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Investigating Different Factor Structures of the Psychopathy Checklist: Youth Version: Confirmatory Factor Analytic Findings

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There has been a recent push to extend the construct of psychopathy into adolescence, primarily as a result of the impressive reliability, validity, and utility of this construct in samples of adults. The value of this work rests, however, on creating an equally reliable and valid assessment tool for adolescents. One promising measure is the Psychopathy Checklist: Youth Version (A. E. Forth, D. S. Kosson, & R. D. Hare, 2003). The current study uses a large, diverse sample of serious adolescent offenders to assess the overall fit of various underlying factor structures of this measure and to test the equivalence of these models across sex and race/ethnicity. The results suggest that either a 3- or 4-factor model provides the best overall fit and that these models are invariant across sex and race/ethnicity. The decision to use the 3- or 4-factor model will likely hinge on researchers' underlying conceptualization of psychopathy, specifically whether antisocial behavior is viewed as a core feature of this construct.

Keywords: Psychopathy Checklist: Youth Version, factor structure, serious adolescent offenders

The last two decades have seen an increasing interest in the construct of psychopathy. This interest has been fueled by findings that measures of psychopathy are unsurpassed predictors of recidivism (Hart, Kropp, & Hare, 1988) and that psychopaths are among the most versatile, prolific, and violent offenders (Rice, Harris, & Quinsey, 1990). Unfortunately, there is also the belief that this condition is exceptionally difficult to treat effectively (Ogloff, Wong, & Greenwood, 1990; Rice, Harris, & Cormier, 1992; cf. Skeem, Monahan, & Mulvey, 2002, for another perspective). Taken together, these findings have made psychopathy research a highly topical and controversial area.

Findings among adult offenders have led researchers to investigate psychopathy among younger populations. Various rationales have been advanced for pursuing this line of investigation. First, the study of psychopathy during childhood or adolescence may reveal important insights into the etiology of this disorder (Forth & Burke, 1998; Lynam, 1996). Second, given the recalcitrant nature of psychopathy in adulthood, some have suggested that intervention and treatment efforts might yield more success if implemented at an earlier age (Forth & Mailloux, 2000; Frick, Barry, & Bodin, 2000). Third, the assessment of psychopathy during adolescence might be useful for risk assessment and case management of juvenile offenders (Campbell, Porter, & Santor, 2004; Corrado, Vincent, Hart, & Cohen, 2004). Thus, there are a number of important reasons to explore the construct of psychopathy among adolescents.

Despite these rationales for studying adolescent psychopathy, several authors have expressed serious concerns regarding the applicability of this construct in children and adolescents (Edens, Skeem, Cruise, & Cauffman, 2001; Seagrave & Grisso, 2002). Hart, Watt, and Vincent (2002) posed three broad questions: (a) Does juvenile psychopathy exist, (b) does it resemble adult psychopathy, and (c) can it be assessed reliably? These concerns revolve around several key issues, including the malleability of personality in this time frame (cf. Roberts & DelVecchio, 2000); the potential for increased heterogeneity of individuals labeled "psychopathic" (e.g., inclusion of "adolescence-limited" offenders in addition to "life-course persistent" offenders; Moffitt, 1993); difficulty finding appropriate sources of collateral information (e.g., official records, informants with pertinent cross-context and time-span knowledge); and the reliability and validity of juvenile

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psychopathy measures across raters, time, psychopathology constructs, and ethnicity. The primary concern (cf. Lynam & Gudonis, 2005) regarding this issue is that the construct of juvenile or "fledgling" psychopathy (Lynam, 1996) will be applied broadly in forensic settings, particularly for sentencing and treatment decisions. Given this, it is imperative that assessments of psychopathy on adolescents be well validated and shown to have a reliable and useful factor structure, criterion (e.g., criminal offending) and discriminant validity (e.g., academic achievement), and predictive (and incremental) validity. The focus of the present analysis is to address the issue of factor structure, which is a necessary first step in addressing the remainder of these concerns.

To date, most methods for assessing juvenile psychopathy have used downward extensions of the construct of adult psychopathy, assuming that its manifestation appears much the same during the adolescent years as it does in adulthood. Although various instruments and methodologies have been proposed to assess psychopathy during the adolescent years (e.g., the Childhood Psychopathy Scale: Lynam, 1997; the Antisocial Process Screening Device: Frick & Hare, 2001), an instrument that will likely be used extensively by researchers and clinicians is the Psychopathy Checklist: Youth Version (PCL:YV). This assessment tool is based on the Psychopathy Checklist—Revised (PCL–R; Hare, 2003), often considered the gold standard in assessing psychopathy among adults (Fulero, 1995). Given the popularity and success of the PCL–R, it seems probable that the PCL:YV will soon become widely used by researchers and clinicians alike.

Before the PCL:YV can be used effectively, however, researchers must determine the most appropriate factor structure of this measure. In both the adult (Dolan & Anderson, 2003; Harpur, Hare, & Hakstian, 1989; Vanman, Mejia, Dawson, Schell, & Raine, 2003) and adolescent (Corrado, Vincent, Hart, & Cohen, 2004; Långström & Grann, 2002; Skeem & Cauffman, 2003; Spain, Douglas, Poythress, & Epstein, 2004) literatures, differential relations between specific factors of psychopathy and outcomes (such as recidivism, institutional infractions, and offending behavior) have been identified. Thus, clearly identifying the factor structure of the PCL:YV is a key step in fleshing out the potential utility of this instrument for research and clinical purposes. In the extant adolescent literature, the factors used have been based on adult models of psychopathy. Very little empirical evidence exists, however, to substantiate the validity and use of these factor structures when the PCL:YV is administered to adolescents. This study assesses how well different potential factor models characterize the PCL:YV when used on a large sample of serious adolescent offenders.

Factor Structures of the PCL–R

The most prominent measure of adult psychopathy, the PCL–R, posits a two-factor structure (Hare, 2003; Salekin, Rogers, & Sewell, 1996). Factor 1 refers to the antagonistic, callous, and manipulative interpersonal style evinced by psychopaths, whereas Factor 2 highlights the chronic impulsive and antisocial lifestyle of these individuals (Hare, 2003). Although there is substantial support for the two-factor model of psychopathy (Hare, Clark, Grann, & Thorton, 2000; Hare et al., 1990; Harpur et al., 1989; Harris, Rice, & Quinsey, 1994), some studies have failed to replicate the two-factor structure by using the PCL–R (Darke, Kaye, Finlay-Jones, & Hall, 1998) or the screening version of this instrument (Dolan & Anderson, 2003; Forth, Brown, Hart, & Hare, 1996). It is important to note that differences regarding this factor structure have been found between African American and Caucasian offenders (Kosson, Smith, & Newman, 1990), women and men (Cale & Lilienfeld, 2002; Jackson, Rogers, Neumann, & Lambert, 2002; Salekin, Rogers, & Sewell, 1997; Vitale & Newman, 2001; Warren et al., 2003), and European and North American samples (Cooke & Michie, 1999; Haapasalo & Pulkkinen, 1992; Hobson & Shine, 1998; Molto, Poy, & Torrubia, 2000; Reiss, Leese, Meux, & Grubin, 2001).

Using confirmatory factor analyses (CFAs), Cooke and Michie (2001) presented evidence for a three-factor hierarchical model that provides a better fit than the traditional two-factor model. This three-factor model splits the first factor in the traditional model into two related factors, labeled Arrogant and Deceitful Interpersonal Style and Deficient Affective Experience. The third factor identified, Impulsive and Irresponsible Behavioral Style, is similar to the second factor of the traditional model except that it does not contain any of the explicitly criminal items (e.g., revocation of conditional release, criminal versatility). Thus, the three-factor model contains a truncated number of items found in the PCL. In response, Hare (2003) has argued that the excluded antisocial–criminal behavior items of the Cooke and Michie model are of essential clinical value. To address this concern, he proposed a four-factor model of psychopathy among adults, which contains the three factors identified by Cooke and Michie as well as a fourth factor (i.e., Antisocial) containing the excluded criminal behavior items. Essentially, the four-factor model splits the two factors of the traditional model into four facets.

The debate surrounding the most appropriate factor structure of the PCL–R is relevant to the PCL:YV in that the two instruments are quite similar. However, there exists little research that has assessed the factor structure of the PCL:YV, leaving unanswered the question of which factor structure might best describe this assessment tool.

