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# Understanding the Social Relationships of Youth with Callous-Unemotional Traits Using Peer Nominations

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**ABSTRACT**

**Objective:** The current study investigated the social and interpersonal correlates of callous-unemotional (CU) traits using peer nominations.

**Method:** Participants ($N$ = 289) were children in Grades 3, 6, and 8 ($M_{age}$ = 11.47 years, 40.1% male, 64.7% self-identified racial/ethnic minority) from two public school systems in the southern United States. Participants were asked to identify peers they believed fit a number of different characteristics hypothesized to be related to CU traits, in addition to individuals they "liked most" and "liked least." We also obtained self- and teacher ratings of CU traits and parent and teacher ratings of conduct problems (CP).

**Results:** Factor analyses extracted three dimensions from peer nominations developed from past research describing social characteristics related to CU traits—being mean and aloof (Mean/Cold), untrustworthy and not nice (Not Nice), and dominant and manipulative (Desire for Dominance). Results indicated that CU traits were significantly associated with fewer "liked most" and greater "liked least" nominations, but not after controlling for CP. In contrast, both CP and CU traits were significantly independently associated with Mean/Cold nominations, and only CU traits were associated with Not Nice nominations when controlling for CP.

**Conclusions:** The findings from the current study suggest that CU traits are largely associated with traditional indices of peer rejection because of their level of CP. However, they contribute independently to perceptions of being mean, aloof, and untrustworthy. Thus, interventions focused on strengthening the social skills of children with elevated CU traits should consider ways to change these negative peer perceptions.

Youth who exhibit conduct problems (CP) are at considerable risk for maladjustment in a wide variety of areas, including demonstrating difficulties in their peer relationships (Coie & Dodge, 1998; Dodge & Price, 1994; Huesmann, 1998; Loeber et al., 2000). More specifically, research has consistently shown that children with CP are rejected by their peers, in that they have few friends and are rated as being highly "disliked" by their peers (Dodge et al., 1990; Price & Dodge, 1989). Although the extant literature suggests there are some differences in the peer relationships of boys and girls (see Poulin & Chan, 2010, for a review), research has also shown that the association between peer rejection and CP is not moderated by gender (Van Lier et al., 2005; Zimmer-Gembeck et al., 2005). That is, girls who exhibit CP are just as likely to be rejected by their peers as boys who exhibit CP. This robust finding of the relationship between CP and peer rejection has led to a great deal of subsequent research attempting to determine potential reasons for this rejection, with many findings supporting the role of problems regulating emotion (Poulin & Boivin, 2000; Waschbusch et al., 1998) and difficulties interpreting social cues (e.g., hostile attribution biases; Crick & Dodge, 1996; Dodge & Coie, 1987).

However, youth with CP are quite heterogeneous (Frick et al., 2014; Hinshaw et al., 1993; Moffitt et al., 2008), so it is likely that not all youth with CP have the same peer experiences. One distinct subgroup of youth with CP who may also experience problems in peer relationships are those with elevated callous-unemotional (CU) traits. CU traits are defined by lack of remorse or guilt, shallow or deficient affect, a callous lack of empathy, and a lack of caring about performance in important activities (Frick & Ray, 2015). Youth with elevated CU traits are an important subgroup of youth with CP because their behavior problems tend to be more severe, aggressive, and stable over time (Frick et al., 2014). The clinical significance of CU traits has led them to be included as a specifier to the diagnosis of conduct disorder (CD) in the fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM-5*; American Psychiatric Association, 2013) and as

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a specifier to the diagnoses of conduct-dissocial and oppositional defiant disorders (ODD) in the 11th edition of the International Classification of Disease (World Health Organization, 2018).

Extensive work on the biological, cognitive, and emotional correlates of CU traits has led to causal theories suggesting that the presence of elevated CU traits also designates a subgroup of children with CP who show distinct etiologies leading to their behavior problems (for a comprehensive review, see Frick et al., 2014). However, there has been minimal research studying the peer relationships of children with CU traits. In the few studies that have tested this association, CU traits have been found to predict peer rejection both concurrently and longitudinally, as measured by parent-, teacher-, and peer-reports (Barry et al., 2008; Graziano et al., 2016; Waller et al., 2017). It is important to note that these studies typically have not tested whether CU traits are associated with peer rejection independent of CP; thus, it is not clear if the sole reason that CU traits are associated with peer rejection is because of the severe CP they display.

### Peer Perceptions and CU Traits

Another important issue for advancing knowledge on the social relationships of children with elevated CU traits is to determine why these children may have problems in their peer relationships. Some of the primary reasons given for why children with CP are rejected (e.g., problems regulating their emotions, hostile attributional biases) involve characteristics that are not typically associated with CU traits (Frick et al., 2014; Frick & Morris, 2004). Further, unlike CP, CU traits have not been found to be negatively associated with the number of friends the child has, suggesting that children with elevated CU traits may be able to make friends, and they often have as many friends as children without CP (Muñoz et al., 2008), although these friends may also engage in CP (Kimonis et al., 2004). Thus, children with elevated CU traits seem to have the skills necessary to make friends, albeit deviant ones (Grieve & Mahar, 2010; Waschbusch et al., 2007). Taken together, although research is limited, the available evidence clearly suggests that the problems in peer relationships associated with CU traits may be different from those associated with CP. Further, several interpersonal correlates to CU traits could influence how they are perceived by peers.

First, their peers may view children with elevated CU traits as being "mean." That is, as just noted, CU traits are one critical component of the larger construct of psychopathy, and research on adults with psychopathy suggests that they are characterized by a number of traits defined as "meanness" (Patrick et al., 2009). Meanness is used to describe a host of attributes, such as a lack of close personal attachments, predatory exploitativeness, and empowerment through deliberate cruelty to others (Patrick et al., 2009). Self-report measures of meanness have been found to correlate with measures of CU traits in both adults and adolescents (Kyranides et al., 2017; Patrick & Drislane, 2015). Additionally, in a study of 86 preschoolers with externalizing behavior problems, children with elevated CU traits were more likely to be rated by peers as someone who "enjoys being mean" (Graziano et al., 2016).

