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A Multimethod Assessment of Juvenile Psychopathy: Comparing the Predictive Utility of the PCL:YV, YPI, and NEO PRI

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Abstract

The current study compares 3 distinct approaches for measuring juvenile psychopathy and their utility for predicting short- and long-term recidivism among a sample of 1,170 serious male juvenile offenders. The assessment approaches compared a clinical interview method (the Psychopathy Checklist: Youth Version [PCL:YV]; Forth, Kosson, & Hare, 2003), a new self-report measure (the Youth Psychopathic Traits Inventory; Andershed, Kerr, Stattin, & Levander, 2002), and a personality-based approach (the NEO Psychopathy Resemblance Index; Lynam & Widiger, 2007). Results indicate a modest overlap between the 3 measures ($r_s = .26-.36$); however, youths were often identified as psychopathic by 1 measure but not by others. Measures were weakly correlated with reoffending during subsequent 6- and 12-month periods. Findings suggest that although such scores may be useful indicators of the need for heightened monitoring in the short term, care should be taken when making predictions about long-term recidivism among adolescents. Moreover, the lack of long-term predictive power for the PCL:YV and the inconsistent psychopathy designations obtained with different measures raise serious questions about the use of such measures as the basis for legal or clinical treatment decisions.

Keywords

psychopathy; measurement; adolescent psychopathology; juvenile delinquency; psychometrics

Criminal justice and mental health professionals have long sought a reliable technique for predicting future criminal behavior among juvenile offenders. Among adults, psychopathy measures are highly predictive of future violence (Glover, Nicholson, Hemmati, Bernfeld, & Quinsey, 2002; Harris, Rice, & Cormier, 1991; Hemphill, Hare, & Wong, 1998; Serin, 1996). As such, the utility of psychopathy as a predictor of general and violent recidivism in adults has sparked considerable interest in applying the construct to adolescents. By assessing psychopathic traits, researchers have tried to distinguish between adolescent offenders whose deviant behavior is more transitory and less severe and those with more serious and stable patterns of behavior (Caputo, Frick, & Brodsky, 1999; Kruh, Frick, & Clements, 2005).

Measures designed to assess psychopathy in juvenile populations are increasingly used to make decisions in court cases (Viljoen, MacDougall, Gagnon, Douglas, & Crosby, 2009). Such measures may be used to determine whether a youth is tried in juvenile or adult court and whether sentencing focuses on treatment or punishment (Pettila & Skeem, 2003; Seagrave & Grisso, 2002). Little research, however, has examined whether measures of juvenile psychopathy accurately predict long-term recidivism among adolescent offenders. It is therefore imperative to determine whether the various methods for assessing psychopathy in youths predict both short- and long-term recidivism and to what degree these measures overlap in identifying psychopathic youths.

The present study examines the relative power of three distinct measures of psychopathy for predicting short- and long-term recidivism in a sample of serious male juvenile offenders. These instruments are described in the next section.

Assessing Psychopathy

Psychopathy is a well-studied construct defined by a cluster of affective, interpersonal, and lifestyle/behavioral characteristics (Cleckley, 1976; Hare, 2003). The prototypical psychopath is egocentric, callous, manipulative, impulsive, and unable to maintain close relationships. The Psychopathy Checklist-Revised (PCL-R; Hare, 1991) is the most extensively studied measure of psychopathy in adults. Described as the “gold standard” against which alternative assessment approaches are measured, the PCL-R is highly predictive of future violent behavior among adults (Glover et al., 2002; Harris et al., 1991; Hemphill et al., 1998; Serin, 1996).

This measure has recently been modified for use with adolescents, resulting in the Psychopathy Checklist: Youth Version (PCL:YV; Forth et al., 2003). Like its parent measure, the PCL:YV requires an intensive one-on-one semistructured interview, as well as a review of information from collateral sources and institutional files. Factor analytic studies of the PCL:YV have found support for both three- and four-factor models in samples of juvenile offenders (Forth et al., 2003; Jones, Cauffman, Miller, & Mulvey, 2006; Salekin, 2006; Salekin, Brannen, Zalot, Leistico, & Neumann, 2006). The three-factor model—comprised of these three personality-focused factors: Arrogant and Deceitful Interpersonal style (ADI; Factor 1), Deficient Affective Experience (DAE; Factor 2), and Impulsive and Irresponsible Behavioral style (IIB; Factor 3)—however, appears more appropriate for adolescents when compared with the four-factor model, which includes Criminal Behavior as a fourth factor (Jones et al., 2006; Skeem & Cooke, in press).

Due to the time involved in administering and scoring the PCL:YV—along with the extensive training required—numerous alternatives have been developed for assessing psychopathy in adolescents. One alternative is the Youth Psychopathic Traits Inventory (YPI), a 50-item self-report measure developed to assess community youths and based on the three-factor model of psychopathy (Andershed et al., 2002). The YPI has 10 subscales that combine to describe three interrelated factors: Grandiose/Manipulative, Callous/Unemotional, and Impulsive/Irresponsible. The YPI strongly correlates with measures of aggression, delinquency, and impulsivity (Dolan & Rennie, 2007). Comparisons between the YPI and PCL:YV suggest the two measures are correlated, though not as strongly as expected. For example, a recent study of 115 male adolescents with a diagnosis of conduct disorder according to the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.; *DSM-IV*; American Psychiatric Association, 1994) found modest overlap between total scores on the two instruments ($r = .29$, Dolan & Rennie, 2007; $r = .24$, Skeem & Cauffman, 2003). In a study of 162 boys and girls who received services at a clinic for adolescents with substance abuse problems, moderate correlations ($r_s = .30-.51$) were observed between the YPI and PCL:YV factor scores, with a high degree of

overlap between the groups with the lowest and highest YPI scores and the groups with the lowest and highest PCL:YV scores (Andershed, Hodgins, & Tengström, 2007).

Multiscale personality inventories are another increasingly popular method for assessing psychopathy (Lynam & Widiger, 2007; Miller & Lynam, 2003; Miller, Lynam, Widiger, & Leukefeld, 2001). Some researchers have suggested that psychopathy can be measured with the well-validated five-factor model of personality (FFM; McCrae & Costa, 1980) because psychopathy scores have been found to be negatively related to the FFM constructs of agreeableness, conscientiousness, and sometimes neuroticism (Lynam & Gudonis, 2005). The Psychopathy Resemblance Index (PRI; Lynam & Widiger, 2007) is a method for assessing psychopathy that is derived from the NEO Personality Inventory-Revised (NEO-PI-R; Costa & McCrae, 1992; Reise & Henson, 2000), a measure of the FFM. It is an index of how closely individuals resemble a prototypical psychopath on the basis of their personality. Researchers developed the PRI by sending a questionnaire consisting of 30 bipolar statements, each representing the 20 facets of the FFM, to 21 prominent psychopathy researchers (Widiger & Lynam, 1998). These experts then rated how the prototypical psychopath would score on each of the 20 items using a 5-point Likert scale ranging from 1 (*Extremely low*) to 5 (*Extremely high*). Ratings were averaged across expert responses to determine a prototypic psychopathy profile. By comparing an individual's NEO profile with the expert-generated psychopath profile, researchers could compute the degree of similarity, in other words, the PRI score (see Lynam & Widiger, 2007; Miller & Lynam, 2003; Miller et al., 2001). The convergent validity of the PRI has been evaluated among adults by comparing the Levenson Self-Report Psychopathy Scale (Levenson, Kiehl, & Fitzpatrick, 1995) with the PRI ($r = .46$; Miller et al., 2001).

Despite general consensus on the structural representation of adult personality, there is less agreement regarding individual traits among adolescents. Individual differences among youths are typically conceptualized as temperamental characteristics, although this belief may be more tradition than truth (Caspi, Roberts, & Shiner, 2005; De Pauw, Mervielde, & Van Leeuwen, 2009; McCrae et al., 2000; Rothbart & Bates, 1998; Shiner & Caspi, 2003). To date, the NEO PRI has not been validated for use with adolescents or directly compared with the PCL:YV or YPI.

Predictive Utility of Psychopathy Assessments

Several studies have examined the relation between psychopathy and subsequent offending among juvenile offenders (Edens & Campbell, 2007; Edens, Campbell, & Weir, 2007; Forth, Hart, & Hare, 1990; Skeem & Cauffman, 2003). Although this link is weaker than with adults, research has indicated that adolescent psychopathy does predict recidivism. For example, a 10-year retrospective study by Gretton, Hare, and Catchpole (2004) found that juveniles who scored high (30 or above) on the PCL:YV were 3 times more likely to violently offend than those who scored low. Adolescents who score high on measures of psychopathy have also been associated with institutional violence (Spain, Douglas, Poythress, & Epstein, 2004). It is important to note that different assessment instruments predict different behaviors. For example, the YPI predicted a range of institutional infractions (*area under the curve* [AUC] = .66) better than did the PCL:YV (AUC = .58), whereas the PCL:YV predicted disciplinary actions taken against youths (AUC = .67) better than did the YPI (AUC = .48).

