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The Association between Conduct Problems and Bullying for Youth with and without Callous-Unemotional Traits

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The Association between Conduct Problems and Bullying for Youth with and without Callous-
Unemotional Traits

A Thesis

Submitted to the Graduate Faculty of the
University of New Orleans
in partial fulfillment of the
requirements for the degree of

Master of Science
in
Psychology

by

Farrah Naz Golmaryami

B.S. University of Southern Mississippi, 2008

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Abstract

The current study aims to examine whether the association between conduct problems and bullying are accounted for by different factors in those with and without callous-unemotional (CU) traits. Participants included 284 students in the 4th through 7th grades. Results indicated that conduct problems and bullying were significantly correlated, and that this association was not moderated by CU traits. Moreover, anger dysregulation, and to some extent, victimization, were more strongly associated with conduct problems in those with lower levels of CU traits. Furthermore, conduct problems were more strongly related to attitudes towards bullying for those lower on CU traits than for those higher on CU traits. Finally, anger dysregulation, victimization, perceived peer support, and attitudes towards bullying did not account for the association between conduct problems and bullying.

Conduct problems, bullying, callous-unemotional traits, adolescence

The Association between Conduct Problems and Bullying for Youth with and without Callous-Unemotional Traits

Bullying is defined as repetitive aggression towards another individual that is perceived as weaker and incapable of defending him/herself (Olweus, 1991). Research indicates that bullying is a prevalent problem in schools and is associated with a wide array of negative outcomes, such as poorer psychosocial adjustment and mental health problems, for both the perpetrators and the victims (Nansel, Overpeck, Pilla, 2001; Sourander et al., 2007). In fact, studies show that approximately 15-20% of students are involved in bullying to some degree, either as bullies, victims, or both (Nansel et al., 2003; Olweus, 1991). Furthermore, research suggests that bullying is relatively stable throughout adolescence (Pellegrini & Bartini, 2000; Salmivalli, Lappalainen, & Lagerspetz, 1998). For example, Schäfer, Korn, Brodbeck, Wolke, and Schulz (2005) found that children who were bullies in primary school were at an increased risk for bullying six years later in secondary school. Thus, understanding the causes of bullying and using this research to prevent this highly prevalent behavior in schools is a critically important endeavor.

One important finding that could aid in this process is that bullying and conduct problems are highly correlated (Crapanzano, Frick, Childs, & Terranova, 2011; Wolke, Woods, Bloomfield, & Karstadt, 2000). For example, the association between bullying and conduct problems has been shown to be .44 ($p < .01$) in a middle school sample of boys and girls aged 9 to 14 years (Crapanzano et al., 2011). Further, this correlation was equally strong for boys (.38, $p < .01$) and girls (.50, $p < .01$). Because of this strong link between bullying and conduct problems, it is quite likely that research focused on understanding the causes of conduct problems could also be important for understanding the causes of bullying. One important finding from this research is that there appears to be several developmental pathways leading to conduct problems, each involving somewhat unique risk and causal processes (Frick, Cornell, Bodin, Dane, Barry, & Loney, 2003; Moffitt, 1993).

Conduct Problems with and without Significant Levels of Callous-Unemotional Traits

Research suggests that youth with conduct problems can be divided into two distinct groups: those with and without significant levels of callous-unemotional (CU) traits. CU traits are characterized by a lack of guilt and empathy, a shallow and deficient affect, and the callous use of others for one's own personal gain (Frick, Cornell, Bodin, et al., 2003, Frick & White, 2008). Youth with conduct problems without significant levels of CU traits tend to have deficits in emotional regulation, to be disliked by their peers, and to have hostile attributional biases (Frick, Cornell, Bodin, et al., 2003; Webster-Stratton, Reid, & Hammond, 2004). Moreover, youth with conduct problems without CU traits are more likely to display only reactive aggression (e.g. aggression that results in reaction to a real or perceived threat) (Fanti, Frick, & Georgiou, 2009; Frick, Cornell, Barry, Bodin, & Dane, 2003; Marsee & Frick, 2007). Further, reactive aggression has been related to poor emotional dysregulation and anger in response to perceived peer provocation (Marsee & Frick, 2007). Dodge and Coie (1987) found that reactively aggressive boys showed deficits in interpreting social cues which led to the development of hostile attributional biases, defined as the tendency to misperceive the actions of others as hostile. Furthermore, youth with conduct problems without CU traits are more likely to choose less prosocial solutions for social problem solving (Waschbusch, Walsh, Andrade, King, & Carrey, 2007).

In sum, these results suggest that youth with conduct problems without significant CU traits tend to have deficits interpreting social cues which leads to hostile attributional biases, which in turn leads to peer rejection. Thus, this group of youth may engage in aggression as a response to real (e.g. social rejection) or perceived (e.g. misinterpretation of social cues) threat from their peers. Children who are identified as aggressive and unpopular amongst peers may increase their peer rejection through socially aversive interactions (Dodge et al., 2003; Olson, 1992). It is possible that these youth desire to fit in, but are impeded by their problems in emotional regulation and lack of social skills, which lead to negative interactions with peers. Accordingly, their behavioral problems increase as a reaction to their unsuccessful attempts at gaining social acceptance. Further, these youths recognize the problems that their behavior is causing to others and are distressed as a consequence (Frick & Viding, 2009).

In contrast, youth with a combination of both conduct problems and CU traits tend to present with a more aggressive, stable, and severe form of antisocial behavior (Frick, 2009). In addition, youth with conduct problems who also display high rates of CU traits are more likely to engage in proactive forms of aggression (e.g. aggression that is used as a means to obtain a desirable goal), view aggression as a more acceptable means for obtaining desired social outcomes, and are less likely to be distraught by their behavioral problems and the effects of their behavior on others (Barry, Frick, DeShazo, McCoy, Ellis, & Loney, 2000; Frick, Cornell, Barry et al., 2003; Pardini, 2011; Pardini, Lochman, & Frick, 2003). Further, CU traits have been associated with more positive outcome expectancies for aggressive behavior (i.e., a belief that aggression is likely to result in a positive outcome) (Marsee & Frick, 2007; Pardini et al., 2003). Similarly, adjudicated adolescents with CU traits are more likely to endorse social goals related to revenge, dominance, and forced respect in situations involving social conflict (Pardini, 2011). Finally, children with conduct problems and high rates of CU traits display higher levels of delinquent peer affiliation than children with conduct problems who show normative levels of CU traits (Kimonis, Frick, & Barry, 2004).

