

Factor Structure of the Psychopathic Personality Inventory: Validity and Implications for Clinical Assessment

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Psychopathy is a personality disorder characterized by impulsive antisocial deviance in the context of emotional and interpersonal detachment. A factor analysis of the subscales of the Psychopathic Personality Inventory (PPI) yielded evidence for 2 factors. One factor showed relations with external criteria mirroring those of the emotional–interpersonal facet of psychopathy, including high dominance, low anxiety, and venturesomeness. The other factor showed relations paralleling those of the social deviance facet of psychopathy, including positive correlations with antisocial behavior and substance abuse, negative correlations with socioeconomic status and verbal ability, and personality characteristics including high negative emotionality and low behavioral constraint. Findings support using the PPI to assess these facets of psychopathy in community samples and to explore their behavioral correlates and genetic–neurobiological underpinnings.

Psychopathy is a personality disorder characterized by impulsive acting out in the context of affective and interpersonal detachment. McCord and McCord (1964) identified guiltlessness and lovelessness as the core of the syndrome, and Cleckley (1976) theorized that the externalizing behavior of psychopathic individuals arises from this underlying social–emotional pathology. The best-validated instrument for assessing psychopathy, Hare's (1991) Psychopathy Checklist—Revised (PCL–R), incorporates these distinctions. The 20 items of the PCL–R encompass two distinct factors (Hare, Harpur, Hakstian, Forth, Hart, & Newman, 1990; see also Harpur, Hare & Hakstian, 1989), one reflecting emotional–interpersonal tendencies (i.e., lack of remorse, empathy, or emotional depth; blame externalization; charm; grandiosity; lying; and manipulativeness) and the other chronic social deviance (i.e., early behavior problems, delinquency, stimulation seeking, aggressiveness, impulsiveness, parasitism, irresponsibility, and failure to plan).¹

The PCL–R was developed for use with prisoners, and many empirical studies of psychopathy to date have been conducted in criminal populations. However, Cleckley's (1976) conceptualization of the disorder included the idea that “successful” psychopathic individuals exist—that is, individuals who possess the aforementioned core pathology but who function adaptively within the community and avoid encounters with the law. Coverage of this topic in recent influential monographs (Hare, 1993; Lykken,

1995) has fueled interest in the phenomenon, but, to date, few efforts have been made to recruit and study such individuals (see Ishikawa, Raine, Lencz, Bihrlé, & LaCasse, 2001; Widom, 1978, for attempts to identify nonincarcerated individuals with psychopathy).

A major impediment has been the lack of an appropriate assessment device for identifying individuals with psychopathic tendencies in the general population. The PCL–R is limited in this respect: Its items are tailored to individuals with a criminal history (e.g., several of the criteria deal specifically with criminal offenses and affiliated attitudes), and standardized administration of the PCL–R (Hare, 1991) entails a lengthy structured interview and access to collateral file data. A screening version of the PCL–R exists for use in nonoffender samples (Hart, Cox, & Hare, 1995), but this instrument also requires a relatively lengthy face-to-face interview. Interview-based approaches may be feasible in incarcerated populations with a high base rate of psychopathy (20%–25%; Hare, 1991), but for research involving community samples, a more efficient self-report screening device is needed. Although a variety of such instruments exist, most are problematic in that they index only the behavioral deviance facet of psychopathy (Hare, 1991; Harpur et al., 1989). What is needed is a self-report inventory that also captures the affective–interpersonal facet of psychopathy that is considered the core of the disorder.

An instrument that has shown promise in this regard is the Psychopathic Personality Inventory (PPI), developed by Lilienfeld and colleagues to assess psychopathic tendencies in nonclinical samples (Lilienfeld & Andrews, 1996; Poythress, Edens, & Lilienfeld, 1998). In the current study, we examined the factor structure of the PPI in a large community sample in which relevant

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¹ Recently, Cooke and Michie (2001) proposed an alternative three-factor model of the PCL–R in which Factor 1 is parsed into two subdimensions: (a) arrogant and deceitful personality style and (b) deficient affective experience. We framed the current work in terms of the more established two-factor model because an extensive literature exists on the external correlates of the two factors described by this model, whereas the external correlates of the three-factor model remain to be established.

criterion variables—including child and adult antisocial behaviors, alcohol and drug use, verbal intelligence, socioeconomic status (SES), and personality trait measures—were available for purposes of construct validation. We hypothesized that two dominant factors would emerge from the subscales of the PPI that would parallel the two facets of psychopathy embodied in the PCL–R (Factor 1 = affective–interpersonal detachment, Factor 2 = antisocial behavior) in terms of their diagnostic, demographic, and personality correlates.

Facets of Psychopathy: Description and Correlates

Cleckley's (1976) seminal monograph, *The Mask of Sanity*, listed 16 diagnostic criteria for psychopathy. A particular emphasis was on deficient emotional reactivity (i.e., absence of nervousness, lack of remorse or shame, egocentricity and inability to love, poverty of affect) and superficial, manipulative relationships with others (i.e., superficial charm, untruthfulness, unresponsiveness in interpersonal relations, impersonal sexuality). Cleckley's criteria also included evidence of acting-out tendencies, including poorly motivated antisocial behavior, unreliability (irresponsibility), failure to learn from experience (weak impulse control), absence of planning, and wildness when intoxicated, but Cleckley explicitly distinguished between psychopathy and common criminality. In Cleckley's view, criminals with psychopathy were a distinct breed of antisocial individual, characterized by "relatively weak emotion[s] breaking through even weaker restraints" (p. 263). Moreover, his case histories featured examples of successful noncriminal psychopathic individuals, including respected professionals such as doctors and research scientists.

Hare's (1991) PCL–R was developed to identify individuals meeting Cleckley's (1976) description within incarcerated offender populations. The PCL–R is an interview-based diagnostic checklist that consists of 20 items scored on the basis of interview information and collateral data from prison files. Factor analytic research (Hare et al., 1990; Harpur et al., 1989) has established that the PCL–R captures the two distinct aspects of psychopathy embodied in Cleckley's clinical criteria: PCL–R Factor 1 consists of items reflecting the core affective–interpersonal features of psychopathy, and PCL–R Factor 2 is marked by items reflecting impulsive antisocial deviance. Scores on the two PCL–R factors are typically correlated around .5 in male criminal offender samples (Hare, 1991).

