

# Callous-Unemotional Traits and Adolescents' Role in Group Crime

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The current study examined the association of callous-unemotional (CU) traits with group offending (i.e., committing a crime with others; gang involvement) and with the role that the offender may play in a group offense (e.g., being the leader). This analysis was conducted in an ethnically and racially diverse sample ( $N = 1,216$ ) of justice-involved adolescents (ages 13 to 17) from 3 different sites. CU traits were associated with a greater likelihood of the adolescent offending in groups and being in a gang. Importantly, both associations remained significant after controlling for the adolescent's age, level of intelligence, race and ethnicity, and level of impulse control. The association of CU traits with gang membership also remained significant after controlling for the adolescent's history of delinquent behavior. Further, CU traits were associated with several measures of taking a leadership role in group crimes. CU traits were also associated with greater levels of planning in the group offense for which the adolescent was arrested, although this was moderated by the adolescent's race and was not found in Black youth. These results highlight the importance of CU traits for understanding the group process involved in delinquent acts committed by adolescents. They also underscore the importance of enhancing the effectiveness of treatments for these traits in order to reduce juvenile delinquency.

*Keywords:* adolescents, callous-unemotional (CU) traits, delinquency, gang membership, group offending

Research on juvenile delinquency has long focused on factors that influence whether adolescents associate with deviant peers and commit their crimes in groups or alone (Puzzanchera, 2009; Warr, 2002; Zimring, 1981). Early theories divided antisocial adolescents into two main groups (Quay, 1964, 1993). The first

group, labeled as “undersocialized” was defined by an offending pattern in which their antisocial acts were committed alone and by deficiencies in the youth's guilt, empathy, and ability to bond with others. In contrast, the second group of adolescents (i.e., “socialized”) were defined by offending patterns in which the antisocial acts were committed in groups with other adolescents and were motivated by their loyalty to a delinquent subculture or gang. Subsequent research documented a number of limitations in this model of adolescent offending. First, research indicated that most adolescent crime is committed in groups and, in fact, it is sometimes difficult to find antisocial adolescents who only commit crimes alone (Goldweber, Dmitrieva, Cauffman, Piquero, & Steinberg, 2011). Second, adolescents with developmentally inappropriate levels of callous and unemotional (CU) traits, who show characteristics similar to those described as undersocialized in previous research (i.e., deficits in the display of guilt and concern for the welfare of others; American Psychiatric Association, 1980), actually exhibit some of the highest levels of association with deviant peers (Goldweber et al., 2011; Kimonis, Frick, & Barry, 2004; Muñoz, Frick, Kimonis, & Aucoin, 2008; Pardini & Loeber, 2008). Third, these adolescents with elevated CU traits are more likely to commit crimes in groups when compared with other antisocial adolescents (Goldweber et al., 2011), although this finding was reported in a sample of serious adolescent offenders and requires replication in other samples.

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In short, research suggests that adolescent offending is often a group process. If the association between CU traits and group offending is replicated in other samples, it may suggest that CU traits may play an important role in this process. Unfortunately, the role that CU traits might play in group crimes has not been examined directly, to our knowledge. However, there are a number of findings that provide a basis for making some predictions about the potential role of CU traits for understanding group crimes committed by adolescents.

CU traits have been associated with a more severe and stable pattern of adolescent offending in many different samples (Frick, Ray, Thornton, & Kahn, 2014). Adolescent offenders who show elevated levels of CU traits often demonstrate a higher level of planning and premeditation in their crimes, relative to other adolescent offenders and even controlling for the overall severity of their offending behaviors (Kruh, Frick, & Clements, 2005; Lawing, Frick, & Cruise, 2010). Adolescents with elevated levels of CU traits also seem to exhibit greater influence on their peers' delinquent behavior relative to other adolescents. Kerr, Van Zalk, and Stattin (2012) used peer network analyses to test the effects of both the target adolescents' levels of CU traits and their peers' levels of CU traits on the association between having antisocial peers and the adolescent's level of delinquency. Their findings suggest that the delinquent behavior of the target child was less influenced by peer delinquency if he or she was high on CU traits. However, if an adolescent had friends who were high on CU traits, his or her delinquent behavior was more influenced by peer delinquency. In summary, adolescent offenders with CU traits show a number of characteristics (i.e., high degree of planning and high level of influence on peers' behavior) that could make them more likely to be the "instigator" in a delinquent peer group, which is defined as the person who plays a critical role in the planning and commission of the crime (Warr, 1996, 2002).

### The Current Study

In the current study, we tested the predictions that CU traits would be associated with more involvement in adolescent crimes committed in groups and with taking a greater leadership role during crimes with others. We attempted to replicate the findings of Goldweber et al. (2011) that CU traits are related to higher levels of group offending, both defined as committing a delinquent act with others, as well as endorsing membership in a criminal gang. We conducted this test in a large and racially/ethnically diverse sample of first-time adolescent male offenders to determine whether the Goldweber et al. (2011) findings could be replicated outside of a serious offender sample. We assumed, based on past work, that the majority of crime in the adolescent sample would be committed in groups and we asked the adolescents to report on their role in a crime committed with others. From these data, we tested the prediction that CU traits would be associated with adolescents reporting that the crime was less spontaneous and that they played a leadership role in planning and carrying out the crimes committed with others.