These findings suggest that youth with CU traits are equipped with the social skills to form peer relationships and may use aggression to socially manipulate the peer context for their own personal gain, such as to gain social dominance and respect amongst other antisocial peers. The use of aggression to achieve these social goals may be aided by other characteristics of youths with conduct problems and CU traits. Specifically, these youth are typically characterized by a reward-dominant response style and are less responsive to punishment (Barry et al., 2000, Fisher & Blair, 1998; O'Brien & Frick, 1996). Thus, potential negative consequences for their aggressive behavior (e.g., being punished by teachers) may be less likely to have an inhibiting effect on them. Research also indicates that youth with conduct problems and CU traits show deficits in processing negative emotional stimuli, especially in showing reduced arousal to depictions of fear and distress in others (Blair & Coles, 2000; Dadds et al., 2006; Kimonis, Frick, Fazekas, & Loney, 2006). Thus, youth with conduct problems and high levels of CU traits are

likely to be less distressed by the effects of their behavior on others which, again, could decrease the inhibitions for acting aggressively and hurting other children.

Types of Bullies

The characteristics of youths with conduct problems, both those with and without elevated levels of CU traits, are consistent with research on characteristics of those who bully other children. For example, research indicates that bullies are more likely to endorse attitudes that are accepting of bullying behavior, blame the victims, and perceive the victim as deserving of the aggressive treatment (Bentley & Li, 1995; Hymel, Rocke-Henderson, & Bonanno, 2005). Furthermore, bullies are more deficient in moral compassion compared to victims and defenders (Gini, Pozzoli, & Hauser, 2011). In sum, these findings suggest that bullies have positive attitudes towards the use of bullying and do not feel guilty for hurting others, similar to youths with elevated levels of CU traits. However, research also suggests that not all bullies show these characteristics.

There is considerable research supporting the distinction between different types of bullies. In particular, there is evidence to suggest that there are at least two types of bullies: pure bullies and bully-victims (Olweus, 1993; Pellegrini, 1998). Pure bullies act aggressively towards other peers, however they are not the targets of other bullies; whereas bully-victims are not only the targets of bullies, but also bully other peers. Pure bullies are more common and comprise approximately 7-16% of the school population (Nansel, et al., 2001; Olweus, 1993, Pellegrini, Bartini, & Brooks, 1999; Schwartz, Dodge, Petit, & Bates, 1997; Unnever, 2005). On the other hand, bully-victims represent only a small percentage, approximately 2-8%, of the student population (Nansel et al., 2001; Olweus, 1993, Pellegrini et al., 1999; Schwartz et al., 1997; Unnever, 2005). Research on these two types of bullies has shown several differences which mirror the research on the different developmental pathways to conduct problems. Specifically, studies indicate that pure bullies engage in both proactive and reactive aggression (Camodeca, Goossens, Meerum Terwogt, & Schuengel, 2002; Pellegrini et al., 1999; Salmivalli & Nieminen, 2002). Research also indicates that pure bullies are more likely to have negative attitudes about others (Cook, Williams, Guerra, Kim, & Sadek, 2010). Furthermore, pure bullies are more likely to have leadership skills, social

competence, and may obtain popularity and social status with other aggressive or bullying peers (Cairns, Cairns, Neckerman, Gest, & Garipey, 1988; Cook, et al., 2010; Pellegrini et al., 1999; Perren & Alasker, 2006). Thus, many of the qualities of pure bullies seem to parallel the qualities of youth with conduct problems with significant CU traits.

Conversely, bully-victims are “hot-tempered” and react to provocation (Olweus, 1978). Bully-victims are less likely to engage in proactive aggression, but more likely to engage in reactive aggression (Pellegrini et al., 1999; Unnever, 2005). Moreover, research suggests that a combination of heightened emotional reactivity and a hostile attributional bias lead to this increase in reactive aggression for bully-victims (Dodge & Coie, 1991; Pellegrini et al., 1999). Further, bully-victims are less socially competent, have poorer social problem-solving skills, and are less likely to have friends compared to their peers (Cook et al., 2010; Perren & Alasker, 2006). It is possible that a desire to be socially accepted amongst peers motivates this group of youth to bully. For example, results from a meta-analysis of bullying and victimization in childhood and adolescence indicate that rejected peer status and susceptibility to peer influence are particularly significant predictors of bully-victim status (Cook et al., 2010). Thus, many of the characteristics of bully-victims seem to be similar to those of youth with conduct problems without CU traits.

The Associations among CU Traits, Conduct Problems, and Bullying

From the available research, it appears that there might be two distinct pathways to bullying which mirror the two distinct pathways to conduct problems. However, there is only very limited research examining the effects of both conduct problems and CU traits on bullying specifically (Crapanzano et al., 2011; Fanti et al., 2009; Fanti & Kimonis, 2012; Viding, Simmonds, Petrides, & Frederickson, 2009). Specifically, research indicates that bullying is highly correlated with both conduct problems ($r = .44$; $p < .01$) and CU traits ($r = .18$; $p < .01$; Crapanzano et al., 2011). In another study of 347 children ages 12 to 18, Fanti et al. (2009) reported that both bullying and victimization were related to aggressive behavior. However, when controlling for victimization, bullying was positively related to CU traits. In contrast, when controlling for bullying, victimization was negatively related to CU traits. In another study, Fanti

and Kimonis (2012) examined the role of conduct problems and CU traits in bullying and victimization in a sample of 1,416 adolescents aged 12-14. Over a two year period, conduct problems were related to both bullying and victimization, whereas CU traits was only related to bullying. Finally, Viding et al. (2009) studied a sample of 704 adolescents aged 11-13 and found an interaction between conduct problems and CU traits for the prediction of direct and indirect bullying. Specifically, the association between conduct problems and both forms of bullying (direct and indirect) was stronger as CU traits increased.