Second, children with elevated CU traits may be perceived by their peers as being dominant, which could also contribute to problems in their peer relationships. For example, in a sample of 347 adolescents ages 12 to 18 years ($M_{age}$ = 14.63 years), children with CU traits were more likely to use proactive aggression to assert dominance by "hav[ing] fights with others to show who [is] on top" and using physical force to "get others to do what [they] want" or "obtain money or things from others" (Fanti et al., 2009). Further, it has also been shown that adolescents with elevated CU traits are more likely to endorse social goals associated with dominance and forced respect to resolve peer conflict (Pardini, 2011; Pardini & Byrd, 2012).

Third, children with elevated CU traits could be perceived as being manipulative by their peers. That is, youth high on CU traits appear to be highly influential on their peers' behavior (Kerr et al., 2012) and are more likely than other youth with CP to lead and instigate antisocial behavior in peer groups (Thornton et al., 2015). There is also evidence that overall psychopathy, and the CU component specifically, is associated with peer perceptions of being more charismatic, creative, charming, and easier to talk to than others (Babiak et al., 2010). Further, youth with CU traits tend to have greater verbal abilities (Loney et al., 1998) and greater flexibility in solving social problems (Waschbusch et al., 2007) when compared with other children with CP. Thus, all of these skills may help persons with elevated CU traits be more skilled and deliberate in their social interactions that are used to dominate others, leading them to be viewed as manipulative.

Finally, it is also possible that children with elevated CU traits are viewed by their peers as being aloof. As noted previously, adolescents with elevated CU traits seem to have the ability to make friends. However, in a community sample of seventh- and eighth-grade youth ($N$ = 667), Muñoz et al. (2008) reported that these friendships were rated as less stable and of shorter duration compared with those friendships of peers who were not elevated on CU traits. Haas et al. (2018), using a sample of 124 students in Grades 3–6, reported that CU traits were associated with ratings of less perceived intimacy in their exchanges with peers and lower overall

ratings of satisfaction in their peer relationships (Haas et al., 2018). Thus, although children with CU traits may be able to make friends, their friendships may be lower in intimacy and more transient, potentially leading them to being perceived as aloof by their peers.

### The Current Study

In summary, although research has suggested that CU traits are related to problems in social relationships, it has not been conclusively shown that this is independent of the CP that they are likely to display. Further, very little research has explored how children with CU traits are perceived by their peers, again controlling for any effects of CP. Thus, the present study tested several hypotheses to advance this work. First, we predicted that CU traits would be related to peer nominations indicating social rejection (i.e., Liked Most and Liked Least nominations), but we also tested the relatively novel prediction that these associations would be independent of CP. Second, we also tested the novel prediction that peer nominations of meanness, dominance, manipulativeness, and aloofness would be associated with CU traits, again independent of CP.

Important to note, research has shown that children's social networks become more stable in late elementary school through middle school (for a review, see Poulin & Chan, 2010). Thus, we chose to study how CU traits are related to peer perceptions across this critical developmental period. Further, we chose to study one group prior to the transition to middle school (i.e., students in the third grade), one group that was clearly past the difficult transition to middle school (i.e., eighth grade), and one group that was experiencing the transition to middle school (i.e., sixth grade), to ensure that findings were not influenced by changes in peer relationships specific to this important transition period (Kingery et al., 2011). Further, we conducted this test in a public school system in a rural area of the southern United States that serves ethnically diverse students.

## Methods

### Participants

Participants were 289 children and adolescents in the third ($n$ = 93, 32.2%; $n_{girls}$ = 51), sixth ($n$ = 69, 23.9%; $n_{girls}$ = 41), and eighth ($n$ = 127, 43.9%; $n_{girls}$ = 81) grades. Participants ranged from 8 to 15 years of age ($M$ = 11.47, $SD$ = 2.26), and 59.9% were girls. By primary custodial parental report, the sample primarily identified as Black, Afro-Caribbean, or African American (40.1%) and Non-Hispanic Caucasian (35.3%), with smaller portions identifying as biracial (12.1%), Latino or Hispanic American (4.5%), and other ethnic minorities (East Asian or Asian American, 2.4%; Middle Eastern or Arab American, 0.7%, Native American or Alaskan Native, 0.7%; Other, 0.7%). The remaining 3.5% of the sample did not report their race or ethnicity. The majority of parents were unmarried (56.7%), with 86.2% having less than a college degree, and with an average household income of about $30,000 USD. Participants were recruited from a school system in which enrollment was quite stable; thus, children were likely to know one another reasonably well from previous grades. Further, children in the same grade had several opportunities to interact with one another, including peers from different "home" classrooms, throughout the day (e.g., switching between classes, gym class, lunch, musical instrument lessons, school-based extracurricular activities), especially after the transition into middle school.

