

An Analysis of Four Self-report Measures of Adolescent Callous-Unemotional Traits: Exploring Unique Prediction of Delinquency, Aggression, and Conduct Problems

Lisa L. Ansel · Christopher T. Barry ·
Christopher T. A. Gillen · Lacey L. Herrington

Published online: 16 September 2014
© Springer Science+Business Media New York 2014

Abstract The present study examined the incremental validity of four self-report measures of adolescent psychopathy [i.e., Antisocial Process Screening Device self-report version (APSD), Childhood Psychopathy Scale (CPS), Youth Psychopathic Traits Inventory (YPI), and the Inventory of Callous-Unemotional Traits (ICU)] with particular interest in their assessment of callous-unemotional (CU) traits in a sample of 279 (246 males, 33 females) at-risk adolescents (ages 16–18). Analogous subscales across the four measures were weakly to moderately interrelated with no evidence of a true gold-standard self-report assessment of CU traits. Results indicate that CU traits are a multifaceted construct, with specific CU dimensions predicting differential aspects of antisocial behavior. Most notably, callousness predicted aggression incrementally above other CU domains, but not other forms of antisocial behavior. The implications of a multi-dimensional conceptualization of CU traits are discussed.

Keywords CU traits · Assessment · Adolescent

Psychopathy refers to a collection of traits associated with affective, interpersonal, and behavioral disturbances (Neumann et al. 2013). Among the primary personality characteristics of psychopathy are callous-unemotional (CU) traits which include a lack of remorse, callousness, and unemotionality or blunted reactivity to emotion-laden stimuli (Fanti et al. 2013; Lynam et al. 2007). CU traits have been linked to high rates of criminal recidivism, increased likelihood of violence, and poorer treatment response both in community samples and adolescents referred for assessment

after committing a crime (Flexon and Meldrum 2013; Manders et al. 2013; White et al. 2013).

Indeed, the addition of a specifier based on CU traits (i.e., “with limited prosocial emotions”) to the diagnostic criteria for conduct disorder (CD) in the 5th edition of the Diagnostic and Statistical Manual of Mental Disorders (*DSM-5*) speaks to the critical nature for research and advancement in assessment strategies for child and adolescent CU traits. Among children with CD, CU traits appear to be indicative of youth who are relatively likely to engage in aggression for instrumental gain, demonstrate early onset of conduct problems, and engage in particularly severe types of problem behavior (American Psychiatric Association 2013). Therefore, identification and understanding of these features, as well as accurate and efficient assessment of CU characteristics, may aid in determining the most appropriate clinical interventions in youth with psychopathy-linked traits and the most concerning subtype of CD (Kahn et al. 2012; Salekin 2010; Stellwagen and Kerig 2010), as well as aid in advancing theory regarding the origins of CU traits.

Assessing CU Traits in Adolescents

Several self-report rating scales of adolescent psychopathy have been introduced to provide a more efficient means of screening for CU traits than interview-based instruments such as the Psychopathy Checklist: Youth Version (PCL:YV; Forth et al. 2003). Although evaluating CU traits via self-report presents its own challenges (e.g., asking an individual about his/her own disregard for others; deceitful and desirable responding), and the PCL:YV has shown good reliability and validity (Dillard et al. 2013; Silva et al. 2012), use of self-report offers some advantages in that they require little training and take significantly less time to complete.

L. L. Ansel · C. T. Barry (✉) · C. T. A. Gillen · L. L. Herrington
Department of Psychology, University of Southern Mississippi,
118 College Dr., Box 5025, Hattiesburg, MS 39402, USA
e-mail: Christopher.barry@usm.edu

Furthermore, in the assessment of CD, such measures may prove cost-effective for assessing CU traits based on their ability to be administered quickly within a larger clinical battery. As the use of adolescent self-report measures of CU traits becomes more widespread for these reasons, legitimate questions exist regarding their usefulness.

The primary purpose of the present study was to examine the incremental validity of subscales from four adolescent self-report measures of CU traits for predicting variance in indices of behavioral problems. Each of the measures commonly used in research have some commonalities in the domains of CU traits assessed, yet they also approach the measurement of these characteristics in somewhat different ways. Therefore, additional aims of the present study included to examine the basic psychometric properties of these scales and to provide an evidence-based discussion of how conceptual differences across scales might be important to consider regarding the evaluation of adolescent risk for antisocial behavior. Research on the dimensions of CU assessed by four self-report measures is discussed below.

Antisocial Process Screening Device (APSD; Frick and Hare 2001) The APSD is unique in its approach to the assessment of CU traits in that it provides a unidimensional screening of these traits. The APSD is one of the most commonly used measures of psychopathy-linked characteristics for children and adolescents and has 20 items derived directly from characteristics assessed by the Psychopathy Checklist-Revised (PCL-R; Hare 1991) in adults. Research investigating the APSD has largely demonstrated support for a three-factor model of psychopathic characteristics in both community and clinical samples of children and adolescents (i.e., Narcissism, Impulsivity, and CU factors; Frick et al. 2000; Vitacco et al. 2003). Therefore, CU traits are assessed by a single six-item factor on the APSD.

Self-reported APSD CU scores have been moderately correlated with parent reports of CU traits in community and treatment-referred adolescents (Muñoz and Frick 2007; Sadeh et al. 2009) as well as measures of antisocial behavior, including violent and nonviolent delinquency, CD, and Oppositional Defiant Disorder (Bijttebier and Decoene 2009; Vaughn et al. 2008). However, other research examining the APSD has called into question the functional utility of the single CU factor. Even though Spain et al. (2004) found that APSD CU scores correlated with physical incidents in a residential treatment facility, the study failed to find a significant relation with disciplinary infractions and two other measures of CU traits. Furthermore, the internal consistencies for the CU scale have not been as high as is usually found for the APSD total score (Bijttebier and Decoene 2009; Dillard et al. 2013; Muñoz and Frick 2007; Poythress et al. 2006a). Poythress et al. (2006b) showed that removing two CU items from the APSD (“does not show emotions” and “keeps the

same friends”) can increase the utility of the factor to being comparable to other self-reports.

