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## Positive Parenting, Conduct Problems, and Callous-Unemotional Traits

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Positive Parenting, Conduct Problems, and Callous-Unemotional Traits

A Thesis

Submitted to the Graduate Faculty of the  
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In  
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Applied Developmental

By

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## Abstract

The current study tested the association of both positive and negative aspects of parenting with callous-unemotional (CU) traits and conduct problems. Caregivers of 92 kindergarteners were recruited to complete a series of survey measures. Overall, parent-report of negative parenting practices was not associated with teacher report of conduct problems. However, parent report of positive parenting practices (i.e., warmth, positive reinforcement, positive communication and cooperation) was negatively associated with conduct problems and CU traits. Interactions between positive parenting variables and CU traits in their association with conduct problems indicated that positive reinforcement related more strongly to lower levels of conduct problem behavior for youth with high levels of CU traits. However, positive communication and cooperation related more strongly to conduct problems for youth with lower levels of CU traits. These associations suggest that parenting may play a role in the development of CU traits and conduct problems.

Key words: parenting, conduct problems, callous-unemotional traits, parental warmth, positive reinforcement

## Positive Parenting, Conduct Problems, and Callous-Unemotional Traits

Conduct problems (CP) are conceptualized in the DSM-5 as the behavioral criteria for the diagnoses of Oppositional Defiant Disorder (ODD) and Conduct Disorder (CD). CP include the less severe behavior that are the criteria for ODD, such as deliberately annoying others and arguing with authority figures. CP also include the more severe behavior that are the criteria for CD, such as being physically cruel to humans or animals and deliberately destroying other's property (American Psychiatric Association [APA], 2013). A subset of youth who fit a diagnosis of CD also qualifies for the specifier in the DSM-5 "with limited prosocial emotions" (APA, 2013). In the research literature, the indicators of this specifier are often termed callous-unemotional (CU) traits and include shallow emotions, a lack of empathy and guilt, and a lack of caring about performance in important activities (Frick, 2009).

One of the primary reasons CU traits was added as a specifier for the diagnosis of CD is that children with CP who also show elevated rates of CU traits show a more severe, stable, and impairing pattern of CP (see Frick, Ray, Thornton, & Kahn, 2014 for a review). Specifically, youth with CP and high levels of CU traits show more severe aggression that leads to more serious harm in others and their aggression tends to be more instrumental (i.e., for gain) and premeditated compared to other youth with CP (Frick, Cornell, Bodin, Dane, Barry, & Loney, 2003; Kruh, Frick, & Clements, 2005; Lawing, Frick, & Cruise, 2010; Marsee & Frick, 2007). Youth with elevated CU traits also have an earlier onset of CP (Dandreaux & Frick, 2009; Silverthorn, Frick, & Reynolds, 2001) and a more stable and persistent course of CP over time (Frick, Stickle, Dandreaux, Farrell, & Kimonis, 2005; Rowe et al., 2010), showing increased rates of arrests and antisocial personality disorder behaviors and diagnosis in adulthood (McMahon et al., 2010).

Thus, the group of children with serious CP and elevated CU traits is a clinically important one because of the problems they cause for themselves and others. As a result, understanding the etiology of their CP and understanding how these etiological factors may differ from those leading to CP in other children is critical. Such advances could lead to early and more effective interventions for this subgroup of youth, cutting down costs to both the youth and society. Specifically, understanding the different etiological pathways among children with severe conduct problems could help interventions be tailored to their unique needs.

### **A Brief Summary of Research on Developmental Pathways to Conduct Problems**

One of the main developmental differences in pathways to CP is when the onset of CP occurs: either in childhood or adolescence. Adolescent-onset CP is associated with high levels of rebelliousness, a rejection of traditional values, and an association with a deviant peer group. Adolescent-onset CP is usually confined to the adolescent years and appears to be an exaggeration of normal teenage rebellion (Frick, 2013). Childhood-onset CP appears to be more enduring and involves impairments that cut across developmental stages. Within the childhood-onset group, the presence of CU traits appears to be important for distinguishing etiologically distinct subgroups.

For youth with CP without CU traits, the primary causal factor is problems in behavioral and emotional regulation. Specifically, these children often show high rates of impulsivity and diagnoses of Attention Deficit Hyperactivity Disorder (ADHD; Caputo, Frick, & Brodsky, 1999; Christian, Frick, Hill, Tyler, & Frazer, 1997; Frick, Bodin, & Barry, 2000; Frick & Ellis, 1999). They are upset by the effects of their behavior on others (Frick et al., 2003; Frick, Lilienfeld, Ellis, Loney, & Silverthorn, 1999; Pardini, Lochman, & Frick, 2003) and show high levels of reactivity to emotional words and pictures (Loney, Frick, Clements, Ellis, & Kerlin, 2003; Kimonis, Frick, & Barry, 2004; Pardini et al., 2003). Youth

with CP without elevated CU traits also have lower IQ scores, especially lower verbal IQ, than youth without CP or youth with CP and CU traits (Christian et al., 1997).

Youth with both CP and CU traits differ in many ways from youth with CP but without CU traits. For example, the CP in youth with high CU traits are more strongly related to genetic influences. Specifically, in a large twin study, Viding, Blair, Moffitt, & Plomin (2005) found that CP in children with normative levels of CU show relatively equal levels of influences from shared environment, non-shared environment, and genetic factors. The CP in children with high levels of CU traits, in contrast, are highly influenced by genetics (80%) with the remainder being due to the non-shared environment. Furthermore, children with high levels of CU traits show high levels of fearlessness (Blair, 1999) and show a lack of response to emotionally distressing stimuli (Blair, 1999; Kimonis, Frick, Fazekas, & Loney, 2006; Loney et al., 2003). These findings suggest that, rather than being driven by problems with behavioral and emotional regulation, the CP in children with elevated CU traits seem to be driven by poor arousal to the misfortune of others, a fearless temperament, and a lack of recognition of the harm they cause to others (Frick, 2013).

