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Perceptions of aggressive conflicts and others' distress in children with callous-unemotional traits: 'I'll show you who's boss, even if you suffer and I get in trouble'

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Abstract

Background—Children with callous-unemotional (CU) traits may have a particularly malevolent view of social conflicts and a pervasive insensitivity to others' distress. The current study examined whether children with CU traits have unique expectations and values regarding the consequences of aggressive conflicts and a ubiquitous lack of concern for others' feelings independent of co-occurring aggression.

Methods—Participants were 96 (46 males, 50 females) children recruited from elementary schools within an urban city. Associations between CU traits and child reports of outcome expectancies/values following aggressive conflicts and facets of empathy were examined after controlling for aggression, academic abilities, and demographic covariates.

Results—Children with higher CU traits were less likely to expect that aggression would result in victim suffering and feelings of remorse. After controlling for co-occurring aggression, children with higher CU traits were more likely to expect that aggression would result in peer dominance, while children with higher levels of aggression were more likely to expect that attacking others would reduce their aversive behavior. Children with higher CU traits were less concerned that aggressive behavior would result in punishment, victim suffering, and feelings of remorse. Moreover, children with higher CU traits reported lower levels of empathetic concern and sadness in response to others' distress outside of aggressive conflicts.

Conclusions—Children with CU traits tend to minimize the extent to which aggression causes victim suffering and openly acknowledge caring less about distress and suffering in others. They are less intimidated by the possibility of being punished for aggressive behavior and tend to view aggression as an effective means for dominating others. In sum, children with CU traits have a particularly malicious social schema that may be difficult to change using conventional treatment methods.

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Supporting information

Additional Supporting Information may be found in the online version of this article:

Table S1 Callous-unemotional traits and types of aggression as predictors of outcome expectations, outcome values, and empathy

Table S2 Correlations between the narcissism scale of the Antisocial Processes Screening Device and the primary study outcomes

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Keywords

Callous-unemotional; psychopathy; cognition; aggression; empathy

Introduction

Callous-unemotional (CU) traits refer to a set of characteristics that include a lack of empathy, deficient guilt and remorse, and shallow affect (Frick, Bodin, & Barry, 2000). Evidence indicates that youth with elevated CU traits tend to exhibit severe forms of violent behavior that may have unique etiological origins (Barry et al., 2000; Pardini, 2006). For example, adolescents with CU traits are confident that aggression will result in positive outcomes and are less likely to expect that aggression will lead to negative outcomes (Pardini, Lochman, & Frick, 2003). Children and adolescents with CU traits also appear to place more value on the positive consequences of aggression and care relatively little about the negative ramifications of their actions (Jones, Happe, Gilbert, Burnett, & Viding, 2010; Pardini et al., 2003). However, studies have not sufficiently examined whether these social cognitive processing patterns can be accounted for by co-occurring aggressive behavior in children with CU traits. Moreover, it remains unclear whether children with CU traits tend to underestimate the likelihood that their aggressive behavior will result in victim suffering as opposed to simply not caring when it does. Furthermore, no studies have comprehensively examined whether children with high levels of CU traits openly acknowledge having little empathetic concern for others' sadness and distress outside of aggressive conflicts.

Outcome expectations and aggression

Social information processing models posit that aggressive behavior is driven in part by dysfunctions in the cognitive processes that occur when children are engaged in social interactions (Crick & Dodge, 1994). Cognitions that promote aggression are believed to occur at various stages of social information processing, from the initial encoding of social cues to the evaluation of possible response options. In terms of later stage processing, it is postulated that children are more likely to behave aggressively if they believe attacking others will result in more positive than negative outcomes (Crick & Dodge, 1994). While some studies have shown that aggressive children are more confident that aggressive behavior will result in instrumental rewards (Perry, Perry, & Rasmussen, 1986; Smithmyer, Hubbard, & Simons, 2000) and reduced aversive behavior by their peers (Dodge, Lochman, Harnish, Bates, & Pettit, 1997; Perry et al., 1986), non-significant associations have been reported (Lochman & Dodge, 1994). These mixed findings may be due to the heterogeneous nature of aggressive behavior in youth, and CU traits may help to further delineate youth with unique expectations about the consequences of aggression. For example, incarcerated adolescents with CU traits are more likely to anticipate that aggression will result in tangible rewards and peer dominance and less likely to expect that aggression will result in punishment (Pardini et al., 2003). However, some evidence suggests that children with CU traits may attempt to portray themselves in a positive light by endorsing feelings of guilt after ridiculing others and breaking rules (Jones et al., 2010).