The success of the PCL-R as a predictor of recidivism in adults (Hemphill et al., 1998; Salekin, Rogers, & Sewell, 1996) has led to the PCL:YV being considered the de facto gold standard for adolescents, despite the fact that the few studies examining its long-term predictive validity have provided inconsistent conclusions. In a 55-month prospective study of 220 male juvenile offenders, those with high PCL:YV scores reoffended more than did those with low scores

(Gretton, McBride, Hare, O'Shaughnessy, & Kumka, 2001). However, a more recent study of 75 male juvenile offenders by Edens and Cahill (2007) found that PCL:YV total and factor scores did not predict reconviction for general or violent offenses over a 10-year follow-up period.

Because many psychopathy measures include antisocial behavior as an evaluation criterion, researchers have suggested their predictive power may be linked to this criminal behavior component rather than core personality traits (Skeem & Cooke, in press; Walters, Knight, Grann, & Dahle, 2008). The current study focused primarily on the personality features of psychopathy as captured by the three-factor model. We did, however, include Hare's (2003) fourth, Criminal Behavior factor to evaluate its relative contribution to the PCL:YV's predictive utility (see Forth et al., 2003). The other two measures under evaluation—the YPI and NEO PRI—do not contain criminal behavior items and are thus not subject to this problem.

Characteristics of Psychopathic Youths

An important step in evaluating the validity of these measures assessing their association with well-documented correlates of psychopathy. Research has documented that the parents of psychopathic youths are more likely to have criminal histories and use harsh or maladaptive parenting strategies (Farrington, 2006). Youths who score higher on psychopathy measures tend to exhibit worse performance on neurological, attentional, and sometimes intelligence testing (Hiatt, Schmitt, & Newman, 2004). Although Cleckley (1976) argued that psychopaths should display higher IQ, research has found either no differences in IQ among psychopathic and nonpsychopathic youths (Loney, Frick, Ellis, & McCoy, 1998) or that psychopathic youths have lower IQs (Hecht & Jurkovic, 1978). However, youths high on psychopathy do exhibit increased delinquency (Dembo et al., 2007; Derefinko & Lynam, 2007) and substance use (Dembo et al., 2007; Derefinko & Lynam, 2007; Taylor & Lang, 2006). Thus, we expected that youths scoring higher on measures of psychopathy in the current study would exhibit greater familial risk factors, neurological and cognitive deficits, and behavior problems.

Goals of the Present Study

This is the first study to compare the NEO PRI with other psychopathy measures among juvenile offenders. We examined the short- and long-term utility of the PCL:YV, the YPI, and the NEO PRI for predicting future offending. Finally, we sought to determine whether the three measures correlate with risk factors commonly associated with psychopathy.

Method

Participants

Participants were adolescents enrolled in the Pathways to Desistance study (Mulvey et al., 2004), a prospective study of 1,354 serious juvenile offenders in Phoenix ($n = 654$) and Philadelphia ($n = 700$).¹ Complete details of the study methodology are provided in Schubert et al. (2004). Given that psychopathy is less understood among women, only male offenders were included in the analyses ($N = 1,170$).

Adolescents 14–17 years of age at the time of their arrest were eligible for the study. Eligible crimes included felony offenses against persons and property, along with misdemeanor

¹The two sites were different with regard to ethnic composition: 75% of youths were African American in the Philadelphia sample, whereas 60% of youths were Hispanic in the Phoenix sample. African American and Hispanic participants in our samples had different rates of offending but similar psychopathy scores. For that reason, race was used as a control variable in all analyses that involved offending.

weapons offenses. If a youth had multiple offenses, only the most serious was selected. Among participants, 44.5% were adjudicated for violent crimes against persons (e.g., murder, rape), 26.9% for property crimes (e.g., arson, burglary), 10.2% for weapons violations, and 3.9% for other crimes. Because drug law violations constituted a large percentage of offenses, inclusion of individuals with drug offenses alone was capped at 15% at each site to ensure adequate sample heterogeneity.

Participants were first interviewed after adjudication (in the juvenile system) or their decertification hearing or arraignment (in the adult system). The sample was primarily African American (42.2%), followed by 34% Hispanic American, 19.2% non-Hispanic Caucasian, and 4.7% other. Most came from low socioeconomic households, with 47% of the parents not having completed high school.

Procedures

The juvenile court in each locale provided the names of eligible adolescents. Interviewers attempted to contact each juvenile to ascertain interest in study participation and then contacted a parent or guardian to obtain adult consent. Interviews were conducted at a correctional facility, in the juvenile's home, or at another acceptable location. All study procedures were approved by the institutional review boards of the participating universities. Adolescents were compensated \$50 for the baseline interview and up to \$150 for follow-up interviews (when permitted by facility rules).

Regardless of the setting, interviews were conducted with an emphasis on privacy and confidentiality. Participants were informed of the federal prohibition against disclosing personally identifiable information beyond the research staff, except in cases of suspected child abuse or imminent danger. Questions were read aloud to avoid reading difficulties. After baseline assessment, participants were interviewed every 6 months for 3 years. The retention rate ranged from 90% to 93% at each follow-up.

Information was also gathered from two additional sources: Parent/guardian interviews were conducted near the time of baseline assessment, and official court records were reviewed and coded for criminal history information. These data sources supplemented participant interviews, as required, in determining PCL:YV scores. Among study participants, 47 had inadequate collateral or court information and thus could not be scored.

Measures

Psychopathy was assessed via three measures: the PCL:YV, the YPI, and the NEO PRI. Different instruments were utilized at various points during the 3-year longitudinal study. The PCL:YV was used at baseline only. The YPI was used at each 6-month follow-up interview. The NEO PRI was used only at the 24-month interview.

Psychopathy Checklist: Youth Version

The PCL:YV (Forth et al., 2003) is a 20-item scale intended for adolescents at least 13 years of age. Scores on each item are based on (a) a semistructured interview with the youth, (b) a review of official court documents, and (c) an interview with a parent or guardian. The PCL:YV requires the interviewer to evaluate the youth's interpersonal style and attitudes; functioning in the psychological, educational, occupational, family, and peer domains; and credibility (by comparing statements with official records or collateral [typically mother] reports). The interviewer evaluates how well the 20 traits apply to the participant using a 3-point ordinal scale that includes 0 (*Item does not apply to the youth*), 1 (*Item applies to a certain extent*), and 2 (*Item applies to the youth*).

Because of the complexity of administering the PCL:YV, all interviewers completed extensive training. To assess interrater reliability during training, we computed intraclass correlation coefficients (ICCs) with a two-way mixed effects model, with raters as a fixed factor and agreement defined as absolute using raters' scoring of four videotaped cases. Our analyses indicated excellent rates of agreement for total scores (ICC = .91). As past research has suggested (Jones et al., 2006), we correlated residual errors for Items 1 and 2 (impression management and grandiose sense of self-worth, respectively) and Items 18 and 20 (serious criminal behavior and criminal versatility, respectively) and allowed Item 13 (lacks goals) to load on both the behavioral and affective factors. Our three-factor model (Cooke & Michie, 2001) had the best fit to the data (comparative fit index [CFI] = .93, Tucker–Lewis index [TLI] = .92; root-mean-square error of approximation [RMSEA] = .06), but the four-factor model (Hare, 2003) also exhibited good fit (CFI = .91, TLI = .89; RMSEA = .06). In addition, the four factors were significantly correlated (r s ranging from .39 to .59, with all p s < .001).

Youth Psychopathic Traits Inventory

The YPI (Andershed et al., 2002) is a 50-item self-report measure based on contemporary adult models of psychopathy. The YPI was developed to identify youths (ages 12 and above) who engage in frequent and serious antisocial behavior into adulthood. The measure captures “core” psychopathic personality traits with these 10 scales: Dishonest Charm, Grandiosity, Lying, Manipulation, Remorselessness, Callousness, Unemotionality, Impulsiveness, Irresponsibility, and Thrill Seeking. These scales map onto three domains—interpersonal (Grandiose/Manipulative), affective (Callous/Unemotional), and lifestyle/behavioral (Impulsive/Irresponsible)—and in our study they were found to be strongly correlated (r s ranging from .58 to .64, with all p s < .001). Importantly, the YPI does not frame psychopathic traits as deficits but instead as neutral or appealing. Such phrasing reduces the influence of social desirability on responses. Participants respond to each item on a 4-point Likert scale, with higher scores indicating more psychopathic characteristics. The 10 scales exhibited adequate to excellent reliability (α s ranging from .60 to .91), and the three domains demonstrated good internal consistency (α s ranging from .73 to .91). Overall, the YPI demonstrated good internal consistency (α = .93) and validity (CFI = .95; normed fit index [NFI] = .93; RMSEA = .09).