### **Parenting Practices and the Etiology of Serious Conduct Problems**

Thus, there appears to be a number of differences in the etiology of serious conduct problems across the various developmental pathways recognized in the DSM-5: adolescent-onset, childhood-onset, and childhood-onset with CU traits. Further, research suggests that there are likely multiple causal factors in each pathway that can negatively influence the child's development. One etiological factor that has been critical for many causal theories of conduct problems is poor parenting practices, such as low parental involvement, poor monitoring and supervision, inconsistent and harsh discipline, failure to use positive reinforcement, and low warmth (Loeber & Stouthamer-Loeber, 1986; Shaw, Gilliom, Ingoldsby, & Nagin, 2003; Webster-Stratton, 1998; Wootton, Frick, Shelton, & Silverthorn,

1997). The importance of these parenting factors is increased by the findings that interventions that target these factors tend to be the most effective in reducing conduct problems, especially in young children (Frick, 2012).

As with other causal factors, however, there is evidence that the role of parenting in the etiology of conduct problems may differ across the developmental pathways to serious conduct problems. Youth with childhood-onset CP tend to come from homes with more dysfunctional parenting and greater family conflict and instability, and report feeling more distant from their family (Dandreaux & Frick, 2009; Moffitt & Caspi, 2001; Moffitt, Caspi, Dickson, Silva, & Stanton, 1996; McCabe, Hough, Wood, & Yeh, 2001), whereas CP in the adolescent-onset pathway are less strongly related to family dysfunction (Moffitt, et al., 1996). There is also research to suggest that within the childhood-onset pathway, the role of parenting may differ depending on level of CU traits. Specifically, research has suggested that the presence of CU traits may moderate the association between parenting and CP, with dysfunctional parenting being more strongly associated with CP in youth with normative levels of CU traits (Edens, Skopp, & Cahill, 2008; Hipwell et al., 2007; Koglin & Petermann, 2008; Oxford, Cavell, & Hughes, 2003; Wootton et al., 1997). For example, in a study with adolescent offenders, Edens, Skopp, and Cahill (2008) found that harsh and inconsistent discipline only predicted antisocial behavior for youth without CU traits. Wootton, Frick, Shelton, and Silverthorn (1997) similarly found that a composite of lower positive and higher negative parenting was associated with a higher level of CP only for those without CU traits in a sample of six to thirteen year olds. Finally, in a sample of seven and eight year old girls, Hipwell et al. (2007) found that the associations between both harsh punishment and CP and low warmth and CP decreased as the level of CU traits increased.

Thus, there is strong evidence to suggest that parenting practices are highly related to the development of CP but their role may differ across the various developmental pathways.

Causal theories need to consider these differences. Further, these differences may have important implications for tailoring interventions to subgroups of youth with CP. However, there are currently several significant limitations in the existing literature that, if addressed, could have important implications for both theory and treatment.

### **Differences in the Role of Positive and Negative Parenting**

Most of the research on parenting and CP that has considered the moderating role of CU traits has focused on negative parenting (e.g., Fontaine, McCrory, Boivin, Moffitt, & Viding, 2011; Kroneman, Hipwell, Loeber, Koot, & Pardini, 2011; Larsson, Viding, & Plomin, 2008; Oxford et al., 2003) rather than positive parenting practices. Negative parenting includes a range of dysfunctional parenting behaviors such as poor monitoring/supervision (Frick, Kimonis, Dandreaux, & Farell, 2003; Hawes, Dadds, Frost, & Hasking, 2011), harsh and inconsistent discipline (Barker, Oliver, Viding, Salekin, & Maughan, 2011; Edens et al., 2008; Frick et al., 2003; Hipwell et al., 2007), and corporal punishment (Barker et al., 2011; Falk & Lee, 2012). Research on negative parenting and CP and CU traits has reported fairly consistent findings suggesting that dysfunctional parenting is more strongly associated with CP in youth with normative levels of CU traits. This moderating role of CU traits has been replicated across age groups and different types of samples (Edens et al., 2008; Hipwell et al., 2007; Koglin & Petermann, 2008; Oxford et al., 2003; Pasalich, Dadds, Hawes, & Brennan, 2011).

Importantly, much fewer studies have considered positive parenting and whether or not CU traits moderate its association with CP as well. The lack of research on the association between positive parenting and CP for children with elevated levels of CU traits is significant because research shows that youth with CU traits are more responsive to rewards than to punishments. Specifically, studies show that youth with CU traits are less sensitive to punishment when a reward response set is already established (Fisher & Blair,

1998; Frick et al., 2003; Hawes & Dadds, 2005; O'Brien & Frick, 1996). Thus, focusing on parenting practices that seek to encourage positive behavior through reinforcement or through a warm and responsive parent-child relationship may be particularly important for this group of children.

In the few studies that have focused on positive parenting and considered the moderating role of CU traits, the findings are mixed. Some studies have found that positive parenting practices do seem to play a role in the development of CP for youth with elevated CU traits (Barker et al., 2011; Kochanska, Kim, Boldt, Yoon, 2013; Pasalich et al., 2011), whereas others have not (Falk & Lee, 2012; Hyde et al., 2013; Wootton et al., 1997; Yeh, Chen, Raine, Baker, & Jacobson, 2011). For example, Pasalich, Dadds, Hawes, and Brennan (2011) found that maternal warmth was negatively correlated with CP for youth with high levels of CU traits in a sample of 4 to 12 year old clinic referred boys. However, Falk and Lee (2012), using a sample of 6 to 9 year old clinic-referred children, found that parental positive reinforcement and involvement related to lower levels of CP only for youth without CU traits. As a result of the inconsistencies in this area, more research is needed on the association between positive parenting practices and CP in children with elevated CU traits and, even more importantly, such research needs to address several inconsistencies in past work.