We also examined whether CU traits were associated with the likelihood of adolescents reporting that they played a leadership role in group crimes after controlling for several variables that are likely related to both CU traits and being leader in group crimes. Specifically, we controlled for adolescents' history of offending

behavior, given the possibility that more experience with crime behavior leads a person to take more of a leadership role in group crimes (Warr, 2002). We also considered the role of intelligence and its potential influence on the adolescent's ability to plan and lead others in committing a crime. These controls are important given that adolescent offenders with high CU traits show more extensive histories of delinquent behavior (Frick et al., 2014) and higher levels of intelligence (Loney, Frick, Ellis, & McCoy, 1998; Muñoz et al., 2008; Salekin, Neumann, Leistico, & Zalot, 2004) than other adolescent offenders. We also considered the role of impulse control, specifically testing whether adolescent offenders with elevated CU traits might be less likely to have problems regulating their behavior and emotions compared to other adolescent offenders (Frick et al., 2014) and thus, have better planning abilities.

In testing these predictions, we considered several potential moderators that could influence the association of CU traits with the role that the adolescent plays in group crimes. First, we considered whether the age of the youth influenced this relation, in that CU traits might only lead to greater leadership roles in older adolescents, who are more likely to be committing crimes with same age or younger peers. We also tested whether adolescents' race or ethnicity moderated the associations between CU traits and adolescents' roles in group crimes. This test was based on research suggesting that the relation between CU traits and violence may be weaker in ethnic minority youth (Edens, Campbell, & Weir, 2007) and that gang membership may be more normative in samples of urban minority youth (Bradshaw, Waasdorp, Goldweber, & Johnson, 2013; Lahey, Gordon, Loeber, Stouthamer-Loeber, & Farrington, 1999). As a result, the adolescent's race or ethnicity could influence the association between CU traits, the adolescent's involvement with group crime and gangs, and the adolescent's role in the group crime.

### Method

#### Participants

The current sample of 1,216 adolescent boys includes all of the participants in the Crossroads Study, which draws from the juvenile justice systems of Jefferson Parish, LA ( $n = 151$ ); Orange County, CA ( $n = 532$ ); and Philadelphia, PA ( $n = 533$ ). To be eligible for the Crossroads Study, juveniles had to be first-time male offenders, be English speakers between the ages of 13 to 17 at the time of arrest, and have an eligible offense. It is important to note that although participants were required to have their first official charge in the three sites' court systems, they may have had offenses in other jurisdictions or have had prior offenses for which they were not charged. Eligible charges were midrange offenses, such as theft of goods, simple battery, and vandalism. Across all three sites, 72.32% of individuals eligible to participate enrolled in the study. Participants' mean age was 15.29 years ( $SD = 1.29$ ) and the sample was predominately White Latino (46.2%) and Black (38.1%), followed by White non-Latino (15.7%). Participants' average intelligence was lower than that of the general population (full scale IQ = 88.50 [ $SD = 11.87$ ] as assessed by the Wechsler Abbreviated Scale of Intelligence [WASI-II; Wechsler, 1999] using the vocabulary and matrix reasoning subtests).

## Measures-Key Predictor and Control Variables

**Callous-unemotional traits.** CU traits were assessed using the Inventory of Callous-Unemotional traits (ICU; Kimonis et al., 2008), a 24-item instrument (Cronbach's alpha = .76 in the present sample) that utilizes a 4-point Likert scale, 0 (*not at all true*) to 3 (*definitely true*) to indicate how accurate each statement describes them. Half of the items are worded to describe callous and unemotional characteristics (e.g., *I seem very cold and uncaring to others*) and half are worded in the opposite direction (e.g., *I am concerned about the feelings of others*). CU traits as measured by the ICU have been associated with restricted emotional responses to others' distress on self-report (e.g., measures of affective empathy; Jones, Happe, Gilbert, Burnett, & Viding, 2010), laboratory (e.g., reduced attentional orienting to pictures of others in distress; Kimonis, Frick, Fazekas, & Loney, 2006) and biological (e.g., less amygdala activation to fearful faces; Viding et al., 2012) measures. The total ICU score has also been consistently associated with antisocial behavior (e.g., Essau, Sasagawa, & Frick, 2006; Fanti et al., 2009; Kimonis et al., 2008; Roose et al., 2010) and negatively associated with pro-social behavior (Eremsoy, Karanci, & Berument, 2011) in adolescent samples.

**Impulse control.** An eight-item (Cronbach's alpha = .74 in the present sample) subscale of the Weinberger Adjustment Inventory measured impulse control (Weinberger & Schwartz, 1990). Participants indicated on a 5-point scale from 1 (*false*) to 5 (*true*) how true each statement is of them (e.g., *I should try harder to control myself when I'm having fun*). Lower scores on this measure have been associated with persistent antisocial behavior from ages 14 to 22 (Monahan, Steinberg, Cauffman, & Mulvey, 2009).