### Measures

#### Conduct Problems

The Disruptive Behavior Disorders Scale (DBD; Pelham et al., 1992) is a 45-item measure of symptoms consistent with the *DSM* (American Psychiatric Association, 2000) criteria for attention-deficit hyperactivity disorder, ODD, and CD diagnoses. Important to note, there was no change in the symptoms of these diagnoses from the fourth edition to the fifth edition of the *DSM*. Items were answered on a 4-point Likert scale from 1 (*not at all*) to 4 (*very much*). For the current study, only the items from the ODD and CD subscales were used in analyses. Ratings from the DBD have been significant correlated with *DSM-IV* diagnoses of ODD and CD based on structured interviews in samples of children ages 7–12 years (Waschbusch et al., 2007). Teacher ratings on both the ODD and CD subscales have also shown strong reliability in a school-aged sample (α = .95 and .75, respectively; Pelham et al., 1992). The DBD was completed by both parent and teacher. The internal consistency was α = .96 for teacher-report and α = .95 for parent-report in the current sample, and their reports were correlated at $r$ = .29 ($p$ < .001). We tested two ways for combining parent and teacher reports, including summing items across informants and taking the highest rating of each informant. These methods were very highly correlated ($r$ = .96, $p$ < .001), suggesting that they would provide comparable results. Thus, based on the recommendation of Piacentini et al. (1992), the method taking the highest rating on each item was used (α = .93). Using these resolved scores, 32 (11.07%) children were in the clinical range for ODD (i.e., more than four ODD symptoms rated as "pretty much" or "very

much") and 10 (3.46%) children were in the clinical range for CD (i.e., more than three symptoms rated as "pretty much" or "very much").

### CU Traits

The Inventory of Callous-Unemotional Traits (ICU; Kimonis et al., 2008) is a 24-item measure of callous, unemotional, and uncaring traits in youth. It was developed from the CU subscale of the Antisocial Process Screening Device (Frick & Hare, 2001) and includes items such as "Does not show emotions to others," "Shows no remorse when he/she does something wrong," and reverse-coded items such as "Is concerned about the feelings of others." Items were answered on a 4-point Likert scale from 0 (*not at all true*) to 3 (*definitely true*). Each of the three informant versions and a highest rating parent<en>teacher composite of the ICU have been found to be associated with antisocial behavior, conduct problems, and aggression in community samples of youth of the same age as the participants in this study (Essau et al., 2006; Roose et al., 2010). The ICU includes 12 positively and 12 negatively worded items, and all positively worded items were reverse-scored. For each participant, the ICU was completed by each youth and teacher, and the internal consistency was α = .76 for the youth-report ICU and α = .93 for teacher-report; the two informant reports were correlated at $r$ = .10 ($p$ < .001). Important to note, we also conducted analyses to ensure that the self-report ICU showed adequate reliability and validity across the different developmental levels included in the study. These analyses showed that the internal consistency for the self-report version of the ICU was acceptable across all three grades (i.e., third grade α = .72, sixth grade α = .72, eighth grade α = .80), and the correlation between the self-report ICU and parent/teacher report of CP was similar across grades (i.e., third grade $r$ = .31, sixth grade $r$ = .36, eighth grade $r$ = .30; all $p$s < .01). Similarly, teacher-report ICU also showed adequate reliability across grades (i.e., third grade α = .77, sixth grade α = .78, eighth grade α = .81) and was significantly correlated with parent-teacher rated CP in all grades (i.e., third grade $r$ = .70, sixth grade $r$ = .56, eighth grade $r$ = .27; all $p$s < .01), albeit much lower in eighth-grade students. It is important to interpret these latter correlations considering the shared method variance between teacher-report ICU and teacher<en>parent reported CP.

We also compared two different methods of combining scores from the ICU by summing items across informants and by taking the highest rating on each item. The correlation between these methods was very high ($r$ = .95, $p$ < .001). Thus, similar to how we combined the informants for CP, we used the highest rating on each item as recommended by Piacentini et al. (1992). After creating the resolved score, participants missing more than one third (i.e., at least nine) of the items were removed from the sample ($n$ = 1). For those with at least 16 items, any missing items were prorated using the mean score from the available items. This resolved ICU score showed high internal consistency (α = .87).

### Peer Nominations

Peer nomination items were developed for the purpose of this study to assess hypothesized social characteristics of youth with CU traits based on the extant literature (see above). Specifically, the nominations were developed to assess four dimensions: meanness, dominance, manipulativeness, and aloofness. Also, each dimension was assessed by three items with one item being worded in the positive direction. Thus, after determining how the items from self-report inventories described each dimension, we reworded items to create a peer nomination item. To illustrate, to assess meanness, we asked for nominations for "who is mean." Similarly, to assess trustworthiness we asked for nominations for "who can you trust." We also worded items to capture both negative and positive characteristics. For example, in addition to asking "who is mean," we asked "who is nice." We did adjust wording for some items to enhance the understanding of nominations for young children. That is, to assess dominance, we worded items as "Who likes to be the leader?" and "Who always has to get his or her way?" For manipulativeness, we worded items as "Who is good at getting what they want?" and "Who is good at getting others to do things?"

For all peer nominations, participants were allowed to nominate anyone within their grade at their school. For each item, participants were given unlimited nominations and instructed to write in the names of peers in their grade at their school whom they believed were described by each item on separate lines in the blank text box. Within-grade, rather than within-classroom, nominations were chosen for the current study, as children were likely familiar with students throughout their grade rather than just those in their classroom. Further, within-grade nominations have been shown to lead to more reliable nominations (Marks et al., 2013). Participants were also allowed to nominate themselves, but these nominations were omitted from analyses. In all grades, only the nominations of participating children were coded and used for analyses. For each item, the numbers of nominations received were summed, then standardized using the proportion score method in which the number of nominations received was divided

by the number of nominators in that grade and school (Cillessen, 2009), with positively worded items being reverse-scored following standardization.

An exploratory principle factor analysis with oblique rotation was conducted to examine the structure of the peer nominations. Initial inspection of the factor patterns indicated that the nomination "Who is usually a follower?" had low commonalities with all factors, and therefore it was dropped. Further, results indicated that three factors showed eigenvalues over 1, and these three factors accounted for 52.67% of the variance in the peer nomination scores. As shown in Table 1, the first factor accounted for 26.31% of the variance (eigenvalue = 3.36) and included five items: "Who is mean?" "Who doesn't care who they hurt?" "Who always has to get his or her own way?" "Who doesn't care about having friends?" and "Who is hard to get to know well?" This factor consisted of items developed to assess meanness and aloofness and was named Mean/Cold (α = .78). The second factor accounted for an additional 21.52% of the variance (eigenvalue = 2.72) and included the three remaining reverse-scored items: "Who is nice?" "Who can you trust?" and "Who is easy to make friends with?" These represent a pattern of someone who is potentially Not Nice (α = .86). The third factor explained an additional 4.85% variance (eigenvalue = 1.04) and included three items designed to assess dominance and manipulativeness: "Who likes to be the leader?" "Who is good at getting others to do things?" and "Who is good at getting what they want?" This was labeled Desire for Dominance (α = .68).