### **Variations in the Assessment of Positive Parenting**

One possible reason for the inconsistent findings in past research is that definitions of positive parenting are mixed and incorporate multiple disparate aspects of parenting and the parent/child relationship. Studies on positive parenting include use of positive reinforcement, display of positive affect towards the child, degree of parental involvement, degree and quality of parent/child cooperation, and positive communication between parent and child (Barker et al. 2011; Falk & Lee, 2012; Hyde et al., 2013; Kochanska et al., 2013; Pardini,

Lochman, & Powell, 2007; Pasalich et al., 2011; Yeh et al., 2011). Thus, although these studies all share the commonality of examining what are termed “positive parenting practices”, the actual types of parenting studied are dissimilar and the types of positive parenting may differ in their association with CP in youth with elevated CU traits.

One of the more common types of positive parenting studied in conjunction with CP for youth with high levels of CU traits is positive reinforcement. Studies have captured positive reinforcement in a variety of ways. The positive reinforcement subscale of the Alabama Parenting Questionnaire (APQ; Frick, 1991; Shelton, Frick, & Wootton, 1996) is the most commonly used measure for assessing positive reinforcement. The positive reinforcement subscale can be used as both parent and child report (e.g., Frick et al., 2003), but has more commonly been used as parent report (Falk & Lee, 2012; Hawes et al., 2011; Pardini et al., 2007; Wootton et al., 1997). Sample items from this scale include: “you let your child know when he/she is doing a good job with something” and “you reward or give something extra to your child for obeying you or behaving well.” Other measures of positive reinforcement have included observational coding for physical and verbal positive reinforcement, suggestions of positive activities, and positive structure, such as giving options when requesting a change in behavior (Hyde et al., 2013). Thus, positive reinforcement captures a positive parental response to an appropriate child behavior, including giving verbal and physical praise and extra rewards (Shelton et al., 1996).

Another aspect of parenting assessed in relation to CP and CU traits is parental warmth, which focuses on the emotional aspect of parenting. The most common way that parental warmth has been assessed in past research is through parent report on questions related to feelings about the child, such as wanting to spend time with the child, positive feelings about the parent/child relationship, feeling close and loving with the child, and feeling that the child gives joy to the parent (Barker et al., 2011; Dadds et al., 2013; Fontaine

et al., 2011; Hipwell et al., 2007; Kroneman et al., 2011). Another way that parental warmth has been measured is by assessing parental positive feelings towards the child by coding speech samples of parents talking about their children and their parent-child relationships. These speech samples are coded for warm attitudes toward the child, such as how positive the parent is about the child's behavior and personality and how positive the parent is about the parent-child relationship (Pasalich et al., 2011). Additionally, observational methods include coding the amount of warmth and affection expressed towards the child during parent-child interactions, such as coding for level of comfort and genuineness when the mother tells the child she loves him/her, verbal and physical expressions of affection, and eye contact (Dadds et al., 2011; Dadds et al., 2012; Dadds et al., 2013; Kochanska et al., 2013). Overall, parental warmth captures both how the parent feels about the child and his/her expression of warmth to the child.

A third aspect of positive parenting examined in past research is parent/child cooperation. Though one study used parent report (Barker et al., 2011), parent/child cooperation is usually measured by coding observations of parent-child interactions (Dadds et al., 2011; Dadds et al., 2013; Hyde et al., 2013; Kochanska et al., 2013; Waller, Gardner, & Hyde, 2013). These observations are coded for mutual responsivity in the parent-child interaction, including ease of coordinated routines, meaning the mother and child have "easy, comfortable, coordinated routines that reflect shared procedural expectations" and there is an "open, willing, receptive stance" from both parent and child toward each other (Kochanska et al., 2013, p. 1253). Other observational data for cooperation include coding shared attention and seeking each other's involvement in an activity (Dadds et al., 2013), as well as assessing how much the parent engages with the child in activities during the experimental session or in the home and the quality of those interactions (Barker et al., 2011; Dadds et al., 2011; Dadds et al., 2013; Hyde et al., 2013; Waller et al., 2013).

As noted above, parental involvement is highly related to parent/child cooperation in some measures but also captures how much the parent participates in important activities in the child's life, such as talking to the child about his/her friends, asking the child about his/her day at school, playing games with the child, driving the child to a special activity, and volunteering to help with after school activities (Falk & Lee, 2012; Pardini et al., 2007; Shelton et al., 1996; Wootton et al., 1997). Many studies have used the APQ to capture parental involvement (e.g., Falk & Lee, 2012; Frick et al., 2003; Hawes et al., 2011; Kimonis et al., 2004; Pardini et al., 2007). Parent report format is more common (e.g., Hawes et al., 2011; Wootton et al., 1997), but child report has also been used (Frick et al., 2003; Kimonis et al., 2004). Overall, parental involvement captures the extent to which the parent makes an effort to be involved in the child's life.

Finally, positive communication has also been examined as an aspect of positive parenting in past research on CU traits and CP. Positive communication includes positive structuring of the child's behavior, such as giving the child choices for a behavior change, giving reasons for a behavior change, and redirecting the child when he/she gets off task or misbehaves. Positive communication also includes smooth communication, including using verbal structuring to make a task more manageable, talking to the child in a calm, simple, and clear manner, and communicating in a connected and harmonious way (Hyde et al., 2013; Kochanska et al., 2013; Waller et al., 2012). Measured observationally, positive communication captures aspects not only of parenting style, but also of the parent/child relationship (Kochanska et al., 2013). Positive communication addresses the style and ease of communication in the relationship and the way in which the parent interacts verbally with the child.