**Lifetime offending.** The adolescent's report of their history of delinquent behavior was assessed using the Self-Report of Offending scale (SRO; Huizinga, Esbensen, & Weiher, 1991). Participants indicated whether (*yes* or *no*) they had ever engaged any of 24 different types of crime (e.g., shoplifting, assault, burglary; Cronbach's alpha = .82 in the present sample). The SRO has been successfully utilized in samples of children and adolescents, as well as demonstrated correlations with important factors such as official reports of offending (Thornberry & Krohn, 2000). A total lifetime score was calculated to indicate the number of different kinds of offenses participants had committed by the time of the interview.

## Measures-Group Offending and Offending Roles

Participants responded to several questions about their index offense (i.e., the offense that made them eligible for the study, which by the inclusionary criteria for the study, was their first charged offense) or about their lifetime participation in crime that may include offenses other than their index offense. Several variables, described below, were derived from questions related to (a) whether or not the participant committed their crime(s) with others and (b) the participants' role in crimes committed with others.

### Group Offending

**Index group.** Participants reported whether they committed their index offense alone or with others; the majority of the participants' index offenses were committed with others (62%,

$n = 754$ ); a smaller number committed their offense alone (38%,  $n = 461$ ); and one participant did not answer the question.

**Lifetime group.** Participants reported whether they had ever committed a crime with others or never committed crimes with others before. A variable was created to indicate whether or not the participant said yes to this question or reported that their index offense was in a group (45%,  $n = 552$ ) or whether the participant said no to this question and reported that their index offense was committed alone (22%,  $n = 273$ ). A portion of participants did not respond to the question (2%,  $n = 19$ ) or they reported inconsistent information about their history of group offending (31%,  $n = 372$ ).

**Gang membership.** Participants reported whether they had been a member of a gang during the past six months (5%) or during their lifetime (5%) or had never been a member of a gang (90%,  $n = 1,092$ ); one participant did not answer the question.

### Offense Roles

**Index leadership.** Only participants who reported that their index offense was committed with others (62%,  $n = 753$ ) then answered specific questions about the group crime (i.e., *Did you lead the group (were you the leader) or were you following the group?*). Participants indicated whether they were the leader (16%,  $n = 124$ ) or not (83%,  $n = 629$ ) during the offense, and one participant did not answer the question.

**Lifetime leader.** Only participants who reported that they had participated in crimes with others during their lifetime (45%,  $n = 553$ ) also indicated whether they tended to be the leader in the crimes (*On average, when you commit crimes with a group, which do you do more—lead the group or follow what others are doing?*). From this question, participants were coded as being a lifetime leader (48%,  $n = 264$ ) or not (52%,  $n = 289$ ).

**Index instigator.** Only participants who reported that their index offense was committed with others (62%,  $n = 752$ ) then indicated whether the index offense was "my idea" (21%,  $n = 160$ ) or not (79%,  $n = 592$ ); two participants did not answer.

**Index spontaneous.** Only participants who reported that their index offense was committed with others (62%,  $n = 752$ ) then indicated whether the index offense "just happened" (37%,  $n = 279$ ) or not (63%,  $n = 473$ ); two participants did not answer.

### Procedures

Institutional Review Board approval was obtained at each participating university, as well as the city of Philadelphia. After determination that the youth met inclusionary criteria based on official records, researchers contacted and provided a description of the study to eligible youth and his parent or legal guardian. The parent or legal guardian provided consent either over the phone, which was recorded, or at the time of the interview. During the consent process, researchers informed the parent that the youth would receive an incentive for participation (i.e., \$50.00) and that participation in the study would in no way influence the youth's treatment by the juvenile court. Participants provided assent at the interview. The parent and youth were informed that the research project had obtained a Certificate of Confidentiality from the Department of Justice, which allowed the research information to be protected from being subpoenaed for use in legal proceedings. Interviews were conducted at a location convenient for the youth,

often his home, a nearby restaurant, or library in the community, or at the universities conducting the research. Interviewers attempted to provide as much privacy to the participant as possible by utilizing response cards for standardized measures, which allowed the participant to say a number as opposed to a full verbal response. The interview was administered from a laptop with an interviewing program that included all of the items and measures for convenience and standardized administration. To avoid comprehension problems related to low reading ability, interviewers read all interview questions aloud to the participant.

### Analytic Plan

Preliminary analyses examined the distribution of all study variables to determine whether transformations were necessary for further analyses. Next, zero-order correlations examined the association between the main study variables with demographic characteristics. After these preliminary analyses, zero-order correlations were conducted to test the associations among the main predictor (CU traits), covariates (impulse control and life history of offending), group offending, and offending roles. Although multilevel analysis is often used to account for nested data, such as across the three sites, several factors indicated that a multilevel approach was not appropriate for the current analyses. First, three groups (i.e., sites) is typically regarded as too few to adequately nest the data for the purpose of multilevel analyses (Maas & Hox, 2005). Second, when a multilevel intercept only model was attempted, the intraclass correlation for CU traits was zero, suggesting that a minimal amount of variance in CU traits could be attributed to differences across sites (Hox, 2010). Thus, the associations between CU traits with group offending and offending roles were further explored in a series of hierarchical binary logistic regression analyses.

