Psychopathy in Adolescence Predicts Official Reports of Offending in Adulthood

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Abstract

The present study examines the incremental predictive utility of psychopathy assessed at age 13 using the Childhood Psychopathy Scale (CPS) in predicting official records of arrests and convictions between the ages of 18 and 26. Data from 338 men from the middle sample of the Pittsburg Youth Study were used. A variety of control variables were included: demographics (race, family structure, SES, and neighborhood SES), parenting (physical punishment, inconsistent discipline, lax supervision, and low positive parenting), peer delinquency, and individual difference variables (impulsivity, Verbal IQ, Attention Deficit/Hyperactivity Disorder, and Conduct Disorder). CPS scores at age 13 predicted the variety of arrests and convictions 5 to 13 years later, even after controlling for other well-established and well-measured risk factors. It is concluded that juvenile psychopathy is an important and useful risk factor for future antisocial behavior. Implications of these findings and reasons for resistance to the juvenile psychopathy construct are discussed.

Since Robins' (1966) work on the adult outcomes of antisocial children, one of the holy grails in the field of developmental criminology has been the identification of a construct that will discriminate those children with conduct problems who will become chronic offenders from those whose antisocial behavior will subside over time. Recently, the search has turned toward the construct of psychopathy, a form of personality disorder widely studied in adult clinical populations, characterized by a lack of remorse, manipulativeness, egocentricity, superficial charm, impulsivity, unreliability, and shallow affect (Cleckley, 1941; Hare, 2003).

Among adults, the psychopathic offender is among the most prolific, versatile, and violent of offenders. For example, Porter, Birt, and Boer (2001) examined the association between psychopathy and crime among a relatively large sample of male offenders; psychopathic offenders, compared to nonpsychopathic offenders, committed a greater variety of offenses, as well more offenses of any type. Similarly, Brinkley, Schmitt, Smith, and Newman (2001)

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found moderate correlations between psychopathy scores and violent and nonviolent criminal activity across both African-American and white subsamples. Moreover, the violence committed by psychopathic offenders tends to be more instrumental and "cold-blooded" than the violence committed by nonspychopathic offenders (Woodworth & Porter, 2002).

Adult psychopathic offenders are also relatively resistant to efforts at rehabilitation through incarceration. Multiple prospective studies have demonstrated that psychopathic offenders are more likely to commit institutional infractions while incarcerated. In a recent meta-analysis, Guy, Edens, Anthony, and Douglas (2005) examined the relations between psychopathy scores and several categories of institutional misconduct. These authors reported moderate relations between psychopathy scores and total misconduct, nonaggressive misconduct, and verbally aggressive misconduct with weighted mean effect sizes ranging from .21 to .29; the relation to physical aggression was somewhat weaker, weighted mean effect size of .17, but still statistically significant. Psychopathic offenders are also more likely to recidivate when released from prison. In one of the first meta-analyses, Salekin, Rogers, and Sewell (1996) examined the relation between psychopathy and recidivism; they reported average effect sizes (Cohen's d) of 0.55 for general recidivism and 0.79 for violent recidivism.

Child and Adolescent Psychopathy

The severity and stability of antisocial behavior in psychopathy, and the focus on the assessment of personality inherent in the construct have lead several researchers on child and adolescent antisocial behavior to borrow the construct of psychopathy from the adult literature. These researchers suggest that this construct may help to discriminate those children/adolescents with conduct problems who will become chronic offenders from those whose antisocial behavior will remit over time (Frick, O'Brien, Wootton, & McBurnett, 1994; Lynam 1996, 1997). Towards this end, several instruments have been constructed to assess psychopathic traits in adolescence and childhood (Forth, Kosson, & Hare, 2003; Frick et al., 1994; Lynam, 1997). Each instrument represents a "downward developmental translation" of what it is arguably the "gold standard" for the assessment of psychopathy in adulthood—the Hare Psychopathy Checklist-Revised (PCL-R; Hare 1991).

Initial validation studies have focused on recreating the nomological network of adult psychopathy in juveniles. With few exceptions, research has supported the idea that child/adolescent psychopathy looks like adult psychopathy (see Lynam & Gudonis, 2005). It bears the expected relations to offending (Edens, Skeem, Cruise, & Cauffman, 2001; Salekin, Leistico, Neumann, DiCicco, & Duros, 2004). Additionally, several studies have shown that child/adolescent psychopathy provides concurrent and short-term predictive utility above and beyond other relevant constructs including previous offending, aggression, conduct problems, impulsivity, IQ, and attention problems (Lynam, 1997; Piatigorsky & Hinshaw, 2004). Child/adolescent psychopathy has also been found to relate generally, as predicted, to constructs that do not involve offending, such as personality, cognitive processing, and other forms of psychopathology. (Blair & Coles, 2000; Lynam et al., 2005; Obrien & Frick, 1996; Ridenour, Marchant, & Dean, 2001; Salekin, Leistico, Trobst, Schrum, & Lochman, 2005).

