by the scales of the CATS, and with dissociative tendencies as assessed by the DES. Whereas PPI-Boldness was weakly and negatively related to DES scores at the zero-order level, and PPI-Meanness exhibited a corresponding weak positive relationship, these associations dropped out in the regression analysis that included all PPI-Tri scales, in which PPI-Disinhibition emerged as the only unique predictor. At the zero-order level, PPI-Disinhibition was associated with lower levels of education as assessed both by self-report and file information, but the relationship for file-based education levels became nonsignificant after controlling for scores on the other two PPI-Tri scales.

Discussion

The primary aim of the present study was to develop and validate scale measures of the constructs described in the Triarchic

model of psychopathy using items from the PPI. PPI-Boldness was composed exclusively of items from scales that load on the Fearless Dominance factor and exhibited strong convergence with TriPM Boldness and MPQ-estimated FD. As predicted, PPI-Boldness contributed significantly to prediction of PCL-R total scores, and was preferentially related to PCL-R Factor 1—the Interpersonal facet in particular—in offenders, which coincides with prior evidence that the PCL-R Interpersonal facet is associated with a low-anxious, socially dominant personality style (Hall et al., 2004). PPI-Boldness was also associated with interpersonal dominance and agency, relative immunity to stress, and high tolerance for risk or novelty/unpredictability. This coherent pattern of relationships is consistent with the theoretical basis of boldness: low dispositional fear, as manifested in domains of social/interpersonal, emotional/experiential, and behavioral functioning (Patrick et al., 2009). These findings are also in accord with recent research demonstrating strong phenotypic and genetic coherence between PPI Fearless Dominance and the trait dimension of fear/fearlessness as indexed by multiple scale measures (Kramer, Patrick, Krueger, & Gasperi, 2012). Interestingly, PPI-Boldness also exhibited modest positive associations with IQ and educational achievement, which is consistent with Cleckley's (1941/1976) description of psychopaths as appearing to possess "good intelligence."

PPI-Meanness, which was composed primarily of items from the Coldheartedness and Machiavellian Egocentricity scales, demonstrated somewhat weaker, but still robust convergence with its

TriPM counterpart. PPI-Meanness also contributed significantly to prediction of PCL-R total scores and both factors, but in regression analyses was related selectively to the Affective and Antisocial facets of the PCL-R. This finding is particularly interesting in light of work by Lynam, Miller, and colleagues (for a review, see Lynam & Derefinko, 2006), showing FFM Antagonism to be the common personality element underlying Factors 1 and 2 of the PCL-R. Consistent with this notion, PPI-Meanness was robustly associated with NEO-PI-R Antagonism, and also with scores on the LSRP Primary subscale, callous-unemotional traits, MPQ-estimated IA, and child as well as adult symptoms of ASPD. In terms of personality correlates, PPI-Meanness was primarily associated with a personality style marked by elevated levels of aggression and low affiliative tendencies, consistent with the conception of meanness as “agentic disaffiliation” (Patrick et al., 2009)—that is, a style of opposing and exploiting others arising from impaired bonding capacity. Additionally, like PPI-Boldness, PPI-Meanness was correlated to a moderate negative extent with BIS functioning. This finding, along with prior work demonstrating fear deficits in children with callous-unemotional traits (e.g., Marsh et al., 2008), supports the notion that boldness and meanness share the common etiological substrate of low dispositional fear; however, meanness is conceptualized as a more malignant, maladaptive expression of fearlessness that interferes with normal attachment and socialization processes in childhood (Blair, 1995; Kochanska, 1997).