Peer rejection was assessed using standard sociometric nominations of "Who do you like the most?" and "Who do you like the least?" (Newcomb et al., 1993). These sociometric nominations were standardized in the same manner as the other peer nomination items.

### Procedure

After obtaining Institutional Review Board approval for the study, we obtained permission from the superintendents of the school systems and the principals of the individual schools, and then we approached teachers in the third, sixth, and eighth grades to participate in the study. Teachers sent a description of the study home with the children, along with parental consent forms and parent-report measures (i.e., DBD, demographics) to be completed by the child's primary custodial parent. For all participating children (i.e., those who returned parental consent), teachers were given the ICU and the DBD to complete, and the child was asked to assent to participation during a free class period during the school day. In the third and sixth grades, the reporting teacher was the child's homeroom teacher who saw the child for a short period in the morning and an additional two class periods (e.g., English/Language Arts, math). In the eighth grade, when children switched classes more often throughout the day, measures were completed by the child's social studies teacher, as every child in the grade was enrolled in this class. Children with both parental consent and child assent completed child-report measures and peer nominations in a group setting on school computers. Consistent with the ordering of measures used in previous work (e.g., Cillessen & Marks, 2017; Frederickson & Furnham, 2004; Salmivalli et al., 2000), children were first presented with the self-report ICU to complete, then peer nominations were presented in a randomized order (to allow for interspersing of positive and negative items), followed by the two sociometric items. Data collection was completed in January and February so that children had adequate time and experience with the peers they would be reporting. To encourage participation and compensate teachers for their time and effort, schools were given $10.00 USD per participating child to

**Table 1.** Factor loadings of peer nomination items.

| | Factor Loadings | | |
|---|---|---|---|
| Items | Factor 1: Mean/Cold | Factor 2: Not Nice | Factor 3: Desire for Dominance |
| Who doesn't care who they hurt? | **.85** | .16 | .35 |
| Who is mean? | **.82** | .17 | .43 |
| Who always has to get his or her way? | **.64** | .09 | .56 |
| Who is hard to get to know well? | **.51** | −.12 | .32 |
| Who doesn't care about having friends? | **.42** | .11 | .15 |
| Who is easy to make friends with? (R) | .01 | **.83** | −.37 |
| Who can you trust? (R) | .12 | **.83** | −.21 |
| Who is nice? (R) | .15 | **.80** | −.24 |
| Who is good at getting what they want? | .27 | −.24 | **.76** |
| Who is good at getting others to do things? | .35 | −.29 | **.68** |
| Who likes to be the leader? | .32 | −.25 | **.53** |

*Note*: The results are standardized factor loadings from an exploratory principle factor analysis with oblique (Promax) rotation. The loadings in bold were used to form the composites used in analyses. R = positively worded items that were reverse-scored prior to analysis.

purchase classroom supplies. Across all four schools, classroom participation rates ranged from 42% to 54% of eligible students participating, with 54.0% participating across the third grades, 42.67% in the sixth grades, and 48.0% in the eighth grade, with a weighted average (i.e., weighted by classroom size) participation rate of 49%.

### Statistical Analyses

Analyses were conducted using SPSS Statistics v24. Missing data in the current study were minimal. Participants were removed for one of two reasons: if they were missing a teacher-report and another informant (i.e., self or parent), as either CU traits or CP could not be calculated ($n = 5$), or if they left the school after parental consent was obtained and thus were no longer part of the nomination pool for their school and grade ($n = 7$). Removal of these participants resulted in the final analytic sample size of 289 children. First, bivariate correlations were tested (a) to determine if any demographic variables needed to be used as covariates in subsequent analyses and (b) to test the hypothesized associations between CU and CP and various peer nominations, before controlling for the shared variance in these variables. Second, hierarchical multiple regression analyses were used to test the independent associations of CU traits with the various peer nominations, after controlling for CP. In the first step, we entered CP and any demographic covariates. In the second step, we entered CU traits to determine if CU traits contributed to the prediction of any of peer nomination variables, independent of CP and demographic covariates.

## Results

### Zero-Order Correlations

Bivariate correlations among demographic variables and main study variables are provided in Table 2. Of note, age was significantly negatively correlated only with CP, suggesting that older participants were rated as showing lower levels of CP, and was not significantly correlated with any other main study variable. In addition, gender was the only demographic variable that was associated with both of the predictors (i.e., CU traits, CP) and peer nominations, suggesting that girls were more likely to be rated lower on both CU traits and CP, received less nominations for the Not Nice peer dimension, and received higher ratings of Liked Most nominations. Given that it was the only variable associated with both a predictor and at least one peer nomination variable, it was the only variable controlled for in the main tests of study hypotheses.

Also, as predicted, both CU traits and CP were significantly negatively associated with Liked Most nominations and significantly positively associated with Liked Least nominations. Additionally, the peer dimensions were generally significantly correlated with both CU traits and CP; the one exception was that Desire for Dominance nominations were not significantly associated with CU traits.