NEO Psychopathy Resemblance Index

The NEO PRI (see Miller & Lynam, 2003) was derived from participants' scores on the NEO Personality Inventory-Revised (Costa & McCrae, 1992; Reise & Henson, 2000). This 120-item shortened version of the NEO consists of four items for each of the 30 personality facets (as opposed to eight items in the original NEO). It has demonstrated valid scores that map onto the original version, with facet correlations above .91 (Reise & Henson, 2000). Youths rate the veracity of statements (e.g., “I have a low opinion of myself”) on a 5-point Likert scale ranging from 1 (*Disagree strongly*) to 5 (*Strongly agree*). Scores are combined to create an assessment of each of the Big Five personality dimensions: neuroticism, extraversion, openness to experience, conscientiousness, and agreeableness.

For adolescent samples, the NEO has demonstrated internal consistency coefficients ranging from .88 to .94 for domain scales (McCrae, Costa, Terracciano, Parker, & Mills, 2002) and from .43 to .81 for facet scales (De Fruyt, Mervielde, Hoekstra, & Rolland, 2000). Kurtz, Lee, and Sherker (1999) also reported test–retest correlations in an adolescent sample ranging from .64 to .83, with a median of .76. Several adolescent studies conducted with the NEO have replicated the five-factor structure shown in adults (De Fruyt et al., 2000; McCrae et al., 2002; Wu, Lindsted, Tsai, & Lee, 2008). Although the five-factor structure with correlated latent factors produced a poor fit with the data in the current study, $\chi^2(394) = 3,289.24$, $p < .001$; CFI = .648, RMSEA = .079, when we allowed nonunique item loadings and cross-factor

item correlations, the model fit improved significantly, $\chi^2(348) = 1,140.03, p < .001$; CFI = .902, RMSEA = .048, consistent with other findings (e.g., Church & Burke, 1994).

We calculated a PRI score for each youth on the basis of his scores on the 30 personality facets of the NEO, compared with the previously discussed expert-derived standardized “psychopathic prototype” score. The NEO PRI is calculated as an intraclass Q correlation between the individual’s actual facet scores and the averaged facet scores obtained from the experts’ ratings. The correlation can range from -1 to 1 , with higher scores indicating greater resemblance to the psychopathic prototype (Lynam & Widiger, 2001; Miller & Lynam, 2003). The current study is the first to test the utility of this measure of psychopathy in a juvenile population.

Offending behavior—Antisocial and illegal activities prior to baseline assessment were documented with self-reports and official court records. Records were coded for prior criminal offenses. From this information we determined the total number of prior juvenile court petitions and the age at first petition. Records documented offending during each 6-month follow-up interval. On average, participants committed 2.3 offenses prior to study enrollment and 1.8 during the 3-year study.

At the baseline and each subsequent interview, participants completed an adapted version of the Self-Report of Offending Scale (SRO; Huizinga, Esbensen, & Weiher, 1991). They were asked whether they had engaged in any of 22 aggressive or income-generating crimes. Aggressive crimes involve personal interaction with a victim (e.g., assault, armed robbery). Income-generating crimes involve financial gain (e.g., using stolen credit cards). The measure was found to be reliable in the current sample ($\alpha = .88$ at baseline). On average, participants had committed approximately seven different types of offenses at baseline and approximately one type of offense at the 3-year follow-up. An examination of Kolmogorov-Smirnov goodness-of-fit tests (Chakravarti, Laha, & Roy, 1967) revealed that SRO scores were nonnormally distributed, with a clustering of scores near 0, war ranting a square root transformation of these variables prior further analysis. Although use of transformed variables compli cates interpretation of results, failure to do so in this case would violate the assumptions of regression analysis, unduly increasing confidence intervals. Given this requirement, we limit interpreta tion of results involving SRO scores to comparisons involving values (e.g., “variable X was positively associated with variable Y”) and avoid measurement scale interpretations. (e.g., “one unit increase in X was associated with two units increase in Y”).

Because antisocial activity was assessed through both self report and official records at each time point, we could assess the following different aspects of offending behavior: (a) prior offend ing, which consists of offending behavior documented prior to the baseline interview; (b) short-term offending during a given 6-month follow-up; and (c) long-term offending during a 12 month follow-up and, for the PCL:YV only, a 36-month follow-up.

Criminal characteristics—Three variables were measured baseline as indices of criminal history: early problem behavior, age at first arrest, and paternal arrest history. If the juvenile’s first offense resulted in study enrollment, the age at his initial referring petition was used for age of first arrest. Behavior problems prior to age 11 (e.g., cheating, substance abuse, fighting) in up to a max imum of five problem areas were totaled. Participants also reported whether their father had ever been arrested.

IQ—The Vocabulary and Matrix Reasoning subsets of the Wechsler Abbreviated Scale of Intelligence (WASI; Wechsler, 1999) were measured at baseline to assess general intellectual ability at the baseline interview. The two WASI subsets are ad ministered in approximately

fifteen minutes, and higher scores indicate greater intelligence. The instrument has been normed for participants from ages 6 to 89 years.

Neurological deficits—Two measures assessed neurological deficits at the baseline interview. The first, the Stroop Color and Word Test (Golden, 1978), is considered a general measure of cognitive flexibility and control (Uttl & Graf, 1997). With the Stroop we examined the effects of interference on participants' reading ability by utilizing three separate skills tests involving words and colors. The participants' task was to look at each sheet and move down the columns, reading words or naming the ink colors as quickly as possible, within a given time limit (45 s). A Color–Word Interference score below 40 suggests impaired neurological functioning.

The second measure, the Trail Making Test (Reitan, 1979), designed to assess visual processing speed, divided attention, motor component sequencing, and mental flexibility (Strauss, Sherman, & Spreen, 2006) and has been found to distinguish control participants from people with various types of brain injury (for a review, see Lezak, Howieson, Loring, Hannay, & Fischer, 2004). The test has two versions: one for children below age 15 and one for those 15 and above. Participants are required to connect numbers, or numbers and letters, in sequential order, with longer completion times in seconds indicative of a neurological deficit.

Peer delinquency—Peer delinquent behavior was assessed baseline with the 19-item measure from the Rochester Youth Study (Thornberry, Lizotte, Krohn, Farnworth, & Jang, 1994). Two sub scales were calculated: Antisocial Peer Behavior (e.g., “How many of your friends have sold drugs?”) and Antisocial Peer Influence (e.g.

“How many of your friends have suggested that you should sell drugs?”). Participants responded on a 5-point Likert scale ranging from 1 (*None of them*) to 5 (*All of them*), with higher scores indicating more delinquent peer behavior and influence. Both the antisocial peer behavior and antisocial peer influence subscales demonstrated good internal consistency ($\alpha = .92$ and $.89$, respectively).

Parenting style—Parental warmth was separately assessed for mother/stepmother and father/stepfather at the baseline interview with nine items from a scale developed by Conger, Ge, Elder, Lorenz, and Simons (1994). Scores were averaged to get a total index of parental warmth. A second factor, degree of firmness, was also separately assessed at baseline for both parents with eight items from a scale developed by Steinberg, Lamborn, Darling, Mounts, and Dornbusch (1994). Both parental warmth and parental firmness exhibited good internal consistency ($\alpha = .92$ and $.85$, respectively). To ensure that we compared adolescents whose parents genuinely represented qualitatively different types of parenting (Fletcher, Steinberg, & Sellers, 1999), we created parenting styles based on tertile splits on warmth and firmness scores. Participants in the upper and lower split categories on each domain were classified into four different styles: authoritative (high warmth/high firmness), permissive (high warmth/low firmness), authoritarian (low warmth/high firmness), and neglectful (low warmth/low firmness). This rendered a more clear distinction between the higher and lower parenting groups and eliminated parents whose status was unclear.

Substance abuse—We utilized the 10-item Substance Use/Abuse Inventory (modified from the measure used by Chassin, Rogosch, & Barrera, 1991) to assess lifetime alcohol and illicit drug abuse and dependence at the baseline interview. The more items an individual endorses, the greater the alcohol or drug dependence.