Factor Structures of the PCL:YV

Although the PCL:YV has only recently been published (Forth, Kosson, & Hare, 2003), researchers have used modified versions of the PCL–R to assess psychopathy among adolescents for some time. It has been asserted that these modifications take into account important developmental differences present among adolescents. Although different studies have used slightly different modifications, each appears to be reasonably representative of the final version of the PCL:YV. As such, we include them in this review to the extent that they address issues related to the factor structure of the PCL:YV.

As mentioned above, the two-factor conceptualization of psychopathy is the most widely used structure in the adult literature, but the evidence regarding its appropriateness for depicting psychopathy among adolescents is limited and conflicting. Using an adolescent sample and a modified version of the PCL–R suitable for this age group, Forth (1995; cited in Forth & Mailloux, 2000) used exploratory factor analyses (EFAs) and produced a two-factor solution. Brandt, Kennedy, Patrick, and Curtin (1997) applied CFA to a similar measure and sample and concluded that the two-factor model provided a good fit. However, as Cooke and

Michie (2001) noted, the comparative fit index (CFI) in the Brandt et al. study reached only .83, well below the standard (i.e., ≥.95) for an acceptable fit to the data. As reported in the PCL:YV manual, Forth et al. (2003) assessed the fit of the two-factor model by using CFA among a sample of 505 incarcerated males. They found it did not fit the data well.

The only study to explore simultaneously the validity of the two- and three-factor models of psychopathy by using the PCL:YV was conducted by Kosson, Cyterski, Steuerwald, Neumann, and Walker-Matthews (2002). Using CFA, they were unable to validate either factor structure conclusively among 12- to 16-year-old males on probation. Both absolute and relative indices of fit were poor when exploring the two-factor model. The three-factor model demonstrated a good fit according to absolute indices, but relative indices of fit did not meet acceptable criteria.

The recently published PCL:YV manual (Forth et al., 2003) offers other alternative factor structures by using a pooled sample (N = 1,631) of institutionalized (e.g., incarcerated in secure facilities, detention, and inpatient forensic unit) and noninstitutionalized (e.g., probation, outpatient psychiatric facility, and community settings) youth. EFAs yielded acceptable three- and four-factor solutions. In a series of CFAs, these models, along with a modified Cooke and Michie (2001) three-factor model (containing only a second-order factor), the Hare (2003) four-factor model, and a parceled Hare four-factor model (Kosson, Neumann, Forth, & Hare, 2003), were examined.[1] Although each model received some support, the most consistently best-fitting models were the three-factor model derived from EFA, the modified Cooke and Michie three-factor model, and the parceled Hare four-factor model.

As this review demonstrates, the factor structure of the PCL:YV remains unclear. In fact, some investigators have argued that only the PCL:YV total score should be used, given the uncertainty surrounding the true factor structure of the PCL:YV (Gretton, McBride, Hare, O'Shaughnessy, & Kumka, 2001; Kosson et al., 2002; Murrie, Cornell, Kaplan, McConville, & Levy-Elkon, 2004). However, relying on a total score may mask more detailed relationships between specific factors of the PCL:YV and various outcomes. In an effort to address these issues, this study uses CFAs to examine the structure of the PCL:YV in a large sample of serious adolescent offenders. The sample included here is sufficiently large to properly use this technique and is characteristic of samples to which the PCL:YV will be applied. Moreover, we explore the extent to which different factor structures are invariant across sex and race/ethnicity. Thus, this study offers a more definitive and comprehensive examination of the validity of different factor structures of the PCL:YV than available in studies done to date.

Method

Participants in this study were adolescents enrolled in the Pathways to Desistance study (see Mulvey et al., 2004). Complete details of the study methodology are provided in Schubert et al. (2004). The following is a summary of that description as it pertains to the present analysis.

Participants

Data for the present analyses come from the baseline interviews of a sample of 1,170 male and 184 female (N = 1,354) adolescents who are participants in a prospective, longitudinal study of serious juvenile offenders in two U.S. cities. The adolescents enrolled in the study had all been adjudicated of a serious criminal offense. The mean age at time of adjudication was 15.9 years (SD = 1.4 years), and participants had an average of 2.1 (SD = 2.4) prior petitions. The sample was primarily African American (44%), although there was also a large percentage of Caucasians (25%) and Latinos (29%). Very few other races were represented in the sample (2%). The dispositions imposed on participants were probation (41%), incarceration (21%), residential treatment (21%), and fines. Some dispositions were still pending (15%) at the time of data analysis.

There were 104 (7.6%) participants who were not scored on the PCL:YV and could not be included in the analyses. Because we were primarily interested in Caucasian, African American, and Latino youth, the small percentage of remaining participants of different racial/ethnic backgrounds was excluded from the analyses. Of the remaining 1,186 participants, 27 (2.3%) did not have complete data on the PCL:YV and were excluded. Thus, the final sample included 150 female and 1,012 male adolescents.[2]

Our first series of analyses was based on a random split of the male sample (n = 508). For the analyses that test for invariance across sex, we used the second split half of male adolescents (n = 504) and all female adolescents (n = 150). Finally, all male adolescents in the sample were used to investigate whether the factor structure of the PCL:YV was invariant across race; this sample included 206 Caucasian, 443 African American, and 363 Latino boys.

Procedure

The juvenile court in each locale provided our research office with the names of individuals eligible for enrollment in the study on the basis of their age and adjudicated charge. Interviewers attempted to contact the juvenile and his or her family to ascertain the juvenile's interest in participating in the study and to obtain parental consent. Once the appropriate consents had been obtained, the interviewer would make an appointment to interview the juvenile, either in a facility if the juvenile was confined or at the juvenile's home or a mutually agreed-upon location in the community if the juvenile was on probation.

The interview protocol, which was administered over 2 days in two 2-hr sessions, was programmed onto a laptop computer. All interviews in facilities were conducted in private rooms with no facility personnel present. When interviews were conducted in participants' homes or in community settings, attempts were made to conduct them in as much privacy as possible. Information gathered from an adult "collateral" (i.e., someone named by the adolescent as knowing what was going on in his or her life, in almost all instances a parent) was used to supplement information provided by the adolescent. Approximately 89% of the participants had collateral information, with the biological mother being the modal informant (67%). In addition to collateral reports, we collected information from court files. However, we were not granted access to these files until later in the project. As a result, court records were not used in scoring the

[1] Parceling refers to combining two (or more) items that share substantial overlap into one item. Because of the current controversy surrounding the use of parceling in covariance structure analysis (see Little, Cunningham, Shahar, & Widaman, 2002), we do not include any analyses based on parcels in this study.

[2] We are appreciative of an anonymous reviewer's comments relating to the potential influence of anxiety and intelligence among our sample. We did not exclude participants on the basis of these criteria, and we conducted analyses to determine whether there were differences in model fit when the sample was split on these characteristics. There were no differences in model fit for any of the four models we examined on the basis of low (IQ < 70) intelligence. We conducted a median split on anxiety and found no differences of model fit except for the Forth et al. (2003) model.

PCL:YV among 401 participants (34% of the sample). For these cases, only collateral information was used. Of the 788 youths on whom we were able to gather court information, 79% had usable court data. When available, both the collateral and court data were used to verify information as well as to gain a better picture of the attitudes and behaviors of the participant.

Interviewers completed extensive training on the PCL:YV that included 8 hr of didactic and experiential exercises as well as observing, rating, and discussing two live interviews. Interviewers were also required to rate six videotaped cases with scores falling within 5 points of the criterion PCL:YV total score. In addition to the initial training, we also conducted meetings to discuss cases and scoring issues. To assess interrater reliability for the PCL:YV total score, we computed intraclass correlation coefficients with a two-way mixed effects model, with raters as a fixed factor and agreement defined as absolute by using raters' PCL:YV scores based on four videotaped cases completed near the end of their training sequence. Our analyses indicated excellent rates of agreement for PCL:YV total scores (intraclass correlation coefficient = .91).

Consent was obtained from both adolescents and collaterals (when a collateral was present), and they were assured that their responses were confidential. Adolescents and collaterals were paid $50 for their participation.