A particularly important issue regarding outcomes expectations is whether individuals with CU traits underestimate the possibility that aggressive behavior will result in victim suffering. Evidence suggests that adult offenders with psychopathic features (which include CU traits) may be less likely to expect that insulting comments will hurt others' feelings relative to controls (Dolan & Fullam, 2004). Several studies have also found that children and adolescents with CU traits have difficulties recognizing distress cues in others (Marsh & Blair, 2008(). However, children with CU traits do not seem to have difficulties appraising

the cognitive and emotional states of others (Jones et al., 2010; Woodworth & Waschbusch, 2008), and incarcerated adolescents with CU traits do not seem to have difficulties anticipating that aggression will result in victim suffering (Pardini, 2011).

Outcome values and aggression

The value that children place on the potential outcomes of attacking others has also been implicated in persistent aggression (Crick & Dodge, 1994). Outcome values are a component of late stage social information processing that focuses on how much an individual cares about different outcomes of aggression independent of the perceived likelihood of their occurrence. Studies have found that aggressive children are more concerned about dominating others and less concerned with being punished, victim suffering, and feeling remorseful following aggressive acts (Boldizar, Perry, & Perry, 1989; Hall, Herzberger, & Skowronski, 1998). Similarly, adjudicated adolescents with elevated CU traits seem more concerned about obtaining rewards and dominating others and less concerned about punishment, victim suffering, and feeling remorseful during aggressive conflicts (Pardini, 2011; Pardini et al., 2003). Children with high levels of CU traits and conduct problems also report caring more about dominance and less about punishment, victim suffering, and feeling remorseful when attacking others relative to normal controls (Jones et al., 2010). However, children with CU traits and conduct problems may not differ from those with conduct problems alone on outcome values following aggression (Jones et al., 2010).

Overarching concern for others

Children with CU traits are believed to lack emotional concern for others who are sad or distressed even when not engaged in aggressive conflicts. If this is true, children with CU traits should lack congruent emotional experiences with others (e.g., feeling sad when others are sad) and perspective-taking (e.g., trying to understand what others are thinking/ feeling). Interestingly, the relatively few studies that have examined this issue have produced conflicting results. Pardini et al. (2003) found that incarcerated adolescents who rate themselves high on CU traits also tend to report lower levels of cognitive and emotional empathy. However, some evidence suggests that children with high CU traits and conduct problems do not differ from children with conduct problems alone in terms of self-reported affective empathy (Anastassiou-Hadjicharalambous & Warden, 2008). Studies examining the association between aggression and child-reports of affective and cognitive empathy have also produced mixed results (Jolliffe & Farrington, 2004). In sum, it remains unclear whether children with CU traits and/or aggression acknowledge experiencing low levels of affective and cognitive empathy outside of aggressive conflicts.

Current study

This study is designed to address several limitations in the existing literature. This will be the first study to simultaneously examine whether children with CU traits have expectancies and values that emphasize positive outcomes (e.g., tangible rewards) and minimize negative outcomes (e.g., punishment) of aggression. This study will also build on prior research by examining whether children with CU traits endorse lower levels of affective and cognitive empathy outside of aggressive conflicts. We will also examine whether these findings are consistent across genders. This is important because aggressive girls have shown some unique social cognitive processing patterns relative to boys in previous studies, such as a hyper-focus on forced respect during interpersonal conflicts (Pardini, 2011). In addition, gender differences in the association between CU traits and social cognitive factors have not been sufficiently explored. Importantly, this study will also examine whether these associations are independent of the potential confounds of co-occurring aggressive behavior, academic abilities, and demographic covariates.