For each offending outcome, CU traits, impulse control, age, IQ, as well as race/ethnicity (dummy coded with White non-Latino as the comparison group) were used as predictors to test association of CU traits with group offending and offending roles controlling for the other predictors. At a second step, self-reported offending was added to the equation to determine whether any associations with CU traits remained significant after controlling for the adolescent's lifetime history of offending. These tests of main effects were followed by tests of the interactions between CU traits and age and between CU traits and race/ethnicity. To determine the form of any significant interaction, the MODPROBE macro for SPSS 21 (IBM, 2012; Hayes & Matthes, 2009) was used to probe for significance at the two levels of dichotomous moderators (i.e., race/ethnicity) or at one standard deviation above and below the mean for continuous moderators (i.e., age). Further, the macro provides probabilities for the outcome variable at high and low levels of the independent variable and moderator for ease of graphing. To probe interactions with race/ethnicity, the three groups were dummy coded, which allowed one group to be the comparison group, and all interactions between CU traits with the two race/ethnicity variables (e.g., CU  $\times$  Black, CU  $\times$  White Latino) were tested, as recommended by Jaccard and Turrisi (2003). These interactions allowed for the examination of each racial/ethnic group against a given comparison group. For example, a significant CU  $\times$  Black interaction would indicate that association be-

tween CU traits and an outcome variable differed for Black and White non-Latino youth.

## Results

### Preliminary Analyses

The majority of study variables were normally distributed. The exception was the self-report of lifetime offending variable, which was positively skewed (Skew = 1.83,  $SE = .070$ ) and kurtotic (Kurtosis = 3.95,  $SE = .140$ ). Therefore, the analyses were conducted with both the nontransformed and square root-transformed version of this variable. Given the similarity in results (i.e., no differences in significance), only the analyses using the nontransformed variable are reported. The results based on the transformed variable are available from the authors on request.

The correlations between the main study variables and the demographic variables are provided in Table 1. Being older at first contact with the juvenile justice system was positively associated with lifetime offending, group offending over the lifetime, and being the instigator of the index offense. Lower levels of IQ were associated with identifying as a leader during crimes with others. Both White Latino and White non-Latino youth were more likely than Black youth to report group offending for their index offense, as well as more lifetime group offending.

### Associations Between CU Traits and Offending Roles and Characteristics

Zero-order correlations between CU traits and the offending roles and characteristics are also reported in Table 1. CU traits were positively associated with identifying as a group offender, gang membership, identifying as a leader during both the index offense and as a general offending style, as well as endorsing that the index offense was his idea. Importantly, CU traits were associated with both self-reported lifetime offending (positively) and impulse control (negatively).

### Incremental Predictive Utility of CU Traits and Interactions With Age and Race/Ethnicity

**Group crime.** The results of the hierarchical logistic regression analyses for the dependent measures related to group offending are summarized in Table 2. For Black boys, the odds of committing their index offense with others were approximately twice as great as for White non-Latino boys [Odds Ratio (OR) = 2.01,  $p < .001$ ], even controlling for severity of lifetime offending. No other main effects emerged for this outcome. However, CU traits interacted with race/ethnicity [Model  $\chi^2(7) = 29.99$ ,  $p < .001$ ; CU  $\times$  Black  $\beta = -.430$ ,  $p = .020$ ] and the form of this interaction is provided in Figure 1. As noted in Figure 1, CU traits were positively associated with committing a group index offense that approached significance ( $\beta = .314$ ,  $p = .052$ ) in White non-Latino participants. In contrast, CU traits showed a nonsignificant negative association with committing the index offense in a group ( $\beta = -.116$ ,  $p = .199$ ) among Black youth.

Similar analyses were conducted using lifetime group offending and being part of a gang as the dependent measures and these results are also reported in Table 2. CU traits were associated with

Table 1  
Zero-Order Correlations Among Demographic and Main Study Variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Age	—	.06*	.03	-.09**	.09**	-.02	-.01	.20***	.02	.09*	-.01	.02	.05	.11**	-.01
2. IQ		—	-.06*	-.14***	.27***	-.07*	.02	.08**	.04	.04	-.05	-.01	-.09*	-.04	-.03
3. White Latino			—	-.73***	-.40***	.11***	-.05	.05	.08**	.12***	.03	.06	-.10*	.02	-.07
4. Black				—	-.34***	-.08**	.09**	-.10**	-.14***	-.23***	.01	-.06	.16***	.01	.08*
5. White non-Latino					—	-.05	-.06*	.06*	.07*	.12***	-.06	-.01	-.07	-.04	-.00
6. CU traits						—	-.34***	.35***	.00	.17***	.22***	.09*	.20***	.09**	-.01
7. Impulse control							—	-.33***	.03	-.20***	-.17***	-.05	-.04	-.03	.02
8. Self-reported offending								—	-.00	.28***	.41***	.11**	.31***	.35***	-.13***
9. Index group									—	.64***	-.06*	a	-.12**	a	a
10. Lifetime group										—	.12***	a	a	a	a
11. Gang											—	.08*	.14**	.08*	-.07
12. Index leader												—	.26***	.35***	-.13***
13. Lifetime leader													—	.25***	.06
14. Index instigator														—	-.40***
15. Index spontaneous															—

Note. CU = Callous-unemotional traits; a = Correlation cannot be computed because at least one variable is constant as a result of variable coding. White Latino, Black, and White non-Latino are coded 1 for endorsing the race/ethnicity, and 0 for all other individuals.  
\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

greater lifetime group offending and with being a member of gang, and the association with gang membership remained significant even after controlling for lifetime offending. CU traits interacted with race/ethnicity [Model  $\chi^2(7) = 74.34, p < .001$ ; CU  $\times$  Black  $\beta = -.619, p = .025$ ] in the association with lifetime group offending as provided in Figure 2. Specifically, CU traits were more strongly associated with being a lifetime group offender for White non-Latino participants ( $\beta = .835, p = .001$ ) than for Black participants ( $\beta = .215, p = .051$ ). However, the association between CU traits and gang membership was not modified by either age or race/ethnicity.