Measures

The PCL:YV (Forth et al., 2003) is a 20-item rating scale targeted for use with adolescents 13 years of age or older. Scores on each of the 20 items are based on two sources: (a) an interview with the youth and (b) charts and collateral information. The original semistructured interview guide (Forth et al., 2003) was adapted for use in this study (Skeem & Cauffman, 2003) and was reviewed with Adelle Forth. This interview was designed to assess the youth's interpersonal style and attitudes, obtain information on various aspects of his or her functioning (psychological, educational, occupational, family, and peer domains), and assess (through comparison with records or collateral reports) the credibility of his or her statements. Following the interview and a review of records or collateral information, the interviewer used a 3-point ordinal scale to indicate how well each of the 20 items applied to the youth.[3] Higher scores are indicative of a greater number and/or severity of psychopathic characteristics. (The means, standard deviations, and correlations among the PCL:YV items are available on the Web at http://dx.doi.org/10.1037/1040-3590.18.1.33.supp.)

Results

Assessing Models of Adolescent Psychopathy

We tested four models of adolescent psychopathy by using CFA (AMOS Version 4.01; Arbuckle, 1999) with the first sample of male offenders (n = 508) as noted above. Specifically, three models were derived from the adult literature using the PCL–R and screening version: Hare's (2003) two- and four-factor models and Cooke and Michie's (2001) three-factor model. The fourth model was based on EFAs of the PCL:YV (Forth et al., 2003).[4]

We examined various fit indices to determine the appropriateness of each model. Kline (1998) suggested reporting the chi-square, with associated degrees of freedom and p value, as well as indices noting the overall proportion of explained variance (e.g., the Bentler CFI) and a similar index that adjusts for model complexity (e.g., the Tucker–Lewis Index). Hu and Bentler (1999) suggested that multiple fit indices be used as well and noted the value of the standardized root-mean-square residual in combination with the CFI (for small samples) or the root-mean-square error of approximation (in large samples). There are advantages and shortcomings to each particular index, and there is no one fit index that is widely accepted as the gold standard. Thus, to the extent that a model fits the data well, a pattern of acceptable values should be seen across the indices.

With the exception of the Hare (2003) two-factor model, each of the models we tested is hierarchical, containing first- and second-order latent factors. This indicates that the individual PCL:YV items are used as indicators of first-order factors (e.g., Arrogant/Deceitful Interpersonal Style, Deficient Affective Experience, and Impulsive and Irresponsible Behavioral Style), and the first-order factors are then used as indicators of a superordinate second-order factor (e.g., Psychopathy).

Hare's (2003) Two-Factor Structure

In this model, 18 items are used as indicators of two correlated factors, which in turn are used as indicators of a superordinate construct of psychopathy. However, such a model is underidentified at the second-order level without constraints being imposed (Kline, 1998), and Byrne (2001) has suggested that a model not be assessed with only two first-order factors as indicators of a second-order factor. To avoid this problem, we did not include a second-order factor of Psychopathy and instead included only two correlated first-order factors (see Figure 1). It should be noted that this conceptualization is consistent with Hare's (2003) description. The current results suggest that the two-factor model did not fit the data well for adolescents (see Table 1), which is consistent with results presented by Forth et al. (2003).

Forth et al.'s (2003) Three-Factor Model

This model uses 15 items as indicators of three factors, which are represented by a second-order factor of Psychopathy (see Figure 2). At the second-order level, the model was just identified and thus required additional constraints to be imposed. Analysis of the critical ratios of difference (CRDIFF) suggested that the difference between the error variance for Factors 2 and 3 (Antisocial Behavior and Interpersonal Features, respectively) was nonsignificant, and they were constrained to be equal.[5] Additionally, the variance for the second-order factor of Psychopathy was constrained to equal one for identification pur-

[3] Because of the manner in which PCL:YV items are scored, univariate and multivariate normality are likely compromised. We examined this empirically and did find moderate nonnormality. Because of the potential problems associated with nonnormality in conducting CFA analyses (Byrne, 2001), we assessed the impact of this on the fit indices for each of the models. Two procedures in EQS—treating the indicators as categorical and reviewing a robust rescaled chi-square (i.e., Sattora–Bentler)—were performed to examine the effects of nonnormality. Despite the moderate degree of multivariate nonnormality, the substantive conclusions were unaltered.

[4] Figures 1–4 illustrate each of the four models, with minor modifications. The difference in the illustrated versus original models is the additional parameter representing error covariation.

[5] The CRDIFF method is a feature in AMOS that examines pairwise differences between parameter estimates. When a model is just identified, Byrne (2004) has suggested using this feature to identify potential parameters that can be constrained to be equal.

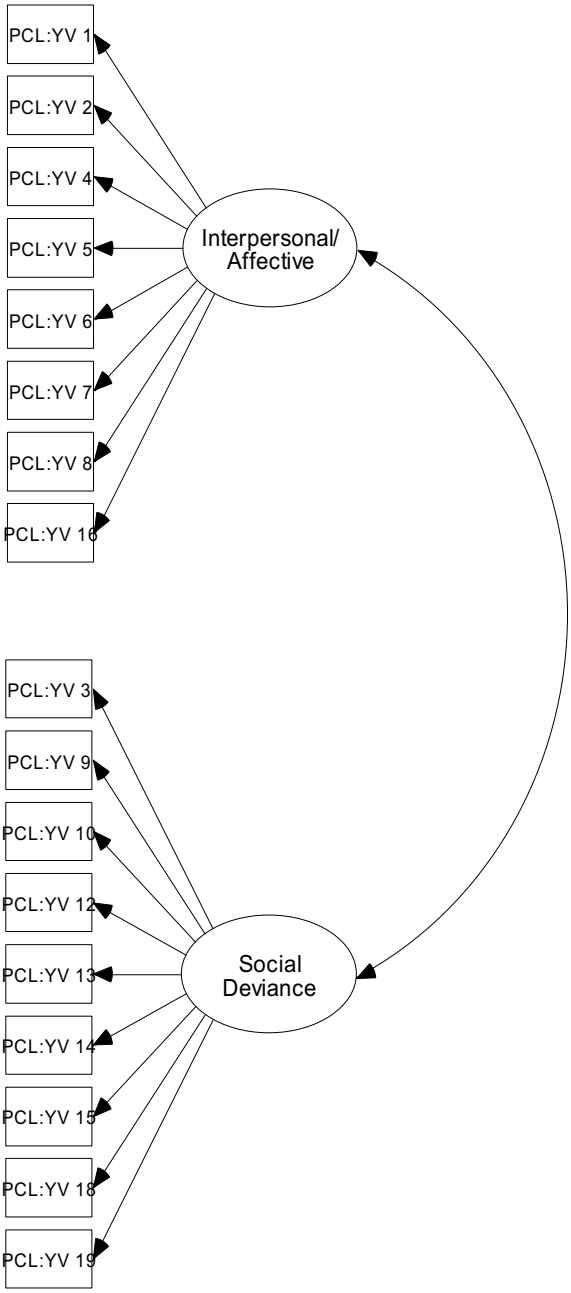

Figure 1. Hare's (2003) two-factor model of psychopathy. PCL:YV = Psychopathy Checklist: Youth Version.

poses. This model was not a good fit for the current data (see Table 1).

Cooke and Michie's (2001) Three-Factor Model

Unlike the other models tested, this model is a third-order model, with 13 items as indicators of three first-order factors, which in turn are used as indicators of a second-order factor (labeled *Psychopathy*; see Figure 3).[6] Like the three-factor model mentioned above, Cooke and Michie's (2001) three-factor model was also just identified at the second level. CRDIFF analysis suggested that the differences between the error variances for the first-order factors were nonsignificant and were thus constrained to be equal. The variance of the second-order factor of Psychopathy was constrained to equal one. The fit indices for this model were mixed (see Table 1), suggesting it provided a moderate fit to the data.

Hare's (2003) Four-Factor Model

We also examined Hare's (2003) four-factor model of psychopathy, which is very similar to Hare's earlier two-factor model. In this model, 18 items are used as indicators of four first-order factors. The four factors are used as indicators of two second-order factors, which are themselves used as indicators of a superordinate factor of psychopathy. Thus, the key difference is that four first-order factors are included, making this a third-order model. We did not include a superordinate factor of psychopathy because a model with only two factors used as indicators of a higher level construct is not advisable (see discussion above, under *Hare's (2003) Two-Factor Structure*). Instead, we assessed a second-order model with two correlated factors (see Figure 4). As seen in Table 1, the findings for this model were mixed, with some of the fit indices failing to reach acceptable levels. However, there is some evidence that this model provides a moderate fit.