### CU Traits and Peer Nominations

The results of the multiple hierarchical regression analyses testing the independent effects of CU traits on the various peer nomination variables are reported in Table 3. In the prediction of the two traditional measures of peer acceptance and rejection, CU traits were not independently (i.e., controlling for gender and CP) associated with either Liked Most or Liked Least scores. However, consistent with our predictions, when including both CP and CU traits in the model predicting Not Nice nominations, only CU traits (and not CP) were independently significantly positively associated with Not Nice nominations. Similarly, CU traits were independently significantly positively associated with Mean/Cold peer

**Table 2.** Zero-order correlations of study variables.

| *Demographics* | *M* (*SD*) or % | Range | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Age | 11.47 (2.26) | 8,15 | .05 | −.08 | .06 | .07 | −.07 | −.13* | .02 | .01 | .001 | .000 | .01 |
| 2. Gender (% male) | 40.1 | — | — | .08 | −.03 | −.04 | −.23*** | −.17** | −.04 | −.23*** | −.04 | .18** | −.07 |
| 3. Ethnicity (% minority) | 64.7 | — | — | — | −.07 | −.03 | .10 | .04 | .06 | .04 | .13* | .09 | .004 |
| 4. Marital Status (% married) | 43.3 | — | — | — | — | .14* | −.002 | −.12* | −.003 | −.06 | −.06 | .01 | .002 |
| 5. Parental Edu (% ≤ B.A./B.S.) | 86.2 | — | — | — | — | — | −.14* | −.16* | −.03 | −.07 | .02 | .08 | .01 |
| *Main Study Variables* | | | | | | | | | | | | | |
| 6. CU Traits | 18.94 (10.46) | 2.00,61.00 | — | — | — | — | — | .55*** | .31*** | .32*** | .000 | −.17** | .26*** |
| 7. CP | 25.63 (8.70) | 18.00,67.00 | — | — | — | — | — | — | .32*** | .27*** | .15* | −.17** | .30*** |
| 8. Mean/Cold | .002 (.72) | −.56,5.17 | — | — | — | — | — | — | — | .10 | .42*** | .01 | .74*** |
| 9. Not Nice | −.02 (.88) | −3.75,1.05 | — | — | — | — | — | — | — | – | −.33*** | −.69*** | .14* |
| 10. Desire for Dominance | .01 (.77) | −.68,4.57 | — | — | — | — | — | — | — | — | — | .29*** | .28*** |
| 11. Liked Most | .04 (1.00) | −1.04,3.55 | — | — | — | — | — | — | — | — | — | — | −.09 |
| 12. Liked Least | .01 (1.00) | −.68,5.06 | — | — | — | — | — | — | — | — | — | — | — |

*Note*: Gender coded as 0 = male, 1 = female; Ethnicity coded as 0 = White, 1 = Minority; Marital Status coded as 0 = not married, 1 = married. Parental Edu = Parental Education (% 4-year college degree or less); CU = callous-unemotional; CP = conduct problems.
*$p < .05$; **$p < .01$; ***$p < .001$.

**Table 3.** Results of hierarchical regression analyses predicting peer nominations.

| | Mean/Cold | | Not Nice | | Desire for Dominance | | Liked Most | | Liked Least | |
|---|---|---|---|---|---|---|---|---|---|---|
| | *b* (*SE*) | β | *b* (*SE*) | β | *b* (*SE*) | β | *b* (*SE*) | β | *b* (*SE*) | β |
| Gender | .03 (.08) | .02 | −.35 (.10) | −.19** | −.02 (.09) | −.01 | .31 (.12) | .15* | −.03 (.12) | −.02 |
| CP | .03 (.005) | .33*** | .02 (.01) | .24*** | .01 (.01) | .14* | −.02 (.01) | −.14* | .03 (.01) | .30*** |
| $R^2$ | .10*** | | .11*** | | .02* | | .05** | | .09*** | |
| Gender | .07 (.08) | .05 | −.29 (.10) | −.16** | −.04 (.09) | −.03 | .28 (.12) | .14* | .01 (.12) | .003 |
| CP | .02 (.01) | .22** | .01 (.01) | .13 | .02 (.01) | .20** | −.01 (.01) | −.10 | .03 (.01) | .23** |
| CU Traits | .01 (.01) | .20** | .02 (.01) | .21** | −.01 (.01) | −.12 | −.01 (.01) | −.08 | .01 (.01) | .13 |
| $R^2$ | .13*** | | .14*** | | .03* | | .06** | | .10*** | |
| $\Delta R^2$ | .03** | | .03** | | .01 | | .004 | | .01 | |

*Note: b* = unstandardized beta coefficient; SE = standard error; β = standardized beta coefficient; CP = parent-teacher resolved conduct problems; CU traits = youth-teacher resolved callous-unemotional traits.
*$p < .05$; **$p < .01$; ***$p < .001$.

nominations, even when controlling for gender and CP. CP also retained a significant independent association with Mean/Cold nominations, even when including CU traits in the model. However, contrary to predictions, CU traits were not independently associated with Desire for Dominance nominations.

## Sensitivity Analyses

We conducted a number of sensitivity analyses to test the robustness of results. These results need to be interpreted cautiously because (a) they were not based on a prior predictions and (b) they were done purely to clarify the primary study analyses and, as a result, there was no control made for Type I error. First, based on past work showing that the association between peer rejection and CP was not moderated by gender (Van Lier et al., 2005; Zimmer-Gembeck et al., 2005), we had no theoretical or empirical reasons to predict that gender would modify any associations reported in the tests of our main study hypotheses. However, to ensure that our results were consistent with past research, we added a third step in these hierarchical multiple regression analyses, in which parameters were added for the two-way interactions between CU traits and gender and between CP and gender. As expected, the addition of these interaction terms did not lead to significant increases in variance for any of the peer nomination variables ($\Delta R^2$ ranging from .002 to .01, all *p*s > .05).