Although scores on PCL–R Factors 1 and 2 tend to be moderately correlated, the two factors show distinct behavioral, demographic, and personality correlates. As expected from its behavioral deviance content, Factor 2 is selectively associated with child and adult symptoms of antisocial personality disorder (Hare, 1991; Patrick, Zempolich, & Levenston, 1997) and also with alcohol and drug abuse problems (Reardon, Lang, & Patrick, 2002; Smith & Newman, 1990). Recent structural modeling work (Patrick, Hicks, Krueger, & Lang, 2003) has shown that PCL–R Factor 2, but not Factor 1, is closely related ($r = .97$) to the latent externalizing factor of adult psychopathology, defined as the covariance among child and adult antisocial behavior symptoms, alcohol and drug dependence, and disinhibitory personality traits (Krueger et al., 2002). The implication is that Factor 2 of the PCL–R reflects a broad vulnerability dimension, predominantly genetic in nature (Krueger et al., 2002), that is associated with various acting-out behaviors.

In line with this conceptualization, PCL–R Factor 2 also shows selective relations with indices of impulsive aggression (e.g., fights, assaults, domestic abuse; Patrick et al., 1997) and suicidal behavior (Verona, Patrick, & Joiner, 2001), whereas PCL–R Factor 1 shows selective relations with diagnostic ratings of narcissistic personality disorder (Harpur et al., 1989; Hart & Hare, 1989) and with strategic, instrumental aggression (Patrick et al., 1997; Woodworth & Porter, 2002).

The two factors of the PCL–R also show divergent relations with demographic and ability variables and personality trait measures. High scores on Factor 2 are associated with lower SES prior to incarceration, lower educational attainment, and lower verbal intelligence, with r s ranging from $-.15$ to $-.50$ (Harpur et al., 1989; Patrick et al., 1997). PCL–R Factor 1 shows opposing relations with these same variables, although the effects for this factor tend to be weaker and less reliable, with r s ranging from $.04$ to $.37$ (Harpur et al., 1989; Patrick et al., 1997). The same divergent pattern of correlations is evident for measures of impulsivity (Patrick, 1994) and sensation seeking (Zuckerman, 1979)—in particular, its disinhibition and boredom susceptibility facets (Harpur et al., 1989): Factor 2 is substantially correlated with these variables, whereas Factor 1 is relatively uncorrelated.

Clearly opposing relations have been found between the two PCL–R factors and scores on self-report anxiety inventories. Trait anxiety scores correlate negatively with Factor 1 and positively with Factor 2, yielding an overall null relationship with PCL–R total scores (Frick, Lilienfeld, Ellis, Loney, & Silverthorn, 1999; Harpur et al., 1989; Patrick, 1994, 1995). For example, Factor 1 is inversely correlated with the distress and fear components of emotionality (r s = $-.31$ and $-.22$, respectively), as indexed by the Emotionality–Activity–Sociability Temperament Inventory (Buss & Plomin, 1984), after controlling for its relation with Factor 2, whereas the unique variance in Factor 2 is correlated positively with all facets of emotionality ($r = .48$ with distress, $r = .24$ with fear, and $r = .40$ with anger; Patrick, 1994). In addition, on the trait version of the Positive and Negative Affect Schedule (Watson, Clark, & Tellegen, 1988), high scores on Factor 1 are associated with low negative affectivity and high positive affectivity, whereas high scores on Factor 2 are associated with high negative affectivity (Patrick, 1994).

An omnibus inventory that has been used to investigate the personality correlates of the two PCL–R factors is the Multidimensional Personality Questionnaire (MPQ; Tellegen, in press). The MPQ comprises 11 primary trait scales that tap three independent higher order dimensions of personality: Positive Emotionality (PEM), Negative Emotionality (NEM), and behavioral Constraint (CON). The higher order PEM factor can be parsed into two subdimensions, reflecting achievement of well-being either through social dominance and achievement (agentic PEM) or through affiliation with others (communal PEM). The unique variance in PCL–R Factor 1 is correlated positively with Social Potency and Achievement aspects of agentic PEM (r s = $.30$ and $.23$, respectively) and negatively with the Stress Reaction facet of NEM ($r = -.24$; Patrick, 1995; Verona et al., 2001). In contrast, the unique variance in Factor 2 is correlated negatively with Well-Being and Achievement in the domain of PEM (r s = $-.19$ and $-.28$, respectively), positively with all facets of NEM ($r = .33$ with Stress Reaction, $r = .21$ with Alienation, and $r = .37$ with Aggression), and negatively with scores on the CON superfactor ($r = -.26$), in particular its control (planfulness) facet ($r = -.29$; Patrick, 1995; Verona et al., 2001). Consistent with these results,

a recent study using model-based cluster analysis to identify subtypes of PCL-R-defined psychopathic individuals on the basis of MPQ trait scores yielded two clusters with profiles resembling the aforementioned patterns of relations for the two PCL-R factors. One subtype was characterized by high agentic PEM (i.e., high Social Potency and Achievement) and low overall NEM (in particular, low Stress Reaction), whereas the other was characterized by low CON, high overall NEM, and low communal PEM.

An alternative structural model of personality that has been used to examine the trait correlates of psychopathy is the five-factor model (FFM; Costa & McCrae, 1989). Within this framework, Factor 1 of the PCL-R is associated with low Agreeableness (high Antagonism), low Neuroticism, and high assertiveness within the factor of Extraversion, whereas PCL-R Factor 2 is associated with low Conscientiousness and low Agreeableness (Widiger & Lynam, 1998; Miller, Lynam, Widiger, & Leukefeld, 2001). Research examining relations between the FFM and MPQ trait dimensions (e.g., Church, 1994) has revealed the following: FFM Agreeableness is associated most strongly with Aggression and Alienation facets of MPQ NEM, FFM Neuroticism shows its strongest relation with the stress reaction facet of NEM, and FFM Conscientiousness is most associated with the Control facet of CON and the achievement facet of PEM. These data indicate that the personality correlates of the factors of psychopathy are largely congruent between the MPQ and FFM models (Church, 1994).

In summary, a large body of research evidence indicates that the two facets of psychopathy embodied in Cleckley's (1976) criteria, and indexed by the PCL-R, exhibit distinct behavioral and psychometric correlates. However, the PCL-R was designed for use with prisoners and all of the above-mentioned research on individuals with psychopathy has been conducted with criminal offender samples. Limitations of the PCL-R in terms of its item content and administration time call for an alternative self-report inventory to address questions regarding the expression and correlates of psychopathy in the general population.