Childhood Psychopathy Scale (CPS; Lynam 1997) Similar to the APSD, the characteristics assessed by the CPS were also drawn from the PCL-R. The original CPS used existing items from various child personality and behavioral measures that were representative of 13 of the 20 dimensions of the PCL-R, primarily focusing on core psychopathic personality traits. However, the CPS also includes dimensions addressing behavioral dyscontrol, parasitic lifestyle, and impulsivity. Additional items were added to assess individual characteristics of psychopathy to create the 50-item modified self-report version.

Research investigating the self-reported CPS has largely supported a rationally-derived three-factor structure analogous to the APSD (Douglas et al. 2008; Spain et al. 2004); however, support for the CPS Affective scale, which includes distinct callous, unemotional, and remorselessness components, has been inconsistent, and studies have not typically examined the CPS at the subscale level. Spain et al. (2004) noted that the CPS Affective factor moderately correlated with physical, verbal, and administrative incidents in a residential treatment facility. Even though Douglas and colleagues (2008) found that the Affective factor significantly correlated with concurrent PCL:YV ($r=0.25$) and APSD factors ($r=0.38$), CPS-measured affective traits did not predict antisocial behavior, inconsistent with the findings of Spain and colleagues.

Youth Psychopathic Traits Inventory (YPI; Andershed et al. 2002) Like the CPS, the YPI CU factor contains individual callous, unemotional, and remorselessness facets. The convergent validity for the individual subscales assessing affective features has been supported in that the higher-order YPI and APSD CU factors are moderately correlated in samples of adolescents assigned to an alternative to adjudication program and non-referred youth from the community (Poythress et al. 2006a; Seals et al. 2012). The YPI CU factor is also moderately correlated with violent offending (Salekin et al. 2010) as well as commission of property offenses and criminal versatility in boys and girls (Declercq et al. 2009). However, similar to the APSD, research has indicated that YPI CU scores are not predictive of recidivism (Colins et al. 2012). The available evidence on the YPI to date indicates that it provides a viable method of assessing the multiple dimensions of psychopathy in youth via self-report, although it may share some of the limitations noted for other measures (i.e., reliability of some CU subscales). However, there is limited research on the correlates of the specific YPI CU subscales, an issue that the present study sought to help address.

Inventory of Callous-Unemotional Traits (ICU; Frick 2003) The ICU is designed specifically to assess the CU aspect of psychopathy in adolescents in a multidimensional fashion. Some of the ICU items were derived from the APSD; however, the authors intended for the ICU to provide a more comprehensive assessment of CU traits than the APSD (Essau et al. 2006). Research investigating the ICU seems to support a three-factor structure consisting of Callousness (i.e., a lack of empathy), Uncaring (i.e., lack of concern for others or for societal rules or standards), and Unemotional (i.e., deficiency in emotional expression) components (Essau et al. 2006; Kimonis et al. 2008; Roose et al. 2010). However, some studies have found that the Unemotional factor has relatively low reliability (Essau et al. 2006; Kimonis et al. 2008) and is not significantly correlated with the other ICU factors (Berg et al. 2013).

Consistent with this evidence, ICU total, Callousness, and Uncaring scores are moderately to strongly correlated with APSD-CU scores, whereas weaker effects are reported for the Unemotional factor (Kimonis et al. 2008; Roose et al. 2010). Similarly, studies have noted that ICU Callousness and Uncaring scores are more strongly or exclusively related to antisocial behavior, such as aggression and delinquency, and reduced prosocial beliefs and compassion toward others (Berg et al. 2013; Kimonis et al. 2008; Roose et al. 2010). All three ICU scales, however, have been found to moderately correlate with the YPI-CU factor ($r_s=0.27$ to 0.33 ; Vaughn et al. 2011). The Uncaring factor appears to conceptually overlap with the Remorselessness subscales of the YPI and CPS in that they all involve disregard for the consequences of one's actions. The other two ICU factors have analogous subscales on the YPI and CPS of the same name.

Hypotheses

Overall, the focus of the analyses was on exploring relations among subscales measuring CU traits and various indicators of adolescent behavioral problems. It was predicted that there would be moderate to high convergence (i.e., $r > 0.30$ – 0.40) for analogous subscales across measures (Hypothesis 1). Based on previous research demonstrating a link between adolescent CU traits and varied forms of antisocial behavior, it was expected that assessments of overall CU traits and subscales measuring callousness, unemotionality, and remorselessness would be related to self-reported aggression and delinquency and parent-reported conduct problems (Hypothesis 2). Given the inclusion of lack of empathy and regard for others in the callousness domain of CU traits (see Essau et al. 2006; Roose

et al. 2013), it was hypothesized that subscales that tap callousness would predict unique variance in aggression above and beyond that predicted by scales assessing unemotionality and those assessing remorselessness (Hypothesis 3). However, because remorselessness is more broadly conceptualized with a lack of concern regarding antisocial behavior and its consequences (e.g., Essau et al. 2006; Poythress et al. 2006b), not just interpersonal disregard, it was hypothesized that scales assessing remorselessness would predict unique variance in delinquency (i.e., property, drug, violent, status offenses) above and beyond that predicted by the other constructs (i.e., unemotionality, callousness; Hypothesis 4).

Method

Participants

Two-hundred seventy-nine (279) adolescents (246 males, 33 females) between the ages of 16 and 18 years ($M=16.54$; $SD=0.65$ years) and their parent/guardian participated. Participants were recruited from a 22-week residential military-style intervention program designed for youth who have dropped out of high school. The majority of participants identified as White (68.2 %), with an additional 30.3 % identifying as Black, and 1.5 % identified as 'Other.' One-hundred eighteen (118) males sampled (48.0 % of males) reported having been arrested at least once prior to admittance into the program, whereas 11 females (33.3 % of females) had reportedly been previously arrested.