**Offense roles.** Similar hierarchical binary logistic regression analyses were conducted using the various offense roles as the dependent measures and the results of these analyses are reported in Table 3. CU traits were related to the various indices of leadership in group crimes. Specifically, CU traits were related to endorsing a leadership role during the index offense (OR = 1.26,  $p < .05$ ), endorsing a leadership role during any group offense committed by the youth (OR = 1.63,  $p < .001$ ), and for reporting that the index offense was their idea (OR = 1.30,  $p < .05$ ) after controlling for demographic variables and impulse control. Further, endorsing a leadership role during any group offense re-

Table 2  
Binary Logistic Regression Analyses of Group Offending Variables

Models	Predictor	Dependent variables—Group offending					
		Index group ( $n = 1,214$ )		Lifetime group ( $n = 824$ )		Gang ( $n = 1,214$ )	
		OR	SE	OR	SE	OR	SE
Model 1	Age	1.02	.06	1.13	.06	.98	.10
	IQ	1.04	.06	1.01	.06	.91	.11
	White Latino	1.16	.19	1.44	.18	.59	.35
	Black	2.01***	.19	3.20***	.19	.56	.36
	Impulse control	1.11	.06	.74***	.07	.67***	.11
	CU traits	1.02 <sup>a</sup>	.06	1.31*** <sup>a</sup>	.07	1.83***	.11
Model 2	Age	1.02	.06	1.02	.06	.73**	.12
	IQ	1.04	.06	.96	.07	.78*	.12
	White Latino	1.16	.19	1.40	.19	.56	.37
	Black	2.02***	.19	3.10***	.20	.48	.39
	Impulse control	1.11	.07	.83*	.07	.87	.12
	Self-reported offending	.98	.07	1.85***	.07	2.72***	.11
	CU traits	1.03	.07	1.13	.07	1.29*	.12

Note. OR = Odds ratio. Model 2 adds self-reported offending to the list of predictors. White Latino and Black are coded 1 for endorsing the race/ethnicity, and 0 for all other individuals. White non-Latino is held as the comparison group and thus not included in the models. Variables did not include participants who did not answer the item. Lifetime group did not include participants who did not answer the questions or were inconsistent reporters for group offending.

<sup>a</sup> Modified by interaction with race/ethnicity.

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

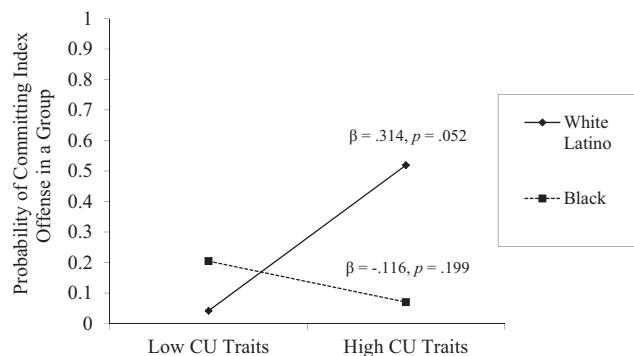


Figure 1. Interaction between CU traits and race/ethnicity (White Latino and Black) predicting the probability of committing the index offense with others.

mained associated with CU traits after controlling for the youth's lifetime history of offending ( $OR = 1.33, p < .01$ ). Also, the association between CU traits and endorsing being a leader during the index offense was moderated by the child's race/ethnicity and the form of this interaction is provided in Figure 3. As noted in this figure, CU traits were more strongly associated with leadership in the index offense in White Latino [Figure 3a; Model  $\chi^2(7) = 17.77, p = .013$ ;  $CU \times Black \beta = -.652, p = .008$ ] and White non-Latino [Figure 3b; Model  $\chi^2(7) = 17.77, p = .013$ ;  $CU \times Black \beta = -.643, p = .039$ ] boys, relative to Black boys.

Main effects for CU traits were not significant for predicting whether the youth reported that index offense "just happened." However, CU traits interacted with race/ethnicity in its association with the index offense spontaneously occurring [Model  $\chi^2(7) = 11.93, p = .103$ ;  $CU \times Black \beta = .604, p = .012$ ] and this interaction is reported in Figure 4. It revealed that CU traits were negatively related to reporting that the index offense spontaneously happened for White non-Latino boys ( $\beta = -.409, p = .044$ ) but not for Black boys ( $\beta = .195, p = .128$ ).