Despite this promising initial research, several thoughtful criticisms of the juvenile psychopathy construct have been raised (Edens, Skeem, Cruise, & Cauffman, 2001; Seagrave & Grisso, 2002; Walters, 2004). Several of these criticisms have been addressed. For example, Lynam and colleagues (Lynam, Caspi, Moffitt, Loeber, & Stouthamer-Loeber, 2007) examined the issue of continuity between juvenile and adult psychopathy in a longitudinal study of boys at high risk for adult antisocial outcomes. Despite differences in

assessment sources and forms and an eleven-year lag between assessments, these authors reported moderate stability between the age-13 and age-24 assessments. Lynam, Loeber, and Stouthmaer-Lober (2008), using the same sample, reported little evidence for the moderation of stability as a function of demographic, family, peer, and individual difference variables. These investigators have also examined concerns about the content validity of the juvenile psychopathy construct—namely whether the "imposed" construct of adult psychopathy is similar to a more "indigenous" conception built within childhood and adolescence. The investigators (Lynam, Derefinko, Caspi, Loeber, & Stouthamer-Loeber, 2007) compared three separate operationalizations of juvenile psychopathy using the 100 personality items of the common language q-set. The operationalizations were based on a downward translation of the PCL-R, a set of expert ratings of the fledgling psychopath, and correlations between the personality items at age 13 and psychopathy scores at age 24. Item content analyses demonstrated considerable overlap between the three indices, indicating that the downward translation utilizes criteria similar to those of experts and the empirically-derived measure. In addition, these indices, even after removing overlapping items, demonstrated considerable convergence, also supporting the content validity of the downward translation.

Other critical questions remain about the juvenile psychopathy construct, including what is the incremental predictive utility of the construct? Several studies have examined the utility of juvenile psychopathy in predicting later offending. Frick, Cornell, Berry, Bodin, and Dane (2003) found that callous-unemotional traits (a subset of the traits comprising psychopathy) predicted aggression and conduct problems one year later in a sample of young adolescents. Gretton, Hare, and Catchpole (2004) found that adolescent psychopathy scores predicted violent recidivism across a ten-year follow-up period in a sample of 157 boys referred for forensic assessment. In a sample of 404 foster-care youth transitioning out of care, Vaughn, Lichge, DeLisi, Beaver, and McMillen (2008) found that psychopathy predicted future criminal behavior and involvement with the criminal justice system several years later. Finally, Salekin (2008) followed a sample of 130 children and adolescents across 3 to 4 years and examined the relations between multiple assessments of psychopathy and later violent and general recidivism. He found that psychopathy scores at baseline predicted both forms of recidivism at follow-up.

The studies discussed above serve to establish the predictive utility of the psychopathy construct, but not necessarily its incremental contribution. As Lynam (2002) has noted: "My concern is primarily with the "added value" of the concept of fledgling psychopathy; the field of child and adolescent psychopathology abounds with diagnostic categories and antisocial behavior subtyping schemes. There is no reason to introduce another such scheme unless it provides additional utility" (p. 258). One problem with some previous research is the sole reliance on the Hare Psychopathy Checklist-Youth Version which uses explicit antisocial behavior to assess several of the traits that comprise psychopathy, raising a concern about predictor-criterion overlap. Additionally, although each of the above studies included additional risk factors, the list of control variables was frequently limited. For example, Gretton et al. (2004) controlled for conduct disorder, age at first offenses, and history of violent and nonviolent offending; they failed to control for contextual and familial factors believed to be important. Similarly, Vaughn et al. (2008) controlled for race, attention deficit hyperactivity disorder, substance abuse, family support, childhood trauma, neighborhood disorder, and deviant peers; they did not include other potentially relevant individual difference variables such as intelligence or impulsivity. The article by Salekin included the most comprehensive set of control variables including race, education, an intelligence screening test, past charges, school absences and tardies, family structure, delinquent peers, and several dichotomous variables assessing whether the mother and father worked, whether the mother or father had ever been arrested, and whether the youth had ever used drugs. Although the list is more comprehensive, it omits several contextual

variables and the measure of some constructs was limited presumably to the limits imposed by a single 3-hour assessment.

The present study extends this previous work examining the incremental predictive utility of juvenile psychopathy in several ways. First, we utilize the Childhood Psychopathy Scale (Lynam, 1997) as our measure of juvenile psychopathy, designed to be relatively free of explicit antisocial behavior. Second, we examine the issue of incremental predictive utility in the context of a large, high-risk, longitudinal study of the causes, correlates, and consequences of serious antisocial behavior—the middle sample of the Pittsburgh Youth Study. Third, we examine the relation between juvenile psychopathy assessed at age 13 and official arrests and convictions between the ages of 18 and 26, providing a prediction interval of eight years. Fourth, we include a variety of reliably and validly measured control variables taken from multiple domains and sources and collected across three assessments. These control variables include demographics, neighborhood context, parenting practices, delinquent peer associations, two important individual difference variables (i.e., impulsivity and verbal IQ), and two clinical constructs (attention deficit hyperactivity (ADHD) and conduct disorder (CD). Each of these control variables has been linked to offending in the present sample and in others.