Thus, the available research suggests that both conduct problems and CU traits may be important for understanding the causes of bullying behavior. That is, bullying appears to be related to both conduct problems and CU traits. Further, there appears to be subgroups of persons who bully, who differ on characteristics that have been important in theories of the development of conduct problems. However, no study to date has directly tested the possibility that the correlation between bullying and conduct problems may be accounted for by different factors depending on the presence of CU traits. That is, if the correlation between bullying and conduct problems have the same causal factors then it is possible that the same causal processes and pathways lead to both. Likewise, if the same factors lead to both bullying and conduct problems, but these factors differ depending on the presence of CU traits, then different factors should explain the association between conduct problems and bullying depending on the presence of CU traits.

Current Study

Based on this research, the current study tested the hypothesis that conduct problems, irrespective of the level of CU traits displayed, would be correlated with bullying. More importantly, the current study tested whether this association between conduct problems and bullying would be accounted for by different factors in those with and without CU traits. Specifically, it was hypothesized that conduct problems would be more strongly associated with being more emotionally dysregulated, being victimized by bullies, and viewing peers as more hostile and less supportive in those low on CU traits. In contrast, it was hypothesized that conduct problems would be more strongly associated with attitudes more accepting of bullying behavior as a means for obtaining social status. Finally, it was hypothesized that anger

dysregulation, victimization, perceived peer support, and attitudes towards bullying would account for the association between conduct problems and bullying. Specifically, it was hypothesized that once these variables were entered as covariates, the association between conduct problems and bullying would be substantially reduced and no longer be significant.

Methods

Participants

Participants were students in the fourth through seventh grades who were recruited from four semi-rural public schools located in the southeastern U.S as part of an evaluation of a school-wide anti-bullying program. All of the schools in the study were Title I schools, meaning that the majority of students (66%) are from low-income households and receive free or reduced lunches. Students from special education classes were excluded. Parental consent was returned for 349 (70%) of approximately 500 eligible students. Of the 349 students, 65 did not participate due to absences, failure to provide assent, or incomplete forms, resulting in the final sample of 284. Participants' age ranged from 9 to 14 years old (mean age = 10.86, SD = 1.24). Half of the participants identified their ethnicity as Caucasian (50.4%), 39% as African-American, 6% as American-Indian, 3.2% as Hispanic or Latino, and 1.1% as Asian or Pacific-Islander. Girls made up 54.2% of the sample. This gender and ethnic composition of the sample was representative of the participating schools based on data published by the school system.

Measures-Outcome

Bullying. A modified form of the Participant Role Scale (Sutton & Smith, 1999) was used to measure bullying behavior. The scale is a peer-report questionnaire consisting of 15 items (e.g., "How often does this classmate bully others?") assessing bullying behavior and victimization. Before the scale was administered, participants were read the following description of bullying which is based on Olweus' (2001) definition: "Bullying is when a student is mean to another student over and over again. The student who is being bullied is usually at a disadvantage, such as being smaller, outnumbered, or having fewer friends. Bullying includes hitting, calling people names, telling stories about people, and ignoring people." After the definition was read aloud, students were then instructed to rate each of their

participating homeroom classmates on a scale from 1 (never) to 3 (often) on each bullying item. A bullying score for each child was formed by calculating the mean peer ratings for each item. In the current sample, the internal consistency of the bullying scores was excellent ($\alpha = .97$).

Measures – Predictors

Conduct Problems. The Youth Symptom Inventory-4 was used to measure conduct problems (YI-4; Gadow & Sprafkin, 2000). The YI-4 is a 26-item self-report representing the *Diagnostic and Statistical Manual of Mental Disorders-IV* (DSM-IV) symptoms of Conduct Disorder and Oppositional Defiant Disorder. In a sample of 239 clinic-referred youth (11-18 years) the YI-4 demonstrated good reliability and validity and discriminated children with conduct disorders from those without conduct disorders (Gadow et al., 2002). The internal consistency for this scale in the current sample was excellent ($\alpha = .89$).

CU Traits. CU traits were measured using the CU subscale of the Antisocial Process Screening Device (APSD; Frick & Hare, 2001), a self-report behavioral rating scale. The CU subscale consists of 6-items which are scored as 0 (not at all true), 1 (sometimes true), or 2 (definitely true). Scores from a previous study using the self-report version of the APSD have demonstrated relative stability over a 3-year period (Munoz & Frick, 2007). The internal consistency for this scale was modest ($\alpha = .50$), which is consistent with past research reporting coefficient alphas ranging from .50 to .68 (Munoz & Frick, 2007).

Measures – Variables Accounting for the Association between Conduct Problems and Bullying

Anger Dysregulation. An anger dysregulation scale was constructed from a 3-item anger dysregulation subscale (e.g., “I attack whatever it is that makes me mad”) and a reverse coded 4-item anger inhibition subscale (e.g., “I get mad inside but don’t show it”) from the Children’s Emotion Management Scale (Zeman, Shipman, & Penza-Clyve, 2001). This measure is rated on 3-point Likert-type scale ranging from 1 (hardly ever) to 3 (Often). This combined scale was supported in a factor analysis conducted on a community sample of 227 4th and 5th graders (Zeman et al., 2001). In the current sample, the internal consistency for this scale was modest ($\alpha = .66$).

Victimization. The victimization variable was measured using a modified version of the Social Experiences Questionnaire which assesses a child's perception that he or she has been victimized by peers (SEQ-R; Crick & Bigbee, 1998; Crick & Grotpeter, 1996). Before answering this questionnaire a definition of bullying was provided to all students adapted from Olweus' (2001) definition of bullying (refer to the previous description provided in the bullying measure section). This measure consists of 13 items that are rated on a 5-point Likert-type scale ranging from 1 (never) to 5 (always). Specifically, 7 items make up a relational-victimization subscale (e.g., "How often have other kids told lies about you so others will not like you?"), 5 items make up an overt-victimization subscale (e.g., "How often do you get hit by bullies at school?"), and 1 item measuring general bullying (i.e., "How often do other students bully you at school?"). The SEQ has demonstrated good internal consistency in previous studies with alphas ranging from .73 to .80 (Crick & Bigbee, 1998; Crick & Grotpeter, 1996). (The internal consistency for victimization scores was excellent in the current sample ($\alpha = .95$).