Comparing Models

There are two methods for comparing models by using CFA. One is to test the difference in chi-square between two models. However, this requires that the models be nested. The only models described above that are nested are Hare's (2003) two- and four-factor models. The difference between these models was not significant, $\Delta\chi^2(12, N = 508) = 3.766$, $p > .05$, indicating that the four-factor model did not provide a significantly better fit than the two-factor model, despite the marginally higher values across the fit indices. Given that the two-factor model is more parsimonious (in that it contains few parameters and levels and has a lower value on the consistent version of the Akaike information criteria [CAIC]), the two-factor solution is preferable to the four-factor solution.

The second means of comparing models is to examine the CAIC values, with lower values indicating a more parsimonious and thus preferable model. Comparisons between models can be made by using this approach, even if they are not nested. As seen in Table 1, the Cooke and Michie (2001) three-factor model provided the best fit to the data by using this criterion. There are, however, two considerations that qualify any conclusion that the Cooke and Michie model is

[6] In the development of their three-factor model of psychopathy, Cooke and Michie (2001) found that the 13 indicators they relied on demonstrated local dependence. In essence, this local dependence indicates some degree of overlap between two or more items. To accommodate this dependence, they created what are referred to as "testlets." This entails combining the items into one construct. In the present analysis, we could not estimate this model because of negative error variances. Following Forth et al. (2003), we estimated a model that did not contain the testlets, which resulted in a measurable model.measurable model.we estimated a model that did not contain the testlets, which resulted in a measurable model.

Table 1
Goodness-of-Fit Indices for Initial and Modified Models of Adolescent Psychopathy: First-Half Split Sample of Male Adolescents

Model	χ^2	*df*	*p*	SRMR	CFI	TLI	CAIC	RMSEA	RMSEA CI
				Initial					
Hare (2003) 2-factor model	496.352	118	.000	.066	.846	.823	749.419	.080	.072–.087
Forth et al. (2003) 3-factor model	531.601	88	.000	.087	.771	.727	762.976	.100	.092–.108
Cooke & Michie (2001) 3-factor model	241.220	64	.000	.059	.903	.881	436.443	.074	.064–.084
Hare (2003) 4-factor model	500.118	130	.000	.062	.870	.847	796.568	.075	.068–.082
				Modified					
Hare (2003) 2-factor model	416.776	117	.000	.061	.878	.858	677.074	.071	.064–.079
Forth et al. (2003) 3-factor model	468.386	87	.000	.081	.803	.762	706.992	.093	.085–.101
Cooke & Michie (2001) 3-factor model	172.578	63	.000	.050	.940	.925	375.032	.059	.048–.069
Hare (2003) 4-factor model	376.935	128	.000	.054	.913	.896	687.845	.062	.055–.069

Note. $n = 508$. Cutoff values for well-fitting models (Hu & Bentler, 1999): SRMR = .08; CFI = .95; TLI = .95; RMSEA = .06. SRMR = standardized root-mean-square residual; CFI = comparative fit index; TLI = Tucker–Lewis Index; CAIC = consistent Akaike information criterion; RMSEA = root-mean-square error of approximation; CI = confidence interval.

clearly superior. First, the Cooke and Michie three-factor model appeared to provide only a moderate fit to the data. Second, the above models represent existing models with only minor modifications (for identification purposes). Other modifications, based on post hoc analyses, could identify possible ways of improving the fit of these models. We now turn to these analyses.

Post Hoc Analyses: Modification Indices

CFA is a method for assessing the fit of an a priori specified model. However, in the event of an ill-fitting model, examination of the modification indices can offer insight into how to improve the fit. When this is done, the analysis shifts from being confirmatory to exploratory even though CFA methods are used (Byrne, 2001). Moreover, any alteration in the model should have a theoretical and substantive basis and not simply be guided by empirical findings (Kline, 1998).

An examination of modification indices revealed significant error covariation between Items 1 and 2 (impression management and grandiose sense of self-worth, respectively) for each of the four models we examined. This is likely due to either (a) the items representing a small, omitted factor or (b) content overlap between the two items (Byrne, 2001). Items 1 and 2 are moderately correlated ($r = .48$), and there appears to be some overlap in the item descriptions noted in the PCL:YV manual. For instance, if an interviewee conveys an elevated sense of self-importance and/or exaggerated accomplishments, her or his score on both Items 1 and 2 will increase. On the basis of these rationales, we included an additional parameter representing this error covariation in each of the four models.

Additionally, the modification indices associated with the Hare (2003) four-factor model indicated a second significant error covariation between Items 18 and 20 (serious criminal behavior and criminal versatility, respectively). This latter covariation is not surprising in that adolescent offenders do not tend to specialize (Elliott, Huizinga, & Menard, 1989; Gottfredson & Hirschi, 1990). Thus, youths who are versatile in their criminal acts are also likely to have engaged in serious criminal behaviors (Brame, Mulvey, & Piquero, 2001). Not only is there evidence of substantial content overlap, but Items 18 and 20 are highly correlated ($r = .63$). Therefore, we included this additional parameter to represent the error covariation between these items.

Finally, Item 13 (lacks goals) cross-loaded in the Cooke and Michie (2001) three-factor and Hare (2003) four-factor models. Although this item typically loads on the behavioral factors in each model, it also demonstrated a significant relationship with the affective factors. However, we did not modify either model to accommodate this finding because there was no a priori reason to do so.

Despite the fact that all of the modified models provided a better fit than the original models, some models appeared to fare better than others (see Table 1). The best-fitting modified model was Cooke and Michie's (2001) three-factor model. The fit indices for this model indicated a good fit, and the CAIC values clearly suggested that this model was more parsimonious than the other three models tested. The Hare two- and four-factor models each provided a moderate fit to the data, but the Hare four-factor model was a significantly better fit than the two-factor model, $\Delta\chi^2(12, N = 508) = 39.841$, $p < .05$.[7]

Addressing Limitations: Replication and Measurement Invariance

The above analyses indicate that the factor structure of the PCL:YV is best represented by the Cooke and Michie (2001) three-factor and the Hare (2003) four-factor models. However, there are at least two issues to consider. First, some of our findings are at odds with prevailing and substantiated notions of psychopathy as applied to adults, whereas others are contrary to findings from the adolescent psychopathy literature. In addition, some of the modifications to models, although based on solid theoretical and empirical support, are nonetheless novel. These concerns suggest that the above findings need to be replicated by using an independent sample.

Second, the above findings are based on a sample of male adolescents. In the adult literature, there is evidence that the factor structure of psychopathy varies by sex (Cale & Lilien-

[7] Parameter estimates for all models are available upon request.