Results

Analytic Plan

Analyses were designed to assess the factor and total scores of the PCL:YV, YPI, and the NEO PRI for their (a) degree of overlap in assessing psychopathy; (b) predictive utility for concurrent, short-, and long-term criminal offending; and (c) ability to identify youths who display risk factors theoretically and empirically related to psychopathy. We used traditional cutoff scores on the PCL:YV to identify individuals as psychopathic. For the YPI and NEO PRI, the cutoff scores were based on standard deviations or derived from the receiver operating characteristic (ROC) analysis. We then utilized multiple regression analyses to examine how designated psychopathic and nonpsychopathic youths varied in offending behavior. Finally, we identified youths who scored relatively higher or lower on each of the three psychopathy measures independently, as well as those who scored higher or lower on all three measures, and then examined how scores on several key correlates of psychopathy differed among participants scoring high versus low on each study measure.

Measurement Overlap in Assessing Psychopathy

Means and standard deviations for the psychopathy measures are provided in Table 1. Although the mean PCL:YV score ($M = 16$) is slightly lower than means reported in some studies, it is within the normal range reported in a recent meta-analysis of psychopathy research among juvenile offenders (in which mean scores ranged from 9 to 28, with an overall weighted mean of 20.5; Edens et al., 2007). As seen in Table 2, psychopathy measures were moderately correlated, with a stronger association between the two measures relying on self-report (NEO PRI and YPI).

The correlation coefficients reflect both true associations among the assessed constructs and some shared-method variance between the YPI and NEO PRI. By constructing a self-evaluation maintenance model of the three psychopathy measures with the self-report variance extracted as a separate factor, we differentiated the variance due to shared measurement methods from the correlations among the constructs (see Figure 1). Two separate models were considered—one with the PCL:YV at baseline, YPI at 6 months, and NEO PRI at 24 months, and the other with PCL:YV at baseline, YPI at 24 months, and NEO PRI at 24 months.² Both models had an adequate-to-good fit: $\chi^2(15) = 102.5, p < .001$; CFI = .968, TLI = .924, RMSEA = .071, and $\chi^2(15) = 90.5, p < .001$; CFI = .974, TLI = .937, RMSEA = .066, respectively. After this adjustment for shared-method variance, the correlations among the measures were as follows: PCL:YV_{baseline} with YPI_{6 months} $r = .31$, and with YPI_{24 months} $r = .32$ (both $p < .001$); PCL:YV_{baseline} with NEO PRI_{24 months} $r = .29$ ($p < .001$); NEO PRI_{24 months} with YPI_{6 months} $r = .39$, and with YPI_{24 months} $r = .41$ (both $p < .001$). Comparison of these coefficients with those listed in Table 2 suggests that shared-method variance did not unduly influence the calculated correlations.

Next, we identified individuals who fell above and below cutoff scores on each measure. The typical cutoff score for psychopathy with the PCL-R (adult version) is 30; no empirically derived cutoff exists for the PCL:YV (Forth & Mailloux, 2000). Some researchers have suggested adopting the threshold score of 30 for juveniles as well (e.g., Gretton et al., 2004). Others have used a cutoff of 25 in juvenile studies (e.g., Murrie & Cornell, 2002). In the current study, 15.2% of youths scored above 25, and 5.4% of youths scored above 30 on the PCL:YV (see Table 3).

²As a reminder, the PCL:YV was conducted only at baseline.

Because the YPI and NEO PRI lack established cutoff scores, we used two different methods for identifying psychopathy: standard deviations and ROC analyses. We categorized a youth as psychopathic when he was one standard deviation above the mean on each instrument (see Table 3). With this approach, 15.9% of youths were identified as psychopathic with the YPI, and 15.3% with the NEO PRI. Using a cutoff score of 25 on the PCL:YV and one standard deviation above the mean on the YPI and NEO PRI, we classified 1.8% of youths as psychopathic by all three measures and 64.0% as nonpsychopathic; 34.2% had inconsistent designations. When the more stringent cutoff score of 30 on the PCL:YV was applied, only 6 youths (0.5% of the boys) were classified as psychopathic by all three measures.

Given the ad hoc nature of these cutoff points, we examined how scores calculated on the basis of the more standardized PCL:YV criteria compared with the YPI and NEO PRI scores in terms of determining psychopathy. We did this by conducting ROC analysis to maximize sensitivity and specificity. Through ROC analysis we calculated and plotted the sensitivity (or true positive rate) by $1 - \text{specificity}$ (or false positive rate) of a test at every possible threshold in predicting a criterion (Hanley & McNeil, 1982; Hsiao, Bartko, & Potter, 1989; Metz, 1978; Mossman & Somoza, 1989, 1991; Murphy, Berwick, Weinstein, & Borus, 1987; Vida, 1999). ROC analysis thus describes the predictive accuracy of a test across a range of possible threshold values.

First, ROC analyses were performed for a PCL:YV threshold score of 30. The AUC, or area under the ROC curve, is interpreted as the probability of correctly distinguishing whether a participant is above or below the PCL:YV cutoff. As seen in Table 4, there was a 68% chance that a youth deemed psychopathic by the PCL:YV would score higher on the YPI than would a nonpsychopathic youth, whereas on the NEO PRI there was a 62% chance. According to AUC criteria established by Streiner and Cairney (2007), these results indicate low levels of accuracy for the YPI and the NEO PRI.

This analysis was repeated for a PCL:YV cutoff score of 25. Again, both YPI (at 66%) and the NEO PRI (at 62%) proved unreliable at accurately distinguishing which youths were psychopathic (see Table 4). The optimal balance between the true positive rate (sensitivity = .65) and the false positive rate ($1 - \text{specificity} = .36$) of the YPI in predicting PCL:YV scores above 25 yielded cutoff point of 115.5, compared with 121.5 for PCL:YV scores above 30 (sensitivity = .65; $1 - \text{specificity} = .28$). (An accurate cutoff point could not be determined for the NEO PRI due to poor sensitivity and specificity in predicting PCL:YV scores.) On basis of these data, 41.8% and 30.6% of youths were classified psychopathic on the basis of YPI cutoff scores of 115.5 and 121.5, respectively.

Psychopathy and Recidivism: The Predictive Utility of the PCL-YV, YPI, and NEO PRI

In order to compare predictive utility, we regressed offending at the 36-month time period (both self-reported and official) on these three measures. These analyses controlled for age, number of days spent in confinement, lifetime history of offending at baseline, and race. Specifically, age, days in confinement (baseline to 36 months), lifetime offending reported at baseline, and race were entered at Step 1, and the three psychopathy measures were entered at Step 2. As seen in Table 5, neither the PCL:YV nor the YPI were associated with aggressive or income offending. By contrast, the NEO PRI was significantly associated with aggressive and income offending at 36 months. That participants completed the PCL:YV at baseline, whereas they completed the YPI and NEO PRI at 24 months, may account for the PCL:YV's failure to predict offending at 36 months. Indeed, bivariate correlation coefficients for PCL:YV scores at baseline with total self-reported offending scores at Month 6 through Month 36 assessments showed gradual attenuation, $r_{\text{SRO}}(6 \text{ months}) = .32, p < .001$; $r_{\text{SRO}}(12 \text{ months}) = .29, p < .001$; $r_{\text{SRO}}(18 \text{ months}) = .26, p < .001$; $p < r_{\text{SRO}}(24 \text{ months}) = .24, p < .001$; $r_{\text{SRO}}(30 \text{ months}) = .26, p < .001$; and $r_{\text{SRO}}(36 \text{ months}) = .21, p < .001$, suggesting that a 36-month lag was too long to detect a significant PCL:YV effect.

The next set of regression analyses looked at predictions of offending at 6- and 12-month follow-ups. As seen in Table 6, the three psychopathy measures were significantly associated with self-reported offending at both data points, with aggressive and income offending after 6 months and with official-record offending after 12 months. These associations were similar in magnitude across the three measures, as indicated by semipartial correlations. As seen in Table 7, there were also some unique features in each measure's predictive utility. For example, among the PCL:YV factor scores, only Criminal Behavior (Hare's fourth factor) significantly predicted offending at 6 months. With the YPI, only the Grandiose/Manipulative dimension predicted self-reported offending at 6 months.³

Differences Between High- and Low-Scoring Youths on Measures of Psychopathy

We compared youths with relatively high and low psychopathy scores on a number of theoretically meaningful variables. For each of the three psychopathy measures, we created two participant categories: those scoring at least one standard deviation below the mean (low-psychopathy comparison group) and those scoring at least one standard deviation above the mean (high-psychopathy group). We also established a fourth set of comparison groups consisting of those scoring at least one standard deviation above or below the mean on all three measures. We performed *t* tests to compare these groups on continuous variables: age at first arrest, early problem behavior, offending, neuropsychological and executive functioning, and peer delinquency. We conducted chi-square analyses to compare groups on dichotomous variables: ethnicity, parenting style, paternal arrest/incarceration, and drug abuse/dependency. Results are presented in Tables 8 and 9.