Materials

Antisocial Process Screening Device (APSD; Frick and Hare 2001) The APSD is a 20-item measure with responses made on a scale of 0 (*not at all true*), 1 (*sometimes true*), or 2 (*definitely true*). Based on previous research (e.g., Frick et al. 2000), there are three factors of the APSD: a seven-item Narcissism scale, a six-item Callous/Unemotional (CU) scale, and a five-item Impulsivity scale. The CU scale was of particular interest in this study and demonstrated low internal consistency (i.e., $\alpha=0.35$); however, reliability was improved ($\alpha=0.52$) when two CU items were removed as in Poythress et al. (2006a).

Childhood Psychopathy Scale (CPS; Lynam 1997) The CPS is a 50-item measure with responses of either 0 (*no*) or

1 (*yes*). The CPS Affective factor has been rationally derived to mirror the affective components of the PCL:YV, composed of four subscales assessing lack of guilt, poverty of affect, callousness, and failure to accept responsibility. The current study utilized the aggregated affective factor and the lack of guilt, poverty of affect, and callousness components most closely associated with CU traits. Within the Affective factor, four of the items used in the current study were not included in the original CPS but have been added by the author to increase internal consistency and construct representativeness (Lynam, personal communication). In the present sample, the total Affective factor displayed moderate reliability ($\alpha=0.63$); however, the internal consistencies of the component subscales were more varied. The Lack of Guilt subscale displayed moderate consistency (3 items; $\alpha=0.66$), whereas the Poverty of Affect (7 items; $\alpha=0.35$) and Callousness (4 items; $\alpha=0.54$) subscales showed low reliability.

Youth Psychopathic Traits Inventory (YPI; Andershed et al. 2002) The YPI is a 50-item self-report measure of psychopathy-linked traits. Responses range from 1=does not apply at all to 4=applies very well. The YPI has three broad dimensions, each with additional sub-dimensions assessing more specific characteristics of psychopathy. The higher-order affective CU factor is composed of Callousness, Unemotionality, and Remorselessness subscales. As with the CPS, the present study focused on the overall CU factor and its individual component scales. For the present sample, the YPI CU factor yielded moderate reliability comparable to the CPS Affective factor (15 items; $\alpha=0.68$); however, the Callousness (5 items; $\alpha=0.39$), Unemotional (5 items; $\alpha=0.53$), and Remorselessness (5 items; $\alpha=0.60$), subscales showed lower reliability.

Inventory of Callous-Unemotional Traits (ICU; Frick 2003) The ICU consists of 24 items, each rated using a four-point Likert scale, with 0 indicating not at all true and 3 indicating definitely true. ICU total and factors scores were examined in the study. For the present sample, coefficient alphas for the Callousness (11 items), Uncaring (8 items), and Unemotional (5 items) subscales were 0.65, 0.79, and 0.65, respectively, with total scores yielding a stronger internal consistency ($\alpha=0.81$). As noted above, the ICU Uncaring scale was conceptualized as closely approximating remorselessness as measured by the YPI and CPS.

Self-Report of Delinquency (SRD; Elliott and Ageton 1980) The SRD, a 34-item self-report measure, was used to assess the incidence of a variety of delinquent behaviors, including property, drug, and violent

offenses. For the present study, total delinquency scores were calculated and used as a dependent variable. Total score values can range from 0 (reporting no offenses) to 34 (reporting at least one instance of all listed offenses). For the current sample, the SRD revealed good internal consistency, $\alpha=0.91$.

Behavior Assessment System for Children, 2nd edition (BASC-2; Reynolds and Kamphaus 2004) The parent-report version of the BASC-2 was used as an additional report of the adolescents' behavioral problems. The BASC-2 parent rating scale (PRS) utilizes a four-point Likert-style response format with response choices being Never, Sometimes, Often, and Almost Always. Of particular interest for this study was the 14-item Conduct Problems subscale, which had an internal consistency of 0.88 for this sample.

Peer Conflict Scale (PCS; Marsee et al. 2004) The PCS is a measure of self-reported aggression in adolescents. The PCS consists of 40 items which are rated on a four-point scale ranging from 0 (*not at all true*) to 3 (*definitely true*). The total PCS score was calculated with higher scores representing higher levels of aggression. The construct validity of the PCS has been supported in community, detained, and residential samples of adolescents (Marsee et al. 2011). For the current sample, the total PCS score demonstrated high internal consistency, $\alpha=0.94$.

Procedure

Upon their child's entrance into the residential program, parents signed a consent form explaining the nature and purpose of the research study before completing the BASC-2. As part of this process, parents of adolescents under the age of 18 had the opportunity to refuse for their children to be contacted regarding the study. Adolescent participants provided informed consent/assent regarding their own participation. The final sample (i.e., those for whom both self-report and parent-report data were available) represented approximately 61 % of those eligible to participate. Adolescents completed measures in a classroom setting in groups of approximately 12 to 18 participants. Participation in no way affected their status in the program. Items were provided to each participant while a researcher read the measures aloud for the entire group. Measures used in the present study were part of a larger data collection at the program. Data collection occurred over the course of 2 weeks in three to four sessions lasting approximately 45 min each.