The PPI-based Disinhibition scale consists primarily of items from scales that define the Self-Centered Impulsivity factor of the PPI, and exhibited strong convergence with its corresponding TriPM scale and with MPQ-estimated IA. As with PPI-Boldness and Meanness, PPI-Disinhibition contributed significantly to prediction of total PCL-R scores, specifically as a function of its association with PCL-R Factor 2 (the Lifestyle facet, in particular). PPI-Disinhibition was related to both subscales of the LSRP, Antagonism, and ASPD symptomatology (adult symptoms more so than child symptoms). In broader personality terms, PPI-Disinhibition was associated with high negative affect and poor impulse control, a profile that overlaps substantially with the personality correlates of general externalizing proneness (Krueger, Caspi, Moffitt, Silva, & McGee, 1996; Venables & Patrick, 2012). Interestingly, although PPI-based Boldness and Disinhibition are largely uncorrelated, both scales showed negative relations with MPQ Harm Avoidance. It may be that these two psychopathy facets predict increased risk tolerance for differing reasons—that is, a lack of fear in the case of boldness, and boredom susceptibility or failure to assess risk in the case of disinhibition. PPI-Disinhibition was also associated modestly with self-reported history of neglect, abuse, and dissociative experiences, which is consistent with prior research demonstrating positive relations between the antisocial deviance features of psychopathy and such measures (Poythress et al., 2006).

Interestingly, we observed differing degrees of association among the three PPI-Tri scales across the two participant samples of the current study. Consistent with theory and prior research (Patrick, 2010; Patrick et al., 2009), PPI-based boldness and disinhibition scores were uncorrelated in the undergraduate sample. By contrast, scores for these scales exhibited a modest negative association in the offender sample. A possible explanation could be that boldness and disinhibition are related in a nonlinear man-

ner, with boldness levels varying widely and independently of disinhibitory tendencies at low-to-moderate levels of disinhibition, but relating inversely to such tendencies at higher levels of disinhibition, where the resilience and low stress reactivity aspects of boldness become incompatible with the undercontrolled negative emotionality component of disinhibition (Patrick et al., 2009). In addition to this sample difference, we also found that PPI-Meanness and Boldness scores were correlated to a modest positive degree in the undergraduate sample, consistent with theory and past research (Drislane et al., 2013; Patrick et al., 2009), whereas these scales were uncorrelated in the offender sample. This finding may be related in turn to the increased convergence between PPI-Meanness and Disinhibition in the offender sample ($r = .37$) relative to the undergraduate sample ($r = .21$). Given that PPI-Boldness and Disinhibition were negatively correlated among offenders, this may have served to depress the relationship between PPI-Boldness and Meanness in this sample.

Implications for Psychopathy Assessment

The present findings bear several implications for the assessment and conceptualization of psychopathy. First, these findings support the convergent and discriminant validity of the PPI-Tri scales and help to clarify what the PPI factors measure in Triarchic terms. Consistent with prior research, we found that PPI Fearless Dominance assesses boldness directly and that PPI Self-Centered Impulsivity preferentially indexes the disinhibition construct while also encompassing elements of meanness via the Machiavellian Egocentricity subscale. Furthermore, we found that PPI Coldheartedness primarily indexes meanness, but provides incomplete coverage of the construct. Our approach called for parsing of Self-Centered Impulsivity into distinct disinhibition and meanness components, and augmenting Coldheartedness with aggression-related items from the PPI's Machiavellian Egocentricity subscale to provide more complete coverage of meanness. Compared with scores on the three factors of the PPI, the PPI-Tri scales demonstrated better convergent and discriminant validity in relation to Triarchic model constructs operationalized via the TriPM scales, particularly with regard to the distinction between Meanness and Disinhibition. Specifically, PPI-SCI exhibited equivalent correlations with both TriPM Meanness and Disinhibition, whereas PPI-Disinhibition correlated preferentially with its corresponding TriPM scale.