Similarly, we did not have an a priori reason to predict differences in associations across age. However, given the wide range of ages for participants, we also explored whether any of these associations were moderated by age. Each of the five models were again rerun including a third step with two-way interactions between CU traits and age and between CP and age, with age measured as a continuous variable (i.e., 8–15 years) in these analyses. None of these interactions were significant variables ($\Delta R^2$ ranging from .000 to .02, all *p*s > .05), again suggesting that the relationship between CU traits and CP with the peer nominations variables did not differ significantly across age.

Finally, we provided one additional set of sensitivity analyses to test for any potential effects of combining across informants. Specifically, we repeated the five hierarchical regression models reported in Table 3 separately for parent-report and teacher-report CP, and we repeated these sets of analyses twice for each, using CU traits by self-report in one set of analyses and using CU traits by teacher-report in the other. The results of these analyses are presented in Table 4. To summarize, the independent associations of CU traits for predicting Mean/Cold and Not Nice nominations remained significant in the majority (i.e., seven of eight) of these supplemental analyses and across informants. That is, the only analysis with a nonsignificant association with CU traits was for teacher-reported CP and teacher-reported CU traits predicting Mean/Cold nominations, whereby the association with CP was significant but the association with CU traits was not. Similarly, Liked Least was significantly associated with CP in the majority of these analyses (i.e., seven of eight) and across informants. Specifically, CP was independently associated with Liked Least both on its own (all four analyses) and when controlling for CU traits (in three of four analyses), the one exception being that parent CP was no longer significantly associated with Liked Least when controlling for self-report CU traits. In addition, in these sensitivity analyses, both self- and teacher-report CU traits became significantly associated with Liked Least nominations when controlling for parent CP. The sensitivity analyses revealed no overall differences by informant when predicting Liked Most. However, Liked Most was only significantly and negatively related to parent-reported but not teacher-reported CP. Also, in the analyses for

**Table 4.** Sensitivity analyses predicting peer nominations with conduct problems separated by informant.

| Self-Report ICU by Parent-Reported CP | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Mean/Cold | | Not Nice | | Desire for Dominance | | Liked Most | | Liked Least | |
| | *b* (SE) | β | *b* (SE) | β | *b* (SE) | β | *b* (SE) | β | *b* (SE) | β |
| Gender | −.05 (.10) | −.03 | −.35 (.12) | −.19** | −.10 (.11) | −.06 | .23 (.13) | .12 | −.13 (.13) | −.07 |
| Parent CP | .02 (.01) | .16* | .02 (.01) | .14* | .003 (.01) | .03 | −.02 (.01) | −.13* | .03 (.01) | .17** |
| $R^2$ | .02* | | .05** | | −.004 | | .03* | | .03* | |
| Gender | −.004 (.10) | −.003 | −.32 (.12) | −.17** | −.09 (.11) | −.06 | .22 (.13) | .11 | −.08 (.13) | −.04 |
| Parent CP | .01 (.01) | .09 | .02 (.01) | .01 | .002 (.01) | .02 | −.02 (.01) | −.12 | .02 (.01) | .11 |
| SR ICU | .03 (.01) | .31*** | .02 (.01) | .18** | .003 (.01) | .03 | −.01 (.01) | −.06 | .04 (.01) | .28*** |
| $R^2$ ($\Delta R^2$) | .11*** (.09***) | | .08*** (.03**) | | −.01 (.001) | | .02* (.003) | | .10*** (.07***) | |
| Teacher-Report ICU by Parent-Reported CP | | | | | | | | | | |
| Gender | −.01 (.10) | −.01 | −.40 (.12) | −.21** | −.07 (.11) | −.05 | .28 (.13) | .11* | −.03 (.13) | −.01 |
| Parent CP | .03 (.01) | .22** | .03 (.01) | .17** | .003 (.01) | .02 | −.03 (.01) | −.15* | .04 (.01) | .25*** |
| $R^2$ | .04** | | .07*** | | −.01 | | .03** | | .05** | |
| Gender | .07 (.10) | .04 | −.26 (.12) | −.14* | −.10 (.11) | −.06 | .22 (.14) | .11 | .07 (.13) | .03 |
| Parent CP | .02 (.01) | .18** | .02 (.01) | .12 | .01 (.01) | .03 | −.02 (.01) | −.13 | .04 (.01) | .21** |
| TR ICU | .01 (.004) | .18** | .02 (.004) | .28*** | −.003 (.004) | −.06 | −.01 (.01) | −.10 | .01 (.01) | .16* |
| $R^2$ ($\Delta R^2$) | .06*** (.03**) | | .13*** (.07) | | −.01 (.003) | | .04** (.01) | | .07*** (.02*) | |
| Self-Report ICU by Teacher-Reported CP | | | | | | | | | | |
| Gender | .01 (.09) | .01 | −.35 (.12) | −.19** | −.01 (.11) | −.01 | .24 (.13) | .12 | −.08 (.12) | −.04 |
| Teacher CP | .04 (.01) | .35*** | .03 (.01) | .20** | .02 (.01) | .19** | −.02 (.01) | −.11 | .05 (.01) | .33*** |
| $R^2$ | .11*** | | .08*** | | .03* | | .02* | | .11*** | |
| Gender | .05 (.09) | .04 | −.31 (.12) | −.17** | −.02 (.11) | −.01 | .22 (.13) | .11 | −.03 (.12) | −.02 |
| Teacher CP | .03 (.01) | .28*** | .02 (.01) | .15* | .02 (.01) | .20** | −.01 (.01) | −.09 | .04 (.01) | .27*** |
| SR ICU | .02 (.01) | .25*** | .02 (.01) | .16* | −.001 (.01) | −.01 | −.01 (.01) | −.07 | .03 (.01) | .23*** |
| $R^2$ ($\Delta R^2$) | .17*** (.06***) | | .10*** (.02*) | | .03* (.000) | | .02* (.004*) | | .15*** (.05***) | |
| Teacher-Report ICU by Teacher-Reported CP | | | | | | | | | | |
| Gender | .06 (.09) | .04 | −.36 (.11) | −.20** | −.001 (.01) | −.001 | .29 (.13) | .14* | .01 (.12) | .01 |
| Teacher CP | .03 (.01) | .35*** | .03 (.01) | .21** | .02 (.01) | .17** | −.02 (.01) | −.11 | .04 (.01) | .32*** |
| $R^2$ | .11*** | | .09*** | | .02* | | .03** | | .09*** | |
| Gender | .06 (.09) | .04 | −.29 (.11) | −.16** | −.06 (.10) | −.04 | .28 (.13) | .13* | .02 (.12) | .01 |
| Teacher CP | .03 (.01) | .36*** | .01 (.01) | .08 | .03 (.01) | .29*** | −.01 (.01) | −.08 | .04 (.01) | .32*** |
| TR ICU | −.001 (.004) | −.01 | .01 (.01) | .22** | −.01 (.004) | −.21** | −.004 (.01) | −.05 | .000 (.01 | .01 |
| $R^2$ ($\Delta R^2$) | .11*** (.000) | | .12*** (.03**) | | .05** (.03**) | | .03* (.002) | | .09*** (.000) | |