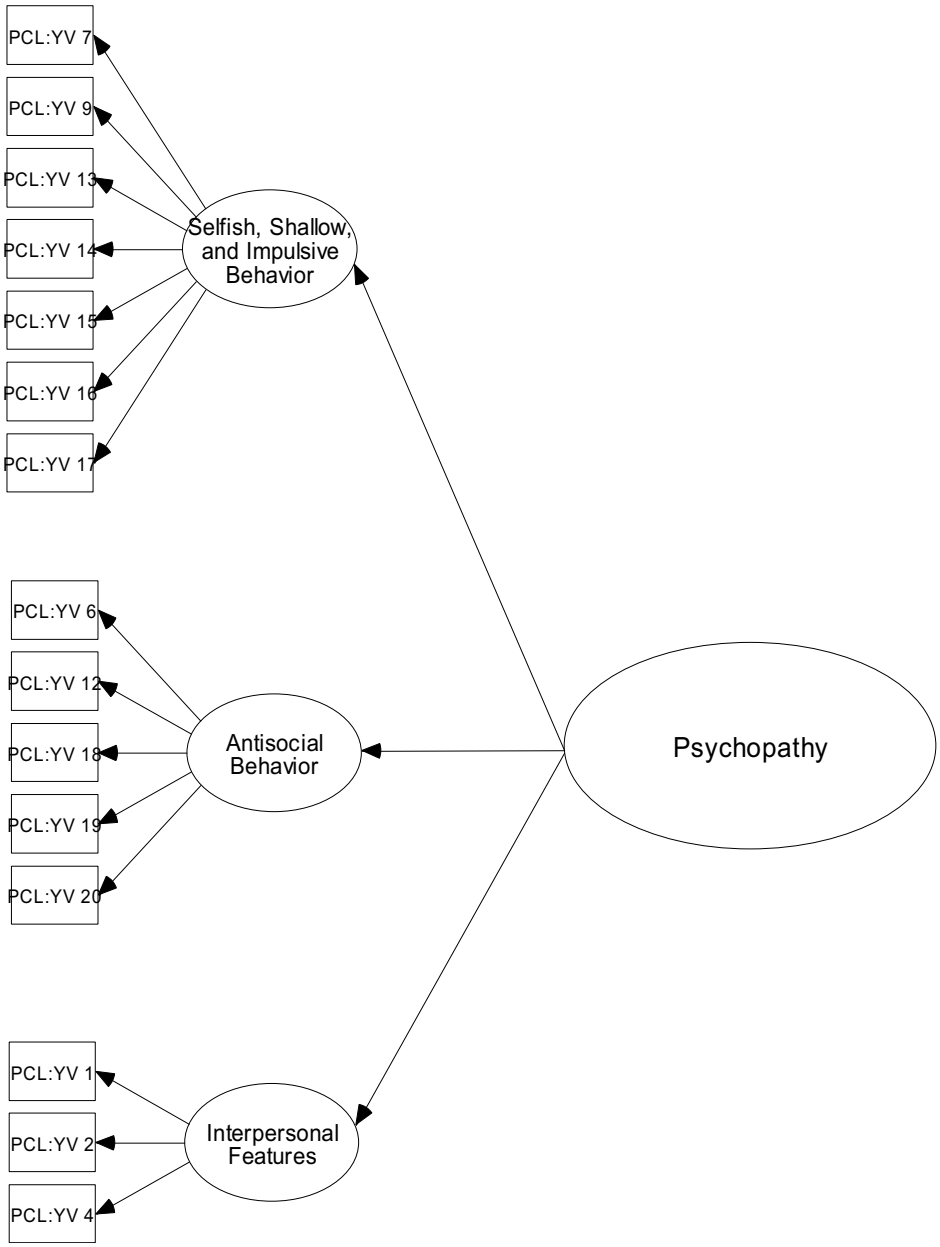

Figure 2. Forth et al.'s (2003) three-factor model of adolescent psychopathy. PCL:YV = Psychopathy Checklist: Youth Version.

feld, 2002; Jackson et al., 2002; Salekin et al., 1997; Vitale & Newman, 2001), but this possibility has not been explored in the adolescent psychopathy literature. Additionally, the sample was racially/ethnically heterogeneous, composed of Caucasian, African American, and Latino boys. In the adult literature, the findings are equivocal regarding racial invariance (Cooke, Kosson, & Michie, 2001; Cooke & Michie, 1999; Kosson et al., 1990), leaving ample room to question whether the PCL:YV is invariant across race/ethnicity.

We address these issues in the remainder of this article. Specifically, we replicated our CFA findings with the first sample of boys (n = 508) by using a second independent sample of boys (n = 504). Additionally, we examined how well the Cooke and Michie (2001) and Hare (2003) models of psychopathy fit the data for adolescent female offenders (n = 150). We then used multigroup CFAs to test for measurement invariance across sex.[8] After

[8] The second male sample (n = 504) was considerably larger than the female sample (n = 150), potentially biasing the invariance analyses. As a result, we examined 10 random samples (with replacement) from within the sample of boys that were of approximately equal size to that of the girls. Our substantive conclusions were the same as those when we used the entire (n = 504) second split-half sample of boys.

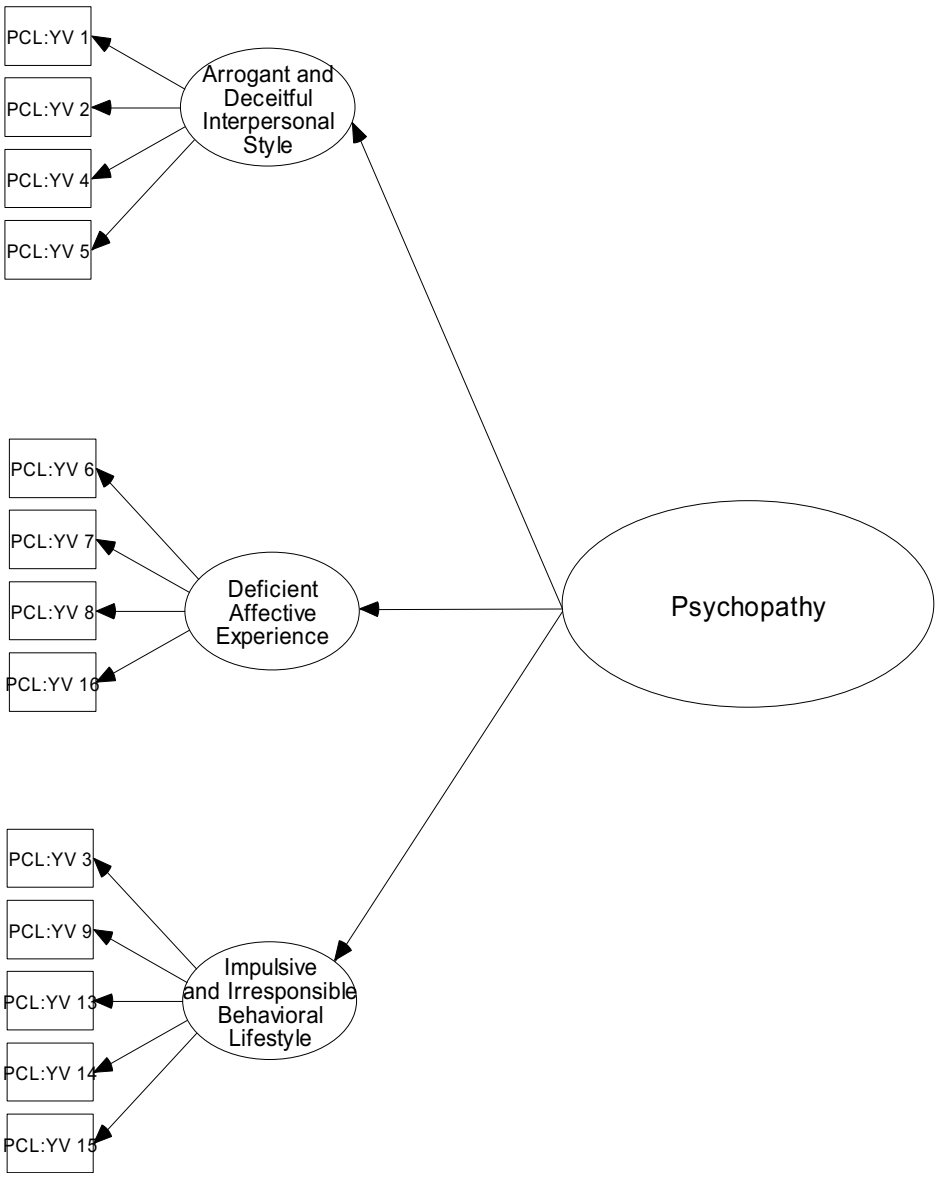

Figure 3. Cooke and Michie's (2001) three-factor model of psychopathy. PCL:YV = Psychopathy Checklist: Youth Version.

these analyses, we divided the entire sample of boys (composed of both split-half samples) by race/ethnicity in order to assess measurement invariance across Caucasian (n = 206), African American (n = 443), and Latino (n = 363) male adolescents. Unfortunately, the female sample was too small to perform analyses by race/ethnicity.

Measurement Invariance Across Sex

Boys. As Byrne (2004) explained, the most appropriate manner to test for measurement invariance across groups is to first explore the best-fitting models of each group independently. The best-fitting models for the second group of boys were the same as those in the first male sample. As seen in Table 2, neither the three- or four-factor models fit the data very well. The modification indices suggested the same error covariation. With the inclusion of additional parameters (which were the same as those noted above), both models appeared to provide a moderate fit to the data (see Table 2).