Method

Participants

Participants were members of the middle sample of the Pittsburgh Youth Study. Full details of background characteristics and initial recruitment in 1987–1988 when children (all male) were aged 10 are given elsewhere (Loeber, Farrington, Stouthamer-Loeber, & van Kammen, 1998). Briefly, boys attending the fourth grades in the public school system in inner-city Pittsburgh (about 1,000 in each grade) were randomly selected from schools across the city. Of families contacted, 85% of the boys and their parents agreed to participate. An initial screening assessment identified high risk participants; specifically, about 250 boys (30% of each sample) with the most severe disruptive behavior problems based on caretaker, teacher, and self-reports were identified in each sample. Additionally, an equivalent sized random subset of the remaining 70% of boys was drawn to complete each sample. This selection process resulted in 508 boys for the middle sample, half high risk and half non-high risk. The sample also had approximately equal representations of White and African American boys.

The sample was followed from ages 10 to 13 with court records subsequently collected in young adulthood. Variables for the present study come from three separate assessments. Diagnoses of ADHD and CD were obtained at the initial assessment when boys were roughly 10 years old. Demographic variables, information on parenting practices, peer delinquency, and neighborhood characteristics were collected during the regular age-13 assessment. Juvenile psychopathy, impulsivity, and verbal IQ were collected during a substudy, when boys were approximately 12.5 years old.

Three-hundred and thirty-eight participants had complete data and were available for the following analyses. Importantly, those who participated in the present study and those who did not, did not differ significantly on initial risk status at intake, χ^2 (1, n =508) = .01, *ns*) or psychopathy at age 13, t (401) < 1, *ns*. Those present in the analyses had slightly higher family SES at age 13, t (457) = 2.08, $p < .05$, d = .19; were more likely to be Caucasian, χ^2 (1, n =508)= 4.41, $p < .05$; and had less variety of arrests in young adulthood, t (506) = 2.01, $p < .05$, d = .18. There were no differences on the variety of convictions.

Psychopathy

Juvenile psychopathy—Juvenile psychopathy was assessed using the *Childhood Psychopathy Scale* (CPS; Lynam, 1997) when boys were 13 years old. The CPS was developed to operationalize, in childhood and adolescence, the *personality* traits found in the Revised Psychopathy Checklist (PCL; Hare, 2003). Using descriptions of the PCL-R constructs and items previously collected from caregivers, twelve of the 20 PCL-R constructs were operationalized as 2- to 4-item scales: glibness (3 items; "likes to be the center of attention"), untruthfulness (3 items; "is open and straightforward" (reversed)), manipulation (3 items; "tries to take advantage of other people"), lack of guilt (2 items; "often feels guilty" (reversed)), poverty of affect (2 items; "moods change often and quickly"), callousness (4 items; "able to see how others feel" (reversed)), parasitic lifestyle (2 items; "tries to see what and how much he can get away with"), behavioral dyscontrol (3 items; "lets little problems get to him"), lack of planning (2 items; "plans things ahead" (reversed)), impulsiveness (4 items; "thinks about his actions and behaviors" (reversed)), unreliability (3 items; "he is reliable and dependable" (reversed)), and failure to accept responsibility (3 items; "tries to blame other people for things he has done"). Two PCL-R items, criminal versatility and juvenile delinquency, were not included so that the CPS might serve as a pure measure of personality uncontaminated by antisocial behavior. Additionally, six constructs were not included because they could not be adequately operationalized (boredom susceptibility), did not correlate with other items (grandiosity), or had no childhood counterparts (promiscuous sexual behavior, early behavior problems, many short-term marital relationships, and revocation of conditional release). The reliability of the total scale was .91.

In the original validation study (Lynam, 1997), scores on the CPS were related to serious and stable offending, impulsivity, and externalizing psychopathology. Additionally, scores on the CPS predicted serious delinquency above and beyond other known predictors (SES, IQ, previous delinquency, and impulsivity) and alternative parsings of the item pool. Additional studies have shown that the CPS is related to other theoretically relevant constructs including recidivism and poor treatment outcomes in adolescence (Falkenbach, Poythress, & Heide, 2003), the five factor model of personality (Lynam et al., 2005; Salekin et al., 2005), and electrodermal hyporesponsivity (Fung et al., 2005).

Control variables

In order to demonstrate incremental predictive utility, a number of other additional variables were included in the prediction of young adult offending. These variables include demographic information, neighborhood SES, parenting, peer delinquency, and several individual difference variables—impulsivity, verbal IQ, and diagnoses of attention deficit hyperactivity disorder (ADHD), and conduct disorder (CD). Each variable has been linked to antisocial behavior in the present data set (e.g., Loeber et al., 2001; Lynam, Caspi, Moffitt, Wikström, Loeber, & Novak, 2000; Lynam, Moffitt, & Stouthamer-Loeber, 1993; Stouthamer-Loeber, Loeber, Farrington, Zhang, van Kammen, & Maguin, 1993; White et al., 1994).