Perceived Peer Support. To measure perceived peer support the Receipt of Prosocial Behaviors subscale of the Social Experiences Questionnaire (Crick & Bigbee, 1998; Crick & Grotpeter, 1996) was used. The subscale consists of five items assessing perceived social support which are scored on a 5-point Likert scale ranging from 1 (never) to 5 (always) (e.g., "How often does another student give you help when you need it"; "How often do other students try to cheer you up when you feel sad"; "How often do other students do things that make you feel happy"; "How often do other students say nice things to you"; and "How often do other students let you know that they care about you"). Scores from previous studies have demonstrated acceptable to good internal reliability ($\alpha = .77$ to $.90$) in samples of children for this measure (Crick & Bigbee, 1998; Crick & Grotpeter, 1996; Terranova et al., 2009). Further, this subscale is correlated with externalizing responses ($r = -.26, p < .05$), internalizing responses ($r = -.23, p < .05$), victimization ($r = -.25, p < .05$), sense of control ($r = .25, p < .05$), and problem solving ($r = .23, p < .05$) (Terranova, 2009). In the current sample, the internal consistency for perceived peer support scores was excellent ($\alpha = .87$).

Attitudes towards Bullying. To measure attitudes towards bullying a subscale was created from the Attitudes and Beliefs toward Aggression (Vernberg, Jacobs, & Hershberger, 1999). The Attitudes and Beliefs toward Aggression is a 16-item self-report measuring positive expectations for aggression. The 16-items are scored on a 4-point Likert scale ranging from 1 (don't agree at all) to 4 (completely agree). For the current study, an "aggression pays" subscale was created by combining four items specifically stating the belief that bullying leads to positive outcomes (e.g., "Bullies get what they want from other students"; "Being a bully makes students feel big and tough"; "Sometimes, it's okay to be a bully"; and "Students get respect when they boss other students around"). Previous studies have indicated that this subscale is associated with aggressive behaviors and negative affect (Dill, Vernberg, Fongay, Twemlow, & Gamm, 2008; Vernberg et al., 1999). The internal consistency for the "aggression pays" subscale in the current sample was modest ($\alpha = .60$).

Procedures

The current study was approved by the University of New Orleans Institutional Review Board prior to data collection. Students were sent home with letters including attached consent forms for parents to complete. If parental consent was given, students were asked to complete assent forms before participating. Students who did not provide assent or parental consent were allowed to take part in an alternative activity during data collection. All measures were included prior to the school's implementation of a bullying prevention program.

All measures were administered in small groups of students. Students were instructed to complete questionnaires throughout various periods of the day that did not conflict with school instruction (e.g. study period). Questionnaires were read out loud to all students in order to control for reading ability. To control for privacy, students were seated far apart from one another and provided cover sheets to conceal their answers.

Results

Descriptive Analyses

The distributions for the variables in the current study are presented in Table 1. The distributions showed that the variables were relatively normally distributed, with the exception of conduct disorder which showed a moderate positive skewedness. Table 2 shows the zero-order correlations for the variables used in the multiple regression analyses as well as their associations with demographic variables (i.e., sex, age, and ethnicity). Results indicated that sex (coded male = 0 and female = 1) was negatively associated with CU traits, conduct problems, bullying, and attitudes towards bullying, but positively associated with perceived peer support, meaning that girls were more likely to view their peers as supportive. Age was negatively associated with victimization and perceived peer support, but positively related to all other study variables. Ethnicity (coded ethnic minority = 0 and Caucasian = 1) was negatively related to CU traits, conduct problems, bullying, and anger dysregulation. Based on these findings, the effects of sex, age, and ethnicity were controlled in all analyses.

Table 1
Distributions of Study Variables

Variable	<i>M</i>	<i>SD</i>	<i>Min-Max</i>	<i>S</i>	<i>K</i>
Predictors					
Callous-unemotional traits	3.61	2.11	0-11	.98	1.13
Conduct Problems	38.08	8.94	26-82	1.86	5.68
Dependent Variables					
Bullying	13.48	3.31	9.05-22.11	.63	-.60
Anger dysregulation	13.65	2.95	7-21	.16	-.31
Victimization	4.93	4.27	0-13	.43	-1.14
Perceived peer support	16.58	5.08	5-25	-.12	-.59
Attitudes towards bullying	7.06	2.68	4-16	.75	-.03

Both of the predictor variables (CU traits and conduct problems) were positively associated with bullying and anger dysregulation, but negatively related to perceived peer support, suggesting that participants with higher levels of CU traits and conduct problems were less likely to perceive their peers as supportive. In addition, conduct problems were also positively associated with victimization and attitudes towards bullying.

Table 2
Zero-Order Pearson Correlations of Main Variables

Variable	1	2	3	4	5	6	7	8	9	10
Demographic Variables										
1. Sex	—	-.02	-.09	-.12*	-.21**	-.14*	-.01	-.01	.13*	-.12*
2. Age		—	-.20**	.16**	.25**	.40**	.20**	-.22**	-.21**	.12*
3. Ethnicity			—	-.12*	-.22**	-.29**	-.16**	-.01	-.00	-.09
Predictor Variables										
4. CU traits				—	.29**	.25**	.23**	.03	-.29**	.04
5. Conduct problems					—	.48**	.38**	.13*	-.24**	.46**
Dependent Variables										
6. Bullying						—	.25**	-.02	-.19**	.25**
7. Anger <u>dysregulation</u>							—	-.02	-.13*	.20**
8. Victimization								—	-.09	.12*
9. Perceived peer support									—	-.00
10. Attitudes towards bullying										—

Note. CU = callous-unemotional; * $p < .05$; ** $p < .01$

Multiple Regression Analyses

For the primary analyses, a series of hierarchical multiple regression analyses were performed to determine the main and interactive effects of CU traits and conduct problems for the prediction of bullying, anger dysregulation, victimization, perceived peer support, and attitudes towards bullying. Prior to the analyses, the predictors (i.e., conduct problems and CU traits) were centered by subtracting the sample means from each variable. For the hierarchical multiple regression analyses sex, age, ethnicity, CU traits, and conduct problems were entered into Step 1 and the interaction term for CU traits and conduct problems ($CU \times CP$) was entered in Step 2. When a significant interaction was found the form of the interaction was further examined using the post hoc probing methods recommended by Holmbeck (2002). Specifically, this procedure uses the regression equation derived from the full sample to estimate predicted values for the dependent variable one standard deviation below and one standard deviation above the mean. Results for the multiple regression analyses are summarized in Table 3.