Clearly, there are multiple distinct aspects of positive parenting. Though these parenting practices all capture aspects of parenting and the parent/child relationship, the

inconsistencies in the way positive parenting is conceptualized could be contributing to the mixed findings in the field. Eight studies included multiple positive parenting practices combined into one positive parenting composite (Barker et al., 2011; Dadds et al., 2011; Dadds et al., 2013; Falk & Lee, 2012; Hyde et al., 2013; Kochanska et al., 2013; Pardini et al., 2007; Wootton et al., 1997). The studies incorporating parental warmth (Barker et al., 2011; Kochanska et al., 2013), along with one study that examined solely parental warmth (Pasalich et al., 2011), found that parental warmth was associated with CP in youth with elevated CU traits. One study incorporating positive reinforcement (Pardini et al., 2007) found that parenting was associated with CP for youth with CU traits, but four other studies that included measures of positive reinforcement found that parenting was not associated with CP for youth with elevated CU traits (Falk & Lee, 2012; Hyde et al., 2013; Wootton et al., 1997; Yeh et al., 2011). However, these studies combined positive reinforcement with various other types of positive parenting, including parental engagement (Hyde et al., 2013) and parental involvement (Falk & Lee, 2012; Wootton et al., 1997). Thus, by combining various aspects of parenting into one overall composite, it is difficult to determine if certain aspects of positive parenting are more highly associated with CP in children with elevated CU traits than others aspects. However, the strongest evidence supports the association between parental warmth and CP in youth with high levels of CU.

### **Parenting and Age of the Sample**

Another possible reason for the inconsistency in the findings reported in past research on the association of positive parenting and CP is the wide age ranges of the samples across studies. Ages range from preschool (e.g., Hyde et al., 2013; Kochanska et al., 2013; Waller et al., 2012) to middle childhood (e.g., Frick et al., 2003; Pardini et al., 2007) to adolescence (Muñoz, Pakalniskiene, & Frick, 2011). Many studies include a wide range of ages, from young childhood through adolescence, rather than focusing on one age group (e.g., Barker et

al., 2011; Dadds et al., 2013; Wootton et al., 1997), and these studies reported mixed findings. Barker, Oliver, Viding, Salekin, and Maughan (2011) found that less warm parenting at age 2 was associated with CP and CU at age 13 for boys, and that a mother reporting that she did not enjoy her child at age 2 was associated with CP and CU at age 13 for girls. Wootton et al. (1997), in a sample of 6 to 13 year olds, found that level of CU traits moderated the relationship between positive parenting (i.e., positive reinforcement and parental involvement) and CP such that youth with high CU traits did not show an association between parenting and CP.

No study to date has focused on positive parenting and CP for youth with high CU traits that include solely adolescent samples. However, several studies examined the moderating role of CU traits on the association between positive parenting and CP in middle childhood (e.g., Dadds et al., 2011; Falk & Lee, 2012; Frick et al., 2003; Pardini et al., 2007; Pasalich et al., 2011; Yeh et al., 2011). Unfortunately, the findings for this age group are quite mixed. In some studies, positive parenting shows a negative association with CP in those high on CU traits. These studies have used measures of positive reinforcement and parental involvement for the parenting component (Pardini et al., 2007; Pasalich et al., 2011). However, three other studies reported the opposite pattern of results, with positive reinforcement and parental involvement only associated with less CP for youth with normative levels of CU traits (Falk & Lee, 2012; Wootton et al., 1997; Yeh et al., 2011). The wide age range, and therefore differences in developmental level, may contribute to the lack of conclusive findings for this age group.

In two studies that focused only within the preschool age group, findings were generally more consistent in showing that that positive parenting is negatively associated with levels of CP for youth with CU traits (Hyde et al., 2013; Kochanska et al., 2013). Kochanska, Kim, Boldt, and Yoon (2013) examined mutually responsive orientation (MRO),

a composite measure of positive parenting that includes parental warmth, parent/child cooperation, and positive communication. All data were coded observationally from videos of home and lab sessions. For children with high CU traits, increases in parent/child MRO predicted decreases in later CP. Hyde et al. (2013) examined the effectiveness of a family based intervention for CP for youth with CU traits and found that intervention effectiveness did not differ based on the child's level of CU traits. Hyde et al. (2013) assessed "positive behavior support" (p. 353), which encompassed parent-child cooperation, positive reinforcement, and positive communication. All data were coded observationally from a video in a home session. Hyde et al. (2013) found there was no moderating effect of youth level of CU traits on parenting and future CP in that positive parenting was negatively related to CP, irrespective of the level of CU traits.

#### **Parenting Influences on Callous-Unemotional Traits versus Parenting Influences on Conduct Problems for Youth with Callous-Unemotional Traits**

Another inconsistency in the existing research is in the outcomes that studies examine. In addition to examining the association of positive parenting with CP for youth with high levels of CU traits, research has also examined the relationship between positive parenting and the development of CU traits directly (e.g., Frick et al., 2003; Hawes et al., 2011). Examining a) positive parenting and its association with CP for youth with high CU or b) positive parenting and its association with CU traits directly is answering two distinct research questions. Specifically, positive parenting may be helpful in preventing the development of CU traits, but once they develop, parenting may not influence the child's CP. Additionally, there are youth who show high levels of CU but not CP, suggesting that CU and CP are likely due to least partially different causal factors (Barker et al., 2011; Frick et al., 2005). By not addressing this discrepancy and instead grouping all studies that

incorporate aspects of parenting, CP, and CU traits together, the literature incorrectly combines together two different, though related, research topics.