For all three measures, whether examined individually or combined, the high-psychopathy group presented with more early behavior problems, greater peer delinquency, and increased prevalence of drug abuse and dependency than did the low-psychopathy groups. Moreover, individuals who scored high on the YPI and the NEO PRI had higher IQs. Youths who scored high on either the PCL:YV or the YPI were younger at first offense, were more likely to have a biological father with a criminal record, and were more likely to have endured neglectful parenting than did individuals who scored low on psychopathy on the PCL:YV or the YPI (see Table 8). Compared with low scoring youths, those scoring high on the NEO PRI completed the trail-making task more quickly and were more likely to have a biological father with a criminal record (see Table 9).

Discussion

In recent years, several measures to identify psychopathic traits among youthful offenders have been developed. In the present study, we compared three such measures with the goal of predicting delinquent behavior. Results indicate modest overlap between the PCL:YV, the YPI, and the NEO PRI. Resultant *r* values for total scores ranged from .26 to .36, with the strongest correlations between the YPI and either the PCL:YV or the NEO PRI. Even after adjustments for shared-method variance, correlations among the measures remained low to moderate ($r_s = .29$ to $.41$). Notably, only 0.5%–1% of youths met the psychopathy cutoff on all three scales (compared with 13%–15% on each individual scale). In some respects, this is expected because the PCL:YV contains a significant behavioral component, whereas the other two measures do not. Moreover, ROC analyses indicate that, whether a cutoff score of 25 or 30 is used for the PCL:YV, the YPI and the NEO PRI both exhibit low accuracy in their ability to distinguish

³Because self-reported offending scores exhibited a decline in means and standard deviations throughout the study ($M = 0.15$, $SD = 0.16$ at baseline; $M = 0.05$ and $SD = 0.10$ at 36 months), separate logistic regressions were performed with a dichotomized self-reported offending outcome. Results of these analyses were similar to those obtained with the continuous measure of offending. When tested in one model, the YPI and NEO PRI were significantly associated with offending at 36 months, whereas the PCL:YV was not. All three measures were significantly associated with offending 6 months and 12 months later.

between psychopathic and nonpsychopathic youths. Even with optimal cutoff scores identified in the ROC analyses, a high number of youths were identified as psychopathic by one measure but not another. This pervasive inconsistency raises a fundamental concern as to whether the YPI, PCL:YV, and NEO PRI are measuring a common set of characteristics.

Despite differences between measures and assessment time points, we were able to draw several useful conclusions. Our findings indicate that when other measures of psychopathy are included (i.e., YPI, NEO PRI), the PCL:YV is unable to predict offending 3 years later. Moreover, the utility of just the PCL:YV for predicting subsequent offending diminishes with time. This corroborates conclusions drawn by Edens and Cahill (2007), who found no predictive utility in a 10-year prospective study of recidivism. Thus, although the PCL-R can predict offending among adults when evaluated retrospectively, the PCL:YV does not appear accurate for juveniles over long periods. Also worth noting, the self-report-based YPI and NEO PRI predicted short-term reoffending as accurately as did the more time-consuming and skill-intensive PCL:YV.

Given concerns about the developmental appropriateness of evaluating a stable personality trait during adolescence (Edens, Skeem, Cruise, & Cauffman, 2001; Seagrave & Grisso, 2002), we expected the predictive utility of psychopathy to be strongest for proximal assessments. All three measures indeed correlated with self-reported offending during the 6- and 12-month follow-up periods, but the magnitude of association attenuated over time. Although weak in magnitude, such correlations are comparable to results obtained with other forms of juvenile risk assessment instruments (Cottle, Lee, & Heilbrun, 2001; Thompson & Putnins, 2003; Welsh, Schmidt, McKinnon, Chatta, & Meyers, 2008). Only the YPI was significantly correlated with official-records offending at 6-month follow-up; all three scales had a significant but weak association at 12-month follow-up. This may indicate that official records are less accurate than self-reports in providing a complete offending history.

Closer examination revealed that the psychopathy-offending (short-term) correlations were almost entirely driven by the Criminal Behavior factor of the PCL:YV and the Grandiose/Manipulative dimension of the YPI. In the case of the PCL:YV, the correlation to short-term offending results from the predictor-criterion overlap. In the case of the YPI, one might have expected offending to be more strongly linked to the affective or lifestyle/behavioral domains rather than the interpersonal domain (Grandiose/Manipulative dimension).

Interestingly, the baseline PCL:YV score is correlated (albeit weakly) with the NEO PRI at the 24-month follow-up but not with offending at that time point. Although counterintuitive, in that psychopathy would be expected to be associated with offending behavior, such data are qualitatively consistent with (a) previous research showing that personality traits tend to coalesce but do not become stable until late adolescence or early adulthood (Seagrave & Grisso, 2002) and (b) studies suggesting that the predictive utility of psychopathy measures in adolescents may be limited to the short-term (Edens & Cahill, 2007). To the extent that some researchers have suggested that the PCL:YV may capture elements of normative psychosocial immaturity among adolescents (e.g., impulsivity and need for stimulation; Forth & Burke, 1998; Skeem & Cauffman, 2003), it is also possible that decreases in the predictive power of juvenile psychopathy measures at longer time horizons are due to divergent developmental pathways, whereby some “psychopathic” youths maintain such characteristics and continue to exhibit antisocial behavior into adulthood, whereas other seemingly psychopathic youths become less so as they grow more psychosocially mature and consequently exhibit less antisocial behavior.

Although we did not find strong correlations among psychopathy scores, all three measures clearly identified differences between youths who score particularly high or low on a given

measure. High scorers reported more early behavior problems and more frequent drug use. They also exhibited greater indications of poor prefrontal functioning but higher IQs. These findings are consistent with biological and behavioral constructs theoretically related to psychopathy (e.g., Campbell, Porter, & Santor, 2004; Vidling, 2004). Importantly, although we do find that youths identified as psychopathic tend to exhibit higher IQs than do nonpsychopathic youths, the average IQ scores for both groups are nevertheless quite low by community standards.

Although this is the first known study to examine the NEO PRI in an adolescent sample (D. R. Lynam, 2009, personal communication) and also the first to compare it with other measures used with this population, it is important to note that all participants were serious male juvenile offenders; thus, results may not apply to female or community adolescent populations. Second, the NEO PRI, YPI, and offending measures rely heavily on self-report, possibly resulting in a higher covariance due to the shared method of data collection. Notably, however, when we addressed this possibility with a self-evaluation maintenance model that accounted for shared-method variance, our results remained the same. Finally, the psychopathy measures were administered at different time points throughout the study period. Despite this staggered assessment pattern, our findings mirror studies that used a single time point in predicting short-term recidivism (Catchpole & Gretton, 2003; Corrado, Vincent, Hart, & Cohen, 2004; Falkenbach, Poythress, & Heide, 2003; Gretton et al., 2004; Gretton et al., 2001; Skeem & Cauffman, 2003).

Two major conclusions can be drawn from this study. First, while adolescent offenders' scores on disparate psychopathy measures are correlated with subsequent offending behavior in the short-term, such correlations are weak and diminish with time. Thus, at most, psychopathy scores may indicate a need for short-term monitoring. Second, and more importantly, the fact that many youths are identified as psychopathic on one measure but not on another raises disturbing questions about the increasing use of these instruments to make significant legal or clinical treatment decisions. In particular, given the PCL:YV's inability to predict long-term behavior, it would be ethically inappropriate to use such a measure to decide matters such as whether a defendant should be tried as a juvenile or as an adult or whether an adolescent should be sentenced to a treatment facility or to life in prison without possibility of parole.