Methods

Participants

The sample consists of 96 children randomly selected from 4th and 5th graders enrolled in public elementary schools in an urban city. Prior to the beginning of the school year, a list of 739 home phone numbers for 4th and 5th grade students was obtained from school administrators for five elementary schools. Families were randomly selected from this roster and contacted to determine their willingness to participate. There were 141 families that were reached by phone. Families were instructed that the study focused on conscience development and would involve a 1.5–2 hr interview with the parent and child. Of these families, approximately two-thirds agreed to participate (N = 96, 65.3%). Reasons given for non-participation included a lack of time/ interest (n = 48) and concerns about privacy (n = 4).

Approximately half of the 96 children enrolled were male (47.9%), with a racial composition of 64.6% African-American, 33.3% Caucasian, and 2.1% Asian. This is roughly commensurate with the aggregate racial composition of the schools from which the sample was selected (i.e., 63.0% African-American, 34.8% Caucasian, 2.0% Asian). There was roughly an equal proportion of 4th (51%) and 5th (49%) grade students, with an average age of 10.31 [standard deviation (SD) = 0.72]. Most children were living with one (43.8%) or both (42.7%) biological parents. The parent-reported median family income before taxes was $40,000–$49,000 per year.

Procedures

Data collection included interviews with children and parents and questionnaires completed by the children's teacher. Informed written consent from the parent and assent from the child was obtained prior to each assessment in accordance with the University of Alabama Institutional Review Board. All of the interviews were conducted within the participants' homes. Parents and children were interviewed in separate rooms by different interviewers to ensure privacy.

Measures

Demographic information—Parents completed a demographic questionnaire to collect information on the child's race and age. They also provided information on the male and female caregivers in the home. Yearly income before taxes was measured on a 13-point Likert scale (0 = ‘earns no income' to 12 = ‘earns $100,000 or more’).

Academic achievement—The Child Symptom Inventory – 4: Teacher Checklist (Gadow & Sprafkin, 1994) was used to measure the child's academic achievement. Teachers rated the child's performance in reading, writing, and arithmetic using a 5-point Likert scale (1 = ‘2 or more years below grade level’ to 5 = ‘2 or more years above grade level’). Items were summed to form a total academic achievement score. Prior studies have found that teacher-report of academic achievement is strongly correlated with children's performance on standardized achievement tests (Hoge & Coladarci, 1989). This scale was used as a control variable because children with low cognitive abilities may have difficulties understanding others' emotions and anticipating the impact that their behavior has on others.

Callous-unemotional traits—Parent and teacher versions of the Antisocial Processes Screening Device (APSD) were used to assess CU traits (Frick & Hare, 2001). Both the parent and teacher scales consist of six identical items assessing facets of guilt, empathy, and shallow emotions that are rated on a 3-point scale from 0 (‘not at all true’) to 2 (‘very true’). Some items are reverse scored so that higher values represent increased CU traits.

The CU dimension of the APSD has been shown to identify a subgroup of children with severe antisocial behavior that may have unique etiological origins (Barry et al., 2000; Frick et al., 2000; Pardini, Lochman, & Powell, 2007). Consistent with prior studies (Frick et al., 2000; Pardini et al., 2007), information across the informants was combined at the item level by taking the higher of the two ratings. This method incorporates information across multiple settings while avoiding underreporting by a specific informant and produces results similar to alternative methods for combining multiple informant information (Piacentini, Cohen, & Cohen, 1992). Cronbach's alpha for the CU scale was .83.