Demographics—Four demographic variables were included: race (white = 0 vs. non-white = 1), family structure (two-parent = 0 vs. not = 1), family socioeconomic status (SES) and census-defined neighborhood context. The SES of the boy's caretakers was assessed using Hollingshead's two-factor index. If a boy had both a male and female parent or caretaker, the scores were averaged; if he had only one caretaker, that score was used. The neighborhood SES variable was created by factor analysis of nine variables from the 1990 census data (Lynam et al., 2000). The strongest factor accounted for 58% of the variance; the variables loading on this factor were single-parent households, median income, families

below the poverty line, families on public assistance, unemployed adults, and percentage who are African American. Neighborhoods with factor scores in the lowest quartile were classified as high SES, followed by medium-SES neighborhoods, which made up the middle 50%, and those in the upper quartile of factor scores were classified as low-SES neighborhoods. The low-SES group was split once more distinguishing low-SES neighborhoods predominated by public housing from low-SES nonpublic housing areas. These 4 levels were represented by 3 dummy codes with the low SES plus public housing neighborhoods serving as the comparison group.

Family variables—Four family variables were included in the analyses: use of physical punishment, inconsistent discipline, lax supervision, and low positive parenting. Physical punishment is a combined caretaker and child construct measuring the extent of physical punishment used by the caretaker. Inconsistent discipline combines 4 caretaker and 5 child questions on persistence in disciplining. Lax supervision, based on boys' and caretakers' reports (4 questions each), reflects parental knowledge of the boys' whereabouts and activities. Low positive parenting is based the frequency of the parent's positive behaviors toward the boy. Seven items represent the construct in both child-report and caretaker-report scales. Each of these scales shows adequate reliability in the present sample (Loeber et al., 2001).

Other individual differences—Two other important individual differences were also included in the analyses: impulsivity and verbal IQ. The index of impulsivity is taken from a multi-method, multi-source battery of impulsivity measures. These measures included self-, parent-, and teacher-reports, observer ratings, and a variety of performance measures (details are provided in White et al., 1994). Verbal IQ was individually assessed via a short form of Wechsler Intelligence Scale for Children-Revised (WISC-R) (Wechsler, 1974). In this version, all 12 subtests were administered but individual subtests were shortened by administering every other item.

Clinical constructs—The Revised Diagnostic Interview Schedule for Children (DISC-P) (Costello, Edelbrock, Kalas, Kessler, & Klaric, 1982) was administered to the parent at the first wave of the study when participants were ten years old. The DISC-P was developed as a measure of child psychopathology to be administered by lay interviewers in epidemiological surveys. Although the DISC-P covers most forms of child psychopathology contained in DSMIII and DSM-III-R (American Psychiatric Association [APA], 1980, 1987), only the diagnoses for ADHD and CD are employed here as these have shown the most robust relations to later offending (Loeber et al., 1998; Lynam, 1996).

Official Reports of Arrest and Conviction—Although this particular cohort is no longer regularly assessed, offense data continue to be collected through official record sources (i.e., local, state, and federal criminal history record information. Data are currently available for offenses committed by the sample members from age 18 to age 26. Both the number of arrests and convictions from 18 to 26 were recorded. The number of different acts for which an individual had been arrested and convicted were used in the present analyses. Forty-nine percent of the sample had been arrested at least once; the average of different offenses for which an individual was arrested was 2.85 and ranged from 1 to 18. Thirty-two percent of the sample received at least one conviction between the ages of 18 and 26; the average number of different offenses for which an individual was convicted was .88 with a range of 1 to 14.

Results

Zero-order relations

Because the variety of arrests and convictions were both significantly skewed, both were log-transformed before analyses. First, zero-correlations among the predictors and outcomes were examined. Table 1 presents intercorrelations among the measures; the correlations of greatest interest are those involving the Childhood Psychopathy Scale (CPS). Higher scores on the CPS were significantly associated with being from a single-parent family, poorer parenting practices (the use of physical punishment, inconsistent discipline, lax supervision, and low positive parenting), associating with deviant peer, higher levels of impulsivity, lower IQ levels, and the presence of ADHD and CD. As shown in the last column, fully 34% of the variance in CPS scores is accounted for the by the other predictors underscoring the necessity of examining incremental predictive utility. Table 2 provides correlations between the predictors and the variety of arrests and convictions between ages 18 and 26. CPS scores at age 13 are significantly correlated with both arrests and convictions. With few exceptions (i.e., low positive parenting and inconsistent discipline), all age-13 variables are significantly associated with young adult offending. The strongest relations are observed for race, family structure, deviant peers, impulsivity, and verbal IQ. These zero-order correlations again underscore the need to examine the incremental predictive utility of the CPS.