In one study no association was found between positive parenting, defined by positive reinforcement and parental involvement, and CU traits (Pardini et al., 2007). However, other studies have found that positive reinforcement, parental involvement, parent-child cooperation, and parental warmth are associated with lower levels of CU traits (Barker et al., 2011; Frick et al., 2003; Hawes et al., 2011; Pasalich et al., 2011). As with the association between CP and positive parenting, the association between positive parenting and CU traits is a bit more consistent when considering the age of the sample. In the middle-childhood age group, studies using a variety of methods, including child report, parent report, and observational measures, and examining a range of positive parenting practices, including parent-child cooperation, parental involvement, affective warmth, and positive reinforcement, show that youth who experience less positive parenting show higher levels of CU traits, both cross-sectionally and longitudinally (Frick et al., 2003; Pardini et al., 2007; Pasalich et al., 2011). In contrast, studies using preschool samples report more mixed findings. Longitudinal studies using parent report measures for the parenting data show that parent-child cooperation and positive reinforcement are associated with lower levels of CU traits for preschoolers (Barker et al., 2011; Hawes et al., 2011). However, other studies indicate that positive reinforcement, parent-child cooperation, and positive affect towards the child are not associated with CU traits in this age group (Dadds et al., 2011; Dadds et al., 2012; Dadds et al., 2013; Waller et al., 2012). Interestingly, the studies showing that parenting is associated with CU trait levels were parent report, and the studies showing that parenting was not associated with CU levels were observational. Potentially, CU traits may influence the parent-child relationship leading the parent to perceive that they are less positive in parenting than they actually are. Additionally, CU traits are likely still developing at this age and thus

findings may become more consistent as older ages are used in the sample. Because of the inconsistency in the current literature for the preschool age, more research is needed with young children samples assessing different types of positive parenting to determine if they are directly related to CU traits.

Another reason to assess parenting and CU traits at a young age is because empathic concern for others begins to develop in infancy and toddlerhood (Knafo, Zahn-Waxler, Van Hulle, Robinson, & Rhee, 2008; Sagi & Hoffman, 1976; Zahn-Waxler, Robinson, & Emde, 1992) and positive parenting has been associated with the development of empathy (Cornell & Frick, 2007; Miller, Eisenberg, Fabes, Shell, & Gular, 1989). Specifically, preschool children who have more supportive parents show more prosocial behavior than those with unsympathetic and punishing parents (Cornell & Frick, 2007; Miller et al., 1989). Parental warmth has also been found to relate to more child empathy through less child anger and increased child emotional expressiveness and emotional insight (Strayer & Roberts, 2004). Because parenting relates to the development of empathy and prosocial behavior in preschool aged children, it is important to examine parenting and CU traits in this age group. Parenting may have a stronger influence on the development of CU traits when empathy, guilt, and other aspects of prosocial behavior are first starting to emerge.

### **Statement of the Problem**

In summary, parenting has played a major role in many theories for the development of conduct problems. Research has suggested that the presence of callous-unemotional (CU) traits may modify the association between parenting and CP, with dysfunctional parenting being more strongly associated with CP in those with normative levels of CU traits. However, there are several limitations in the existing literature that could be important for advancing causal theories.

First, most of the research has focused on the association of negative parenting practices (e.g., harsh, inconsistent, and coercive discipline, poor monitoring and supervision, low parental warmth) and CP. Fewer studies have focused on the association between positive parenting practices and CP and whether this association is modified by levels of CU traits. Examining positive parenting could be important based on theories of children with CU traits suggesting that they are more responsive to rewards than to punishments. Second, the results of the few studies that have studied positive parenting and its association with CP in children who vary in their rates of CU traits have found mixed results. This lack of definitive findings could be due to variations in how positive parenting is defined. Researchers define positive parenting in a multitude of ways, including affective components (positive feelings towards the child), parent/child cooperation, positive reinforcement, parental involvement, and positive communication. Third, differences in the developmental level of the child have not been taken into consideration with most studies using samples with a wide age range. Combining a wide range of developmental levels may lead to inconclusive findings, as parenting could play a different role in the development of CP at different developmental stages. Further, in the studies that have studied more discrete age groups, findings are still mixed due to the use of a variety of types of parenting assessed under the blanket term positive parenting. Finally, another inconsistency in past research is whether studies have examined the association between parenting and CU traits directly or examined the association between parenting and CP in youth who vary in their levels of CU traits. This inconsistency is important because these are two different research questions and studying parenting practices directly with CU traits could bridge the work on the normal development of empathy, guilt, and other aspects of prosocial behavior with theories on the development of CU traits.

To address these limitations, the current study examined the associations among parenting practices (both positive and negative), CU traits, and CP. In order to address the varying definitions of positive parenting, the current study tested multiple dimensions of positive parenting, including the affective components of the parent-child relationship, positive reinforcement, parent-child cooperation, parental involvement, and harmonious parent-child communication. This methodology allows for the direct comparison of the strength of the associations across these different parenting dimensions. The current study also included measures of both levels of CU traits and levels of CP in order to separate out and compare the relationships between parenting and the development of CU traits and parenting and the development of CP for youth with high levels of CU traits.

### **Study Hypotheses**

The current study's hypotheses were:

1. Negative parenting practices (i.e., harsh and inconsistent parenting and corporal punishment) would be positively associated with conduct problems.

1a. The association between negative parenting practices and conduct problems would be moderated by level of CU traits. That is, for youth with high levels of CU traits, negative parenting practices would not be related to conduct problems, whereas negative parenting practices would be positively correlated with conduct problems at lower levels of CU traits.

2. Positive parenting (i.e., parental warmth, positive reinforcement, parental involvement, and parent-child cooperation and communication) would be negatively correlated with conduct problems.

2a. The relationship between positive parenting and conduct problems would not be moderated by the level of CU traits.

3. Positive parenting would be negatively correlated with level of CU traits, while negative parenting would positively correlated with level of CU traits. Partial correlations

would be used to determine whether these associations remained significant after controlling for conduct problems.

3a. Various aspects of positive parenting would be tested to determine if they differed in the strength of their correlations with CU traits.