However, the most widely used self-report measures of psychopathy—including the Socialization (So) scale of the California Psychological Inventory (CPI; Gough, 1957), the Psychopathic Deviate (*Pd*) scale of the Minnesota Multiphasic Personality Inventory (MMPI; Hathaway & McKinley, 1942), and Eysenck's (1990) Psychoticism scale—show selective relations with Factor 2 of the PCL-R, with absolute *r*s ranging from .01 to .11 with Factor 1 and from .22 to .44 with Factor 2 (Hare, 1991; Harpur et al., 1989). A newer inventory, Levenson, Kiehl, and Fitzpatrick's (1995) Self-Report Psychopathy Scale, includes two separate subscales, but each shows relations primarily with indices of delinquency, substance abuse, and other forms of acting out (Lynam, Whiteside, & Jones, 1999). In summary, most existing questionnaire inventories preferentially assess the antisocial behavior component of psychopathy without tapping the affective–interpersonal facet (Hare, 1991; Harpur et al., 1989). What is needed is an inventory that indexes both in a valid and efficient way.

Assessment of Psychopathy in Nonprisoners: The PPI

The PPI was developed using a personality-oriented approach that focused on capturing the internal states and personality traits considered central to psychopathy (Lilienfeld & Andrews, 1996). This contrasts with the empirical, criterion-oriented approach used to develop the So and MMPI-Pd scales. The item content of the

PPI was based on a comprehensive review of the psychopathy literature that searched for all relevant constructs associated with psychopathy. The PPI was developed to assess the construct of psychopathy in a broad manner, and initial validation studies suggested that it includes items reflecting both facets of psychopathy contained in the PCL-R (Lilienfeld & Andrews, 1996).

Total scores on the PPI correlate positively with global ratings of psychopathy made using Cleckley's (1976) criteria and negatively with the Fears and Social Discomfort content subscales of the Minnesota Multiphasic Personality Inventory—2 (MMPI-2; Butcher, Dahlstrom, Graham, Tellegen, & Kaemmer, 1989) and with physical and social fearfulness as assessed by Lykken's (1957) Activity Preference Questionnaire (Lilienfeld & Andrews, 1996). This pattern of relations implies that the PPI indexes the low anxiety and fearlessness that have been considered hallmarks of psychopathy (Cleckley, 1976; Lykken, 1995) and that have been linked to scores on Factor 1 of the PCL-R (Patrick, 1994). At the same time, PPI total scores also correlate positively with MMPI-2 *Pd* and negatively with CPI So scale scores, positively with indices of antisocial behavior assessed via interview and self-report, and positively with measures of alcohol and drug abuse–dependence (Lilienfeld & Andrews, 1996). This suggests that the PPI also assesses externalizing tendencies encompassed by Factor 2 of the PCL-R.

Poythress et al. (1998) directly assessed relations between overall PPI scores and scores on the PCL-R and its factors in a sample of 50 youthful male prisoners. Total scores on the PPI correlated substantially and significantly with both Factor 1 and Factor 2 of the PCL-R (*r*s = .54 and .40, respectively). Although small sample size was a limitation in this study, the results are nevertheless consistent with the possibility that the PPI indexes both components of psychopathy embodied within the PCL-R.

The Current Study

Existing data support the validity of the PPI as an index of psychopathy in community and incarcerated samples. What is needed is empirical confirmation of the possibility that the PPI captures the two distinct facets of psychopathy that have dominated PCL-R-based research and that are implicit in Cleckley's (1976) conceptualization. To this end, the current study examined the factor structure of the PPI within a community sample and investigated the behavioral and personality correlates of the extracted factors. Available criterion variables included child and adult antisocial behavior, alcohol and drug use, verbal intelligence, SES, and personality trait measures (i.e., the So, Responsibility [Re], and Communitarity [Cm] scales from the CPI and the 198-item version of the MPQ). We hypothesized that two dominant factors would emerge from the PPI and that these factors would exhibit distinct diagnostic, demographic, and personality correlates paralleling those found for the two factors of the PCL-R.

Method

Participants

Participants were 353 individual male twins from the Minnesota Twin Registry (MTR), a birth-record based registry of community twins born between the years of 1961 and 1964 within the state of Minnesota. Ascertainment procedures for the MTR have been described previously (Lykken, Bouchard, McGue, & Tellegen, 1990). MTR sample participants were recruited by an initial mailing of a welcome letter explaining the

Registry and inviting participation. Also included in the mailing was a biographical questionnaire (BQ; Lykken et al., 1990) covering demographics, health history, and marital status and an omnibus personality inventory described earlier, the MPQ (Tellegen, in press).

Individuals returning the BQ and MPQ were subsequently mailed a packet of self-report questionnaires and were invited to participate in a 2-hr structured telephone interview assessing child and adult antisocial behaviors, substance use history, and SES. For purposes of a subsequent study that examined the heritability of psychopathy (see Blonigen, Carlson, Krueger, & Patrick, 2003), a subset of the overall MTR twin sample was sent the PPI in a separate mailing that took place 4–6 years after they had completed the BQ and the MPQ. Of those who were contacted and received the PPI ($N = 540$), 353 agreed to participate by returning it, yielding a response rate of 65.4%. Comparison of MPQ scores, income levels, and ages of responders and nonresponders from this sample confirmed that responders were representative of the larger target sample (for further details, see Blonigen et al., 2003). Our overall sample comprised 81 singletons, 89 monozygotic twin pairs, and 47 dizygotic twin pairs.

Measures

PPI. The PPI (Lilienfeld & Andrews, 1996) contains 187 questions developed using an exploratory approach to test construction. Items are answered using a 4-point Likert scale (1 = *false*, 2 = *mostly false*, 3 = *mostly true*, and 4 = *true*). The inventory yields a total score, interpretable as a global index of psychopathy, as well as scores on eight subscales reflecting specific constituent traits, as described in Table 1. Prior research (Lilienfeld & Andrews, 1996) has demonstrated high internal consistency (alpha) coefficients for the PPI as a whole (.89–.93) and its subscales (.70–.91), as well as high test–retest reliability: Over a mean retest interval of 26 days, reliability was .95 for PPI total scores, with subscale reliabilities ranging from .82 to .94. Blonigen et al. (2003) reported comparably high internal consistency within the current sample: Coefficient alpha for PPI total scores was .89, and coefficients for PPI subscales ranged from .75 to .89.

Externalizing behaviors. Adult and childhood antisocial behaviors were assessed via structured telephone interviews. Items in the interview were distilled from the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.; *DSM-IV*; American Psychiatric Association, 1994) criteria for adult antisocial behavior and conduct disorder. Antisocial behavior was also assessed using a self-report questionnaire entitled Behavior Report on Rule Breaking (BHR), composed of items from the Short–Nye Self-Report Delinquency Items (Nye & Short, 1957) and the Seattle Self-Report Instrument (Hindelang, Hirschi, & Weis, 1981), as well as the Clark Self-Report List of Deviant Behavior (Clark & Tiffit, 1966). Each item was answered in terms of its frequency of occurrence (4-point scale, from 1 = *never* to 4 = *very often*) before and after high school graduation.