Incremental predictive utility analyses

In an effort to explore the incremental predictive utility of the CPS and examine its overlap with other variables, two hierarchical regression analyses were conducted, one for each outcome. In each analysis, young adult offending was regressed onto CPS scores at Step 1, six demographic variables (race, family structure, family SES, and three dummy codes carrying information on neighborhood) at Step 2, four parenting variables (i.e., use of physical punishment, inconsistent discipline, lax supervision, and low positive parenting) and peer delinquency and step 3, and four individual difference variables (i.e., impulsivity, verbal IQ, ADHD, and conduct disorder) at the final step.

In predicting variety of arrests (see Table 3), CPS scores accounted for 7% of the variation at Step 1. Demographic factors accounted for an additional 20% of the variance at Step 2. At step 3, the parenting variables provided a small, 3%, increment in the variance accounted for. Finally, the addition of the four individual difference variables at Step 4 provided an additional, significant increment of 4%. The 16 variables collected at age-13 together accounted for 34% of the variance in the variety of young adult arrests. Importantly, the coefficient for CPS scores remained significant at the final step. Scores on the CPS were one of only 5 variables to bear significant unique relations to the variety of arrests; the other constructs associated with arrests were being nonwhite, living in a single-parent household, associating with delinquent peers, and having a lower Verbal IQ.[1] Although the CPS remained significant after controlling for the other 15 variables, it's effect was reduced by 46%. We used a bootstrapping procedure developed by Preacher and Hayes (2008) to examine the significance of the change in the CPS coefficient from Step 1 to Step 4. This procedure indicated that the coefficient was significantly reduced ($z = 2.99$, $p < .001$),

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[1]Because the coefficients for the dummy codes representing neighborhood SES capture only the specific contrasts between each group coded 1 and the group with all zeros (i.e., the low SES/public housing group), it is possible that differences exist among these groups that are not captured by these particular contrasts. To see whether neighborhood SES made a unique contribution when all variables were in the model, an additional hierarchical regression was conducted in which the three dummy codes were entered as a set after all other variables were in the model. The change in R-squared was not significant, $F(3, 321) < 1.0$, indicating the neighborhood SES was not a significant unique predictor in the final model.

suggesting that some of predictive power of childhood psychopathy is captured by other constructs.

Results were fairly similar for the variety of convictions from age-18 to age-26. By itself, CPS scores accounted for 6% of the variation in young adult convictions. Each set of subsequent predictors provided significant increments in the variance accounted for in the outcome; changes in R^2 = .12, .04, and .03 for the demographic, family and peer, and individual difference variables respectively. The sixteen variables together accounted for 25% of the variance in convictions. Scores on the CPS remained marginally significantly related (i.e., $p < .09$) to the variety of convictions in the final step. In addition to the CPS, three of the variables that made independent contributions to the prediction of arrests also made independent contributions to the prediction of convictions: single parent household, associating with delinquent peers, and having a lower Verbal IQ.[2] As before, the effect of the CPS on convictions was significantly reduced from Steps 1 to 4 in the model (i.e., $z = 2.66$, $p < .001$) but it was not eliminated.

Controlling for time spent incarcerated

The current data do not include information on periods of incarceration, thus it is possible that some of the most consequential offenders are not available to offend throughout the entire age-18 to age-26 period. In an attempt to address this possibility at least indirectly, the above regression analyses were repeated using only the period between ages 18 and 21 assuming that the most consequential offenders are more likely to be available to offend earlier rather than later in young adulthood. Results were similar to previous analyses. The sixteen variables accounted for 31% of the variance in variety of arrests from ages 18 to 21; the same five variables made significant unique contributions at the final step—CPS scores, race, family structure, delinquent peers, and verbal IQ. Although the effect of the CPS was significantly reduced with the inclusion of the 15 control variables ($z = 2.51$), the CPS remained significantly associated with the outcome, $\beta = .13$, $p < .01$. In the analysis of variety of convictions, the 16 variables accounted for 23% of the variance with four variables making significant unique contributions—CPS scores, family structure, delinquent peers, and verbal IQ. Again, although the effect of CPS scores was significantly reduced with the inclusion of the 15 control variables ($z = 2.56$), CPS scores continued to significantly predict convictions, $\beta = .12$, $p < .05$.

Discussion

The present paper examined the incremental predictive utility of juvenile psychopathy in predicting the variety of arrests and convictions in young adulthood. Psychopathy was assessed at age-13 using mother-reports on the CPS, whereas arrests and convictions were assessed between the ages of 18 and 21 using official sources. Importantly, additional offending-related constructs drawn from multiple domains were included as control variables in the prediction models. These constructs included demographic factors (i.e., race, family structure, and parental SES), contextual factors (i.e., Census-defined neighborhood SES), parenting factors (i.e., use of physical punishment, inconsistent discipline, lax supervision, and low positive parenting), individual difference variables (i.e., impulsivity and verbal IQ), and clinical diagnoses (i.e., diagnoses of ADHD and CD). All constructs were assessed using reliable, well-validated assessment instruments; many were assessed using multiple sources and methods. For example, measures of parenting were created using

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[2]Again, to examine the unique contribution of neighborhood SES, an additional regression was conducted with the three dummy codes entered last as a set. Again, the change in R-squared was not significant, $F(3, 321) < 1.0$.

both child and parent reports. Similarly, impulsivity was assessed using a composite of performance tasks and self-, parent-, and teacher reports.