Girls. The best-fitting models for girls were identical to those of the first and second male samples described above, with the exception of a Heywood case (Heywood, 1931) in the four-factor model with the Antisocial factor.[9] The variance was therefore

[9] When the error variance is negative, this is referred to as a Heywood case (Heywood, 1931). This can occur for a number of reasons (Dillon, Kumar, & Mulani, 1987), although one explanation is sampling fluctuations. In each instance that a Heywood case was observed, we conducted analyses suggested by Dillon et al. to ensure that a Heywood case was simply due to sampling

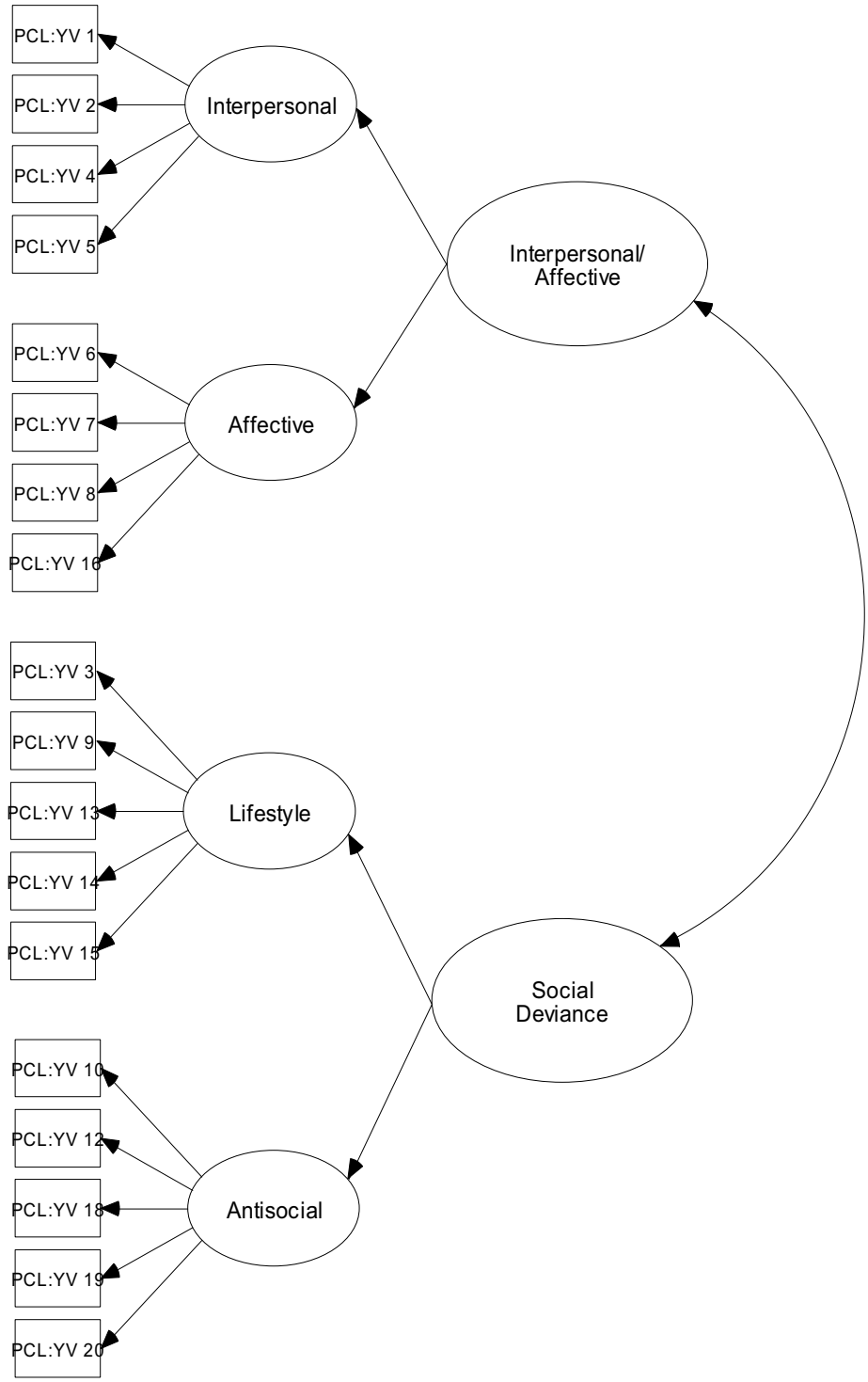

Figure 4. Hare's (2003) four-factor model of psychopathy. PCL:YV = Psychopathy Checklist: Youth Version.

fluctuations and corrected for it accordingly. More specifically, we constrained the parameter to zero and ensured that the model fit was not significantly worse. In every instance, we found that constraining the parameter to zero did not adversely affect the model fit, therefore indicating that the negative error variance was due to sample fluctuations.

constrained to zero (Dillon et al., 1987) with no decrease in model fit, $\Delta\chi^2(1, N = 150) = 0.380$, $p > .05$. Neither of these initial models fit our data well (see Table 3). On the basis of the modification indices of the female sample, we chose to impose additional constraints (which were the same as those described in

Table 2
Goodness-of-Fit Indices for Initial and Modified Models of Adolescent Psychopathy: Second-Half Split Sample of Male Adolescents

Model	χ^2	*df*	*p*	SRMR	CFI	TLI	CAIC	RMSEA	RMSEA CI
				Initial					
Cooke & Michie (2001) 3-factor model	279.946	64	.000	.064	.886	.861	474.955	.082	.072–.092
Hare (2003) 4-factor model	547.706	130	.000	.063	.853	.827	843.832	.080	.073–.087
				Modified					
Cooke & Michie (2001) 3-factor model	219.954	63	.000	.058	.917	.897	422.186	.070	.060–.081
Hare (2003) 4-factor model	416.059	129	.000	.055	.899	.880	719.407	.067	.059–.074

Note. $n = 504$. Cutoff values for well-fitting models (Hu & Bentler, 1999): SRMR = .08; CFI = .95; TLI = .95; RMSEA = .06. SRMR = standardized root-mean-square residual; CFI = comparative fit index; TLI = Tucker–Lewis Index; CAIC = consistent Akaike information criterion; RMSEA = root-mean-square error of approximation; CI = confidence interval.

both male samples). Both of these models provided a moderate fit to the data (see Table 3).

Multigroup Analysis: Sex

The above analyses for girls and boys (second sample) provide us with the best-fitting models for each group independently. The second step in assessing measurement invariance is to simultaneously examine the model fit for girls and boys. This approach sums the chi-square values for girls and boys and provides one set of fit indices. No equality constraints are imposed on the model. This baseline model, then, is the fit of the models, assuming they are not invariant (Byrne, 2004). As indicated in the previous analyses, the best-fitting version of the Cooke and Michie (2001) model contained the same parameters for the female and male samples. The fit indices for the multigroup baseline three-factor model indicated a moderate fit to the data (see Table 4).

The next step is to create a fully constrained model, with equality constraints on all factor loadings, factor variances, factor covariances, and error covariances (Byrne, 2004). If these equality constraints significantly reduce the model fit, this suggests that at least one of the parameters is not invariant across sex. The results of this fully constrained model indicated a moderate fit to the data, and the difference between the baseline and fully constrained models was not significant (see Table 4). Thus, this model appears to be invariant across sex.

Proceeding in the same manner, we then examined the invariance of the Hare (2003) four-factor model. However, there was one difference in the best-fitting models for girls and boys. Specifically, for girls the error variance for the Antisocial factor was constrained to zero. Also, after an initial simultaneous estimation of these models, a Heywood case was found for boys (the error variance for the Behavioral factor) and set to zero, $\Delta\chi^2(1, N = 504) = 0.001, p > .05$. These initial differences in baseline models should not be taken as evidence of measurement variance. Most researchers agree that testing for equality of error variances is an overly restrictive criterion (Byrne, 2004). The fit of the multigroup baseline and fully constrained models was moderate and not significantly different (see Table 4). Thus, this model was also invariant across sex.

Measurement Invariance Across Race/Ethnicity

The fit of the three- and four-factor models across racial groups was tested by using analyses performed in the same manner as those in the preceding sections (*Measurement Invariance Across Sex*). Recall that this is the entire sample of male adolescents ($n = 1{,}012$). However, in the following analyses, we separate the sample into Caucasian ($n = 206$), African American ($n = 443$), and Latino ($n = 363$) male adolescents.

Caucasian boys. The best-fitting three- and four-factor models for Caucasian boys were the same as those found in each sample we examined thus far (the female sample and both male samples). Neither the three- or four-factor models provided a good fit to the data. On the basis of the modification indices, the same parameters as noted previously were included. This modified Cooke and Michie (2001) model was a moderate fit to the data. The addition of the two error covariation parameters in the Hare (2003) four-factor model resulted in a Heywood case (for the Antisocial factor) and was constrained to zero, $\Delta\chi^2(1, N = 206) = 1.2, p > .05$. This modified model provided a moderate fit to the data (see Table 5).