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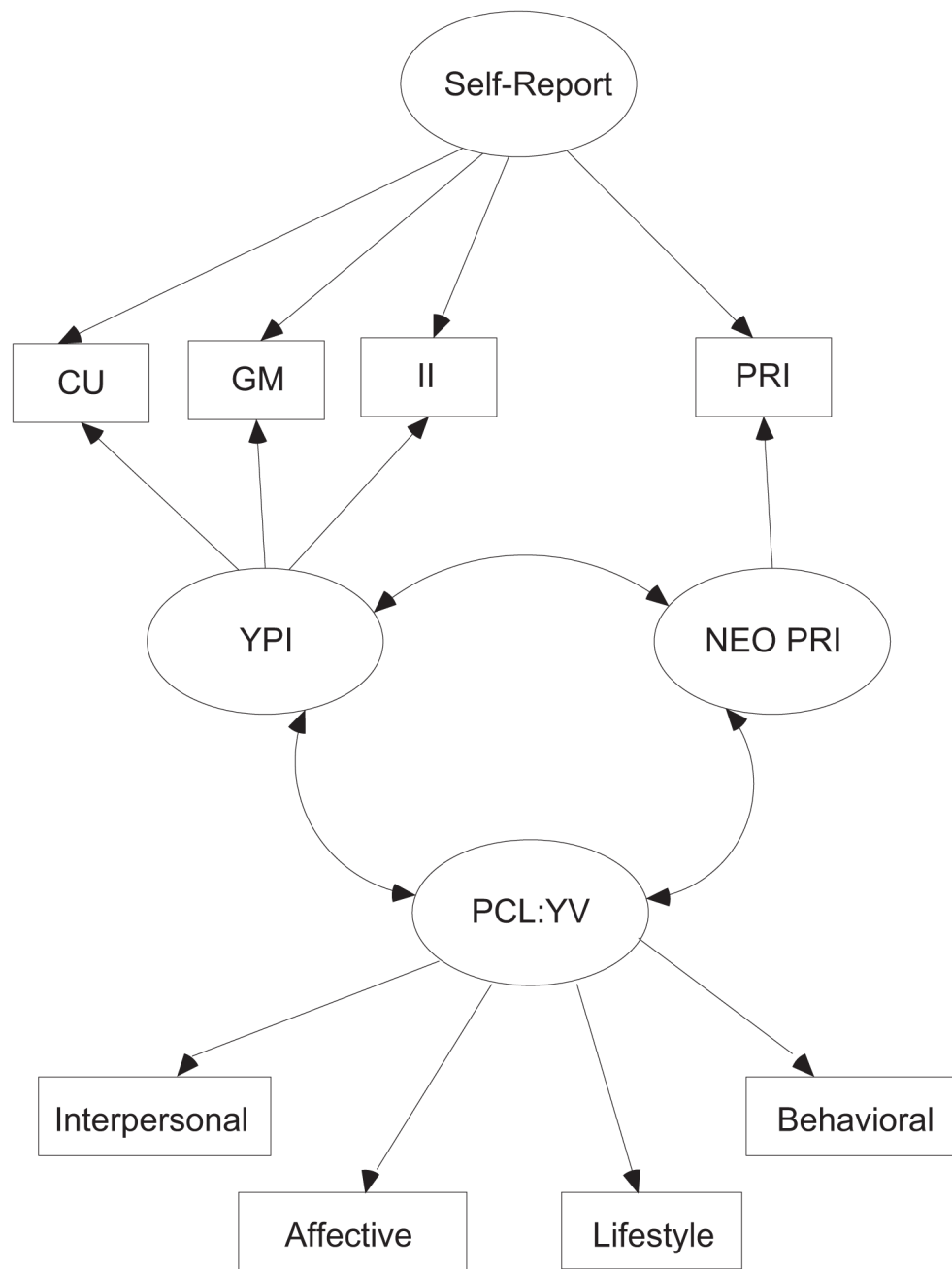


Figure 1. Structural equation model of psychopathy including shared-method variance effects. CU = Callous/Unemotional factor; GM = Grandiose/Manipulative factor; II = Impulsive/Irresponsible factor; PRI = Psychopathy Resemblance Index; YPI = Youth Psychopathic Traits Inventory; PCL:YV = Psychopathy Checklist: Youth Version; Interpersonal = interpersonal domain; Affective = affective domain; Lifestyle = lifestyle domain; Behavioral = behavioral domain.

Table 1

Distributions for the PCL:YV, YPI, and NEO PRI

Measure and factor	<i>M</i> (<i>SD</i>)	Skewness (<i>SE</i>)	Kurtosis (<i>SE</i>)	Range
PCL:YV total (at baseline)	16.12 (7.77)	.25 (.07)	-.60 (.15)	0–39
ADI (Factor 1)	2.32 (2.00)	.94 (.07)	.64 (.15)	0–12
DAE (Factor 2)	2.76 (2.07)	.60 (.07)	-.01 (.15)	0–11
IIB (Factor 3)	4.55 (2.42)	.29 (.07)	-.19 (.15)	0–14
CB (Factor 4)	5.09 (2.51)	.08 (.07)	-.88 (.15)	0–13
YPI total (at 6 months)	109.86 (23.13)	.06 (.08)	-.08 (.16)	42–191
Grandiose/Manipulative	40.43 (11.71)	.28 (.08)	-.32 (.16)	12–80
Callous/Unemotional	33.77 (6.81)	.25 (.08)	.28 (.16)	7–58
Impulsive/Irresponsible	35.66 (8.24)	.00 (.08)	-.26 (.16)	15–60
NEO PRI (at 24 months)	0.01 (0.17)	.25 (.08)	.03 (.16)	-0.49–0.59

Note. *N*s = 1,124 (PCL:YV), 928 (YPI), and 1,010 (NEO PRI). PCL:YV = Psychopathy Checklist: Youth Version; YPI = Youth Psychopathy Inventory; NEO PRI = NEO Psychopathy Resemblance Index; ADI = Arrogant and Deceitful Interpersonal style; DAE = Deficient Affective Experience; IIB = Impulsive and Irresponsible Behavioral style; CB = Criminal Behavior style.

Table 2
Correlations Between Total and Facet Scores of the PCL:YV, YPI, and NEO PRI

Measure and factor	PCL:YV (at baseline)						NEO PRI (at 24 months)
	Total	ADI	DAE	IIB	CB		
YPI (at 6 months)							
Total	.35	.29	.28	.27	.26		.28
Grandiose/Manipulative	.29	.31	.24	.20	.18		.23
Callous/Unemotional	.32	.22	.29	.25	.25		.31
Impulsive/Irresponsible	.29	.21	.20	.25	.27		.22
YPI (at 24 months)							
Total	.26	.25	.12	.23	.24		.36
Grandiose/Manipulative	.22	.25	.10**	.18	.18		.33
Callous/Unemotional	.23	.19	.12	.21	.22		.35
Impulsive/Irresponsible	.23	.21	.09**	.22	.24		.28
NEO PRI (at 24 months)	.26	.24	.14	.19	.23		

Note. Correlations without asterisks were significant at $p < .001$. PCL:YV = Psychopathy Checklist: Youth Version; NEO PRI = NEO Psychopathy Resemblance Index; YPI = Youth Psychopathy Inventory; ADI = Arrogant and Deceitful Interpersonal style; DAE = Deficient Affective Experience; IIB = Impulsive and Irresponsible Behavioral style; CB = Criminal Behavior style.

**
 $p < .01$.

Table 3

Cutoffs and Overlap for the PCL:YV, YPI, and NEO PRI

Measure criteria	Cutoff criteria score	<i>n</i> (%) above cutoff
Standard cutoffs		
PCL:YV total score (at baseline)	25	171 (15.2)
PCL:YV total score (at baseline)	30	61 (5.4)
Cutoff 1 <i>SD</i> above mean		
YPI total score (at 6 months)	133	148 (15.9)
NEO PRI (at 24 months)	0.18	155 (15.3)
All measures combined		
Liberal/low cutoff criteria		15 (1.8)
PCL:YV	25	
YPI	133	
NEO PRI	0.18	
Conservative/high cutoff criteria		6 (0.5)
PCL:YV	30	
YPI	133	
NEO PRI	0.18	

Note. PCL:YV = Psychopathy Checklist: Youth Version; YPI = Youth Psychopathy Inventory; NEO PRI = NEO Psychopathy Resemblance Index.

Table 4

Area Under the ROC Curve (AUC) for the YPI and NEO PRI

Measure	AUC	SE	CI range
Threshold: PCL:YV > 30			
YPI	.68***	.04	0.60–0.77
NEO PRI	.62**	.04	0.54–0.70
Threshold: PCL:YV > 25			
YPI	.66***	.03	0.61–0.71
NEO PRI	.62***	.03	0.57–0.67

Note. ROC = receiver operating characteristics; YPI = Youth Psychopathy Inventory; NEO PRI = NEO Psychopathy Resemblance Index; CI = confidence interval; PCL:YV = Psychopathy Checklist: Youth Version.