Juvenile psychopathy, by itself, was predictive of both arrests and convictions in young adulthood, accounting for 6–7% of the variance in these outcomes. Although the addition of the control variables reduced the relation between juvenile psychopathy and offending, it did not eliminate it. CPS scores were one of only five significant unique predictors of arrests; the others include race, family structure, delinquent peer associations, and verbal IQ. In the prediction of convictions, CPS scores were one of only four unique predictors with the others being family structure, peer delinquency, and verbal IQ. These results provide strong support for the incremental predictive utility of juvenile psychopathy. The other predictors have been shown to be robustly related to offending and serve as centerpieces in several theoretical accounts of offending.

The present results provide additional evidence for the validity of juvenile psychopathy. Previous research has shown that the construct can be reliably measured at fairly young ages, It bears expected concurrent relations with aggression, conduct problems, and delinquency, as well as with other non-offending constructs, such as personality, substance use, psychophysiological hypoarousal, cognitive and emotional processing, and other forms of psychopathology. Juvenile psychopathy is relatively stable across adolescence and into adulthood. Current results suggest that it provides incremental predictive utility, carrying information not present in extant constructs and assessments.

Research thus far suggests that the construct of juvenile psychopathy should enter the pantheon of important risk factors for antisocial behavior, joining impulsivity or low self-control, low verbal IQ, disruptive behaviors disorders, poor parenting, and association with delinquent peers. Despite the research supporting the juvenile psychopathy construct, there appears to be a reluctance to allow juvenile psychopathy to take its place in this pantheon. We believe some of the concerns that underlie this hesitancy can be assuaged. One of the major issues in the child clinical area is a concern about the application of a pejorative label to adolescents given the wide-spread but possibly erroneous belief that psychopathy is untreatable. It is possible to argue that the increase in predictive utility that comes with the construct may offset the application of a pejorative label. We prefer, however, to argue that the relative resistance to treatment among adult psychopathic offenders is exactly the reason that the study of child/adolescent psychopathy is to be embraced: The assessment and study of child/adolescent psychopathy holds the key to its treatment. Many researchers simply assume the stability of psychopathy in adulthood. Basic research in personality suggests, however, that stability needs to be explained. With emerging evidence that individual differences in psychopathy are stable across time, research is now needed that explores the reactive, evocative, and proactive person-environment transactions that promote stable individual differences (Caspi, 1998).

Reactive transactions occur when individuals exposed to the same environment experience, interpret, and react to it according to their pre-existing tendencies. Evocative transactions occur when individuals evoke distinctive reactions from their social environments based on their personalities. Finally, proactive transactions occur when individuals select or create social environments that are in line with their existing personalities. In all cases, these person-environment transactions serve to reinforce rather than repudiate the existing personality. For psychopathic individuals, this reinforcement comes through the accumulation of negative consequences (e.g., alienation from family, addiction to drugs, involvement in a criminal peer group, school dropout, injuries, patchy work histories, and multiple incarcerations) that have closed the doors of more legitimate opportunity. From this perspective, treatment and intervention will be most effective earlier in the life course,

before negative consequences have accumulated and when the opportunity exists to intervene in multiple areas (e.g., school, family, peers, and individually). We believe that psychopathy is stable across time because we fail to recognize its presence early and fail to intervene effectively.

There seem to be different concerns about juvenile psychopathy within the field of criminology. The first is one concerns predictor-criterion overlap (Walters, 2004), particularly as psychopathy construct is operationalized in the PCL-R which uses information on explicitly antisocial acts to make inferences about certain personality traits. However, it is important to note that the PCL-R is but one approach to assessing psychopathy. Other explicit assessments of psychopathy, like the CPS used in the present study, rely much less heavily on explicit antisocial behavior.

Several researchers have suggested that psychopathy can and should be understood as a collection of traits from a model of general personality functioning (Miller et al., 2001; Lynam & Derefinko, 2006; Lynam & Widiger, 2007), namely the five factor model of personality (FFM; McCrae & Costa, 2000). Briefly, the FFM consists of five broad domains, Extraversion (versus introversion), Agreeableness (versus antagonism), Conscientiousness (or constraint), Neuroticism (versus emotional stability), and Openness (versus closedeness) to experience, which each domain underlain by more specific facets. Importantly, the FFM was derived from basic research on personality, is intended to describe normal rather than pathological personality functioning, and does not include reference to explicit criminal or antisocial behavior. The FFM enjoys considerable empirical support in the form of convergent and discriminant validation across self, peer, and spouse ratings (Costa & McCrae, 1988), temporal stability across the life span (Roberts & DelVecchio, 2000), etic and emic cross-cultural support (Ashton & Lee, 2001; Church, 2001; McCrae et al., 2005), behavioral genetic support for the FFM structure (Yamagata et al., 2006), and relations to important outcomes, including academic achievement (Digman & Takemoto-Chock, 1981), antisocial behavior (Miller & Lynam, 2003), substance use and abuse (Flory, Lynam, Milich, Leukefeld, & Clayton, 2002), and risky sexual behavior (Miller et al., 2004).