Table 1 Descriptive and reliability statistics for measures of CU Traits, aggression, delinquency, and parent-reported conduct problems

Measure	Mean (SD)	Minimum	Maximum	Skewness	Kurtosis
APSD					
CU	4.55 (1.93)	0	11	0.50	0.44
ICU					
Total	26.56 (9.00)	2	59	-0.06	0.16
Callous	8.58 (4.32)	0	25	0.81	0.59
Uncaring	10.19 (4.65)	0	22	-0.10	-0.45
Unemotional	7.96 (3.08)	0	15	0.09	0.22
CPS					
Affective total	5.75 (2.75)	0	16	0.79	0.78
Lack of guilt	0.64 (0.95)	0	3	1.32	0.56
Poverty of affect	2.56 (1.34)	0	6	0.23	-0.27
Callous	1.05 (1.14)	0	4	0.85	-0.24
YPI					
CU Total	19.01 (6.25)	1	37	0.13	-0.03
Remorselessness	5.43 (3.00)	0	14	0.11	-0.58
Unemotionality	6.75 (2.91)	0	15	0.30	-0.07
Callousness	6.83 (2.70)	0	13	-0.41	-0.19
Aggression	22.43 (18.39)	0	101	0.97	0.61
Delinquency	13.43 (7.49)	0	30	0.09	-0.90
Parent-reported conduct problems	11.47 (6.80)	0	32	0.70	0.14

CU = Callous-unemotional, APSD = Antisocial process screening device, ICU = Inventory of callous-unemotional traits, CPS = Childhood psychopathy scale, YPI = Youth psychopathic traits inventory, N=279, Skewness SE=0.15; Kurtosis SE=0.29

Results

Descriptive statistics and internal consistencies for the 10 CU subscales and the dependent variables (i.e., self-reported delinquency, aggression, and parent-reported conduct problems) are listed in Table 1. As shown in Table 1, total ICU scores had the highest internal consistency of all CU measures, and unlike other measures, all ICU subscales displayed adequate reliability (i.e., α above 0.60). Although the factors demonstrated suitable variability, the CPS Lack of Guilt subscale was positively skewed.

Correlations among CU Factors and Subscales

To examine Hypothesis 1, correlational analyses were conducted to test for convergence of CU subscales across the four self-report psychopathy measures. As seen in Table 2, this hypothesis was partially supported. Higher-order ICU total, CPS affective, and APSD and YPI CU factors were significantly intercorrelated (i.e., ranging from $r=0.21, p=0.001$, to $r=0.58, p<0.001$). In general, significant positive correlations were also found for analogous subscales across each of the four measures (i.e., ranging from $r=0.15, p<0.05$, to $r=0.51, p<0.001$). However, these findings were not apparent for all pairs of subscales, especially for unemotional subscales. Specifically, correlations between the YPI

Unemotionality facet and ICU and CPS unemotional subscales were not significant.¹

Prediction of Variance in Aggression, Delinquency, and Conduct Problems

Correlational analyses were conducted to examine the associations of the CU factor scores and corresponding 10 CU subscales with the three dependent variables (See Table 3). As shown in Table 3, ICU total, CPS affective, and YPI CU scores and all subscales except the ICU Unemotional factor

¹ Exploratory correlational analyses of separate callous (2 items), uncaring (3 items), and unemotional (1 item) components of the APSD were also conducted. APSD Callous items were significantly correlated with all 3 CU dimensions on the CPS, with YPI Callous and Remorselessness, and with ICU Callousness and ICU Uncaring. APSD callous items had the largest magnitude of association with ICU Uncaring. APSD Uncaring items were significantly correlated with all CPS and ICU CU dimensions and with YPI Unemotional and Remorselessness. The APSD Unemotional item was only significantly *negatively* correlated with YPI Unemotional. Regarding behavioral criteria, APSD callous items were significantly correlated with aggression, uncaring items were correlated with all three behavioral criteria, and the APSD unemotional item was not correlated with any of the behavioral criteria. Further examination of these underlying APSD items may be warranted, as research to date has conceptualized APSD CU as unidimensional.

Table 2 Inter-correlations between CU subscales

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. APSD CU	–	0.29***	0.51***	0.18**	0.34***	0.35***	0.29***	0.22***	0.08	0.15*
2. ICU Callous		–	0.18**	0.14*	0.35***	0.35***	0.30***	0.20**	0.21***	0.35***
3. ICU Uncaring			–	0.25**	0.31***	0.32***	0.28***	0.32***	–0.01	0.18**
4. ICU Unemotional				–	0.05	0.01	0.35***	0.26***	0.09	0.01
5. CPS Callous					–	0.27***	0.18***	0.17**	0.18**	0.16**
6. CPS Lack of Guilt						–	0.24***	0.23***	0.01	0.26***
7. CPS Poverty of Affect							–	0.22***	0.13*	0.27***
8. YPI Callousness								–	0.50***	0.18**
9. YPI Unemotionality									–	0.17**
10. YPI Remorselessness										–

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

were significantly related to aggression and delinquency (ranging from $r = 0.12$ to $r = 0.58$, $p < 0.001$). APSD CU scores were only significantly related to aggression. Parent-reported conduct problems were only weakly related to APSD CU, CPS Affective, and ICU Uncaring scores.

To test Hypothesis 3 that callousness is a better predictor of aggression than other CU dimensions, three three-step hierarchical linear regressions were conducted each using a unique antisocial behavior as a criterion variable. In each test, unemotional scales from the YPI, ICU, and CPS were added into step one given the relative lack of association expected between the scales and behavioral criteria, whereas remorselessness and callousness

Table 3 Correlations between CU subscales and behavioral outcome variables

Measure	Aggression	Delinquency	Parent-reported conduct problems
APSD			
CU	0.27***	0.12	0.15*
ICU			
Total	0.42***	0.24***	0.11
Callous	0.58***	0.14*	0.04
Uncaring	0.22***	0.25***	0.12*
Unemotional	0.01	0.05	0.06
CPS			
Affective total	0.48***	0.34***	0.13*
Lack of guilt	0.20**	0.17**	0.05
Poverty of affect	0.30***	0.20**	0.07
Callous	0.44***	0.23***	0.10
YPI			
CU Total	0.39***	0.20**	0.12
Remorselessness	0.42***	0.19**	0.09
Unemotionality	0.25***	0.12*	0.06
Callousness	0.18**	0.13*	0.10