Table 3
Multiple Regression Analyses Testing the Main and Interactive Effects of Callous-Unemotional (CU) Traits and Conduct Problems (CP)

Outcome Variable	Standardized beta						R^2	F
	Sex	Age	Ethnicity	CU	CP	$CU \times CP$		
Bullying	-.08	.27***	-.16**	.08	.36***	-.04	.35	25.02
Anger dysregulation	.06	.09	-.06	.12*	.38***	-.13*	.19	10.91
Victimization	.02	-.28***	-.02	.00	.25***	-.11	.10	5.13
Perceived peer support	.06	-.15*	-.09	-.23***	-.12	-.04	.14	7.42
Attitudes toward bullying	-.04	.02	.01	-.12*	.53***	-.10	.23	13.82

Note. CU = callous-unemotional; CP = conduct problems. All F values had (6, 275) degrees of freedom, and were statistically significant at the $p < .001$ level.

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

Bullying. The first hypothesis predicted that bullying would be related to conduct problems and that this association would not be modified by CU traits. The results of the hierarchical multiple regression analysis using the peer-reported bullying measure as the dependent variable is summarized in Table 3. Consistent with the first hypothesis, conduct problems was positively associated with bullying ($\beta = .36, p < .001$) and there were no significant main effects for CU traits. Moreover, as predicted, there was no significant interaction between CU traits and conduct problems for the prediction of bullying.

Anger Dysregulation. The results of the analysis using anger dysregulation as the dependent variable are summarized in Table 3. The current study hypothesized that the association between anger dysregulation and CU traits would be stronger for those lower on CU traits. Results indicated that anger dysregulation was positively associated with both CU traits and conduct problems ($\beta = .12, p < .05$ and $\beta = .38, p < .001$, respectively). Furthermore, there was a significant interaction between CU traits and conduct problems ($\Delta R^2 = .01, F(6, 275) = 10.91, p < .05$) in predicting anger dysregulation. The form of this interaction is provided in Figure 1. Post hoc probing indicated that, as predicted, conduct problems were more strongly associated with anger dysregulation for those lower on CU traits ($\beta = .52, p < .001$) than for those higher on CU traits ($\beta = .28, p < .001$).

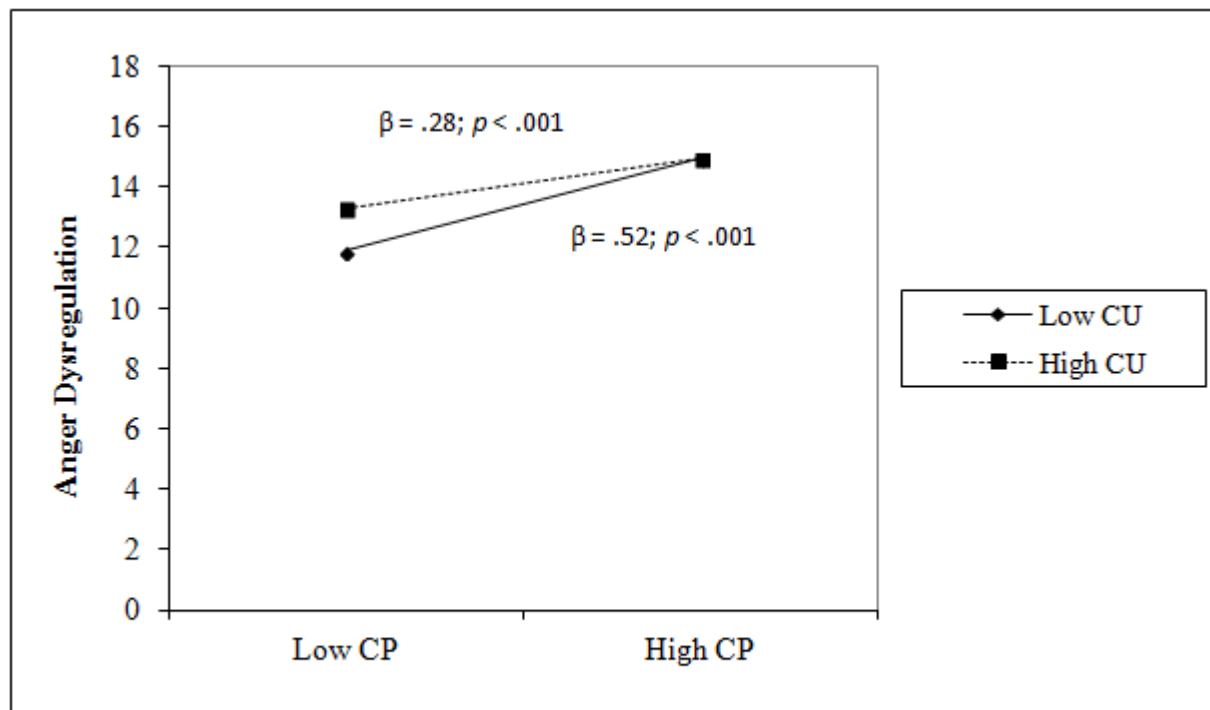


Figure 1. Figure shows a significant interaction between callous-unemotional (CU) traits and conduct problems (CP) in the predicting anger dysregulation.

Victimization. To test the hypothesis that the association between victimization and conduct problems would be stronger for those lower on CU traits, the hierarchical multiple regression analysis was repeated with victimization as the dependent variable. These results are also summarized in Table 3. Results indicated that victimization was positively associated with conduct problems ($\beta = .25, p < .001$)

and there was no significant main effect for CU traits in the prediction of victimization. Furthermore, the interaction between CU traits and conduct problems approached significance ($\Delta R^2 = .10$, $F(6, 275) = 5.13$, $p < .07$). The form of this interaction is provided in Figure 2. Post hoc probing revealed that, as predicted, conduct problems were somewhat more strongly associated with victimization for those with lower levels of CU traits ($\beta = .29$, $p < .01$) than for those with higher levels of CU traits ($\beta = .09$, n.s.).