African American boys. Once again, the initial best-fitting models for African American boys were the same as those found in the above analyses. The three-factor model provided a moderate fit to the data, at best. The four-factor model failed to demonstrate a good fit to the data. The modification indices suggested that the same parameters be added as described in each of the preceding analyses we have conducted. The three-factor model provided a good fit, whereas the four-factor model demonstrated a moderate fit to the data (see Table 6).

Latino boys. The best-fitting three-factor model for Latino boys was identical to the male and female samples described above. However, this model did not provide a good fit to the data. When we estimated the four-factor model, a negative error variance appeared (on the Behavioral factor) and was constrained to zero, $\Delta\chi^2(1, N = 363) = 0.4, p > .05$. The four-factor model was also a poor fit to the data. Additional parameters were added on the basis of modification indices and were identical to those noted above. The inclusion of these additional parameters resulted in

Table 3
Goodness-of-Fit Indices for Initial and Modified Models of Adolescent Psychopathy: Female Adolescents

Model	χ^2	*df*	*p*	SRMR	CFI	TLI	CAIC	RMSEA	RMSEA CI
				Initial					
Cooke & Michie (2001) 3-factor model	127.481	64	.000	.072	.888	.863	289.768	.082	.061–.102
Hare (2003) 4-factor model	244.691	131	.000	.070	.867	.845	485.116	.076	.061–.091
				Modified					
Cooke & Michie (2001) 3-factor model	106.920	63	.000	.064	.922	.904	275.218	.068	.045–.090
Hare (2003) 4-factor model	198.323	129	.000	.064	.919	.904	450.770	.060	.043–.076

Note. $n = 150$. Cutoff values for well-fitting models (Hu & Bentler, 1999): SRMR = .08; CFI = .95; TLI = .95; RMSEA = .06. SRMR = standardized root-mean-square residual; CFI = comparative fit index; TLI = Tucker–Lewis Index; CAIC = consistent Akaike information criterion; RMSEA = root-mean-square error of approximation; CI = confidence interval.

both models demonstrating an improved and moderate fit to the data (see Table 7).

Multigroup Analysis: Race/Ethnicity

The above analyses have provided us with the best-fitting models for each race/ethnicity independently, with some differences pointing toward possible partial invariance across these groups. At the same time, all the differences dealt with error variance, and using such differences as evidence of a differential factor structure is highly restrictive. Table 8 shows the baseline and fully constrained three- and four-factor models. As indicated, there was no significant decline in model fit after equality constraints were imposed, indicating factorial measurement invariance across race/ethnicity.

Discussion

In this study, we investigated how well existing models of (adult) psychopathy applied to a sample of serious adolescent offenders by using the PCL:YV. We found that Hare's (2003) two-factor model did not fit the data well. Although this model has demonstrated success among adult populations, it does not appear to be particularly well suited to adolescent offenders (see also Forth et al., 2003). We also failed to find support for the Forth et al. (2003) three-factor model. This was surprising because this model is the only existing conceptualization of psychopathy based exclusively on adolescent data. At the same time, this three-factor model appears to be quite different than existing models of psychopathy, and it may be rooted more in characteristics of the sample on which it was generated than on theoretical underpinnings.

On the other hand, modified versions of the Cooke and Michie (2001) three-factor model and the Hare (2003) four-factor model each demonstrated a moderate-to-good fit (depending on the specific sample examined). These findings are not especially surprising. First, both the three- and four-factor models are quite similar, with the four-factor model representing an extension of the three-factor model with the inclusion of an Antisocial factor. Given this overlap, we would expect them to perform alike. Second, both models have received extensive attention in the extant literature. Although relatively new, the three-factor model has shown considerable promise (Skeem & Mulvey, 2001). The four-factor model, although also new, is strikingly similar to Hare's (2003) original, and widely replicated, conceptualization of psychopathy (i.e., the two-factor model).

Which of these two models best represents adolescent psychopathy as characterized by the PCL:YV is debatable. The three-factor model was consistently more parsimonious and thus might be regarded as the best model. However, if the exclusion of antisocial behavior from the three-factor model undermines the integrity of the idea of psychopathy, it might be seen as an incomplete conceptualization of this construct. Hare's (2003) decision to include this additional factor was based on his conceptualization of psy-

Table 4
Multigroup CFA Tests of Measurement Invariance Across Sex

Model	χ^2	*df*	CFI	RMSEA	$\Delta\chi^2$	Δdf
Three-factor model						
Baseline	327.026*	126	.918	.049		
Fully constrained	342.521*	140	.917	.047	13.667	14
Four-factor model						
Baseline	614.655*	258	.904	.046		
Fully constrained	637.124*	279	.903	.044	22.469	21

Note. Cutoff values for well-fitting models (Hu & Bentler, 1999): comparative fit index (CFI) = .95; root-mean-square error of approximation (RMSEA) = .06. CFA = confirmatory factor analysis.
* $p < .05$.

Table 5
Goodness-of-Fit Indices for Initial and Modified Models of Adolescent Psychopathy: Caucasian Male Adolescents

Model	χ^2	*df*	*p*	SRMR	CFI	TLI	CAIC	RMSEA	RMSEA CI
				Initial					
Cooke & Michie (2001) 3-factor model	151.652	64	.000	.076	.870	.842	322.504	.082	.065–.099
Hare (2003) 4-factor model	282.279	130	.000	.070	.866	.842	541.722	.076	.064–.088
				Modified					
Cooke & Michie (2001) 3-factor model	125.344	63	.000	.068	.908	.886	302.525	.069	.052–.087
Hare (2003) 4-factor model	239.936	129	.000	.063	.902	.884	505.707	.065	.052–.077

Note. $n = 206$. Cutoff values for well-fitting models (Hu & Bentler, 1999): SRMR = .08; CFI = .95; TLI = .95; RMSEA = .06. SRMR = standardized root-mean-square residual; CFI = comparative fit index; TLI = Tucker–Lewis Index; CAIC = consistent Akaike information criterion; RMSEA = root-mean-square error of approximation; CI = confidence interval.

chopathy, and he argued that both personality traits and antisocial behavior are core features of psychopathy. Others, however, have argued that the core feature of psychopathy resides in the personality traits and not in antisocial behavior (Blackburn, 1992; Cleckley, 1988; Lilienfeld, 1994; Widiger & Lynam, 1998). Specifically, although most psychopaths can be diagnosed with antisocial personality disorder (APD; American Psychiatric Association, 1994), most individuals with APD are not psychopaths. The diagnosis of APD tends to cluster together subgroups of individuals who differ substantially in many characteristics. As a result, psychopathy may be characterized as a subtype of APD that is defined not just by historical variables and deviant behavioral tendencies, but also by an array of specific personality features (see Skeem, Poythress, Edens, Lilienfeld, & Cale, 2003). In a recent analysis addressing this issue, Cooke, Michie, Hart, and Clark (2004) concluded that antisocial behavior is best viewed as a consequence, not a core feature, of psychopathy.

We agree with Hare (2003) in noting the value of antisocial behavior in predicting future behavior. However, clinical utility and construct identification are two separate matters. We encourage psychopathy researchers to continue efforts at clarifying the issue of whether antisocial behavior is a core feature of this disorder or whether it is simply a product of the underlying personality traits. Until this debate is resolved, it will remain unclear whether the three- or four-factor model is the most appropriate conceptualization of psychopathy for either adults or adolescents. These data are not definitive in what is essentially a theoretical debate.

In addition to our assessment of the model fit, we also investigated what effects modifications would have on these models. In every instance, we found that modifications improved the fit of the original models, and the same modifications were suggested in nearly every model we analyzed. The most robust modification was the specification of an error covariation between Items 1 and 2 (impression management and grandiose sense of self-worth, respectively). This parameter has not been identified in previous analyses of the factor structure of psychopathy. However, as we mentioned, there is considerable content overlap in these items, and they were moderately correlated. Despite the strong theoretical and empirical support for including this covariation, it is important for this finding to be replicated across additional samples before it is done as a matter of course.