## Method

### Participants

Participants were the primary caregivers and teachers of 92 children recruited from kindergarten classes in the Archdiocese of New Orleans Catholic school system. This sample size provided adequate power (0.73) to detect a small effect size ( $|r| = .23$ ,  $q = .3$ ) at the  $p = .05$  level in parenting and conduct problems and parenting and CU traits, as well as for detecting differences in correlation strength between various aspects of parenting and CU traits (0.62) (Faul, Erdfelder, Buchner, & Lang, 2009). In past research, a moderate effect size has been found for negative parenting and conduct problems for youth (Barker et al., 2011; Pasalich et al., 2011). The children ranged in age from 4.6 to 7.2 years old, with an average age of 6.2 ( $SD = 0.42$ ). 36 of the children were boys, 56 were girls, and parents identified their children primarily as Caucasian (57%), with a large portion identifying their children as minority races (African American, 33%; Hispanic, 1%). The remaining 9% of children did not have their ethnicity reported. The majority of parents were married (68%).

### Measures - Outcomes

**Inventory of Callous-Unemotional Traits (ICU; Frick, 2004).** The ICU is a 24-item measure that gives a total score for level of CU traits, as well as scores on three subscales: callous, uncaring, and unemotional (Kimonis et al., 2008). The measure was developed from the CU scale from the Antisocial Process Screening Device (APSD; Frick & Hare, 2001) and was created to focus specifically on capturing CU traits. The measure consists of a four-point Likert-type scale ranging from 0 (“Not at all true”) to 3 (“Definitely true”) on which participants indicate how much each statement describes the child. Statements include items such as, “Does not care who he/she hurts to get what he/she wants”, “Is concerned about schoolwork”, and “Does not show emotions”. Positively worded items are reverse coded. The parent-report version of the ICU has been validated and proven to be reliable with prior samples of young children in community samples ( $\alpha = .82 - .85$ )

(Kochanska et al., 2013; Somech & Elizur, 2012). In past samples, higher scores on the ICU were significantly correlated with higher levels of externalizing problems later in childhood (Ezpeleta, Osa, Granero, Penelo, & Domènech, 2013; Kochanska et al., 2013) and correlated with less rule-following behavior and prosocial decisions (Kochanska, Barry, Aksan, & Boldt, 2008). Parents and teachers completed the ICU for each child. Three items were removed due to poor item total correlations (i.e., negative loading onto the scale): items 2 (“Does not seem to know ‘right’ from ‘wrong’”), 10 (“Does not let feelings control him/her”), and 21 (“The feelings of others are unimportant to him/her”). Parent and teacher scores were modestly correlated with each other ( $r = .30, p = .006$ ). Teacher and parent reports were combined into a single ICU scale for each child by taking the highest rating on each item from either the parent or teacher report. The resulting scale had an acceptable internal reliability ( $\alpha = .84$ ).

**Disruptive Behavior Disorder Scale (DBD; Pelham, Gnagy, Greenslade, & Milich, 1992).** The DBD is a 45-item measure designed to capture disruptive behavior and is originally based on symptoms of disruptive behavior disorders from the DSM-III (oppositional defiant disorder, conduct disorder, and attention deficit/hyperactivity disorder), though has since been updated to reflect DSM-5 criteria. Parents and teachers rate the extent to which the child exhibits the behavior on a 4-point scale ranging from “Not at all” to “Very much.” Scores on subscales can either be based on number of symptoms of a disorder or factor scores. Using the factor scores method, there is one factor for oppositional/defiant behavior (Pelham et al., 1992). The DBD has been used with samples of elementary school community children, finding that disruptive behavior diagnoses are correlated with higher levels of negative parenting (Shelton, Frick, & Wootton, 1996) and lower levels of positive parenting (Falk & Lee, 2012). In the initial development of the scale, teacher ratings across the United States and Canada showed high reliability ( $\alpha = .96$  for ADHD subscale,  $\alpha = .95$

for ODD subscale,  $\alpha = .75$  for CD subscale) in a sample of boys between the ages of 5 and 14 (Pelham et al., 1992). In the current study, the subscale for ODD was used as the main outcome variable because the behaviors associated with this diagnosis capture the behavior problems most often shown by young children. The ODD scale had good internal reliability in the current sample ( $\alpha = .91$ ).

### **Measures - Parenting**

**Alabama Parenting Questionnaire (APQ; Frick, 1991; Shelton, Frick, & Wootton, 1996).** The preschool version of the APQ (APQ-PR; Clerkin, Marks, Policaro, & Halperin, 2007) was used as it was developed for use with younger children and was more appropriate for the age of this sample. The APQ-PR is similar to the full APQ but the poor parental monitoring and supervision subscale is removed, as monitoring the whereabouts of a child does not apply to younger children (example items on this subscale included “your child stays out in the evening past the time he/she is supposed to be home” and “your child fails to leave a note or to let you know where he/she is going”, which are irrelevant for young children) (Clerkin et al., 2007). The APQ-PR is a 32-item measure that assesses both negative and positive parenting practices. Parents rated how often they engage in the parenting practice on a scale ranging from 1 (“Never”) to 5 (“Always”). The APQ-PR consists of three scales: positive parenting, inconsistent parenting, and punitive parenting. The positive parenting subscale is comprised of items from the original APQ subscales of positive reinforcement and parental involvement. The positive reinforcement subscale consists of six items and captures how often the parent rewards the child for a positive or desired behavior (e.g., “You let your child know when he/she is doing a good job with something”, “You reward or give something extra to your child for obeying you or behaving well”). The parental involvement subscale consists of eight items that assess how often the parent makes an effort to engage with the child and how involved the parent is in the child’s life (e.g., “You

have a friendly talk with your child”, “You attend PTA meetings, parent/teacher conferences, or other meetings at your child’s school”). The inconsistent parenting subscale consists of seven items and measures a lack of follow through with discipline (e.g., “You threaten to punish your child and then do not actually punish him/her”, “Your child talks you out of being punished after he/she has done something wrong”). This subscale also includes one item from the original APQ poor monitoring and supervision subscale, “You get so busy that you forget where your child is and what he/she is doing,” which captures a lack of consistency in parental awareness of the child. The third subscale, punitive parenting, is comprised of five items and assesses how often a parent engages in corporal or harsh discipline (e.g., “You spank your child with your hand when he/she has done something wrong,” “You yell or scream at your child when he/she has done something wrong”). Additional items on the APQ-PR that do not load onto subscales include a few items from the original APQ parental monitoring/supervision subscale (e.g., “Your child is at home without adult supervision”) and general punishment items (e.g., “You send your child to his/her room as a punishment”). Though these items do not form a subscale, they can provide extra information about parenting practices.