Information concerning alcohol and drug use was also obtained from the interview. Alcohol variables included age of first drink, age of first intoxication, and alcohol abuse and dependence criteria assessed using the Michigan Alcohol Screening Test (Selzer, 1971), which has been shown to be related to *Diagnostic and Statistical Manual of Mental Disorders* (3rd ed. rev.; American Psychiatric Association, 1987) criteria for alcohol use disorders (Ross, Gavin, & Skinner, 1990). History of drug use was indexed by age of first use, as well as lifetime consumption of various street drugs (i.e., marijuana, cocaine, heroin, PCP, psychedelics, inhalants), and prescription drugs not obtained officially from a physician (i.e., amphetamines, barbiturates, tranquilizers, and opiates other than heroin).

Socioeconomic indicators and verbal intelligence. Indices of SES, including education level, class rank in high school, occupational status, and income were derived from the interview. Occupational status was coded using the Hollingshead and Redlich (1958) system, with numeric codes reversed so that higher scores reflected higher occupational attainment (i.e., ratings ranged from 1 = not formally employed to 8 = professional or executive degree). Educational level was coded from 1 (did not complete high school) to 7 (completed college and an advanced degree, e.g., PhD or MD). High school class rank was determined by asking in which third of the class the interviewee graduated, with 1 indicating the lowest third and 3 the highest third. Income was scored quasi-continuously from 1 to 13, with 1 denoting an annual income of less than \$10,000, and subsequent scale points denoting an increment of \$5,000 (e.g., 2 = \$10,000–\$15,000, 3 = \$15,001–\$20,000) up to a score of 13, representing an annual income greater than \$70,000. Verbal intelligence was assessed using the Vocabulary subscale of the Wechsler Adult Intelligence Scale—Revised (Wechsler, 1981).

Personality traits. Participants completed a 198-item version of the MPQ (Tellegen, in press). As described earlier, the MPQ yields scores on 11 primary trait scales, along with scores on higher order temperament factors of agentic PEM, communal PEM, NEM, and CON. The 11 primary subscales of the MPQ showed good internal consistency within the current sample, with alphas ranging from .77 to .87. Complete, valid MPQ profiles were available for 350 participants.

Participants also completed three subscales of the CPI (Gough, 1957). The So scale is a well-validated index of delinquency, consisting of 54 items that index a behavioral continuum ranging from extreme probity to severe violations of social norms. Low So scores reflect propensities toward impulsivity, substance abuse, crime, and violence (Gough, 1960). The 42-item Re scale was developed to assess tendencies toward social responsibility, political participation, and community involvement. Individuals high on Re are described as being responsible, reliable, and conscientious (Gough, 1957). The 13-item Cm scale indexes the propensity to behave in conventional versus unconventional ways. Low Cm scorers are described as impulsive, nonconforming, reckless, and unpredictable (Gough, 1957).

Table 1
Subscales of the Psychopathic Personality Inventory

Subscale	Description of a high scorer
Impulsive Nonconformity (17 items)	Reckless, rebellious, unconventional
Blame Externalization (18 items)	Blames others and rationalizes own transgressions
Machiavellian Egocentricity (30 items)	Aggressive and self-centered in interactions with others
Carefree Nonplanfulness (20 items)	Present-oriented; lacks forethought and planning
Stress Immunity (11 items)	Experiences minimal anxiety
Social Potency (24 items)	Able to manipulate and influence others
Fearlessness (19 items)	Willing to take risks; lacks concern for harmful consequences
Coldheartedness (21 items)	Unsentimental; lacks imaginative capacity; unreactive to others' distress

Results

Structure of the PPI

To determine whether higher order dimensions paralleling the factors of the PCL–R characterize the structure of the PPI, we subjected the subscales of the PPI to a principal axis factor analysis with varimax rotation.² Factor loadings for the subscales were considered notable if they loaded .35 or greater on the extracted factors. Results of the factor analysis are depicted in Table 2. On the basis of standard scree plot and eigenvalue (> 1) criteria, we extracted three factors that accounted for 66.1% of the covariance among the PPI subscales. The first and second factors accounted

² The correlation matrix that served as the basis for this and subsequent factor analyses can be obtained on request from Christopher J. Patrick.

Table 2
Results of Principal Axis Factor Analyses of Psychopathic Personality Inventory Subscales

Subscale	Three-factor solution			Two-factor solution		Two-factor solution without Coldheartedness	
	A	B	C	A	B	A	B
Impulsive Nonconformity	.66	.23	-.12	.67	.16	.65	.23
Blame Externalization	.58	-.22	-.15	.57	-.28	.59	-.23
Machiavellian Egocentricity	.71	.04	.09	.70	.01	.70	.06
Carefree Nonplanfulness	.41	-.19	.20	.37	-.15	.39	-.16
Stress Immunity	-.30	.84	.26	-.26	.93	-.32	.81
Social Potency	-.03	.60	-.11	.02	.52	-.04	.58
Fearlessness	.35	.48	.04	.38	.45	.34	.50
Coldheartedness	.00	.05	.89	-.03	.16		

Note. Factor loadings greater than .35 appear in boldface.

for similar proportions of the variance (27.7% and 23.2%), with the third factor accounting for a lesser portion (15.4%). The first factor was marked by four PPI subscales: Impulsive Nonconformity, Blame Externalization, Machiavellian Egocentricity, and Carefree Nonplanfulness. The second factor was marked by Stress Immunity, Social Potency, and Fearlessness. The third factor was highly circumscribed: Only Coldheartedness loaded appreciably on this factor.

Because the third factor was defined exclusively by the Coldheartedness subscale, we conducted a second analysis in which we constrained the structure to two factors (see Table 2). The resulting factors closely resembled the two dominant factors from the preceding analysis. The first factor was marked by Impulsive Nonconformity, Blame Externalization, Machiavellian Egocentricity, and Carefree Nonplanfulness; the second was marked by Stress Immunity, Social Potency, and Fearlessness. Coldheartedness did not load on either factor, indicating that it taps propensities distinct from the other PPI subscales.