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

subscales were entered into steps two and three, respectively. The family-wise error rate was controlled using a Bonferroni correction ($\alpha_{pc} = 0.016$). Regression statistics for the individual subscales in predicting aggression are shown in Table 4. Although unemotional, $F(13, 275) = 16.58$, $p < 0.001$, and remorselessness subscales, $F \text{ change}(13, 272) = 11.39$, $p < 0.001$, uniquely predicted aggression at steps one and two, respectively, callousness predicted an additional 20.4 % of the variance in aggression above the other subscales, $F \text{ change}(13, 269) = 33.44$, $p < 0.001$. Table 4 shows that ICU Callousness scores uniquely accounted for the most variance in aggression (12.89 %) relative to other subscales, whereas the second strongest predictor, CPS Callous scores, only accounted for 3.31 % of the variance. In the models predicting delinquency or parent-reported conduct problems, callousness did not significantly account for unique variance above that accounted for in the first two steps before or after error correction.

Hypothesis 4 was tested in a similar manner, except that callousness subscales were entered into step two, and remorselessness subscales were added into step three. Regression statistics for the individual subscales in predicting delinquency are found in Table 5. However, remorselessness subscales incrementally predicted delinquency above the unemotional and callous components only before family-wise error correction, $F \text{ change}(13, 269) = 3.19$, $p = 0.024$, $R^2 \text{ change} = 0.031$. As shown in Table 5, ICU Uncaring scores were the strongest predictor of delinquency, uniquely accounting for 2.13 % of the variance. Although remorselessness subscales did not significantly predict parent-reported conduct problems, they accounted for unique variance in aggression above callousness and unemotionality before error correction, $F \text{ change}(13, 269) = 3.19$, $p = 0.026$, $R^2 \text{ change} = 0.026$.²

² The regression analyses were repeated after removing female participants from the analyses, given the large proportion of male participants in the sample. The pattern of results for each regression model noted above was unchanged.

Table 4 Regression statistics for the prediction of aggression from CU subscales

	R ² change	B	SE	β	sr ²
Step 1	0.153**				
ICU Unemotional		-0.76	0.35	-0.13	0.014
YPI Unemotionality		1.44**	0.35	0.23	0.051
CPS Poverty of affect		4.44**	0.81	0.32	0.092
Step 2	0.095**				
ICU Uncaring		0.44	0.23	0.11	0.010
YPI Remorselessness		1.82**	0.39	0.30	0.059
CPS Lack of guilt		1.57	1.10	0.08	0.006
ICU Unemotional		-0.67	0.35	-0.11	0.011
YPI Unemotionality		0.48	0.39	0.08	0.004
CPS Poverty of affect		2.91**	0.82	0.21	0.035
Step 3	0.204**				
ICU Callous		1.74**	0.22	0.41	0.129
YPI Callousness		-0.03	0.34	0.00	0.000
CPS Callous		3.36**	0.83	0.21	0.033
ICU Uncaring		0.20	0.21	0.05	0.002
YPI Remorselessness		0.94*	0.35	0.15	0.015
CPS Lack of guilt		0.39	0.96	0.02	0.000
ICU Unemotional		-0.73	0.30	-0.12	0.012
YPI Unemotionality		0.36	0.34	0.06	0.002
CPS Poverty of affect		1.51	0.71	0.11	0.009

p*<0.016; **p*<0.001

Discussion

Four main issues emerged from the findings of the present study. First, CU traits should be viewed as a multidimensional construct. Although zero-order correlations across subscales showed support for considering a higher-order CU factor, different dimensions of CU traits had differential associations across types of antisocial behaviors. Overall, in regression analyses, subscales assessing callousness predicted a sizable portion of variance in self-reported aggression, above and beyond that attributable to indices of unemotionality or remorselessness. However, this effect for callousness was not evident for other indices of antisocial behavior (i.e., self-reported delinquency, parent-reported conduct problems). This finding makes sense in that the callousness aspect of CU traits specifically includes a lack of empathy and disregard for others, whereas aggression as measured in the present study involves endorsement of specific behaviors that are intended to cause others harm or injury. To the extent that an adolescent’s interpersonal style includes a lack of empathy, the current results suggest that this individual may be at particular risk for aggression toward others more so than other antisocial actions.

The second main finding to emerge from the present study is that analogous subscales across the three measures with

Table 5 Regression statistics for the prediction of delinquency from CU subscales

	R ² change	B	SE	β	sr ²
Step 1	0.053*				
ICU Unemotional		-0.08	0.15	-0.3	0.001
YPI Unemotionality		0.26	0.15	0.11	0.011
CPS Poverty of affect		1.13*	0.35	0.20	0.036
Step 2	0.032				
ICU Callous		0.03	0.11	0.02	0.000
YPI Callousness		0.13	0.17	0.05	0.002
CPS Callous		1.08*	0.42	0.17	0.023
ICU Unemotional		-0.08	0.15	-0.04	0.001
YPI Unemotionality		0.20	0.15	0.08	0.006
CPS Poverty of affect		0.85	0.37	0.15	0.018
Step 3	0.031				
ICU Uncaring		0.28*	0.11	0.17	0.021
YPI Remorselessness		0.36	0.50	0.05	0.002
CPS Lack of guilt		0.13	0.18	0.05	0.002
ICU Callous		0.01	0.11	0.00	0.000
YPI Callousness		0.712	0.43	0.11	0.009
CPS Callous		0.01	0.18	0.01	0.000
ICU Unemotional		-0.13	0.16	-0.05	0.002
YPI Unemotionality		0.65	0.37	0.12	0.010
CPS Poverty of affect		0.18	0.18	0.07	0.003