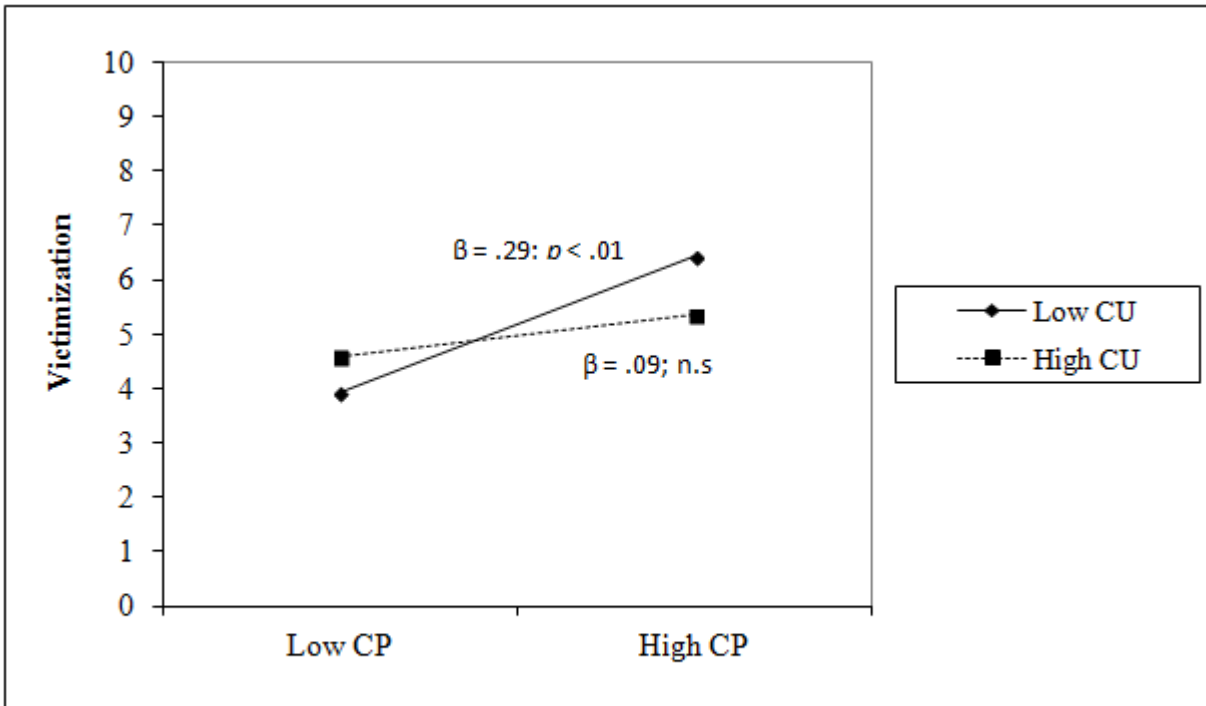


Figure 2. Figure shows a near-significant interaction between callous-unemotional (CU) traits and conduct problems (CP) in predicting victimization.

Perceived Peer Support. The results of the analysis using perceived peer support as the dependent variable are summarized in Table 3. It was hypothesized that the association between perceived peer support and conduct problems would be stronger for those higher on CU traits. Results indicated that CU traits were negatively associated with perceived peer support ($\beta = -.23$, $p < .001$). However, contrary to the hypothesis, there was no significant effect for conduct problems, nor was there a significant interaction between CU traits and conduct problems for the prediction of perceived peer support.

Attitudes towards Bullying. The results of the analysis using attitudes towards bullying as the dependent variable are summarized in Table 3. It was predicted that the association between attitudes towards bullying and conduct problems would be stronger for those with higher levels of CU traits. Results indicated that attitudes towards bullying was negatively associated with CU traits ($\beta = -.12, p < .05$), and positively associated with conduct problems ($\beta = .53, p < .001$). Moreover, the interaction between CU traits and conduct problems in the prediction of attitudes towards bullying approached significance ($\Delta R^2 = .01, F(6, 275) = 13.82, p < .09$). The form of this interaction is provided in Figure 3. Post hoc probing revealed that, contrary to the hypothesis, conduct problems were more strongly related to attitudes towards bullying for those lower on CU traits ($\beta = .62, p < .001$) than for those higher on CU traits ($\beta = .45, p < .001$), although both slopes were statistically significant.

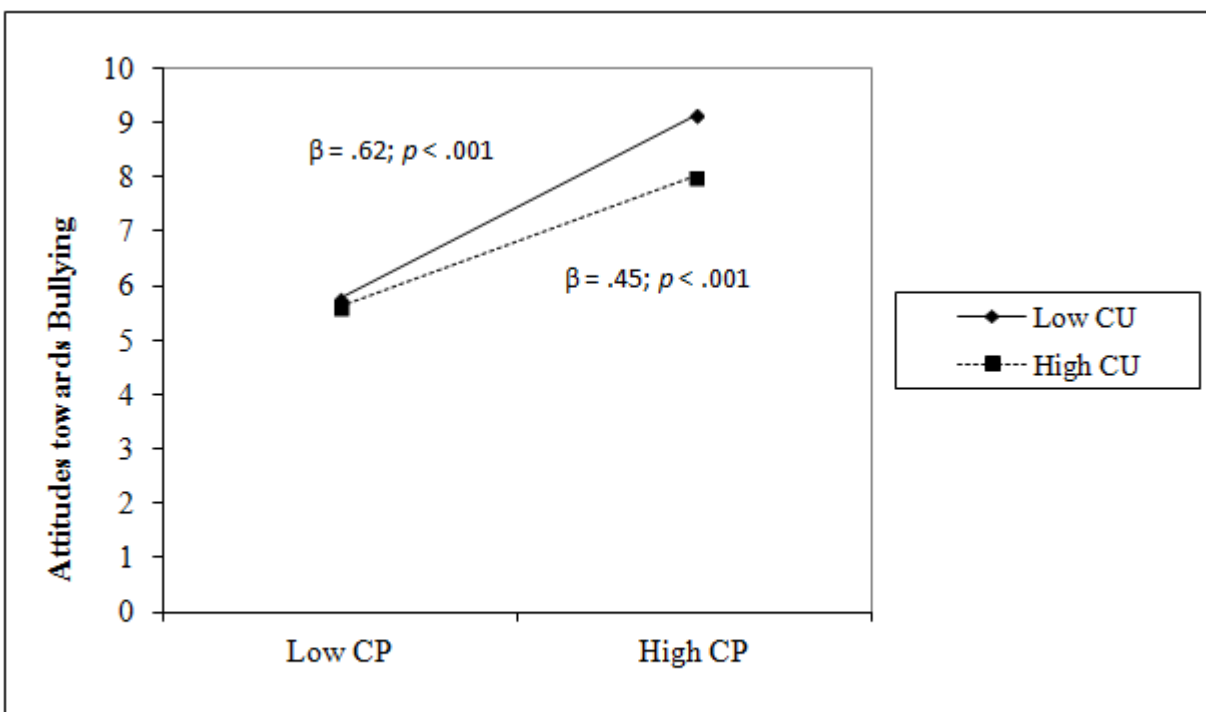


Figure 3. Figure shows a near-significant interaction between callous-unemotional (CU) traits and conduct problems (CP) in predicting attitudes towards bullying.