This prompted us to perform a final factor analysis in which all PPI subscales were included except Coldheartedness. Two factors (eigenvalues > 1) emerged from this analysis, accounting for 31.6% and 26.2% of the covariance among scales, respectively (57.8% total). Subscale loadings for these factors mirrored loadings for the two broad factors identified in prior analyses (see Table 2). To quantify relations between corresponding factors across the three analyses, factor scores were computed for each participant for each analysis. For both of the dominant PPI factors, correlations were extremely high across analyses (i.e., > .97 in all cases), indicating that the composition of each remained constant across the different solutions.

In summary, our structural analyses of the PPI consistently revealed two dominant factors that accounted for similar portions of the shared variance among subscales. One of these was marked by traits previously shown to be related to Factor 2 of the PCL-R: impulsiveness, unconventionality, aggression, and estrangement from others (Harpur et al., 1989; Verona et al., 2001). The other was marked by characteristics that have been linked to Factor 1 of the PCL-R: low trait anxiousness, social dominance, and fearless risk taking (Harpur et al., 1989; Patrick, 1994; Verona et al., 2001). Because of their trait-descriptive parallels with the PCL-R factors, we refer to these two PPI factors in subsequent sections of the article as PPI-II and PPI-I, respectively.

As a final point, the use of varimax rotation in the primary analyses forced the extracted factors to be independent of one another. An important question, considering the oblique nature of the two factors of the PCL-R (Hare, 1991), is whether the two main factors of the PPI would emerge as correlated if permitted to do so within the analysis. We evaluated this possibility by reconducting the final factor analysis described above (i.e., incorporating all PPI subscales except Coldheartedness; see Table 2, right-most column) using an oblique rotation method (i.e., promax rotation; $\kappa = 4$) rather than varimax rotation. In promax rotation, factors are first rotated to an orthogonal structure but are permitted to correlate with one another (i.e., become oblique) in subsequent iterations if this improves overall model fit. Even with promax rotation, the two PPI factors still emerged as uncorrelated ($r = -.07$). This result suggests that the two higher order factors of the PPI tap statistically independent facets of psychopathy, in contrast with the two interrelated factors of the PCL-R.

Construct Validity of PPI Higher Order Factors

Further analyses were performed to evaluate the construct validity of the two broad factors extracted from the PPI subscales. Factor scores for the final two-factor solution incorporating all PPI scales except Coldheartedness were derived by standardizing (z scoring), and then averaging, scores for the PPI subscales that loaded preferentially on each factor. Relations between these PPI factor scores and various external criterion measures were examined using Pearson's r and regression analyses. We also performed separate analyses to assess relations between PPI Coldheartedness and criterion measures to better understand the construct assessed by this subscale. To adjust significance levels for the correlated nature of twin data (Liang & Zeger, 1986), we performed analyses using the PROC MIXED routine from the Statistical Analysis System (SAS; Version 8.1) software package. A conservative alpha level of $p < .01$ was used to evaluate the significance of correlations and regression coefficients.

Externalizing variables. Table 3 displays the correlations between various indices of externalizing psychopathology (i.e., measures of child and adult antisocial behavior and substance abuse; cf. Krueger, 1999b; Krueger et al., 2002) and the higher order PPI factors. PPI-II showed significant correlations with all antisocial behavior variables, including child and adult symptoms of

Table 3
Correlations Between Externalizing Variables and Psychopathic Personality Inventory (PPI) Factor Scores

Variable	M (SD)	PPI-I	PPI-II
Adult antisocial behavior			
Interview	1.36 (0.24)	.15*	.27*
Self-report (BHR)	17.50 (2.84)	.07	.38*
Childhood antisocial behavior			
Interview	1.54 (0.33)	.02	.34*
Self-report (BHR)	18.90 (3.72)	.02	.28*
Alcohol abuse-dependence	25.20 (3.67)	.01	.18*
Age at first drink	15.70 (2.67)	-.02	-.17*
Age at first intoxication	16.30 (2.47)	-.07	-.10
No. of different drug classes used	2.09 (2.52)	.06	.20*
Age of first drug use	17.00 (2.66)	-.04	-.14†

Note. Data were available for between 207 (age of first drug use) and 353 (self-reports of child and adult antisocial behavior) participants. BHR = Behavior Report on Rule Breaking.
† $p < .05$. * $p < .01$.

DSM-IV antisocial personality disorder, as assessed by telephone interview, and antisocial behaviors both before and after age 18 years, as assessed by the BHR self-report inventory. In contrast, PPI-I was associated only with adult symptoms of antisocial personality disorder assessed via interview. With respect to substance use and abuse, PPI-II scores were positively correlated with symptoms of alcohol abuse and dependence, age at first drink, and drug use. PPI-I was not significantly associated with any of the substance use-abuse variables. The PPI Coldheartedness scale was not correlated significantly with any measure of externalizing behavior.

Socioeconomic indicators and verbal intelligence. Table 4 presents correlations between socioeconomic and verbal intelligence indicators and scores on PPI-I and PPI-II. Although the correlations were not large in absolute terms, clear divergence was evident in the relations of the two PPI factors with these measures: In all cases, the signs of the correlations for PPI-I and PPI-II were opposite. Therefore, we performed statistical tests of the difference between the correlations for the two PPI factors—that is, *t* tests for dependent correlations (Steiger, 1980)—to determine whether these divergences were reliable. These tests revealed significant divergences between the two PPI factors for education level, class rank, and income; in addition, the factors tended to diverge for

Table 4
Correlations Between Socioeconomic and Intelligence Indices and Psychopathic Personality Inventory (PPI) Factor Scores

Variable	M (SD)	PPI-I	PPI-II
Education level	4.75 (1.26)	.14†	-.18*
High school class rank	2.39 (0.67)	.14†	-.24*
Occupational status	5.36 (1.74)	.12	-.12
Income	6.87 (2.84)	.11	-.22*
WAIS-R Vocabulary	46.8 (11.2)	.10	-.15†

Note. There were 315 participants with data for years of education, educational level, income, and vocabulary. A total of 313 participants had high school class rank data, and 252 had data for occupational status. WAIS-R = Wechsler Adult Intelligence Scale—Revised.
† $p < .05$. * $p < .01$.

verbal intelligence ($p < .05$). Analyses for the PPI Coldheartedness scale revealed no significant relations with these criterion measures.

Personality. With regard to the subscales of the CPI, PPI-II, correlated $-.52$ with So, $-.42$ with Re, and $-.42$ with Cm (all $ps < .01$). In contrast, PPI-I correlated negligibly with these scales ($rs = .03, .08, \text{ and } .05$, respectively; all $ps > .05$). Correlations for the PPI Coldheartedness subscale were as follows: So = $-.10$, ns ; Re = $-.16$, $p < .01$; and Cm = $-.25$, $p < .01$.