Aggression—Parent and teacher versions of the Behavior Assessment System for Children (BASC) were used to assess the child's aggressive behavior (Reynolds & Kamphaus, 1992). The scale assesses the child's tendency to engage in both verbal and physical aggression (e.g., threatening, bullying, hitting others) on a 4-point scale (1 = 'never' to 4 = 'almost always'). It has shown evidence of reliability and construct validity within community and clinic-based samples (Gladman & Lancaster, 2003). Similar to the CU scale, 10 common items from the parent- and teacher-reported aggression scales were combined by taking the higher of the two informants' ratings. These combined items along with three unique parent items and four unique teacher items were then summed to create a total aggression score. Cronbach's alpha for the aggression scale was .90.

Outcome expectations—The Outcome Expectations Questionnaire (OEQ; Pardini et al., 2003) was used to measure the child's expectations that verbal (e.g., threatening) and physical (i.e., hitting) aggression against a same-sex peer would result in various outcomes. The OEQ consists of eight brief vignettes describing aggressive conflicts between children. In half the vignettes, participants imagined using aggression to obtain a tangible reward from a peer (e.g., pushing a peer down to get a basketball), and the other half involved retaliating against aversive actions from a hostile peer (e.g., kicking a peer after being tripped). The vignettes were modified from the original adolescent version of the measure to depict more developmentally appropriate situations (Marsee & Frick, 2007). After hearing each vignette, children rated the likelihood that various outcomes would occur on a 4-point Likert scale (1 = 'very sure it would not occur' to 4 = 'very sure it would occur'). In vignettes involving tangible rewards, children rated the likelihood that they would get the desired object. In vignettes involving retaliation against aversive peer treatment, children rated the likelihood that they would get the peer to stop his/her aversive behavior. For all vignettes, children rated the likelihood that they would be punished for their actions, make the peer suffer, feel remorseful about their actions, and gain a sense of dominance over the peer. Items on the scales were summed, with higher scores indicating increased expectations that a particular outcome would occur. Similar outcome expectation measures have shown evidence of construct validity in child and adolescent samples (Hall et al., 1998; Pardini et al., 2003). Cronbach's alpha for the OEQ subscales were: tangible rewards (α = .65), reduction of aversive treatment (α = .59), punishment concern (α = .77), remorse (α = .90), victim suffering (α = .83), and dominance (α = .91).

Outcome values—The Outcome Values Questionnaire (OVQ; Pardini et al., 2003) was used to assess the values that children place on various outcomes of aggression against a same-sex peer. Identical to the OEQ, the OVQ consists of eight brief vignettes describing the use of aggression to obtain tangible rewards and retaliate against aversive peer actions. The vignettes were modified from the original adolescent version of the measure to depict more developmentally appropriate situations (Jones et al., 2010). After each vignette, children rated how much they would care if various outcomes occurred using a 4-point Likert scale (1 = 'not care at all' to 4 = 'really care a lot'). The outcomes rated were identical to those assessed in the OEQ. Similar outcome values measures have shown

evidence of construct validity and reliability in child and adolescent samples (Hall et al., 1998; Jones et al., 2010; Pardini et al., 2003). Cronbach's alpha for the OVQ subscales were: tangible rewards (α = .63), reduction of aversive treatment (α = .71), punishment (α = .88), personal distress (α = .90), victim suffering (α = .90), and dominance (α = .91).

Empathetic concern and perspective-taking—The Interpersonal Reactivity Index – Child Version (IRI-CV; Litvack-Miller, McDougall, & Romney, 1997) was used to assess emotional and cognitive aspects of empathy. The IRI-CV is a modified version of the widely used adult IRI (Davis, 1983) that is more developmentally appropriate and easier for children to understand. The current study used the 7-item empathetic concern (e.g., 'It is easy for me to feel sorry for other people') and perspective-taking (e.g., 'I try to understand my friends better by imaging what things are like for them') scales. Children rated how true each statement is for them using a 5-point scale (1 = 'very false' to 5 = 'very true'). Two reverse-scored items from the perspective-taking scale were eliminated due to poor item-total correlations. The remaining items were summed to create total scores. Cronbach's alpha for empathetic concern and perspective-taking subscales were .68 and .64, respectively. This measure has been shown to predict prosocial behavior in elementary school children (Litvack-Miller et al., 1997).