**
 $p < .01$.

 $p < .001$.

Table 5
 Regression Analyses Predicting Offending at 36 Months With the PCL:YV, YPI, and NEO PRI

Variable	β	t	df	sr	Tolerance ^a
Model 1: total self-reported offending on the					
PCL:YV	.01	0.15	639	.01	.62
YPI	.11**	2.65	639	.10	.79
NEO PRI	.14**	3.40	639	.13	.79
Model 2: self-reported aggressive offending on the					
PCL:YV	.04	0.91	639	.03	.76
YPI	.08	1.78	639	.07	.80
NEO PRI	.13**	3.14	639	.12	.80
Model 3: self-reported income offending on the					
PCL:YV	.06	1.32	639	.05	.76
YPI	.08	1.89	639	.07	.80
NEO PRI	.14*	3.27	639	.12	.81
Model 4: official-record offending on the					
PCL:YV	.05	1.00	678	.04	.62
YPI	.08	1.81	678	.07	.79
NEO PRI	-.03	-0.75	678	-.03	.79

Note. For Models 1-3, $n = 641$; for Model 4, $n = 680$. PCL:YV was measured at baseline, whereas 24-month measures of the YPI and NEO PRI were used to predict self-report of offending at 36 months. Age, days in confinement (baseline to 36 months), prior offending reported at baseline, and race were entered at Step 1, and the three psychopathy measures were entered at Step 2. PCL:YV = Psychopathy Checklist: Youth Version; YPI = Youth Psychopathy Inventory; NEO PRI = NEO Psychopathy Resemblance Index.

^a A value of tolerance less than .10 indicates possible multicollinearity problems.

* $p < .05$.

** $p < .01$.

Table 6
Regression Analyses Predicting Offending at 6 and 12 Months With the PCL:YV, YPI, and NEO PRI

Offending type and model ^a	Prediction of offending at 6 months ^b				Prediction of offending at 12 months ^c			
	β	<i>t</i>	<i>df</i>	<i>sr</i>	β	<i>t</i>	<i>df</i>	<i>sr</i>
Total self-reported offending on								
Model 1 (<i>n</i> = 924/884)—PCL:YV (at baseline)	.20***	5.97	922	.18	.18***	5.13	882	.16
Model 2 (<i>n</i> = 873/834)—YPI (at 24 months)	.13***	4.31	871	.14	.08**	2.66	832	.08
Model 3 (<i>n</i> = 838/799)—NEO PRI (at 24 months)	.16***	5.43	836	.17	.10***	3.22	797	.10
Self-reported aggressive offending on								
Model 1 (<i>n</i> = 924/884)—PCL:YV (at baseline)	.21***	6.35	922	.20	.19***	5.58	882	.17
Model 2 (<i>n</i> = 873/834)—YPI (at 24 months)	.08*	2.52	871	.07	.05	1.64	832	.05
Model 3 (<i>n</i> = 838/799)—NEO PRI (at 24 months)	.15***	4.79	836	.14	.07*	2.18	797	.07
Self-reported income offending on								
Model 1 (<i>n</i> = 924/884)—PCL:YV (at baseline)	.25***	7.48	922	.23	.23***	6.57	882	.20
Model 2 (<i>n</i> = 873/834)—YPI (at 24 months)	.10**	3.03	871	.09	.06	1.72	832	.05
Model 3 (<i>n</i> = 838/799)—NEO PRI (at 24 months)	.17***	5.34	836	.16	.08*	2.35	797	.07
Official-record offending on								
Model 1 (<i>n</i> = 994/954)—PCL:YV (at baseline)	.06	1.58	992	.05	.08*	2.30	952	.07
Model 2 (<i>n</i> = 908/878)—YPI (at 24 months)	.08*	2.28	906	.08	.11**	3.33	876	.11
Model 3 (<i>n</i> = 874/845)—NEO PRI (at 24 months)	.04	1.08	872	.04	.07*	1.98	843	.07

Note. For each model, *n* values are given for 6 months and 12 months. Age, days in confinement (within the period under study), prior offending reported at baseline, and race were entered at Step 1, and the psychopathy measures were entered at Step 2. PCL:YV = Psychopathy Checklist: Youth Version; YPI = Youth Psychopathy Inventory; NEO PRI = NEO Psychopathy Resemblance Index.

^aEach psychopathy measure was tested with a separate model.

^b A baseline measure of the PCL:YV predicted offending at 6 months for Model 1, and the 24-month measures of YPI and NEO PRI predicted offending at 30 months for Models 2 and 3.

^c A baseline measure of the PCL:YV predicted offending at 12 months for Model 1, and the 24-month measures of YPI and NEO PRI predicted offending at 36 months for Models 2 and 3.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

Table 7
Regression Analyses Predicting Short-Term Offending (6 Months) With the PCL:YV and YPI

Model and factor	Total self-reported offending ^a				Self-reported aggressive offending ^a				Self-reported income offending ^a				Official-records offending ^a			
	β	<i>t</i>	<i>df</i>	<i>sr</i>	β	<i>t</i>	<i>df</i>	<i>sr</i>	β	<i>t</i>	<i>df</i>	<i>sr</i>	β	<i>t</i>	<i>df</i>	<i>sr</i>
Model 1: PCL:YV factors (at baseline)																
ADI (Factor 1)	.04	1.01	966	.03	.03	0.80	966	.02	.03	0.68	966	.02	-.02	-0.53	988	-.02
DAE (Factor 2)	.02	0.42	966	.01	.03	0.84	966	.03	.04	1.06	966	.03	-.01	-0.18	988	-.01
IIB (Factor 3)	.02	0.50	966	.02	.01	0.28	966	.01	.02	0.38	966	.01	.07	1.64	988	.05
CB (Factor 4)	.19***	4.71	966	.14	.20***	4.88	966	.15	.25***	6.00	966	.18	.03	0.64	988	.02
Model 2: YPI factors (at 24 months)																
Grandiose/Manipulative	.14**	3.22	912	.09	.05	1.16	912	.03	.05	1.14	912	.04	-.01	-0.11	906	.00
Callous/Unemotional	-.05	-1.26	912	-.04	-.02	-0.12	912	.00	.01	0.13	912	.00	.02	0.52	906	.02
Impulsive/Irresponsible	.05	1.20	912	.04	.04	0.93	912	.03	.05	1.15	912	.04	.07	1.49	906	.05

Note. For Model 1, *n* = 923; for Model 2, *n* = 873. Age, days in confinement (within the period under study), prior offending reported at baseline, and race were entered at Step 1, and the psychopathy measures were entered at Step 2. PCL:YV = Psychopathy Checklist: Youth Version; YPI = Youth Psychopathy Inventory; ADI = Arrogant and Deceitful Interpersonal style; DAE = Deficient Affective Experience; IIB = Impulsive and Irresponsible Behavioral style; CB = Criminal Behavior style.

^a A baseline measure of the PCL:YV predicted offending at 6 months for Model 1, and a 24-month measure of YPI predicted offending at 30 months for Model 2.

** *p* < .01.

*** *p* < .001.

Table 8

High- and Low-Psychopathy Group Comparisons for the PCL:YV and YPI

Outcome	PCL:YV groups (at baseline)			YPI groups (at 6 months)			Significance
	< 1 SD	> 1 SD	Significance	< 1 SD	> 1 SD	Significance	
<i>N</i>	195	197		167	148		
χ^2			Ethnicity				$\chi^2(3, N = 315) = 4.96, ns$
White (<i>n</i>)	37	40	$\chi^2(3, N = 212) = 1.63, ns$	23	31		
Black (<i>n</i>)	79	82		81	61		
Hispanic (<i>n</i>)	73	65		56	45		
Other (<i>n</i>)	6	10		7	11		
<hr/>							
<i>M (SD)</i>	14.78 (1.49)	13.95 (1.68)	Age (in years) at first prior	14.08 (1.59)	14.49 (1.63)		
<i>t</i>			$t(390) = 5.17^{***}$				$t(313) = -2.21^*$
<hr/>							
<i>M (SD)</i>	1.02 (0.96)	2.11 (1.33)	Number of early behavior problem	1.20 (1.12)	1.97 (1.21)		
<i>t</i>			$t(357) = -9.27^{***}$				$t(313) = -5.88^{***}$
<hr/>							
Total <i>M (SD)</i>	84.13 (12.30)	85.50 (13.70)	IQ	82.22 (12.21)	85.21 (13.25)		
Total <i>t</i>			$t(388) = -1.04$				$t(309) = -2.06^*$
<hr/>							
Matrix reasoning							
<i>M (SD)</i>	42.30 (10.90)	42.06 (11.40)	$t(387) = 0.22$	41.01 (11.45)	41.49 (11.84)		$t(310) = -0.36$
<i>t</i>							
Vocabulary							
<i>M (SD)</i>	78.99 (16.98)	81.06 (18.69)	$t(390) = -1.15$	76.23 (17.40)	80.59 (18.53)		$t(313) = -2.15^*$
<i>t</i>							
<hr/>							
Stroop Color-Word Interference							