Table 5 presents beta weights from regression analyses in which PPI factor scores were predicted using scores on the MPQ. Separate regression analyses were performed using MPQ primary trait scores and MPQ higher order factor scores as predictors. In each of these analyses, the relevant MPQ predictors were entered together as a set. Table 5 also lists simple correlations for each MPQ variable. In the regression analysis using MPQ primary trait scores, PPI-I was predicted uniquely by Social Potency (+), Stress Reaction (-), and Harm Avoidance (-), with $R = .70$. In the analysis incorporating MPQ factor scores, PPI-I was predicted uniquely by agentic PEM (+), NEM (-), and CON (-), with $R = .54$. In contrast, the MPQ primary trait predictors of PPI-II were Alienation and Aggression (+), Control and Traditionalism (-), Social Closeness (-), and Absorption (+), with $R = .67$. Using the higher order MPQ factors, PPI-II was predicted to a comparably robust degree by NEM (+) and CON (-), with $R = .58$.

The following MPQ primary traits contributed uniquely to the prediction of PPI Coldheartedness scores ($R = .54$, $p < .01$): Absorption, $r = -.45$, $\beta = -.38$, $p < .01$; Stress Reaction, $r = -.29$, $\beta = -.28$, $p < .01$; and Aggression, $r = .10$, $\beta = .20$, $p < .01$. Coldheartedness was predicted less well by the MPQ higher order factors ($R = .30$), with NEM and communal PEM contributing uniquely to the regression equation ($rs = -.24$ and $-.10$, $\beta s = -.31$ and $-.22$, respectively, $ps < .01$).

Table 5
Correlations and Beta Weights for Regression of MPQ Scales on PPI Factors

MPQ scale	PPI-I		PPI-II	
	<i>r</i>	β	<i>r</i>	β
Primary trait				
Well-Being	.39	.05	-.20	-.02
Social Potency	.49	.34	.08	.13
Achievement	.21	.07	-.16	-.10
Social Closeness	.29	.08	-.18	-.15
Stress Reaction	-.41	-.42	.27	-.08
Alienation	-.15	.10	.49	.31
Aggression	.01	.08	.42	.16
Control	-.01	-.03	-.46	-.29
Harm Avoidance	-.31	-.21	-.13	-.03
Traditionalism	.04	.05	-.22	-.13
Absorption	.06	.07	.22	.13
Higher order factor				
Agentic PEM	.43	.35	-.14	-.05
Communal PEM	.47	.22	-.15	.03
NEM	-.21	-.09	.45	.49
CON	-.15	-.22	-.40	-.42

Note. Boldface denotes $p < .01$. MPQ = Multidimensional Personality Questionnaire; PPI = Psychopathic Personality Inventory; PEM = Positive Emotionality; NEM = Negative Emotionality; CON = Constraint.

Discussion

Consistent with a priori prediction, a factor analysis of the PPI (Lilienfeld & Andrews, 1996) revealed two dominant factors, one marked by subscales reflecting imperturbability, social dominance, and venturesomeness (PPI-I), and the other by subscales reflecting unconventional attitudes, poor planning, aggressiveness, and estrangement from others (PPI-II). The two factors were uncorrelated, implying that they capture fundamentally separate dispositional dimensions. Analyses of criterion variable relations revealed that PPI-II was associated with a range of externalizing behaviors, including alcohol and drug abuse as well as child and adult antisocial behavior, whereas PPI-I was related only to adult antisocial behavior. PPI-I and PPI-II also showed opposing relations with demographic and ability measures. Scores on PPI-I correlated positively with indices of SES, education, and intelligence, whereas scores on PPI-II correlated negatively with these variables. These divergences may help to explain why null relations have been reported between global indices of psychopathy and demographic variables (cf. Harpur et al., 1989).

Within the domain of normal personality, as indexed by the MPQ, PPI-II was related negatively to trait scales reflecting CON (control, harm avoidance, and traditionalism) and positively with all facets of NEM (i.e., Stress Reaction, Alienation, and Aggression). In contrast, PPI-I showed its strongest relation with trait markers of agentic PEM (i.e., Social Potency, Well-Being, and, to a lesser extent, Achievement), and it was negatively related to NEM, particularly its Stress Reaction facet. PPI-I also showed an inverse relation with one distinct facet of CON—Harm Avoidance. The strength of the relations between personality traits indexed by the MPQ and the two facets of the PPI was illustrated by regression analyses in which the former were used to predict each of the latter. The multiple correlations ($R \geq .67$ in each case) for these inventories administered between 4 and 6 years apart were within the range of test–retest reliabilities reported for the MPQ trait scales over a time span of approximately 8 years (McGue, Bacon, & Lykken, 1993; Roberts, Caspi, & Moffitt, 2001).

Parallels Between PPI and PCL–R Factors

The external correlates of the two PPI factors paralleled associations reported for the two factors of Hare's (1991) PCL–R, which index the emotional–interpersonal and antisocial deviance features of psychopathy as conceptualized by Cleckley (1976)—indicating that the PPI may be useful for assessing these distinct facets of psychopathy via self-report. Both PPI-I and Factor 1 of the PCL–R show negligible relations with alcohol and drug abuse indicators (Reardon et al., 2002; Smith & Newman, 1990), low correlations with indices of child and adult antisocial behavior (Hare, 1991; Verona et al., 2001), and positive associations with verbal ability and SES (Harpur et al., 1989; Patrick et al., 1997). In terms of personality as indexed by the MPQ, PPI-I reflected an intriguing configuration of traits. Regression analysis revealed three MPQ trait scales contributing to the prediction of scores on this factor of the PPI: Stress Reaction (–), Social Potency (+), and Harm Avoidance (–). This pattern mirrors the personality correlates of PCL–R Factor 1 (Hare, 1991; Harpur et al., 1989; Verona et al., 2001) and the personality profile of the stable subtype of PCL–R psychopathic individuals identified via model-based cluster analysis (Hicks, Markon, Patrick, Krueger, & Newman, 2003).

Persons of this type would be described as unreactive in anxiety-provoking situations, persuasive and socially dominant, and willing to engage in risky activities while lacking normal anticipatory fear in risky or dangerous circumstances. This trait configuration, in turn, fits well with Lykken's (1957, 1995) conceptualization of the “primary psychopath.”