## Discussion

The current study examined whether the level of CU traits was associated with adolescents' participation in group crimes (i.e., criminal behavior conducted with others) and whether they were also associated with the role that the adolescent played in these crimes. With respect to the first issue, CU traits were associated with adolescents' self-report of offending in groups and being in a gang. These findings are consistent with the results reported by Goldweber et al. (2011) in a sample of adolescents with histories of severe offending in which CU traits were associated with greater likelihood of committing crimes in groups. Importantly, the association between CU traits and group offending was *not* independent of the number of previous offenses reported by the adolescent, whereas the association between CU traits and gang membership was independent of previous offending. It is not clear why CU traits contributed independently to gang membership specifically, but not to group offending more generally. It is possible that gang membership is indicative of more than just group offending. It could also be indicative of a more serious and chronic pattern of offending behavior (Gordon et al., 2014). As a result, future

research should investigate this heretofore unexplored link between CU traits and gang involvement.

An important and novel contribution of the current study is its examination of the association between CU traits and adolescents' report of taking a leadership role in group crimes. This relationship was analyzed for both adolescents' index offenses (the offense that led to the adolescents' first arrest and entry into the study) and the adolescents' report on their history of group offending, including those delinquent behaviors that did not lead to arrest and formal contact with the juvenile justice system. If an adolescent's index offense was committed with others, he was further asked whether the index crime was "[his] idea" to provide a measure of whether or not he could be considered the "instigator" of the index group offense (Warr, 1996, 2002). Across all of these variables, level of CU traits was related to taking a leadership role in group crimes and this was independent of the adolescent's age, race/ethnicity, intelligence, and level of impulse control. However, for only one of these three variables (i.e., endorsing a leadership role in past offenses) did this association remain significant after controlling for the adolescent's history of offending. These inconsistent findings may be related to the relatively small effect sizes in the associations of CU traits with these measures of offending roles, even before controlling for covariates. However, it is also possible that this finding was the result of the lifetime leader variable assessing leadership that took into account the adolescent's full history of group offending behavior. Thus, as a result, this more encompassing lifetime leadership variable may be the best indicator of the adolescent's typical pattern of delinquent activity.

The association between CU traits and being a leader in group offending is consistent with a study of a community sample of adolescents, which reported that adolescents with developmentally inappropriate levels of CU traits exerted a significant influence on their peers' delinquent behavior (Kerr et al., 2012). This influence on peers may be related to adolescents with CU traits having the skills and motivation to manipulate and exploit others (Salekin, Worley, & Grimes, 2010). However, it is also possible that adolescents with elevated CU traits show higher levels of narcissistic traits and these traits may make them more likely to perceive themselves as leaders and overestimate the importance of their roles in group crimes (Barry, Frick, Adler, & Grafeman, 2007).

In this study, we asked adolescents whose index crimes had been committed with others whether the offense had "just hap-

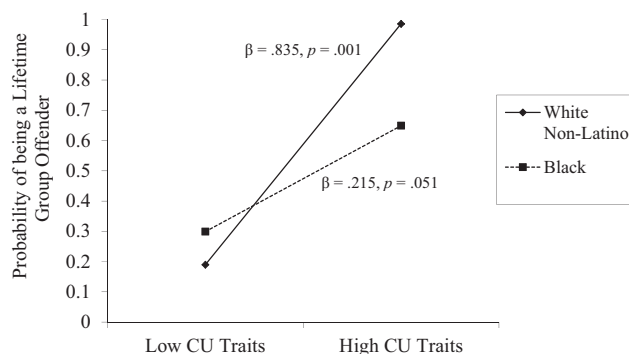


Figure 2. Interaction between CU traits and race/ethnicity (White non-Latino and Black) predicting the probability of being a lifetime group offender.

Table 3  
Binary Logistic Regression Analyses of Offense Role Variables

Models	Predictor	Dependent variables—Offense roles							
		Index leader ( <i>n</i> = 753)		Lifetime leader ( <i>n</i> = 553)		Index instigator ( <i>n</i> = 752)		Index spontaneous ( <i>n</i> = 752)	
		OR	SE	OR	SE	OR	SE	OR	SE
Model 1	Age	1.08	.10	1.27*	.10	1.36**	.10	1.00	.08
	IQ	.97	.10	.84	.10	.91	.10	.95	.08
	White Latino	.83	.28	1.10	.25	.81	.27	1.18	.22
	Black	1.18	.32	.45**	.28	.76	.29	.83	.23
	Impulse control	.94	.11	1.03	.10	1.00	.10	1.03	.08
	CU traits	1.26 <sup>a</sup>	.11	1.63***	.10	1.30*	.10	1.00 <sup>a</sup>	.09
Model 2	Age	1.02	.11	1.09	.10	1.25*	.10	1.05	.08
	IQ	.95	.11	.78*	.10	.87	.10	.97	.08
	White Latino	.83	.28	1.09	.26	.79	.27	1.20	.22
	Black	1.16	.32	.42**	.29	.73	.29	.84	.23
	Impulse control	.99	.11	1.24*	.11	1.11	.10	.97	.09
	Self-reported offending	1.24*	.10	1.93***	.11	1.46***	.10	.78**	.10
	CU traits	1.17	.12	1.33**	.11	1.16	.11	1.06	.10

Note. OR = Odds ratio. Model 2 includes self-reported offending to the list of predictors. White Latino and Black are coded 1 for endorsing the race/ethnicity, and 0 for all other individuals. White non-Latino is held as the comparison group and thus not included in the models. Index leader, Index instigator, and Index spontaneous only included participants who endorsed committing the index offense with others (Index group). Lifetime leader only included participants who indicated they had committed crimes with others during their lifetime.