Empathetic sadness—Items from the Index of Empathy for Children and Adolescents (IECA; Bryant, 1982) were used to assess empathic sadness. The IECA is a widely used 22-item empathy questionnaire that has children rate how true a series of statements are about them using a 4-point scale (from 1 = 'very false' to 4 = 'very true'). A factor analysis with 1,978 children suggests that there are 7 items on the IECA that reliably assess sad reactions to others' distress (e.g., 'Seeing a boy who is crying makes me feel like crying'). Evidence has supported the sad reactions factor in other child samples (Lasa Aristu, Holgado Tello, Carrasco Ortiz, & del Barrio Gándara, 2008). The empathetic sadness scale differs from the empathetic concern scale on the IRI-CV because it focuses specifically on congruent feelings of sadness with others. Items were summed so that higher scores indicated greater empathetic sadness. Cronbach's alpha for the empathetic sadness scale was .78.

Results

Correlations between the CU traits and aggression scales and all other study variables are presented in Table 1. As expected, CU traits and aggression were moderately correlated. In terms of demographic differences, males exhibited significantly higher levels of aggression than females, and African-American children had higher levels of CU traits than the other racial groups. Both CU traits and aggression were associated with lower levels of academic achievement and lower family income.

Bivariate analyses indicated that children with higher levels of CU traits were less likely to expect that aggressive behavior would result in victim suffering and feelings of remorse. Children with higher CU traits also reported less concern about being punished, victim suffering, and feeling remorseful following the use of aggression. In contrast, CU traits were associated with a greater concern about exerting dominance over others using aggression. Children with higher CU traits also reported lower levels of empathetic concern and empathetic sadness for others. In contrast, children with higher levels of aggression reported significantly greater expectations that aggressive behavior would result in reductions in aversive behaviors from peers. Similar to findings with CU traits, higher levels of aggressive behaviors were related to lower expectations that aggression would result in victim suffering.

Tables 2 and 3 present regression analyses examining the associations between CU traits and aggression and the primary outcome variables after controlling for the overlap between the constructs and potential confounds (i.e., gender, race, age, family income, academic achievement). The significant associations found in the correlation analyses remained largely unchanged in these regression models with a few notable exceptions. While CU traits no longer significantly predicted outcome values involving dominance, higher CU traits were associated with increased expectations for dominance over others. Conversely, higher aggression was associated with reduced outcome expectations and values involving exerting dominance over others, although the latter finding was only marginally significant ($p = .06$). There was also a marginally significant positive association between increased aggression and child-reported perspective-taking ($p = .07$).

Physical versus non-physical aggression

Regression models were re-run to determine whether the findings would change when items explicitly assessing physical aggression (e.g., cruel to animals, hitting) were separated from non-physical aggression (e.g., threatening, teasing). All previously reported findings for CU traits remained significant in these analyses (see Table S1). Non-physical aggression, but not physical aggression, was significantly associated with decreased outcome values and expectancies for dominance and increased perspective-taking. There was also a marginally significant positive association between non-physical aggression and expectations for reduction of aversive treatment. Physical aggression was significantly associated with increased expectations for victim suffering and a marginally significant negative association was found with empathetic concern.

Associations with narcissism

We also examined the association between the narcissism subscale of the APSD (Frick & Hare, 2001) and the social cognitive and empathy measures used in the current study to examine whether there were common correlates with CU traits. The only significant finding indicated that narcissism was significantly correlated with increased expectations for reduction of aversive treatment (see Table S2). In sum, there was no evidence that CU traits and narcissism were significantly correlated with the same social cognitive and empathy variables.