Test for Partial Mediation. The final hypothesis predicted that anger dysregulation, victimization, perceived peer support, and attitudes towards bullying would account for the association between conduct problems and bullying. That is, once these variables are entered as covariates, it was

predicted that this association would no longer be significant or would be significantly reduced. The association between conduct problems and bullying is $\beta = .34, p < .001$ without controlling for anger dysregulation, victimization, perceived peer support, and attitudes towards bullying. Further, this association was reduced somewhat ($\beta = .31, p < .001$) when controlling for anger dysregulation, victimization, perceived peer support, and attitudes towards bullying; however the association remained significant.

The bootstrapping method, as recommended by Preacher and Hayes (2008), was conducted to examine whether this change in the association was significant. In this procedure, bullying was entered as the independent variable; conduct problems as the dependent variable; anger dysregulation, victimization, perceived peer support, and attitudes towards bullying, as potential mediators (statistically); and sex, age, ethnicity, and CU traits as additional covariates. Conduct problems total effect (coefficient = .125, $t = 6.25, p < .001$) and direct effect after accounting for the covariates (coefficient = .114, $t = 4.84, p < .001$) on bullying were both significant. However, the total indirect effects (point estimate = .011) was not significant as indicated by the associated confidence interval (Bias Corrected CIs: Total = -.0001 to .0115) which included zero. Inconsistent with the hypothesis, this suggests that there was not a significant decrease in the association between conduct problems and bullying when anger dysregulation, victimization, perceived peer support, and attitudes towards bullying were all controlled for.

Discussion

Several results were consistent with the study hypotheses. First, conduct problems and bullying were significantly correlated and this was not moderated by CU traits. Second, anger dysregulation and, to some extent (but not statistically significant), victimization were more strongly associated with conduct problems in those with lower levels of CU traits. These results have several implications for understanding the association between bullying and conduct problems and for understanding the different developmental pathways leading to both.

The current study's results indicating an association between conduct problems and bullying irrespective of the presence of CU traits is both consistent and inconsistent with prior research.

Specifically, the association between conduct problems and bullying is found consistently in past work. For example, conduct problems were related to bullying ($r = .23, p < .01$) over a two year period in a sample of adolescents (Fanti & Kimonis, 2012). Furthermore, another study reported that while children who engaged in *either* direct and relational bullying displayed increased rates of conduct problems and behavioral problems, it was children that engaged in *both* relational and direct forms of bullying that were more likely to have the highest rates of problem behaviors (Wolke et al., 2000). However, the failure to find a moderating influence of CU traits is inconsistent with another study in which a significant interaction was found between conduct problems and CU traits in the prediction of bullying such that the association between conduct problems and bullying was stronger in those higher on CU traits (Viding et al., 2009). This disparity in results may be due to the fact that the Viding et al. (2009) study used a measure of bullying that included both direct and indirect (e.g., rumor spreading, purposely excluding another from a group) forms of bullying and it is possible that CU traits may play more of a role in indirect forms of bullying.

The findings regarding a stronger relationship between conduct problems and both anger dysregulation and victimization for those low on CU traits is consistent with past research suggesting that youth with conduct problems without significant levels of CU traits tend to have deficits in emotional regulation and to be less liked by their peers (Frick, Cornell, Bodin, et al., 2003; Webster-Stratton, Reid, & Hammond, 2004). In turn, this poor emotional regulation may lead to an endorsement of a hostile attributional style that is characterized by the misinterpretation of social cues which can lead to higher rates of reactive aggression (Dodge & Coie, 1987). In support of this possibility, research indicates that youth with conduct problems without significant levels of CU traits tend to engage in higher rates of reactive aggression (Fanti, Frick, & Georgiou, 2009; Marsee & Frick, 2007).

One finding that was not consistent with hypotheses was the finding that conduct problems were somewhat more strongly related to attitudes towards bullying for those lower on CU traits as opposed to those higher on CU traits. This interaction was again, not statistically significant, and attitudes towards bullying was significantly associated with conduct problems even for those higher on CU traits.

However, the pattern of findings is not consistent with past research. Specifically, research indicates that youth with conduct problems and significant levels of CU traits are more likely to view aggression as a more acceptable means of obtaining desirable goals relative to youth with conduct problems and normative levels of CU traits (Barry et al., 2000; Frick et al., 2003). One possible explanation for our findings is that it may be specific towards attitudes towards bullying rather than attitudes towards aggression in general. Specifically, children who are both bullies and victims may not only be more likely to be victimized because they are less socially competent and have deficits in social problem-solving (Cook et al., 2010, Perren & Alasker, 2006), but also be more likely to bully others due to their heightened reactive aggression in response to threats (Pellegrini et al., 1999; Unnever, 2005). It is possible that a combination of these factors may lead to an endorsement of bullying behavior, perhaps because this group may feel justified in bullying others due to their personal history of victimization. In support of this possibility, one study found that both bullies and victims were more likely to have high self-efficacy for aggression; whereas, lower rates of victimization was more likely to be associated with high self-efficacy for assertion and the likelihood of intervening in a bully situation (Andreou, Vlachou, & Didaskalou, 2005). These results suggest that bully-victims may be at an increased risk for endorsing pro-bully attitudes.