The parent report version of the APQ-PR was used without the child report version because the child report version of the APQ lacks validity when the child is under age nine (Shelton et al., 1996). Although factor analyses of the APQ-PR support a combined positive parenting scale (Clerkin et al., 2007), the positive reinforcement and parental involvement items were kept separate for the purposes of the current study. The APQ-PR has been shown to be reliable ( $\alpha = .57 - .82$ ) and valid in past research, with increased positive maternal parenting associated with lower impairment in children with ADHD (Clerkin et al., 2007; Healey, Flory, Miller, & Halperin, 2011). The internal consistencies for the current sample were acceptable for the majority of the scales (inconsistent:  $\alpha = .75$ ; punitive:  $\alpha = .60$ ;

positive reinforcement:  $\alpha = .67$ ). The involvement scale, however, had poor internal consistency ( $\alpha = .46$ ). Additionally, item 14 (“You get so busy that you forget where your child is and what he/she is doing”) on the inconsistent parenting scale and item 19 (“You ignore your child when he/she is misbehaving”) on the punitive scale were deleted due to poor item total correlations (i.e., negative or below .01 loadings onto the scales).

**Parent Feelings Questionnaire (PFQ; Deater-Deckard, 1996).** The PFQ is a 31-item measure that assesses both positive and negative parental feelings toward the child. The positivity subscale is comprised of fifteen items assessing positive parental feelings, such as happiness, joy, and pride (e.g., “When I think about this child, it usually gives me warm feelings”). Parents rated their emotions on a 10-point scale ranging from 1 (“Never”) to 10 (“All the time”). The negativity subscale is comprised of sixteen items assessing negative parental feelings, such as sadness, anger, and frustration (e.g., “Sometimes I am not happy about my relationship with this child”). Parents rated the occurrence of these emotions on a 5-point scale ranging from 1 (“Definitely untrue”) to 5 (“Definitely true”) (Deater-Deckard, 2000). The PFQ is recommended when assessing parenting for young children (Denham, Wyatt, Bassett, Echeverria, & Knox, 2009). Less warmth and more negativity on the PFQ has been associated with more child CP in preschoolers (Deater-Deckard, 2000) and elementary aged children (Mullineaux, Deater-Deckard, Petrill, & Thompson, 2009). Higher maternal negativity scores and lower maternal positivity scores have also been associated with more chaos in the home for parents of young children ages three to seven (Wang, Deater-Deckard, & Bell, 2013). The internal reliability in the current sample was high for the positive subscale ( $\alpha = .93$ ) but relatively low for the negative subscale ( $\alpha = .64$ ).

**Parent-Child Communication and Cooperation (PCCC).** The APQ-PR and PFQ do not measure parent-child communication or cooperation. Rather, the studies that capture those qualities of parent-child interactions typically do so through observational coding (e.g.,

Hyde et al., 2013; Kochanska et al., 2013; Waller et al., 2012). A well-established observational coding system (Kochanska et al., 2013) termed “Mutually Responsive Orientation” (MRO; Kochanska, 1997) was modified to fit a parent report format. To do this, the coding guidelines for MRO were used to create statements asking how characteristic the behavior was of the parent and the child interaction. For example, “Dyad has easy, comfortable, coordinated routines” in the original observational coding (Kochanska et al., 2013, p. 3) became “My child and I work together well in order to complete tasks, even if they are not fun”; “Dyad communicates smoothly, in a connected, harmonious, back-and-forth way” (p. 3) became “My child and I communicate well with each other”. The new scale also consisted of negatively worded items for reverse coding, such as “My child and I argue over daily routines” and “Arguments with my child often escalate quickly”. Parents rated how characteristic of the parent-child relationship these items are on a scale from 1 (“Not at all”) to 4 (“Very much”).

After conducting factor analysis, the best fitting subscales were one positive subscale and one negative subscale. Factor analysis was conducted using both principal axis factoring and principal components analysis. For both types of analysis, oblique (direct oblimin) rotation was used as the factors were related. After examining the scree plots and eigenvalues over 1, two factors emerged. Additionally, the items “My child and I have a set schedule most days”, and “It is more a chore than enjoyable to spend time with my child” were removed due to poor item total correlation. The resulting internal consistency was acceptable for the positive subscale ( $\alpha = .83$ ) but relatively low for the negative subscale ( $\alpha = .68$ ).

## **Procedure**

After receiving IRB approval from the University of New Orleans and a letter of approval from the superintendent of the Archdiocese of New Orleans school systems, principals of individual schools were contacted to request permission to conduct the study in

their school. The five target schools had large kindergarten classes with a wide range of ethnicities and socioeconomic statuses. After receiving approval by the principal at four schools, the kindergarten teachers were approached. The kindergarten teachers sent home paper packets with parental consent forms and parent measures, as well as self-addressed, stamped envelopes for parents to complete and then mail back to the University of New Orleans. At the fifth school, due to the school's concerns with parent and child privacy, modified versions of the packets were used. These packets did not include the portion of the demographic form that asked for their child's name or their contact information. Additionally, these packets were sealed and returned to the teachers and picked up from that school. School participation ranged from seven to twenty-four participants per school. Of the approximately 300 packets sent home to parents, a total of 101 (33.7%) packets were returned.