Gender differences

Interactions between gender and both CU traits and aggression in predicting all outcomes were tested to examine whether the findings differed between boys and girls. There was little evidence that the results varied by gender, with only one interaction reaching significance: gender X CU traits predicting expectations for victim suffering ($\beta = .80$, $p < .05$). While there was a non-significant association between CU traits and expectations for victim suffering for girls ($\beta = -.16$, $p = .59$), CU traits were significantly associated with decreased expectations for victim suffering in boys ($\beta = -.61$, $p < .01$).

Aggression by CU interaction

To examine whether the association between CU traits and the study variables examined was more or less pronounced in highly aggressive children, the analyses were re-run to include an interaction between CU traits and aggression. None of the interaction terms were statistically significant ($p > .18$).

Discussion

The findings supported the notion that children with higher CU traits have a unique and particularly deviant social schema that is not common to all aggressive children. Children with higher CU traits were more likely to view aggression as an effective means for dominating others and minimized the potential for aggression to cause others to suffer. Children with elevated CU traits were also less concerned about being punished for aggressive acts and cared relatively little about feelings of remorse and victim suffering. This lack of concern for others extended beyond aggressive conflicts, as children with CU traits also reported less empathetic concern and sadness on global empathy measures. In contrast, children with higher levels of aggression were more likely to endorse aggression as an effective means for reducing peers' aversive behaviors. After controlling for co-occurring CU traits, aggressive children were also less confident that they could dominate others using aggression. These findings remained after controlling for the potential con-founds of age, race, gender, family income, and academic abilities.

The current findings suggest that children high on CU traits may openly acknowledge their lack of guilt and callous disregard for the feelings of others. Children with CU traits reported experiencing relatively little concern about victim suffering, reduced expectations for remorse following aggressive acts, and low levels of sadness and concern in response to others' distress more generally. The association between CU traits and child-reported empathy/ remorse could not be accounted for by co-occurring aggressive behavior, expanding on previous studies in the area (Jones et al., 2010). In fact, non-significant correlations were found between aggressive behavior and child-reported empathy and remorse. Evidence also indicated that the correlations between parent-/teacher-reported CU traits and child-reported measures of empathy/remorse are similar in magnitude to cross-informant correlations found for other forms of psychopathology (Achenbach, 2006; Youngstrom, Loeber, & Stouthamer-Loeber, 2000). In sum, children who are rated by others as high on CU traits tend to acknowledge a relative lack of guilt and empathy in interpersonal relationships and do not seem to be overly concerned about portraying themselves in a positive light.

There has been some suggestion that incarcerated adolescents with CU traits may not have problems recognizing that aggressive behavior could result in victim suffering (Pardini et al., 2003). In contrast, the current study found that children with CU traits are less likely to expect that aggressive actions will result in victim suffering, although they are not more likely to report difficulties with perspective-taking. Consistent with this finding, children with CU traits are less likely to attend to and encode cues of suffering in others (Marsh & Blair, 2008), but these children do not seem to have problems with theory of mind tasks that involve accurately interpreting the intentions or cognitions of others (Jones et al., 2010). This suggests that children with CU traits may be capable of accurately evaluating the cognitions of others, but have difficulties anticipating distress and suffering in others. However, prior studies have found some evidence indicating that children with CU traits may become more adept at anticipating the likelihood of victim suffering across development (Dadds et al., 2009; Pardini et al., 2003). In addition, the current findings also indicate that girls with elevated CU traits do not have lowered expectations for victim suffering following aggression. Other studies have found that girls tend to be more astute at recognizing suffering in others com-pared to boys (Hall & Carter, 2000). It seems that this gender difference may be particularly pronounced in children with high CU traits.