Our study and much past research has documented an association between bullying with conduct problems (Crapanzano et al., 2011; Fanti et al., 2009; Fanti & Kimonis, 2009 Viding et al., 2009). However, there is limited research examining whether this association is accounted for by different factors depending on the level of CU traits. Unfortunately, none of the factors studied in the current study were more highly associated with conduct problems in those youth with higher levels of CU traits. Thus, this possibility could not be tested. However, the current study indicated that the relationship between conduct problems and bullying was not significantly reduced when anger dysregulation, victimization, perceived peer support, and attitudes towards bullying were controlled for. This finding suggests that none of the study variables examined accounted for the association between bullying and conduct problems. It is possible that other variables, especially those found to be more strongly associated with

conduct problems in those higher on CU traits may explain more of this association. Specifically, youth with higher levels of CU traits are more likely to show lower levels of empathy (Frick & White, 2008). For example, research indicates that these youth demonstrate deficits in processing emotional stimuli (Marsh et al., 2008) and in recognizing emotional distress in others (Kimonis, et al., 2006; Kimonis, Frick, Munoz, & Aucoin., 2009). In addition, these youth tend to display decreased levels of anxiety and fear (Pardini, Lochman, & Powell, 2007) and a blunted response to punishment cues (Fisher & Blair, 1998; O'Brian & Frick, 1996) in comparison to youth with conduct problems without CU traits. It is possible that these variables, which were not measured in the current study, may account for some of the association between conduct problems and bullying.

The current study had other limitations as well. First, with the exception of the bullying measure, all other measures were self-report. As a result, some of the associations may have been inflated due to shared method variance amongst measures. Secondly, due to the cross-sectional nature of the current study causal associations between variables cannot be determined. For example, the current study found that anger dysregulation and, to some extent, victimization were more strongly related to conduct problems for youth with lower levels of CU traits. One limitation to this study is that it is not certain whether it is anger dysregulation (or victimization) that leads to the conduct problems or the conduct problems that lead to anger dysregulation. It is possible that there is a bidirectional effect between these variables. For example, one study indicated that students who were both bullied and participated in bullying were more likely to report poorer peer relationships and loneliness (Nansel et al., 2001). On the other hand, research also shows that bully-victims tend to be the most behaviorally disturbed (Wolke et al., 2000). It is possible that children with conduct problems and lower levels of CU traits may already have poor social skills which lead to negative interactions with their peers and susceptibility to peer victimization. In return, this constant victimization may lead to a hostile attributional style and emotional problems. As this emotional dysregulation increases, it is likely that this group of youth continues a cycle that perpetuates negative peer interactions, poor emotional regulation, and problem behaviors. Third, participants with conduct problems may have been underrepresented in the current study because at-risk

individuals may be less likely to return parental consent or be less willing to participant. However, the level of parental willingness to provide consent for the current study is consistent with the rate of obtained parental consent in past research utilizing school populations with higher poverty rates (Esbenson, Melde, Taylor, & Peterson, 2008) and a large study conducted in 143 high schools with a sample of 13,195 students found that students' level of aggressive behavior did not affect the rate of student participation (Eaton, Lowry, Brener, Grunbaum, & Kann, 2004). Finally, because the current sample consisted of ethnically diverse students enrolled in a semi-rural public school, the current findings may not be generalizable to more urban student populations.

In light of the previously mentioned limitations, the current results may shed some light on the efficacy of considering different developmental processes that may lead to conduct problems. Specifically, children with conduct problems may engage in bullying for different reasons depending on their level of CU traits. Importantly, youth with conduct problems without significant levels of CU traits appear to have more deficits in emotional regulation and social skills which make them more likely to be victimized compared to those with significant levels of CU traits. Thus, these two groups show distinct characteristics that may differentially respond to treatment and bullying interventions. These findings provide further support for the proposed DSM-5 specifier for Conduct Disorder “with Limited Prosocial Emotions” which will designate those youth who show significant conduct problems with high levels of CU traits (Frick & Nigg, 2012). Specifically, youth with serious conduct problems but without this specifier tend to display higher rates of reactive aggression, have problems managing anger, and tend to have poorer social skills. As a result, it may be helpful for potential treatment plans and bullying intervention programs to focus on training this group of youth on learning ways to inhibit angry responses and to develop more effective social skills (Domitrovich, Cortes, & Greenberg, 2007).

In contrast, youth with serious conduct problems with limited prosocial emotions tend to use both proactive and reactive aggression, to be more thrill-seeking, to have lower rates of empathy, to have deficits in recognizing fear and distress in others, and to be less sensitive to punishment cues. There is research to indicate that when using comprehensive effective treatments this group of youth responds well

to treatment (Kolko & Pardini, 2010). For this group, it may be less helpful to focus on problems related to emotion dysregulation. However, it may be more beneficial to focus on treatments that emphasize training empathy skills and using strategies to motivate behavior which emphasize rewards, while deemphasizing punishment (Frick, 2009). Thus, because different developmental pathways may lead to the same problem it is crucial that clinicians recognize the unique causes and create individualized treatment plans to better serve youth with conduct problems and such individualized approaches could be beneficial for interventions designed to reduce bullying as well.

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***University Committee for the Protection
of Human Subjects in Research
University of New Orleans***

Campus Correspondence

Dr. Paul Frick
Carrie Dickens
Andrew Terranova

3/23/2006

RE: Aggression and bullying in late childhood and adolescence

IRB#: 01apr06

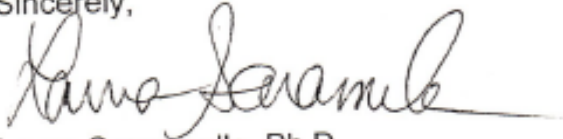
The IRB has deemed that the research and procedures are compliant with the University of New Orleans and federal guidelines.

Please remember that approval is only valid for one year from the approval date. Any changes to the procedures or protocols must be reviewed and approved by the IRB prior to implementation.

If an adverse, unforeseen event occurs (e.g., physical, social, or emotional harm), you are required to inform the IRB as soon as possible after the event.

Best of luck with your project!

Sincerely,



Laura Scaramella, Ph.D.

Chair, University Committee for the Protection of Human Subjects in Research

Vita

Farrah Naz Golmaryami was born in Jackson, Mississippi. She graduated Summa Cum Laude with a B.S. in psychology from the University of Southern Mississippi in 2008. She will be entering her 3rd year in the Applied Developmental Psychology program at the University of New Orleans. Her research interests include pathways to child and adolescent developmental psychopathology and the role that peers play in the development of child and adolescent aggression and antisocial behavior. Farrah will be teaching Introductory to Psychology in the Fall.