Furthermore, these findings add to a nuanced understanding of the constructs encompassed in other psychopathy inventories. Drislane and colleagues (2013) found that, although most psychopathy questionnaires capture meanness and disinhibition effectively, they vary in the degree to which they assess boldness. Consistent with this assertion and previous research, our findings suggest that, unlike the LSRP, which predominantly assesses meanness and disinhibition, the PPI captures boldness directly and substantially. We also found that PCL-R psychopathy includes distinct representation of all three Triarchic constructs. Finally, the clinical construct of ASPD appears to reflect contributions from both meanness and disinhibition, with only a modest correlation for boldness, attributable mainly to an association with childhood ASPD symptoms. This finding bolsters critiques of the ASPD criteria, which have focused on the lack of representation of core interpersonal-affective features of psychopathy (Hare & Hart,

1995; Lilienfeld, 1994; Lykken 1995), and suggests that boldness may play a role in differentiating psychopathy from ASPD. Thus, contrary to reviews that have questioned the role of boldness/fearless dominance in psychopathy's nomological network (Miller & Lynam, 2012; see also Lilienfeld et al., 2012; Patrick, Venables, & Drislane, 2013, for rebuttals), our findings suggest that boldness contributes importantly to a full understanding of psychopathy, particularly its distinctive interpersonal (and potentially adaptive) features.

Finally, the current findings highlight the conceptual status of boldness, meanness, and disinhibition as open constructs (Meehl, 1986), that is, traits that are not defined exclusively in terms of any particular scale but that are open to operationalization in differing ways. The approach used here can perhaps be extended to other psychopathy self-report instruments—such as the Self-Report Psychopathy Scale-III (Paulhus, Hemphill, & Hare, 2009) or Youth Psychopathic Traits Inventory (Andershed, Kerr, Stattin, & Levander, 2002)—as well as broader personality inventories such as the MPQ, the NEO-PI-R, and the Minnesota Multiphasic Personality Inventory-2 (Butcher et al., 2001). Development of Triarchic scales based on these and other widely used measures would foster the use of large existing data sets for exploration of the correlates of boldness, meanness, and disinhibition in a variety of populations.

Limitations and Future Directions

Some limitations of the present study warrant mention. First, in evaluating items for inclusion in the PPI-Tri scales, a relatively modest number of raters ($n = 5$) participated in consensus ratings. However, this concern is mitigated by the fact that only items with high interrater agreement were selected. A second point is that the raters were not psychopathy experts, unlike previous studies in which experts in the field have been studied (e.g., Miller et al., 2001). However, this aspect of our approach was by design; that is, we sought to elicit ratings on the basis of unbiased review of construct definitions and characterizations of prototypic high and low scorers, rather than on preexisting notions about (a) which traits define psychopathy and (b) which theories of psychopathy are most valid.

A further issue is that the PPI-Tri scales were developed using the items of the original 187-item version of the PPI (Lilienfeld & Andrews, 1996) rather than the newer revised version (PPI-R; Lilienfeld & Widows, 2005). We opted to construct scales using the item pool of the original PPI because data for the large offender sample included this version rather than the PPI-R (which did not exist at the time data collection began) and because the PPI has been used in more studies to date than the PPI-R, making validation data more readily available for this version. Nevertheless, considering that the majority of items comprising the PPI-Tri scales are available in both the original and revised versions of the PPI (i.e., only three items of the PPI-Boldness scale lack counterparts in the PPI-R item set, with only two each from the PPI-Meanness and Disinhibition scales lacking PPI-R counterparts), and in light of recent work providing evidence for comparability of measurement across the two PPI versions (Ray et al., 2011), it is likely that PPI-Tri scales corresponding to items of the PPI-R listed in Table 1 would operate comparably.² Given the substantial rewording of numerous items in the PPI-R, however, additional

work will be required to directly establish that PPI-R-based Triarchic scales perform similarly to the PPI-Tri scales reported on here.