**p*<0.016

individual component factors generally demonstrated small to moderate correlations with each other. These findings may reflect real divergence in how subcomponents of CU traits (e.g., unemotionality) are operationalized across measures (e.g., divergence of the YPI from the CPS and ICU), differences in how respondents interpreted the response scales for each, or error. Overarching CU factors demonstrated generally higher associations across measures. In light of the lack of colinearity across specific subscales presumably measuring the same component of CU traits, the proportion of variance in aggression accounted for by callousness subscales and potentially in delinquency among remorselessness subscales indicates that the constellation of CU traits is indeed relevant for varied forms of antisocial behavior. This finding highlights the need to be deliberative in how one approaches the assessment of CU traits, as the widely researched methods seem to approach this construct in somewhat different ways. Still, there were several cases, particularly regarding correlations between ICU and YPI subscales, in which subscales of CU components correlated somewhat more strongly with subscales presumably measuring different aspects of CU traits than the same characteristics (see Table 2). For example, ICU Callousness was correlated somewhat more strongly with YPI Remorselessness than YPI Callous, ICU Uncaring was correlated more strongly with YPI Callous than YPI Remorselessness, and ICU

Unemotional was only significantly associated with YPI Callousness. Therefore, further examination of how each of these commonly used measures conceptualizes subcomponents of CU traits is needed.

Third, there was no clear evidence for a gold-standard self-report measure of CU traits. For example, CU subscales from four self-report psychopathy measures demonstrated a wide range of internal consistencies for the present sample. The ICU subscales appeared to demonstrate the highest internal consistencies with alphas ranging from 0.65 to 0.79. On the other hand, the APSD CU subscale revealed a coefficient alpha of 0.35 for this sample, which is consistent with previous research (Dillard et al. 2013; Poythress et al. 2006b; Spain et al. 2004). Overall, the ICU appears promising in some regards. Despite apparent issues with the Unemotionality subscale, the ICU demonstrated relatively higher internal consistencies, its Callousness subscale appeared superior in predicting variance in aggression compared to other conceptually similar measures (see Table 4), and the ICU Uncaring subscale was the only significant unique predictor of delinquency (see Table 5). Nevertheless, the ICU factor structure has been the subject of some fairly recent debate (e.g., Feilhauer et al. 2012), and the other measures have contributed much of what has become understood about CU traits in children and adolescents. In light of these issues, the data from the present study provide no clear indication that one of these measures should necessarily be the best or preferred approach to assessing self-reported CU traits. Instead, one might consider specific domains of CU traits if there is a need to evaluate risk for a particular form of antisocial behavior.

Finally, Unemotionality as a construct has potential relevance in that the YPI and CPS Unemotional subscales were significantly correlated with self-reported aggression and delinquency. However, the ICU Unemotional scale did not perform as well in the present analyses (see Table 3). Even though the unemotional subscales accounted for over 15 % of the variance in aggression when entered independently from other CU dimensions, when controlling for shared variance with the other aspects of CU traits, scales assessing unemotionality did not yield any significant unique effects. These results coupled with mixed findings regarding the connection between unemotionality scales and behavioral problems (e.g., Berg et al. 2013; Kimonis et al. 2008; Roose et al. 2010) could signal that unemotional features may not be a useful marker of youth antisocial behavior in relation to other CU traits. These findings may also underscore the need to refine assessment methods for youth self-informants (e.g., ensuring that items are construed as a shallow affective response to stressful situations or others instead of general apathy or social withdrawal) or incorporate additional clinical measures of CU traits into testing (i.e., the PCL:YV), especially in applied settings such as court transfer or criminal sentencing decisions.

Limitations

Due to the sample utilized for this study (i.e., at-risk adolescents from the southern United States), the generalizability of the present results to a community population or to adolescents from other regions is limited. Furthermore, the sample was predominantly male and White, making it unclear how well the findings apply to females or adolescents from more diverse backgrounds. Nevertheless, *post hoc* analyses suggested that the overall pattern of findings was not altered by removing females from the analyses. Another issue of note involves potential overlap between some of the CU and aggression items. In particular, two CPS Callousness items (i.e., teasing or picking on others; trying to hurt others) appear to assess aggression, whereas no such items were apparent on the YPI and ICU. Therefore, the issue of criterion contamination, particularly regarding CPS Callousness and aggression measured by the PCS, should be considered.

In addition, the results are reliant largely upon the individual's self-report of behaviors and personality traits that are considered negative and undesirable. Socially desirable responding or inaccurate recall of past behaviors could influence an adolescent's self-report. However, on the other hand, adolescents may be valuable informants, as they have unique insight into their personality and behavior in a way that other informants do not. These issues should be considered in interpreting the results of the present study. Similarly, there may be some limitations in using parent-reported data with older adolescents (Frick et al. 2010). Aside from shared source variance, the more consistent correspondence between adolescent-reported CU traits and behavioral problems relative to parent-reported behavioral problems may stem from a lack of familiarity on the part of parents regarding their adolescents' conduct. More varied methods of obtaining behavioral data may have helped more fully examine this issue. The present study did not incorporate a clinical interview of psychopathy with which findings from self-report rating scales could be compared. The specific focus of the present study was examining the presumably more cost-effective adolescent self-report rating scales, yet how well these scales do in comparison to interviews in relating to behavioral criteria is an important next step in further research.

Future Directions

Future studies should address these limitations by obtaining data from additional sources and different samples (e.g., community, adjudicated). Although this study implies the usefulness of certain traits (e.g., callousness) for predicting specific problem behaviors (e.g., aggression) in adolescents, further research examining psychopathy-linked traits is needed to determine whether differences exist in the developmental manifestation of CU traits and their behavioral correlates

during adolescence compared to adulthood. Such studies may reveal that certain features of psychopathy are more behaviorally relevant during certain developmental time frames.