Children with elevated CU traits seemed to be aware that their aggressive behavior could result in punishment, but they are less concerned about actually being punished. While low punishment concern has been linked to CU traits in previous studies with children and

adolescents (Jones et al., 2010; Pardini et al., 2003), this is the first study to demonstrate that this association cannot be accounted for by co-occurring aggressive behavior. This finding is also consistent with developmental models indicating that youth with lower levels of temperamental fear are less likely to experience significant distress when reprimanded for misbehavior, impeding their ability to develop an internalized sense of empathy and guilt (Fowles & Kochanska, 2000; Pardini, 2006). Instead, children with a relatively fearless temperament may require a warm and involved relationship with their primary caregiver in order to sufficiently develop moral emotions (Kochanska, 1997; Pardini et al., 2007).

Children's perception of the potential benefits of aggression seemed to differ based on their levels of aggressive behavior and CU traits. Aggressive children were more likely to believe that attacking others was an effective means for reducing their aversive behavior. After controlling for the co-occurrence between CU traits and aggression, children with high CU traits were more likely to expect that aggression would help them dominate others, while children with elevated aggression were less confident in their ability to exert dominance over others. It is possible that aggressive children without CU traits are more likely to attack others to defend against repeated victimization and ridicule by other children (Kochenderfer & Ladd, 1997). In contrast, children with CU traits may be more inclined to use aggression to establish dominance over others (Jones et al., 2010;Marsee & Frick, 2007; Pardini et al., 2003) which is consistent with findings linking CU traits to bullying behavior in youth (Viding, Simmonds, Petrides, & Frederickson, 2009).

Limitations

The findings from the current study need to be considered in the context of several limitations. First, the cross-sectional nature of the data makes it impossible to fully test models regarding the temporal ordering of CU traits, aggression, and the social cognitive variables measured. Some of the subscales used in this study also had relatively low internal consistencies due in part to the inclusion of relatively few items, thus the magnitude of some correlations should be viewed as conservative estimates. These findings are also based on a normative sample of elementary school children and the results may not generalize to adolescents or children exhibiting more severe antisocial behavior. However, the findings reported here largely replicate those found in incarcerated adolescents (Pardini et al., 2003) and children with elevated conduct problems (Jones et al., 2010). It is also important to note that the current study examined the association between CU traits and social cognitive outcomes after controlling for co-occurring aggressive behavior, whereas previous studies in the area have focused on a wider array of conduct problems (Jones et al., 2010; Pardini et al., 2003). This study also focused primarily on examining the link between CU traits and late stage social information processing (i.e., outcome values and expectancies). This was done because youth with CU traits do not seem to have substantive impairments in the earlier stages of social information processing (Frick et al., 2003;Waschbusch, Walsh, Andrade, King, & Carrey, 2007). Lastly, the sample size in the current study led to reduced power to detect small effects, although the number of subjects included is equivalent to or larger than several prior studies in the area (Anastassiou-Hadjicharalambous & Warden, 2008; Jones et al., 2010; Waschbusch et al., 2007).

Summary and implications

These findings provide insights into issues that may be important for designing effectiveness treatments for children with CU traits. Children with CU traits (particularly boys) seem to have particular difficulties estimating the likelihood that their aggressive behavior will cause victim suffering. This problem may be partially alleviated by teaching children with CU traits to make eye contact with others during interpersonal interactions (Dadds et al., 2006). However, interventions must also address the fact that children with CU traits seem to care

relatively little about victim suffering when it does occur. Along these lines, fostering a warm and involved parent-child relationship may help to facilitate the development of emotional empathy for others over time (Kochanska, 1997; Pardini et al., 2007). In terms of discipline, focusing primarily on punishing children with CU traits for committing aggressive acts may prove ineffective given that they report less concern about getting into trouble for attacking others. Instead, it may be more useful to focus on rewarding children with CU traits for engaging in prosocial problem-solving during social conflicts with their peers. It also seems important for interventions with children exhibiting CU traits to address the tendency for these youth to view aggression as an effective means for dominating others. In contrast, children who exhibit aggressive behavior in the absence of CU traits may use aggression to defend against attacks from others. It will be important for future studies to examine whether early interventions can produce meaningful changes in the maladaptive social cognitions of children with CU traits as a way to facilitate sustained improvements in behavior.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Key points

- Callous-unemotional (CU) traits may be useful for identifying children who have a particularly deviant view of social conflicts and a pervasive insensitivity to others' distress.
- Children with higher CU traits are more likely to expect that aggression will result in dominance over others and care less about being punished for aggressive acts.
- Children with higher CU traits report lower concern for victim suffering in aggressive conflicts and report lower levels of empathetic concern and sadness for others more generally.
- The deviant social cognitions of children with CU traits cannot be accounted for by co-occurring aggressive behavior.