Conversely, the antisocial deviance factor of the PCL–R (Factor 2)—like PPI-II—is related positively and selectively to indices of antisocial behavior (Hare, 1991; Harpur et al., 1989; Verona et al., 2001), substance abuse (Reardon et al., 2002; Smith & Newman, 1990), impulsiveness (Hare, 1991; Patrick, 1994), and NEM (Frick et al., 1999; Harpur et al., 1989; Patrick, 1994; Verona et al., 2001) and negatively with measures of verbal intelligence and SES (Harpur et al., 1989; Patrick et al., 1997) and CON (Patrick, 1995; Verona et al., 2001). These behavioral and personality correlates suggest a link between PPI-II and the externalizing factor of psychopathology—one of two broad factors that emerge from structural analyses of *DSM–IV* mental disorders (the other being internalizing; Krueger, 1999b; Vollebergh et al., 2001). The externalizing factor represents the systematic covariation among symptoms of child conduct disorder, adult antisocial behavior, alcohol dependence, and drug dependence. The MPQ correlates of this psychopathology factor (low CON and high NEM; Krueger, 1999a) mirror those of PCL–R Factor 2 and PPI-II, and a recent structural analysis of data from a male offender sample provides direct evidence of a selective association between externalizing and Factor 2 of the PCL–R. The possibility that PPI-II indexes this broad externalizing factor is important because there is a growing body of literature on the genetic basis and neurobiological correlates of externalizing (e.g., Iacono, Carlson, Taylor, Elkins, & McGue, 1999; Krueger et al., 2002; see below).

However, some aspects of our results departed from expectation. One is that the Machiavellian Egocentricity scale of the PPI emerged as a marker of PPI-II rather than PPI-I, whereas the PCL–R item “grandiose sense of self-worth” loads uniquely on Factor 1 of the PCL–R rather than Factor 2. Furthermore, the trait construct of Machiavellianism (Christie & Geis, 1970) correlates preferentially with PCL–R Factor 1 (Hare, 1991). It could be that the PPI Machiavellian Egocentricity scale reflects something different than what its name denotes. Prior research indicates that this scale is positively related to both impulsiveness and NEM (aggression, in particular; Lilienfeld & Andrews, 1996), and correlational results in the current study were consistent with this: Machiavellian Egocentricity was related most strongly to Aggression ($r = .49$), followed by Control ($r = -.33$), Alienation ($r = .30$), Traditionalism ($r = -.22$), Stress Reaction ($r = .20$), and Social Potency ($r = .20$), all $ps < .01$. The implication is that Machiavellian Egocentricity reflects hostility and disinhibition to a substantial degree—traits that relate preferentially to PCL–R Factor 2. In contrast, Poythress et al. (1998) reported significant correlations between the PPI Machiavellian Egocentricity scale and both factors of the PCL–R in a sample of juvenile offenders ($N = 50$) administered both instruments. This raises the possibility that PPI-II taps some part of the affective–interpersonal facet of psychopathy in addition to tapping the antisocial deviance component.

Another PPI subscale that loaded differently than its name would imply was Blame Externalization, which emerged as a marker of PPI-II. In contrast, the PCL–R item “failure to accept responsibility” loads on PCL–R Factor 1. However, the strongest

MPQ correlate of PPI Blame Externalization was Alienation ($r = .70$), followed by Stress Reaction ($r = .39$) and Aggression ($r = .34$). Considering that these NEM-related traits relate preferentially to Factor 2 of the PCL-R (Verona et al., 2001), it makes sense that PPI Blame Externalization emerged as an indicator of social deviance proneness. In line with this, Poythress et al. (1998) found that this PPI subscale was correlated more highly with Factor 2 of the PCL-R than Factor 1 (.16 vs. .05), although neither correlation achieved significance within their modest sample.

Coldheartedness

The Coldheartedness scale did not load on either PPI factor. Instead, it defined a separate factor. This seems puzzling insofar as impaired empathy is considered a central feature of psychopathy and is represented in Factor 1 of the PCL-R by Item 7, "callous/lack of empathy." However, consideration of the item content and personality correlates of PPI Coldheartedness help to explain this lack of association. In contrast with other PPI subscales, all items of the Coldheartedness scale except one are reverse keyed. Sample items include, "I often hold onto old objects or letters just for their sentimental value," "I am so moved by certain experiences (e.g., watching a beautiful sunset, listening to a favorite piece of music) that I feel emotions that are beyond words," and "It bothers me greatly when I see someone crying."³ Thus, the item content appears to reflect sentimentality, imaginativeness, and emotional reactivity more so than callousness or cruelty—with high scores reflecting lesser tendencies of this kind as a function of the reverse item keying. Consistent with this characterization, the strongest personality marker of Coldheartedness was MPQ Absorption ($r = -.47$), which indexes a propensity for sensory and imaginative engagement, followed by MPQ Stress Reaction ($r = -.28$).

The Absorption scale of the MPQ indexes a trait construct that is distinct from the other MPQ primary scales. It does not load selectively on any of the MPQ higher order factors, and in joint factor analyses of the MPQ trait scales and markers of the FFM personality dimensions (e.g., Church, 1994), it loads with Openness on a unique factor. Empirically, Absorption is correlated with variables such as vividness of synesthetic experiences (Rader & Tellegen, 1987), hypnotic suggestibility (Tellegen & Atkinson, 1974), and memory distortion (Platt, Lacey, Iobst, & Finkelman, 1998). None of these variables is obviously related to psychopathy, and Absorption has not emerged as a significant correlate of overall scores on the PCL-R or its factors (Patrick, 1995; Verona et al., 2001). Thus, it appears that the PPI Coldheartedness scale indexes propensities that are separate from the other subscales of the PPI and perhaps unrelated to psychopathy.

Trait Anxiety and the Two Facets of Psychopathy

Another point of interest in the current data is the diverging relations found between the two PPI factors and trait anxiety as indexed by the MPQ Stress Reaction scale. This mirrors findings for the two PCL-R factors: Factor 1 shows negative relations with indices of trait anxiety, whereas Factor 2 shows positive relations (Frick et al., 1999; Harpur et al., 1989; Verona et al., 2001). However, regression analyses using the MPQ trait scales to predict scores on PPI-I and PPI-II revealed an asymmetry in the role of trait anxiety in predicting scores on the two PPI factors: Whereas Stress Reaction contributed independently to the prediction of

PPI-I when entered with all other MPQ trait scales, this was not true for PPI-II. Hence, it appears that low trait anxiousness is a central component of PPI-I, whereas the relation of PPI-II to Stress Reaction is ancillary to its association with other facets of NEM (i.e., heightened Aggression and Alienation). This accords with the idea that there exist subtypes of psychopathic individuals who differ in levels of trait anxiousness (Hicks et al., 2003; Schmitt & Newman, 1999) and that enhanced stress reactivity can arise as a consequence of chronic externalizing behavior (Lykken, 1995; Tellegen, in press).