<sup>a</sup> Modified by interaction with race/ethnicity.

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

pened.” Responses to this question were used as an indicator of the degree of planning that went into the index group offense. Contrary to predictions, CU traits were not negatively associated with the crime being unplanned and spontaneous. This finding is inconsistent with results from samples of adolescents incarcerated in adult prisons for serious violent crimes (Kruh et al., 2005) and adolescents who committed sex offenses (Lawing et al., 2010), in which CU traits were associated with greater levels of planning and premeditation. One possible reason for this inconsistent finding may be that this association is only found among adolescents who commit more severe and often violent offenses. However, our findings suggested another possible explanation. Specifically, we found an interaction between CU traits and race/ethnicity in the likelihood of committing an unplanned and spontaneous act. That is, for White non-Latino adolescents, those higher in CU traits were less likely to report that the index offense had “just happened,” whereas for Black adolescents, there was no association between these variables.

This finding needs to be interpreted within in the context of the fact that a number of associations with CU traits were moderated by race/ethnicity and this was consistently attributable to the findings for Black youth being less consistent with predictions. Specifically, the predicted association of CU traits with the probability of committing the index offense with others was not found among Black youth (see Figure 1). Similarly, the association between CU traits and lifetime group offending was weaker for Black adolescents (see Figure 2). Also, the association between CU traits and being the leader of the index group offense was not observed among Black youth (see Figure 3). These inconsistent findings across ethnic groups were largely observed when considering only the adolescent’s index offense. As a result, it may be that considering the youth’s full offending history provides a more

accurate and stable estimate of his typical pattern of offending. However, this possibility alone would not explain why the inconsistent findings for the index offenses were specific to Black youth. Of note, the index offense was the adolescent’s first offense that was officially processed by law enforcement, whereas the lifetime history of offending variables considered all self-reported group offenses. Further, there is evidence that Black adolescents are more likely to be officially processed for less severe offenses than White non-Latino adolescents (Beckett, Nyrop, & Pflugst, 2006; Hartstone & Richitelli, 2009; Piquero & Brame, 2008). As a result, the Black youth in our sample may be less antisocial, relative to other ethnicities, and their offending behavior may have been less influenced by dispositional tendencies (i.e., CU traits). In support of this possibility, identifying as Black was negatively associated with a lifetime history of self-reported delinquency,  $r = -.10$ ,  $p = .001$ . Further, the predicted associations between CU traits and group offending, and between CU traits and taking a leadership role in group offending, were generally stronger for variables considering all of the adolescent’s offending behavior, and not just for the one offense that was officially processed (see Table 1). Taken together, these results suggest that future studies should explore whether CU traits are related to group offending differently for Black adolescents compared with adolescents of other ethnicities or whether findings that rely solely on official records lead to differences in findings across ethnic groups because of differential processing by the juvenile justice system.

### Limitations

All of these results need to be interpreted in the context of a number of study limitations. The first limitation is the reliance on self-report for the assessment of all variables, with the exception of

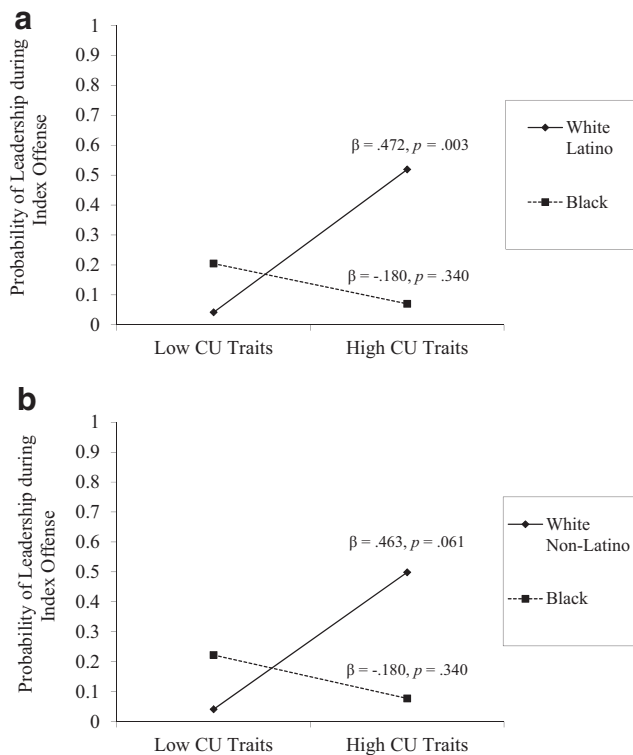


Figure 3. (a) Interaction between CU traits and race/ethnicity (White Latino and Black) predicting the probability of being a leader during the index offense. (b) Association between CU traits and race/ethnicity (White non-Latino and Black) predicting the probability of being a leader during the index offense.