Table 1

Descriptive statistics and correlations between callous-unemotional (CU) traits and aggression and other study variables

	CU traits	Aggression	*M*/%	*SD*/*N*
CU traits			5.05	2.77
Aggression	.46**		29.99	7.97
Control variables				
Age	.16	.10	10.31	.72
Male	.16	.32**	47.9%	46
African-American	.31**	.11	64.6%	62
Family income	−.44**	−.24*	6.86	3.68
Academic achievement	−.54**	−.24*	8.57	2.82
Outcome expectations				
Tangible rewards	.09	.05	8.91	2.78
Reduction of aversive Tx	.13	.29**	9.83	2.65
Punishment	−.13	−.01	26.92	3.88
Remorse	−.36**	−.23*	23.59	5.75
Victim suffering	−.29**	−.04	24.96	4.32
Dominance	.16	−.09	16.48	5.91
Outcome values				
Tangible rewards	.10	.00	10.48	3.16
Reduction of aversive Tx	.01	.05	12.35	3.14
Punishment	−.25*	−.04	28.21	5.04
Remorse	−.30**	−.08	25.04	5.93
Victim suffering	−.28**	−.04	22.96	6.77
Dominance	.20*	−.01	14.74	6.61
Emotional/cognitive empathy				
Empathetic sadness	−.32**	−.18	20.14	4.50
Empathetic concern	−.30**	.01	39.27	5.65
Perspective-taking	−.08	.17	27.01	4.00

* $p < .05$;

** $p < .01$.

Table 2

Callous-unemotional traits and aggression as predictors of outcome expectations and outcome values following hypothetical acts of aggression

	Predictors					
	Callous-unemotional (CU) traits			Aggression		
	b	*SE*	*β*	*b*	*SE*	*β*
Outcome expectations						
Tangible rewards	.03	.13	.03	–.01	.04	–.02
Reduction of aversive Tx	–.05	.13	–.05	.09	.04	.27*
Punishment	–.20	.19	–.14	.06	.06	.12
Victim suffering	–.63	.20	–.41**	.10	.06	.19
Remorse	–.68	.26	–.33**	.00	.08	.00
Dominance/control	.58	.27	.27*	–.22	.09	–.29*
Outcome values						
Tangible rewards	.10	.16	.09	–.03	.05	–.07
Reduction of aversive Tx	–.06	.15	–.05	–.01	.05	–.02
Punishment	–.50	.24	–.27*	.10	.07	.15
Victim suffering	–.75	.32	–.31*	.12	.10	.14
Remorse	–.69	.28	–.32*	.10	.09	.13
Dominance/control	.25	.31	.10	–.18	.09	–.22†

Effects are after controlling for age, gender, minority status, family income, and academic achievement.

† $p = .06$;

* $p < .05$;

** $p < .01$.

Table 3

Regression using callous-unemotional (CU) traits and aggression to predict child-reported emotional and cognitive empathy

	Predictors					
	CU Traits			Aggression		
	b	*SE*	*β*	*b*	*SE*	*β*
Overall empathy measures						
Empathetic sadness	–.74	.21	–.46**	.02	.06	.03
Empathic concern	–.64	.27	–.32*	.14	.08	.19
Perspective-taking	–.31	.20	–.22	.11	.06	.22†

Effects depicted are after controlling for age, gender, minority status, family income, and academic achievement.

† $p = .07$;

* $p < .05$;

** $p < .01$.