*Note: b* = unstandardized beta coefficient; SE = standard error; β = standardized beta coefficient; SR ICU = self-report Inventory of Callous Unemotional Traits; TR ICU = teacher-reported Inventory of Callous-Unemotional Traits; Parent CP = parent-reported conduct problems; Teacher CP = teacher-reported conduct problems.

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

Desire for Dominance, the association with CP was found only when using teacher report of CP and not when parent report was used as a predictor.

## Discussion

Research indicates that youth with CP are at significant risk for being rejected by peers. These impaired social relationships are important because they predict future problems in adjustment (Cicchetti, 1990; Coolahan et al., 2000). In the current study, our results suggest that, consistent with past research (Barry et al., 2008; Graziano et al., 2016; Waller et al., 2017), CU traits were associated with traditional indices of social acceptance and rejection (i.e., negatively associated with peer nominations of being Liked Most and positively related to Liked Least). However, these associations were not independent of the child's level of CP. Thus, it appears that the primary reason that youth with elevated CU traits are rejected is due to their CP.

In the current study, we attempted to extend this work on the associations between CU traits and peer relationships to determine if they contributed to other characteristics that may be specifically related to the unique interpersonal style displayed by children who show significant CU traits. Important to note, we found that CU traits were associated with peer nominations of being Mean/Cold and this could not be solely accounted for by shared variance with CP. This finding is consistent with past research in which preschool children with elevated CU traits were rated by peers as someone who "enjoys being mean" (Graziano et al., 2016). It is also consistent with findings in adults suggesting that meanness is a key interpersonal characteristic associated with the affective features of psychopathy (Patrick & Drislane, 2015). However, it is possible that the behavioral problems that children with CP without CU traits are engaging in may also be perceived by their peers as "mean," as CP retained a significant association with Mean/Cold nominations, even when CU traits were included in the model. Further, CU traits were also

associated with low levels of positive peer nominations (i.e., Not Nice nominations), suggesting that children with higher levels of CU traits are viewed by peers as not being easy to make friends with, not being trustworthy, and not being nice. This finding is supported by past work indicating that youth with elevated CU traits are more likely to use force to obtain things from others (Fanti et al., 2009), which may account for why their peers do not trust them. Additionally, previous work studying children with elevated CU traits has found that, although these youth may be able to make friends, these friendships are less successful, including being more unstable, more conflictual, and less satisfying (Haas et al., 2018; Muñoz et al., 2008). CP did not retain a significant association with Not Nice nominations once CU traits were added to the model, suggesting that this interpersonal style of children was largely associated with CP because of their level of CU traits.

Taken together, these results suggest that traditional measures of the quality of peer relationships may not be sufficient to explain the social relationships of youth with elevated CU traits. That is, rather than traditional nominations of peer acceptance and peer rejection, peer nominations that assess a mean, cold, and aloof interpersonal style may be better at explaining the peer relationship problems associated with CU traits. Although our results suggest that CP in general may also lead peers to view these children as mean and demanding, they may not necessarily be perceived as being untrustworthy and may be considered easier to make friends with than children with CP who also have elevated CU traits. This finding is important because these attributes are different from the deficits in social skills and problems regulating emotions that are typically used to explain why children with CP are rejected by peers (Dodge & Coie, 1987) and are targeted in many interventions to improve the social relationships of children with CP (Lochman et al., 2015). Thus, it appears that separate theoretical models and interventions that target different attributes may be needed to address the social relationships of children with elevated CU traits.

Of note, the hypothesized correlation between Desire for Dominance nominations and CU traits, which was hypothesized based on past research (Pardini, 2011), did not emerge in our study. One explanation is that, although children with elevated CU traits view dominance as an acceptable means to gain something from peers (Pardini, 2011), such a social status may not be desired in other situations. Alternatively, the peer nominations used to assess this dimension were related to a desire to be a leader and to being skilled at getting what they want and at getting others to do things. Thus, rather than dominance and manipulation, these attributes may have been viewed by peers as more positive features of social influence. In support of this explanation, Desire for Dominance nominations were not negatively related to Liked Most nominations, although the other peer nomination dimensions hypothesized to be association with CU traits were. Further, the Desire for Dominance scale had lower internal consistency ($\alpha$ = .68) and a lower eigenvalue (1.04) compared with the two other peer dimension scales and accounted for only 4.85% of the variance in the peer nominations. Thus, the low reliability of this dimension may also account for the limited associations with other study variables.