intelligence. This self-report methodology may have inflated associations among variables because of shared method variance. As a result, these associations need to be explored using other methodologies to account for the possibility that youth with CU traits may be more likely to be boastful about their crimes or not accurately convey their role during group crimes. However, the study summarized previously suggesting that adolescents with high levels of CU traits were highly influential to their friends' levels' of antisocial behavior utilized a peer network analysis and did not rely on self-report (Kerr et al., 2012). Further, the findings for CU traits were much stronger and consistent than for impulse control, which was also assessed by self-report. Thus, although these findings need to be replicated using other methodologies (e.g., peer report, official records), there is some evidence to suggest that the findings may not be solely attributable to shared method variance. Second, because of the correlational nature of the current study, no causal inferences among variables can be drawn. For example, it cannot be determined whether CU traits lead to more gang involvement or whether gang involvement leads an adolescent to be insensitive to the suffering of others. Future studies using a longitudinal design could provide stronger evidence for the temporal associations among variables. Third, although CU traits were associated with group offending and adolescents' role in group offending, the effects sizes tended to be modest. For example, the zero-order correlations with lifetime

group offending and gang membership were  $r = .17$  and  $r = .22$ , respectively. Further, the correlation between CU traits and endorsing a leadership role in their lifetime of group offending behavior was  $r = .20$ . The size of these correlations suggest that CU traits only accounts for a modest amount of the variance in the group offending variables and, as a result, other social (e.g., more unsupervised free time, rejection from a prosocial peer group) and dispositional (e.g., manipulateness) factors that can influence the group process in adolescent offending behavior need to be considered in future research (Warr, 1996, 2002).

Fourth, the sample consisted of boys who were first-time offenders and who were arrested for moderately severe crimes. Thus, the generalizability of our findings to girls and other samples of juvenile offenders needs to be tested in future research. Although our sample was limited to those adolescents with one official charge for a crime of moderate severity, we conducted exploratory analyses using self-report of any act of severe violence to determine whether the findings would be moderated by a self-reported history of violence. Logistic regression analyses revealed only one significant interaction between CU traits and severe violence. This interaction was found when using lifetime leadership in group crimes as the outcome ( $\beta = .450, p = .040$ ). CU traits did not appear to influence the probability of being a leader for those without a history of severe violence ( $\beta = .158, p = .221$ ) but was significantly associated with being a leader in group crimes for those with a history of severe violence ( $\beta = .608, p < .001$ ). For the other outcomes, there was no significant interaction and the correlations with CU traits were very similar for those with ( $n = 367$ ) and without ( $n = 848$ ) a history of severe violence. For example, CU traits were significantly correlated with gang membership for those with,  $r = .147, p = .005$  and without,  $r = .125, p < .001$  a history of severe violence.

**Conclusions**

Within the context of these limitations, our findings suggest that CU traits may be important for understanding offenses committed by adolescents in groups, albeit not in the way that early theories suggested (Quay, 1964, 1993). Although a large proportion of adolescent offending is committed with others, this seems to be even more likely for those adolescents with higher levels of CU

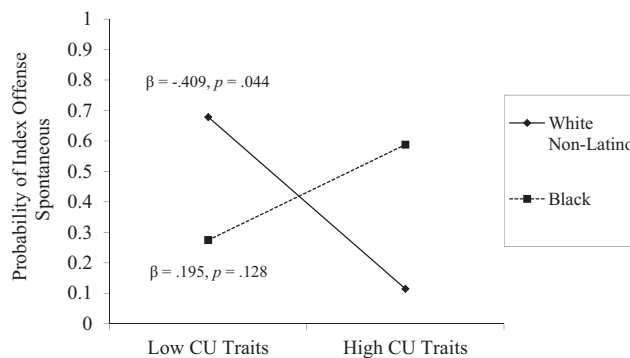


Figure 4. Interaction between CU traits and race/ethnicity (White non-Latino and Black) predicting the probability of endorsing that the index offense spontaneously occurred.



traits. CU traits were also positively associated with taking a leadership role in offenses, which would be consistent with other work that did not rely on self-report but also found that adolescents with higher levels of CU traits had more influence on their peers' delinquency than did adolescents with lower levels of these traits (Kerr et al., 2012). Future research into the group processes involved in adolescent offending should consider the role that persons with high levels of CU traits play in this process. Further, our findings that CU traits are related to gang membership and taking a leadership role in group offending highlight the importance of improving treatment for adolescents with CU traits, and the promise that such interventions might hold for reducing juvenile crime more generally. In the past, persons with CU traits have been considered to be resistant to treatments, but recent work suggests that adolescents with elevated CU traits do respond to intensive multicomponent treatments that are tailored to their unique emotional, cognitive, and motivation styles (Butler, Baruch, Hickey, & Fonagy, 2011; Caldwell, Skeem, Salekin, & Van Rybroek, 2006; White, Frick, Lawing, & Bauer, 2013). Fortunately, greater focus on treatment is likely to be encouraged by the recent inclusion of CU traits in the diagnostic criteria for Conduct Disorder published in the most recent edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5; American Psychiatric Association, 2013). Our research suggests that further development and testing of effective treatments for adolescents with CU traits, especially those in the juvenile justice system, would both benefit both the adolescents and their communities.

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