We also suggest that researchers attempt to replicate our consistent finding of significant error covariation between Items 18 and 20 (serious criminal behavior and criminal versatility, respectively) in the four-factor model. There are both theoretical and empirical reasons to expect this covariation—content overlap and high correlations. We found this covariation in every instance in which we examined the four-factor model. Again, the novelty of

Table 6
Goodness-of-Fit Indices for Initial and Modified Models of Adolescent Psychopathy: African American Male Adolescents

Model	χ^2	*df*	*p*	SRMR	CFI	TLI	CAIC	RMSEA	RMSEA CI
				Initial					
Cooke & Michie (2001) 3-factor model	217.683	64	.000	.057	.910	.891	409.209	.074	.063–.085
Hare (2003) 4-factor model	442.063	130	.000	.060	.876	.854	732.899	.074	.066–.081
				Modified					
Cooke & Michie (2001) 3-factor model	154.036	63	.000	.049	.947	.934	352.656	.057	.046–.069
Hare (2003) 4-factor model	347.821	128	.000	.054	.912	.895	652.844	.062	.055–.070

Note. $n = 443$. Cutoff values for well-fitting models (Hu & Bentler, 1999): SRMR = .08; CFI = .95; TLI = .95; RMSEA = .06. SRMR = standardized root-mean-square residual; CFI = comparative fit index; TLI = Tucker–Lewis Index; CAIC = consistent Akaike information criterion; RMSEA = root-mean-square error of approximation; CI = confidence interval.

Table 7
Goodness-of-Fit Indices for Initial and Modified Models of Adolescent Psychopathy: Latino Male Adolescents

Model	χ^2	*df*	*p*	SRMR	CFI	TLI	CAIC	RMSEA	RMSEA CI
				Initial					
Cooke & Michie (2001) 3-factor model	210.863	64	.000	.067	.891	.868	397.012	.080	.068–.092
Hare (2003) 4-factor model	464.307	131	.000	.073	.844	.818	740.083	.084	.076–.092
				Modified					
Cooke & Michie (2001) 3-factor model	171.320	63	.000	.062	.920	.901	364.364	.069	.057–.081
Hare (2003) 4-factor model	277.629	113	.000	.055	.920	.904	553.405	.063	.054–.073

Note. $n = 363$. Cutoff values for well-fitting models (Hu & Bentler, 1999): SRMR = .08; CFI = .95; TLI = .95; RMSEA = .06. SRMR = standardized root-mean-square residual; CFI = comparative fit index; TLI = Tucker–Lewis Index; CAIC = consistent Akaike information criterion; RMSEA = root-mean-square error of approximation; CI = confidence interval.

this finding calls for additional verification by using different samples.

Another reasonably consistent modification we noted pertained to Item 13—lacks goals. Although Item 13 is supposed to load only on the behavioral factor, we found that this item often cross-loaded on both the affective and behavioral factors within the three- and four-factor models (although we never included an additional parameter to this effect). Research by Vincent (2004) using item response theory has found that the affective items perform well with adolescents whereas the behavioral items lack precision and do not seem to discriminate well among youth. It is interesting that of all the behavioral items tested by Vincent, Item 13 had the highest relevance to the latent trait of psychopathy, which may indicate that it is tapping into something else besides behavior. Coupled with our findings of cross-loadings, it may be that the *lacks goals* item is more indicative of the affective than behavioral factor in psychopathy. However, this finding will need to be validated in other samples to verify this speculation.

Beyond confirming the factor structure of the PCL:YV, one of the primary strengths of this study was its ability to examine the measurement invariance across race/ethnicity and sex. Our data indicate measurement invariance across Caucasian, African American, and Latino male adolescents. Although there is an ongoing debate of this issue regarding adult offenders, our analyses present the first findings regarding adolescents. We are hopeful that others will also examine this issue as it is one of critical importance. Furthermore, we suggest that more investigations of adolescent psychopathy include Latino populations, as this demographic is increasing in the United States generally and in correctional populations in particular.

Our findings also indicated measurement invariance across sex. Understanding how the construct of psychopathy manifests itself among females is of particular interest. There have been a limited number of studies on female psychopathy, and these have produced mixed results. For example, research has shown that the PCL–R has adequate reliability and modest validity in women (Vitale & Newman, 2001). However, the factor structure of the PCL–R in women does not seem to be the same as that of men (Salekin, Rogers, & Sewell, 1997). Our results, however, indicate a similar factor structure, at least between male and female adolescents who have committed serious offenses. Examining how these different structures fit for different samples of adolescents and adult women would seem to be a high-priority task for researchers.

Although this study is one of the first to examine the factor structure of psychopathy among adolescents, the findings should be interpreted cautiously. First, our data are based on serious adolescent offenders. Thus, the extent to which our results and conclusions generalize to other populations (i.e., youth in forensic settings or community youth) remains an open question. However, given the pronounced need for valid tools for assessing adolescent offenders' risk of violence and "treatability," the sample used in this study may be the most appropriate to investigate these questions, as these adolescents are the most likely to receive assessments with this instrument. Second, the way in which the PCL:YV was administered varied from the more traditional methods. Spe-

Table 8
Multigroup CFA Tests of Measurement Invariance Across Race/Ethnicity

Model	χ^2	*df*	CFI	RMSEA	$\Delta\chi^2$	Δdf
Three-factor model						
Baseline	450.793*	189	.930	.037		
Fully constrained	477.131*	217	.930	.034	26.338	28
Four-factor model						
Baseline	939.897*	385	.904	.038		
Fully constrained	978.186*	424	.904	.036	38.289	38

Note. Cutoff values for well-fitting models (Hu & Bentler, 1999): comparative fit index (CFI) = .95; root-mean-square error of approximation (RMSEA) = .06. CFA = confirmatory factor analysis.
* $p < .05$.

cifically, the PCL:YV interview was imbedded within a larger computerized interview, and court records were not available for some of the participants. To address this concern, we collected data from a collateral informant (typically the youth's mother) in order to verify the information gathered. According to the PCL:YV manual (Forth et al., 2003), multiple sources of collateral information (e.g., interviews with parents) are useful. Although criminal records have been used widely in scoring the PCL–R, such records might be less useful among adolescents because of a lack in quantity and quality (except possibly in adolescents who have experienced long institutional stays).

Finally, although one of the strengths of our study was to assess the measurement invariance of the PCL:YV across sex, our sample size for female adolescents was not very large. Kline (1998) recommended a ratio of number of participants to parameters of at least 10:1. The three- and four-factor models contain 34 and 47 parameters, respectively. On the basis of Kline's guidelines, 340–470 participants would yield reasonable sample sizes, yet our female sample size fell short of this guideline. In fact, our sample of Caucasian (n = 206), African American (n = 443), and Latino boys (n = 363) did not meet this standard, especially when considering the model complexity inherent in the four-factor model. These smaller sample sizes could have resulted in greater sampling error, which might have affected our results. At the same time, virtually all of our substantive findings with these smaller samples mirrored those of the larger, more heterogeneous samples (which were sufficiently large). Nonetheless, future research should seek to replicate our sex- and race/ethnicity-specific findings by using larger samples.

Despite these limitations, these data provide a previously unavailable, detailed look at the factor structure of the increasingly popular PCL:YV. Although Forth et al. (2003) used CFA to assess various models of adolescent psychopathy, they did not explore modifications that could improve the model fit and thus offer a more focused representation of adolescent psychopathy. Although much work remains to be done regarding the factor structure of adolescent psychopathy, the findings here provide a basic foundation on which future studies can build.

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Correction to Cheng and Chan (2004)

An error appeared in Footnote 3 of the article "A Brief Version of the Geriatric Depression Scale for the Chinese," by S.-T. Cheng and A.C. M. Chan (*Psychological Assessment,* 2004, Vol. 16, No. 1, pp. 182–186). As a result of a recoding error, the diagnosis of depressive disorder not otherwise specified was mistakenly lumped together with that of major depressive disorder in reporting the diagnostic distribution.

The correct distribution for the different depression-related diagnoses was as follows: major depression disorder (32.5%), dysthymia (23.0%), depressive disorder not otherwise specified (12.0%), adjustment disorder with depressed mood (6.5%), and dementia with depression (26.0%). An analysis of variance of the score on the Geriatric Depression Scale (30-item total) resulted in $F(4, 195) = 0.99$. *ns*. The conclusion that self-report depression scores did not differ across these diagnostic categories remained unchanged.