In the case of the PCL-R, opposing relations with trait anxiety are most reliable when partial correlations are used to assess relations for each PCL-R factor after controlling for the influence of the other (Patrick, 1994; Verona et al., 2001). The tendency for variance in one factor to obscure associations for the other has been described as a "cooperative suppressor effect" (Frick et al., 1999). In contrast to the PCL-R factors, which are correlated around .5 (Hare, 1991), the two PPI factors emerged as orthogonal. As a function of this, cooperative suppressor effects were not evident in the current data (i.e., robust opposing relations with MPQ Stress Reaction were evident for the two PPI factors in simple correlational analyses).

The fact that the two factors of the PPI are orthogonal whereas the two PCL-R factors are correlated has interesting implications in the assessment of psychopathy. Patrick (2001, in press) has theorized that separate etiologic processes underlie the affective-interpersonal and antisocial deviance facets of psychopathy as indexed by the PCL-R—the former entailing a core deficiency in emotional response, evidenced by reduced reflex priming under conditions of threat, and the latter involving impairments in higher cognitive (executive) functioning. From this perspective, it is the correlated nature of the two PCL-R factors that warrants explanation. One possibility is that the overlap between the factors is specific to the offender samples in which the PCL-R is normally used (i.e., victimization of others through crime is the characteristic way in which both underlying processes are expressed, leading to an association between overt phenotypic indicators). Arguing against this hypothesis are studies using the screening version of the PCL-R, which indicate that its two factors are highly correlated even in nonincarcerated samples (e.g., Forth, Brown, Hart, & Hare, 1996). Another possibility is that the PCL-R relies on overlapping information about criminal behaviors and affiliated attitudes in scoring items, leading to shared (method) variance between the factors.

In contrast with the PCL-R, the PPI is a personality-based inventory that relies on a broad range of content to draw inferences about psychopathic tendencies in nonprisoners. The presence of two orthogonal factors in this instrument is consistent with the idea of separate etiologic processes underlying the emotional-interpersonal and antisocial behavior facets of psychopathy and offers a potential means of investigating these processes separately within the general population. Alternatively, psychopathy could represent an emergent disorder arising from the combination of these two ordinarily unrelated personality dispositions (cf. Grove & Tellegen, 1991; Lykken, Bouchard, McGue, & Tellegen, 1992).

³ Items from the Protocol for the Psychopathic Personality Inventory (PPI), by Scott O. Lilienfeld. Copyright 1992 by Scott O. Lilienfeld. Reprinted with permission.

In this case, total scores on the PPI would remain a valid indicator of overall psychopathy, with scores on each factor of the PPI indexing necessary but not sufficient components of the disorder.

Limitations and Future Directions

Some limitations of the current study should be acknowledged. Our sample included only men, which precludes generalization of the findings to women. The use of a male sample was justified in an initial study of this kind because most studies of the correlates of the PCL-R and its factors are based on research with male participants (but see Vitale & Newman, 2001). Nevertheless, it is important that our findings, especially the reported relations of PPI factor scores with criterion variables, be replicated in female samples to confirm their replicability across genders. Another limitation is that scores on the PCL-R were not available in our sample. In future research, it will be important to administer the PPI in a sample in which PCL-R data are also available along with demographic, diagnostic, and personality information to directly examine relations between the two psychopathy inventories. However, that fact that we found parallel relations between the PPI factors and several criterion variables that have been used previously to validate the factors of the PCL-R (Harpur et al., 1989; Patrick, 1994, 1995; Patrick et al., 1997; cf. Poythress et al., 1998) is suggestive of convergence between the two instruments.

A further point is that our analyses focused on the two-factor conceptualization of the PCL-R. An alternative three-factor model has recently been proposed that parses Factor 1 into separate interpersonal and affective components and narrows the scope of the antisocial deviance factor (Cooke & Michie, 2001), which has strongly influenced the assessment of psychopathy in childhood (Frick & Hare, 2001). Although the discriminant validity of these alternative factor scores remains to be investigated, an examination of relations between the two PPI factors and the PCL-R facet scores associated with this model would no doubt be informative.

The availability of a self-report inventory that independently taps distinct components of psychopathy featured in Cleckley's (1976) conceptualization and operationalized in Hare's (1991) PCL-R presents interesting opportunities for future research. The current findings provide a foundation for exploring correlates and processes associated with these distinct facets of psychopathy in community samples. Using the PPI as a screening device, large participant samples can be assessed in an efficient manner. This provides a basis for studying the phenomenon of successful psychopathic individuals, who are likely to be passed over in studies that screen participants on the basis of antisocial tendencies. The ability to independently assess the two factors of psychopathy with the PPI may also allow for investigations of the moderating effects of one factor on the other. For example, although high scores on PPI-I are associated with higher intelligence and achievement, it might be expected that concomitant high scores on PPI-II would weaken this association. Similarly, a high score on PPI-I may act to moderate the negative relation between PPI-II and SES.

As noted earlier, the uncorrelated nature of the two factors of the PPI coincides with the notion that distinct neurobiological processes may underlie the emotional-interpersonal and antisocial deviance facets of psychopathy (Frick et al., 1999; Patrick, 2001, in press). The current findings suggest that the PPI offers a means of assessing these distinct facets of psychopathy and examining neurobehavioral correlates of each in isolation from the other. The

PPI should also be of utility in exploring the genetic basis of the two facets of psychopathy through community twin studies. For example, one key question is whether psychopathy, in particular its core affective-interpersonal component, is characterized by a configural (emergent; Lykken et al., 1992) pattern of inheritance as opposed to an additive genetic pattern (cf. Krueger et al., 2002).

Finally, our findings indicate that much of the variance in the PPI factors can be captured with an omnibus personality inventory, such as the MPQ. Scores on each of the PPI factors were predicted at levels approximating the test-retest reliabilities of the MPQ subscales over a comparable retest interval (McGue et al., 1993; Roberts et al., 2001). The implication is that psychopathy and its facets can be reconceptualized effectively in normal personality terms (cf. Widiger & Lynam, 1998) and that scores on the PPI factors can be estimated from omnibus personality measures using a regression strategy. Additional research is needed to determine whether other broadband personality inventories such as the NEO Personality Inventory—Revised (Costa & McCrae, 1989) or the Temperament Character Inventory (Cloninger & Svrakic, 1994) would prove effective in predicting PPI factor scores. Research of this kind would open up extensive opportunities for investigating the nature and etiologic basis of psychopathy in large existing datasets.

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