Another important contribution of our study is our specific focus on CU traits and not on other dimensions of psychopathy, as was done by Piatigorsky and Hinshaw (2004) in their study of peer relationships associated with psychopathic traits. That is, in studies of both adults (Hare & Neumann, 2008) and children (Frick et al., 2000), measures of psychopathic traits form at least three dimensions: callous-unemotional traits, narcissism, and irresponsible/impulsive behaviors. However, narcissism and impulsive/irresponsible behaviors are highly correlated with CP (Colins et al., 2018; Frick et al., 2000) and, as a result, often do not predict impairment or risk factors independent of CP. Thus, they seem to be better considered as general risk factors for CP or, stated in person-centered terms, are not good for designating subgroups of youth with CP. In contrast, the CU dimension is less strongly correlated with CP and seems to add to the prediction of certain outcomes, such as bullying and proactive aggression, independent of CP (Thornton et al., 2013). CU traits also seem useful for designating a unique subgroup of youth with CP who show distinct emotional, cognitive, and biological correlates from other youth with CP (see Blair et al., 2014; Frick et al., 2014; Herpers et al., 2012, for reviews). These findings led to both the *DSM-5* and the 11th edition of the International Classification of Disease to choose CU traits, and not other dimensions of psychopathy, for defining a specifier for CP diagnoses. Thus, given that the primary focus of the current study was to determine if CU traits showed unique associations with certain peer perceptions independent of CP more generally, and not to test potential risk factors for CP, it was important to use the CU dimension of psychopathy specifically. However, based on this past research, other dimensions of psychopathy may not show similar unique associations with peer perceptions after controlling for CP.

### Limitations and Future Directions

Our findings should be interpreted in the context of several study limitations. First, the peer nominations, with the exception of those assessing peer rejection,

were developed for the current study. Thus, support for them was limited to the face validity of the nominations. Second, classroom participation rates were fairly low (e.g., 42%–54%), and there is some research to suggest that when using unlimited peer nominations, a participation rate of at least 60% is required for the nominations to demonstrate good psychometric properties (Wargo Aikins & Cillessen, 2007). As such, it is possible that our results may be capturing only the peer perceptions of a small portion of the nominators (i.e., participants) and may not accurately represent the view of the majority of the children's peers. However, past work has also shown that participation rates as low as 40% can demonstrate good reliability when assessing overt aggression and popularity, specifically (Marks et al., 2013). Additionally, Prinstein (2007) demonstrated that nominations collected from a small subsample of youth (i.e., 10% of the grade) correlated moderately to highly with nominations collected from the full sample of youth. Third, we administered our measures to the children in a standardized order consistent with previous work and used computer administration to randomize peer nomination items to prevent any potential order effects of the peer nominations (Cillessen & Marks, 2017; Frederickson & Furnham, 2004; Salmivalli et al., 2000). Although we had no reason to be concerned about potential order effects, future research would need to determine if this method of administration influenced our results (Cillessen & Marks, 2017). In addition, in the current study, peer nominations were collected by asking participants to enter the names of peers they thought best fit the description of the item without providing a class roster or list of student names because (a) although we would have counterbalanced the presentation of peer names on a roster to avoid order effects, we wanted participants to answer with the classmates who first came to mind without being primed by names on a list; (b) relatedly, participants were allowed to leave items blank if they could not think of an appropriate classmate for that item, so we did not want students to search a roster for a name to fit to the item and rather wanted the items to be descriptive of certain students; and (c) because of spending time with classmates within the full grade, we requested nominations to be made within the full grade rather than a singular classroom, resulting in a large nominee pool that would require participants scan a roster of potentially hundreds of peer names for each of the 14 nomination items, consequently limiting the number of items that the participants would be able to complete in a reasonable time (Prinstein, 2007). However, it is possible that not using a roster may have impacted the results. Fourth, the sample characteristics of the current study may influence the generalizability of the findings. The current study used a community sample; thus, there were very few participants who would likely qualify for clinical diagnoses of ODD or CD. Fifth, we did not collect any information on who the primary custodial parent (e.g., mother, father) reporting on the child was. However, it is important to note that the vast majority of past work has found interrater correlations between maternal and paternal reports of children's behavior to be very high, and even more so for parental reports of externalizing compared with internalizing behavior (for meta-analyses, see Achenbach et al., 1987; Duhig et al., 2000). Thus, we would not expect our results to be substantially different, depending on which caregiver completed the forms. Sixth, although the sample was fairly diverse in terms of race and ethnicity, family structure, and socioeconomic status, the sample was recruited from a public school system in a rural area of southern Louisiana, which may limit the generalizability of the findings to other samples, especially those in more urban regions. Seventh, it is important to consider the size of effects that we found in our associations between CU traits and peer nominations. Specifically, the zero-order correlations between CU traits and the two measures of peer perceptions of being Mean/Cold and Not Nice were $r$ = .31 and .32, respectively. These correlations are modest in size, suggesting that only about 9% of the variance in these measures are shared. Further, CU traits accounted for an additional 3% of the variance in these two outcomes, after controlling for gender and CP. Thus, although our results suggest that CU traits influence peer perceptions over and above what can be explained by CP, there is still a large amount of variance in how a child is viewed by peers that were not explained by our study variables.

Despite these limitations, the findings have important implications for future research and practice. Our findings support emerging research suggesting that children with elevated CU traits may have problems in their peer relationships but the types of problems may be different from those traditionally associated with CP. Thus, studying the peer relationships of children with CU traits is a critically important area for further research, especially research that considers the shared and unique peer problems associated with CU traits and CP. Our findings also indicate that children with elevated CU traits are more likely to be perceived by others as being mean, aloof, and untrustworthy, independent of CP. The results of the current study suggest potential targets for interventions that seek to promote enhanced peer relationships in children with elevated CU traits. Specifically, the findings suggest the need for specialized interventions potentially focusing on helping the child

recognize why they are perceived by peers in these ways and developing the skills to make and maintain positive friendships, which may ultimately lead their peers to view them more positively.

## Disclosure Statement

No potential conflict of interest was reported by the authors.

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