Multiple studies have shown that the FFM profile of psychopathy is consistent across samples, instruments, and ages (e.g., Derefinko & Lynam, 2006; Lynam et al., 2007; Miller et al., 2001; Widiger & Lynam, 1998). Several studies have also shown that psychopathy assessed using this general model of personality functioning behaves like psychopathy assessed using more explicit measures (e.g., Derefinko & Lynam, 2007; Miller et al., 2001; Miller & Lynam, 2003). Research also suggests that the FFM account is parsimonious and capable of resolving several nettlesome issues within the psychopathy area, including the factor structure of psychopathy instruments (Lynam et al., 2005), patterns of comorbidity with other disorders (Lynam & Derefinko, 2006), and sex differences (Lynam & Derefinko, 2006). Thus, conceiving of psychopathy as a collection of personality traits removes much of the concern regarding predictor-criterion overlap.

Finally, conceiving of psychopathy as such a collection may help to assuage a final concern regarding the psychopathy construct, namely how it might fit in broader criminological theories. Vaughn and DeLisi (2008) have recently attempted to build a bridge between psychopathy and Wolgang's conception of the chronic offender, we believe, however, that even greater integration is possible. Lynam and Widiger (2007) have described a consensus FFM profile of psychopathy derived from expert ratings, translations of explicit psychopathy, and observed relations between measures of psychopathy and the FFM; they suggest that psychopathy consists of the following broad components: extremely high interpersonal antagonism, pan-impulsivity, the absence of negative self-directed affect, the presence of angry hostility, and interpersonal assertiveness. It is through these specific traits

that psychopathy is best integrated into current control theories. In prototypic form, that psychopath lacks the normal processes of constraint that keep most individuals in check. He lacks reflection and does not reflect on potentially negative consequences of his behavior (i.e., pan-impulsivity). Lacking anxiety he does not worry about possible impending punishment. He does not experience shame or embarrassment and is therefore not held in check by what others think (i.e., absence of self-directed negative affect). He is not concerned with others, what they might think of him, and he has difficulty understanding how they feel; thus, he is not held in check for fear of hurting others (i.e., high interpersonal antagonism). This latter characteristic, high interpersonal antagonism, also allows psychopathy to blend with traditional social control theory. Because the psychopath does not care or cannot fathom what others think or feel, he is less likely to be held in check by others.

Limitations

There are limitations to the present study. The most obvious is the relatively high participant loss in the analyses. Although there were no differences between those lost and those retained in risk status, psychopathy at age 13, or variety of convictions ion young adulthood, the groups did differ in the proportion of African Americans, family SES, and the variety of arrests in young adulthood. These differences were generally small and would seem likely to lead to underestimates rather than overestimates of the current findings. Another limitation is the inclusion of only men in the PYS. Although this exclusion is understandable from a pragmatic standpoint given the focus of the PYS (i.e., the causes and correlates of serious delinquency) and does not influence our estimate of the incremental predictive utility juvenile psychopathy for men, this exclusion precludes comparison of psychopathy across sex—an important area receiving increased interest. Finally, as regards the issue of incremental utility, we controlled for a number of variables but obviously not all of them. Psychopathy in early adolescence uniquely predicts psychopathy in young adulthood even after controlling for race, family structure, SES, neighborhood, poor parenting, bad peers, impulsivity, intelligence, ADHD, and CD, but there are other important variables left uncontrolled. For example, Moffitt's (1993) theory posits that risk for chronic offending is highest among individuals with early starting behavior problems and certain types of neuropsychological deficits; neither of these constructs was included in the present study.

In sum, the construct of juvenile psychopathy seems an important one for criminologists and developmental psychopathologists interested in antisocial behavior. Research suggests that it can be assessed reliably from relatively early on in the life-course and that it bears expected relations to aggression, conduct problems, delinquency, and other forms of deviant behavior. Additionally, research suggests that it is moderately stable across adolescence and into adulthood. Finally, the current results, along with previous work, demonstrate that it provides incremental predictive utility in predicting antisocial outcomes in young adulthood. We believe the research supports the wider use of this construct in criminology. We also believe that the construct can be melded with existing criminological theory.

Acknowledgments

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Table 1

Intercorrelations Among Predictors.