Yet another point is that validity coefficients between the questionnaire-based PPI-Tri scales and interview-based measures such as the PCL-R were small in comparison with coefficients for self-report-based criterion measures. This is likely attributable in part to method variance (i.e., even measures of the same construct assessed in different assessment domains can be expected to correlate only to a moderate degree; Blonigen et al., 2010; Campbell & Fiske, 1959). However, the magnitudes of relations between the PPI-Tri scales and the PCL-R factors were lower than would be expected for measures of identical constructs across domains, suggesting that other factors impacted on these relations. For example, whereas even affective and interpersonal features as defined in the PCL-R are assessed with direct reference to antisocial behaviors (e.g., fraud/conning, emotional responses to past crimes), the PPI items largely avoid direct reference to antisociality. Future work devoted to operationalizing Triarchic constructs in the interview domain will be useful for clarifying the role of methodological versus substantive factors in observed relations among measures.

As a final point, we also observed relatively modest convergence between TriPM and PPI-based meanness scales, compared with the correspondence between the boldness and disinhibition scales of the two instruments. This could reflect more limited coverage of meanness in the PPI relative to boldness and disinhibition. Alternatively, the reduced correspondence between PPI and TriPM meanness scales may be attributable to the fact that the items of the TriPM Meanness scale are from an inventory developed to index externalizing proneness, and hence include more reference to aggressive/deviant behaviors and attitudes than items from the PPI. As a function of this, meanness and disinhibition scales of the TriPM are correlated more strongly than corresponding scales from the PPI ($r_s = .47$ and $.21$, respectively, in the undergraduate sample of the present study). Thus, the PPI items may provide for more differentiated assessment of these two psychopathy facets—which could represent an advantage of the PPI Meanness scale over its TriPM counterpart. Another question raised by this finding is whether the TriPM Meanness scale (or any other existing measure of meanness) should be considered a benchmark criterion for evaluating other measures of this construct. Our position is that, although the TriPM scales can be considered useful starting points for operationalizing the Triarchic constructs, they should not be regarded as “gold standard” criteria. Rather, as noted earlier, we consider the constructs of the Triarchic model to be open constructs (Meehl, 1986), such that instruments designed to measure them should be evaluated not only on the basis of their relations with the TriPM scales, but more broadly, in

² Additional analyses were run omitting the seven items of the PPI-Tri scales not available in the PPI-R. The resultant scales showed high levels of convergence with full-length PPI-Tri scales ($r_s = .97-.99$), minimal changes to internal consistency (largest decrease in Cronbach's $\alpha = .01$; PPI-Boldness), and consistent patterns of associations with TriPM scales (largest decrease in $r = .04$; shortened PPI-Mean with TriPM Meanness). In order to maintain fidelity to the scale construction process, Table 1 and analyses reported herein retain all 66 of the original PPI-Tri items, despite veritable equivalence of the 59-item version.

terms of the totality of available evidence including content validity and convergent and discriminant validity in relation to key elements of their nomological networks.

Although the present study provides promising initial evidence for the construct validity of the PPI-Tri scales, further research on their psychometric properties and relations with other psychopathy-relevant criteria should be conducted before considering them effective indices of the Triarchic constructs. Specifically, we encourage further validation of the PPI-Tri scales in other new and existing data sets, particularly in relation to variables outside the domain of self-report, such as behavioral or psychophysiological measures with established relations to psychopathy (e.g., deficits in fear recognition, response modulation, or aversive startle potentiation; Skeem et al., 2011). Further, their utility in predicting important real-world outcomes (e.g., institutional infractions, recidivism, probation/parole violations, substance abuse problems)—in terms of both main and interactive effects—will need to be evaluated to determine their potential for clinical/forensic application.

In conclusion, the findings of the present study indicate that constructs of boldness, meanness, and disinhibition can be effectively indexed using the PPI—providing an alternative to the TriPM for investigating these distinctive constructs in new and existing data sets. The present work also serves to illustrate a theory-driven consensus-rating approach to scale development that can be used to develop Triarchic scale measures from other existing inventories. Future work can be devoted to developing and validating Triarchic scales from other measures as well as to further validating the PPI-based triarchic scales. Finally, our findings also highlight the relevance of all three constructs of the Triarchic model to a full understanding of psychopathy, including ways in which it converges with and differs from ASPD and other forms of externalizing psychopathology.

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