Outcome	PCL:YV groups (at baseline)			YPI groups (at 6 months)			Significance
	< 1 SD	> 1 SD	Significance	< 1 SD	> 1 SD	Significance	
<i>M (SD)</i>	36.08 (5.94)	37.46 (6.47)		35.32 (6.20)	37.32 (5.73)		
<i>t</i>			$t(387) = -2.20^*$				$t(309) = -2.96^*$
Traits B ^d							
<i>M (SD)</i>	75.05 (37.02)	76.39 (31.18)		84.41 (36.82)	75.04 (32.29)		
<i>t</i>			$t(385) = -0.38$				$t(308) = 2.39^*$
Peer antisocial behavior							
<i>M (SD)</i>	1.78 (0.78)	2.90 (0.93)		1.98 (0.88)	2.79 (0.97)		
<i>t</i>			$t(358) = -12.62^{***}$				$t(298) = -7.58^{***}$
Peer antisocial influence							
<i>M (SD)</i>	1.34 (0.54)	2.26 (1.04)		1.47 (0.71)	2.21 (1.04)		
<i>t</i>			$t(284) = -10.84^{***}$				$t(246) = -7.19^{***}$
Biological father arrest or jail							
<i>n/N^b</i>	43/134	85/167		41/118	61/122		
χ^2			$\chi^2(1, N = 301) = 10.76^{***}$				$\chi^2(1, N = 240) = 5.71^*$
Parenting style							
<i>N</i>	82	82		66	54		
χ^2			$\chi^2(3, N = 164) = 33.18^{***}$				$\chi^2(3, N = 120) = 6.46$
Authoritative (<i>n</i>)	42	11		30	14		
Indulgent (<i>n</i>)	10	23		16	14		
Authoritarian (<i>n</i>)	15	11		8	7		
Neglectful (<i>n</i>)	15	37		12	19		
Drug abuse							
<i>n/N^c</i>	23/193	72/188		26/161	38/142		

Outcome	PCL:YV groups (at baseline)			YPI groups (at 6 months)		
	< 1 SD	> 1 SD	Significance	< 1 SD	> 1 SD	Significance
χ^2			$\chi^2(1, N = 381) = 35.41^{***}$			$\chi^2(1, N = 303) = 5.10^*$
<i>n/N^c</i>	0/193	53/188	Drug dependency	10/161	36/142	
χ^2			$\chi^2(1, N = 381) = 63.20^{***}$			$\chi^2(1, N = 303) = 21.47^{***}$

Note. For comparisons in which the variances for the two groups were significantly different according to Levene's Test (Levene, 1960), *t* values and degrees of freedom for unequal variances are reported. PCL:YV = Psychopathy Checklist: Youth Version; YPI = Youth Psychopathy Inventory.

^aPart B of the Trail Making Test.

^b*n* = number of youths whose father was arrested and who were above (below) 1 SD on the PCL or YPI measure.

^c*n* = number of youths who met the criteria for drug abuse (drug dependency) and scored 1 SD above (below) the mean on the PCL or YPI measure; *N* = number of youths 1 SD above (below) the mean on the PCL or YPI measure.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

Table 9
High- and Low-Psychopathy Group Comparisons for the NEO PRI and All Psychopathy Measures Combined

Outcome	NEO PRI groups			All measures groups		
	< 1 SD	> 1 SD	Significance	< 1 SD	> 1 SD	Significance
<i>N</i>	176	161		520	20	
χ^2			$\chi^2(3, N = 337) = 16.63^{***}$			$\chi^2(3, N = 540) = 1.02, ns$
White (<i>n</i>)	24	45		92	0	
Black (<i>n</i>)	61	63		212	4	
Hispanic (<i>n</i>)	82	45		194	9	
Other (<i>n</i>)	9	8		22	7	
Ethnicity						
<i>M</i> (<i>SD</i>)	14.48 (1.61)	14.29 (1.73)	Age (in years) at first prior	14.57 (1.60)	14.90 (1.62)	
<i>t</i>			$t(335) = 1.08$			$t(538) = -0.91$
Number of early behavior problems						
<i>M</i> (<i>SD</i>)	1.30 (1.20)	1.84 (1.16)		1.36 (1.10)	2.45 (1.15)	
<i>t</i>			$t(335) = -4.21^{***}$			$t(538) = -4.34^{***}$
IQ						
Total <i>M</i> (<i>SD</i>)	82.38 (14.16)	87.74 (12.95)		84.58 (12.88)	88.60 (10.91)	
Total <i>t</i>			$t(330) = -3.61^{***}$			$t(537) = -1.38, ns$
Matrix reasoning						
<i>M</i> (<i>SD</i>)	40.97 (12.02)	43.31 (11.41)		42.64 (11.23)	43.90 (9.85)	
<i>t</i>			$t(330) = -1.82$			$t(538) = -0.49, ns$
Vocabulary						
<i>M</i> (<i>SD</i>)	76.02 (19.62)	82.38 (87.74)		79.47 (17.83)	85.15 (15.36)	
<i>t</i>			$t(335) = -4.12^{***}$			$t(538) = -1.41, ns$
Stroop Color-Word Interference						

Outcome	NEO PRI groups			All measures groups		
	< 1 SD	> 1 SD	Significance	< 1 SD	> 1 SD	Significance
<i>M (SD)</i>	35.97 (6.32)	38.97 (6.54)		36.30 (6.24)	38.75 (5.11)	
<i>t</i>			$t(330) = -4.23^{***}$			$t(533) = -1.73^+$
Trails B ^d						
<i>M (SD)</i>	82.65 (35.20)	71.98 (29.43)		79.98 (36.59)	74.79 (21.93)	
<i>t</i>			$t(329) = 3.00^{**}$			$t(535) = 0.61, ns$
Peer antisocial behavior						
<i>M (SD)</i>	2.17 (0.94)	2.79 (0.87)		2.14 (0.88)	3.39 (0.78)	
<i>t</i>			$t(325) = -6.20^{***}$			$t(530) = -6.08^{***}$
Peer antisocial influence						
<i>M (SD)</i>	1.66 (0.86)	2.03 (0.93)		1.65 (0.79)	2.76 (1.00)	
<i>t</i>			$t(332) = -3.80^{***}$			$t(536) = -5.98^{***}$
Biological father arrest or jail						
<i>n/N^b</i>	46/133	70/135		154/382	8/17	
χ^2			$\chi^2(1, N = 268) = 8.14^{**}$			$\chi^2(1, N = 399) = 0.31$
Parenting style						
<i>N</i>	81	57		200	7	
χ^2			$\chi^2(3, N = 138) = 1.89$			$\chi^2(3, N = 207) = 4.72$
Authoritative (<i>n</i>)	27	13		61	1	
Indulgent (<i>n</i>)	19	15		44	4	
Authoritarian (<i>n</i>)	12	9		45	1	
Neglectful (<i>n</i>)	23	20		50	1	
Drug abuse						
<i>n/N^c</i>	36/171	50/152		106/512	6/20	

Outcome	NEO PRI groups			All measures groups		
	< 1 SD	> 1 SD	Significance	< 1 SD	> 1 SD	Significance
χ^2			$\chi^2(1, N = 323) = 5.78^*$			$\chi^2(1, N = 532) = 1.00$
<i>n/N^c</i>	18/171	33/152	Drug dependency	60/512	8/20	
χ^2			$\chi^2(1, N = 323) = 7.57^*$			$\chi^2(1, N = 532) = 13.81^{***}$

Note. For comparisons in which the variances for the two groups were significantly different according to Levene's Test (Levene, 1960), *t* values and degrees of freedom for unequal variances are reported. NEO PRI = NEO Psychopathy Resemblance Index.

^a Part B of the Trail Making Test.

^b *n* = number of youths whose father was arrested and who were above (below) 1 SD on the PCL or YPI measure.

^c *n* = number of youths who met the criteria for drug abuse (drug dependency) and scored 1 SD above (below) the mean on the PCL or YPI measure; *N* = number of youths 1 SD above (below) the mean on the PCL or YPI measure.

+ *p* < .09.

* *p* < .05.

** *p* < .01.

*** *p* < .001.