	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	R²
1. CPS	-.03	.21	-.02	.07	-.01	.01	.20	.14	.26	.19	.17	.27	-.15	.36	.34	.35
2. Nonwhite		.38	-.18	-.37	-.24	.33	.17	-.02	.18	-.07	.19	.18	-.33	-.03	.03	.43
3. Single par.			-.20	-.21	-.15	.20	.12	-.03	.21	.08	.17	.20	-.24	.13	.09	.25
4. Family SES				.23	.00	-.04	-.12	-.09	-.11	-.04	-.19	-.24	.36	-.01	-.05	.21
5. DC1-high					-.43	-.21	-.10	.03	-.07	-.01	-.12	-.17	.24	-.01	.02	.64
6. DC2-middle						-.53	-.05	.00	-.12	-.01	-.10	-.01	.02	.00	-.02	.67
7. DC3-low							.09	-.06	.08	-.04	.14	.00	-.05	.00	-.01	.51
8. Phys. Pun.								.01	.15	.14	.20	.11	-.07	.05	.08	.12
9. Incon. Disc.									.21	.05	.11	.16	-.09	.05	-.03	.14
10. Lax Super.										.30	.29	.19	-.22	.11	.11	.28
11. Posit. Par.											.00	-.01	-.06	.07	.10	.14
12. Dev. Peers												.34	-.22	.11	.10	.24
13. Impulsivity													-.48	.26	.05	.39
14. VIQ														-.11	-.03	.35
15. ADHD															.32	.21
16. Cond. Dis.																.20

Note: N = 338. DC1 through DC3 refer to three dummy codes for neighborhood SES: high SES, middle SES, and low SES. The final column, provides the proportion of variance accounted for in a given predictor by all other predictors. All correlations with absolute values greater than .10 are statistically significant at $p < .05$.

Table 2

Correlations Between Predictors and Arrests and Convictions from Age 18 to Age 21.

	Variety of Arrests (to 26)	Variety of Convictions (to 26)
CPS	.26***	.24***
Race	.37***	.25***
Family	.37***	.30***
SES	−.23***	−.18**
DC_1	−.13*	−.10†
DC_2	−.12*	−.11†
DC_3	.10†	.04
Phys. Punish	.12*	.10†
Incons. Discip	.10†	.10†
Lax Supervis.	.20***	.24***
Positive Paren.	.01	.08
Deviant Peers	.30***	.30***
Impulsivity	.32***	.30***
VIQ	−.38***	−.32***
ADHD	.20***	.15**
CD	.17**	.17**

Note: N = 338.

† indicates p < .10;

* indicates p < .05;

** indicates p < .01;

*** indicates p < .001.

Table 3

Regressions Predicting Variety of Arrests through Age 26

		Models		
	1. CPS only	**2. Model 1 plus demographics**	**3. Model 2 plus parenting and peers**	**4. Model 3 plus other individual differences**
CPS total	0.26 ***	0.23 ***	0.21 ***	0.14 *
Nonwhite		0.28 ***	0.26 ***	0.23 ***
Family Structure		0.19 **	0.19 ***	0.18 **
SES		−0.13 *	−0.11 *	−0.06
High SES Neighborhood[a]		−0.03	−0.01	0.02
Mid. SES Neighborhood		−0.09	−0.06	−0.04
Low SES Neighborhood		−0.09	−0.08	−0.05
Physical Punishment			−0.03	−0.02
Inconsistent Discipline			0.03	0.03
Lax Supervision			−0.02	−0.04
Positive Parenting			−0.02	−0.03
Peer Delinquency			0.17 *	0.14 *
Impulsivity				0.03
Verbal IQ				−0.19 **
ADHD				0.06
Conduct Disorder				0.07
Change in R^2	0.07 ***	0.20 ***	0.03 *	0.04 **

Note: N equals 338. Numbers in table represent standardized regression coefficients.

*
indicates $\underline{p}$ < .05;

**
indicates $\underline{p}$ < .01;

***
indicates $\underline{p}$ < .001.

[a]The neighborhood variables are dummy-coded with the Low SES/Public Housing group as the reference category.

Table 4

Regressions Predicting Variety of Convictions through Age 26

		Models		
	1. CPS only	**2. Model 1 plus demographics**	**3. Model 2 plus parenting and peers**	**4. Model 3 plus other individual differences**
CPS total	0.24 ***	0.22 **	0.16 **	0.10 †
Nonwhite		0.14 *	0.12 †	0.09
Family Structure		0.16 **	0.16 **	0.15 **
SES		−0.10 †	−0.07 *	−0.02
High SES Neighborhood		−0.12	−0.09	−0.06
Mid. SES Neighborhood		−0.19 *	−0.15 †	−0.12
Low SES Neighborhood		−0.16 *	−0.14 *	−0.11
Physical Punishment			−0.03	−0.02
Inconsistent Discipline			0.02	0.02
Lax Supervision			0.04	0.02
Positive Parenting			−0.03	0.02
Peer Delinquency			0.19 **	0.16 **
Impulsivity				0.06
Verbal IQ				−0.15 *
ADHD				0.01
Conduct Disorder				0.08
Change in R^2	0.06 ***	0.12 ***	0.04 **	0.03 *

Note: N equals 338. Numbers in table represent standardized regression coefficients.

† indicates $\underline{p} < .10$;

* indicates $\underline{p} < .05$;

** indicates $\underline{p} < .01$;

*** indicates $\underline{p} < .001$.