Lastly, longitudinal studies are needed to investigate the usefulness of measures of adolescent CU traits in predicting future aggression and delinquency, recidivism, response to intervention, and the development of severe psychopathology. Increasing understanding and knowledge of behavioral and emotional risk factors for future problem behaviors is critical for the implementation of more successful prevention strategies and early interventions. Research has demonstrated that CU characteristics tend to be persistent, related to violent offenses, and resistant to treatment (Byrd et al. 2013; Stellwagen and Kerig 2010); however, early intervention may decrease the chances of the development of persistent problem behaviors among individuals with CU traits and increase treatment compliance (Caldwell 2011; Salekin et al. 2012a, b). Thus, further understanding of the manifestation of psychopathy during childhood and adolescence, as well as continued work on evidence-based assessment tools, is needed.

Conflict of Interest Lisa L. Ansel declares that there is no conflict of interest, Christopher T. Barry declares that there is no conflict of interest, Christopher T. A. Gillen declares that there is no conflict of interest, Lacey L. Herrington declares that there is no conflict of interest.

Experiment Participants This study was approved by the Institutional Review Board at the authors' affiliated university. Written informed consent was obtained from all parents and assent obtained by all adolescent participants.

References

- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington: American Psychiatric Publishing.
- Andershed, H. A., Kerr, M., Stattin, H., & Levander, S. (2002). Psychopathic traits in non-referred youths: Initial test of a new assessment tool. In E. Blaauw & L. Sheridan (Eds.), *Psychopaths: Current international perspectives* (pp. 131–158). Elsevier: The Hague.
- Berg, J. M., Lilienfeld, S. O., Reddy, S. D., Latzman, R. D., Roose, A., Craighead, L. W., & Raison, C. L. (2013). The Inventory of callous and unemotional traits: a construct-validated analysis in an at-risk sample. *Assessment*, 20, 532–544.
- Bijttebier, P., & Decoene, S. (2009). Assessment of psychopathic traits in children and adolescents: further validation of the antisocial process screening device and the childhood psychopathy scale. *European Journal of Psychological Assessment*, 25, 157–163.
- Byrd, A. L., Kahn, R. E., & Pardini, D. A. (2013). A validation of the inventory of callous-unemotional traits in a community sample of young adult males. *Journal of Psychopathology and Behavioral Assessment*, 35, 20–34.
- Caldwell, M. F. (2011). Treatment-related changes in behavioral outcomes of psychopathy facets in adolescent offenders. *Law and Human Behavior*, 35, 275–287.
- Colins, O. F., Vermeiren, R., De Bolle, M., & Broekaert, E. (2012). Self-reported psychopathic-like traits as predictors of recidivism in detained male adolescents. *Criminal Justice and Behavior*, 39, 1421–1435.
- Declercq, F., Markey, S., Vandist, K., & Verhaeghe, P. (2009). The youth psychopathic trait inventory: factor structure and antisocial behaviour in non-referred 12-17-year-olds. *Journal of Forensic Psychiatry & Psychology*, 20, 577–594.
- Dillard, C. L., Salekin, R. T., Barker, E. D., & Grimes, R. D. (2013). Psychopathy in adolescent offenders: an item response theory study of the antisocial process screening device-self-report and the psychopathy checklist: youth version. *Personality Disorders Theory, Research, and Treatment*, 4, 101–120.
- Douglas, K. S., Epstein, M. E., & Poythress, N. G. (2008). Criminal recidivism among juvenile offenders: testing the incremental and predictive validity of three measures of psychopathic features. *Law and Human Behavior*, 32, 423–438.
- Elliott, D. S., & Ageton, S. S. (1980). Reconciling race and class differences in self-reported and official estimates of delinquency. *American Sociological Review*, 45, 95–110.
- Essau, C. A., Sasagawa, S., & Frick, P. J. (2006). Callous-unemotional traits in a community sample of adolescents. *Assessment*, 13, 454–469.
- Fanti, K. A., Demetriou, C. A., & Kimonis, E. R. (2013). Variants of callous-unemotional conduct problems in a community sample of adolescents. *Journal of Youth and Adolescence*, 42, 964–979.
- Feilhauer, J., Cima, M., & Arntz, A. (2012). Assessing callous-unemotional traits across different groups of youths: Further cross-cultural validation of the Inventory of Callous-Unemotional Traits. *International Journal Of Law And Psychiatry*, 35, 251–262.
- Flexon, J. L., & Meldrum, R. C. (2013). Adolescent psychopathic traits and violent delinquency: additive and nonadditive effects with key criminological variables. *Youth Violence and Juvenile Justice*, 11, 349–369.
- Forth, A. E., Kosson, D. S., & Hare, R. D. (2003). *The hare psychopathy checklist: youth version*. Toronto, Ontario: Multi-Health Systems.
- Frick, P. J. (2003). *The inventory of callous-unemotional traits*. The University of New Orleans: Unpublished rating scale.
- Frick, P., & Hare, R. D. (2001). *The antisocial process screening device (APSD)*. Toronto: Multi-Health Systems.
- Frick, P. J., Bodin, S. D., & Barry, C. T. (2000). Psychopathic traits and conduct problems in community and clinic-referred samples of children: further development of the psychopathy screening device. *Psychological Assessment*, 12, 382–393.
- Frick, P. J., Barry, C. T., & Kamphaus, R. W. (2010). *Clinical assessment of child and adolescent personality and behavior* (3rd ed.). New York: Springer Science + Business Media.
- Hare, R. D. (1991). *Manual for the hare psychopathy checklist-revised*. Toronto: Multi-Health Systems.
- Kahn, R. E., Frick, P. J., Youngstrom, E., Findling, R. L., & Youngstrom, J. (2012). The effects of including a callous-unemotional specifier for the diagnosis of conduct disorder. *Journal of Child Psychology and Psychiatry*, 53, 271–282.
- Kimonis, E. R., Frick, P. J., Skeem, J. L., Marsee, M. A., Cruise, K., Muñoz, L. C., Aucoin, K. J., & Morris, A. S. (2008). Assessing callous-unemotional traits in adolescent offenders: validation of the Inventory of Callous-Unemotional Traits. *International Journal of Law and Psychiatry Special Issue Psychopathy and risk assessment in children and adolescents*, 31, 241–252.
- Lynam, D. R. (1997). Pursuing the psychopath: capturing the fledgling psychopath in a nomological net. *Journal of Abnormal Psychology*, 106, 425–438.
- Lynam, D. R., Caspi, A., Moffitt, T. E., Loeber, R., & Stouthamer-Loeber, M. (2007). Longitudinal evidence that psychopathy scores in early

- adolescence predict adult psychopathy. *Journal of Abnormal Psychology*, 116, 155–163.
- Manders, W. A., Deković, M., Asscher, J. J., van der Laan, P. H., & Prins, P. M. (2013). Psychopathy as predictor and moderator of multisystemic therapy outcomes among adolescents treated for antisocial behavior. *Journal of Abnormal Child Psychology*, 41, 1121–1132.
- Marsee, M. A., Kimonis, E. R., & Frick, P. J. (2004). Peer Conflict Scale. Unpublished measure.
- Marsee, M. A., Barry, C. T., Childs, K. K., Frick, P. J., Kimonis, E. R., Munoz, L. C., et al. (2011). Assessing the forms and functions of aggression in youth using self-report: confirmatory factor analysis and evaluation of factorial invariance across sample and gender. *Psychological Assessment*, 23, 792–804.
- Muñoz, L. C., & Frick, P. J. (2007). The reliability, stability, and predictive utility of the self-report version of the antisocial process screening device. *Scandinavian Journal of Psychology*, 48, 299–312.
- Neumann, C. S., Johansson, P. T., & Hare, R. D. (2013). The psychopathy checklist-revised (PCL-R), low anxiety, and fearlessness: a structural equation modeling analysis. *Personality Disorders Theory Research and Treatment*, 4, 129–137.
- Poythress, N. G., Dembo, R., Wareham, J., & Greenbaum, P. E. (2006a). Construct validity of the youth psychopathic traits inventory (YPI) and the antisocial process screening device (APSD) with justice-involved youths. *Criminal Justice and Behavior*, 33, 26–55.
- Poythress, N. G., Douglas, K. S., Falkenbach, D., Cruise, K., Lee, Z., Murrie, D. C., & Vitacco, M. (2006b). Internal consistency reliability of the self-report antisocial process screening device. *Assessment*, 13, 107–113.
- Reynolds, C. R., & Kamphaus, R. W. (2004). *Behavior assessment system for children (2nd ed.): manual*. Circle Pines: American Guidance Service.
- Roose, A., Bijttebier, P., Decoene, S., Claes, L., & Frick, P. J. (2010). Assessing the affective features of psychopathy in adolescence: a further validation of the inventory of callous and unemotional traits. *Assessment*, 17, 44–57.
- Roose, A., Bijttebier, P., Van der Oord, S., Claes, L., & Lilienfeld, S. O. (2013). Psychopathic traits in youth and associations with temperamental features: results from a performance-based measure. *Journal of Individual Differences*, 34, 1–7.
- Sadeh, N., Verona, E., Javdani, S., & Olson, L. (2009). Examining psychopathic tendencies in adolescence from the perspective of personality theory. *Aggressive Behavior*, 35, 399–407.
- Salekin, R. T. (2010). Treatment of child and adolescent psychopathy: focusing on change. In R. T. Salekin & D. R. Lynam (Eds.), *Handbook of child and adolescent psychopathy* (pp. 343–373). New York: Guilford Press.
- Salekin, R. T., Debus, S. A., & Barker, E. D. (2010). Adolescent psychopathy and the five factor model: domain and facet analysis. *Journal of Psychopathology and Behavioral Assessment*, 32, 501–514.
- Salekin, R. T., Lester, W. S., & Sellers, M. (2012a). Mental sets in conduct problem youth with psychopathic features: entity versus incremental theories of intelligence. *Law and Human Behavior*, 36, 283–292.
- Salekin, R. T., Tippey, J. G., & Allen, A. D. (2012b). Treatment of conduct problem youth with interpersonal callous traits using mental models: measurement of risk and change. *Behavioral Sciences and the Law*, 30, 470–486.
- Seals, R. W., Sharp, C., Ha, C., & Michonski, J. D. (2012). The relationship between the youth psychopathic traits inventory and psychopathology in a U.S. community sample of male youth. *Journal of Personality Assessment*, 94, 232–243.
- Silva, T., Genovés, V. G., & Latorre, M. J. (2012). The use of a screening device to assess psychopathy in young offenders. *The Spanish Journal of Psychology*, 15, 724–735.
- Spain, S. E., Douglas, K. S., Poythress, N. G., & Epstein, M. (2004). The relationship between psychopathic features, violence, and treatment outcome: the comparison of three youth measures of psychopathic features. *Behavioral Sciences and the Law*, 22, 85–102.
- Stellwagen, K. K., & Kerig, P. K. (2010). Relation of callous-unemotional traits to length of stay among youth hospitalized at a state psychiatric inpatient facility. *Child Psychiatry and Human Development*, 41, 251–261.
- Vaughn, M. G., Howard, M. O., & DeLisi, M. (2008). Psychopathic personality traits and delinquent careers: an empirical examination. *International Journal of Law and Psychiatry*, 31, 407–416.
- Vaughn, M. G., DeLisi, M., Beaver, K. M., Wexler, J., Barth, A., & Fletcher, J. (2011). Juvenile psychopathic personality traits are associated with poor reading achievement. *Psychiatric Quarterly*, 82, 177–190.
- Vitacco, M. J., Rogers, R., & Neumann, C. S. (2003). The antisocial process screening device: an examination of its construct and criterion-related validity. *Assessment*, 10, 143–150.
- White, S. F., Frick, P. J., Lawing, K., & Bauer, D. (2013). Callous-unemotional traits and response to functional family therapy in adolescent offenders. *Behavioral Sciences & the Law*, 31, 271–285.