Upon receiving the completed parental consent forms and measures for a child, that child's teacher received a consent form and the ICU and DBD forms for that child. All teacher measures were delivered and picked up in person. At the fifth school that did not include the child's name in the parent packet, a student id number was used to identify each child in order for the teacher to complete the measures corresponding to that child. Teachers were provided with \$5 for classroom supplies for each student whose parent and teacher packets were completed.

## Results

### Preliminary Analyses

First, preliminary analyses were run to test the correlations between demographic variables and main study variables (see Table 1). The demographic variables ethnicity, gender, and marital status were significantly associated with multiple outcome variables. Specifically, ethnicity was positively associated with CU traits ( $r = -.38, p < .001$ ) and ODD symptoms ( $r = -.52, p < .001$ ), indicating that Caucasian children were rated as showing lower levels of CU traits and ODD symptoms. Ethnicity was positively associated with the PFQ negativity ( $r = .36, p < .001$ ) and PCCC negative scales ( $r = .26, p < .05$ ), indicating that Caucasian children's parents rated themselves lower on measures of parental warmth and parent-child cooperation and communication. Marital status was negatively associated with CU traits ( $r = -.40, p < .001$ ) and ODD symptoms ( $r = -.42, p < .001$ ), indicating that children with married parents were rated as having lower levels of CU traits and ODD symptoms. Marital status was positively associated with PFQ negatively scores ( $r = .22, p < .05$ ), indicating that married parents rated themselves as lower on the measure of parental warmth. Gender was negatively associated with inconsistent parenting, indicating that girls were rated as receiving more consistent punishment from parents than boys ( $r = -.28, p < .01$ ). Based on these findings, ethnicity, marital status, and gender were controlled for in all analyses.

### Hypothesis 1: Negative Parenting and Conduct Problems

To test the hypothesis that negative parenting practices (i.e., harsh and inconsistent parenting and corporal punishment) would be positively associated with conduct problems, Pearson correlations were calculated between the negative parenting subscales on the APQ-PR (i.e., inconsistent parenting, punitive parenting), PFC (i.e., negative parental affect), the PCCC (i.e., poor parent child communication and cooperation) and the ODD scale on the

DBD. As shown in Table 2, contrary to hypotheses, none of the negative parenting practice scales were significantly associated with teacher-rated ODD symptoms.

To test the hypothesis that the association between negative parenting practices and conduct problems would be moderated by level of CU traits, a two-step hierarchical linear regression analysis was conducted and the results are presented in Table 3. Importantly, all predictors were centered using the sample mean to reduce the effects of multi-collinearity influencing results. As noted in Table 3, and contrary to hypotheses, there were no significant interactions between CU traits and any of the negative parenting variables in their associations with ODD symptoms.

### **Hypothesis 2. Positive Parenting and Conduct Problems.**

To test the hypothesis that positive parenting (i.e., parental warmth, positive reinforcement, parental involvement, and positive parent-child cooperation and communication) would be negatively correlated with conduct problems, Pearson correlations were calculated and are provided in Table 2. Consistent with hypotheses, the PFQ positivity and APQ positive reinforcement scales were significantly negatively correlated with ODD symptoms ( $r = -.30, p < .01$ ;  $r = -.23, p < .05$ , respectively).

To test the hypothesis that the relationship between positive parenting and conduct problems would not be moderated by the level of CU traits, the same two step hierarchical regression analyses used above was used again to test for an interaction between CU traits and positive parenting variables in predicting ODD symptoms. Contrary to hypotheses, the interaction term for APQ positive reinforcement and CU traits was significant, ( $\beta = -.197, p < .05$ ), as was the interaction term for the PCCC positive scale and CU traits ( $\beta = -.183, p < .05$ ).

In order to decompose the interaction terms, the full regression equation was used to plot the association between parenting and ODD symptoms at high (1 SD above the mean)

and low (1 SD below the mean) levels of CU traits. Additionally, the simple slopes (i.e., the association between positive parenting and conduct problems at different levels of CU traits) were tested for significance, as suggested by Holmbeck (2002). The simple slope for APQ reinforcement in predicting ODD symptoms at a low level of CU traits (1 standard deviation below the mean) was nonsignificant ( $\beta = .118, p = n.s.$ ), whereas the simple slope at a high level of CU traits (1 standard deviation above the mean) was significant ( $\beta = -.421, p = .030$ ; see Figure 1). In contrast, the simple slope for PCCC positivity in predicting ODD symptoms at a low level of CU traits was significant and positive, ( $\beta = .576, p = .049$ ), whereas the simple slope for PCCC positivity in predicting ODD symptoms at a high level of CU traits was not significant ( $\beta = -.024, p = n.s.$ ; see Figure 2).

### **Hypothesis 3: The Association between Parenting and CU Traits**

To test the hypothesis that positive parenting would be negatively correlated with level of CU traits, while negative parenting would be positively correlated with level of CU traits, Pearson correlations were calculated and are provided in Table 2. Interestingly, none of the negative parenting variables were significantly correlated with CU trait levels. However, three of the four positive parenting variables were significantly associated with CU trait level, with PFQ positivity ( $r = -.375, p < .001$ ), APQ positive reinforcement ( $r = -.276, p < .10$ ), and PCCC positivity ( $r = -.245, p < .05$ ) all showing significant negative correlations with CU trait level (see Table 2).

To test whether the associations between positive parenting and CU traits were due to their correlations with conduct problems, these correlations were repeated controlling for ODD symptoms. These partial correlations are reported in Table 4. After controlling for level of conduct problems, the positive parenting variables PFQ positivity ( $R = -.236, p < .05$ ) and PCCC positivity ( $R = -.243, p < .05$ ) remained significantly and negatively correlated with level of CU traits. APQ involvement also became significantly negatively correlated with CU

traits ( $R = -.231, p < .05$ ). However, the correlation between APQ positive reinforcement and CU traits became non-significant (see Table 4).

Finally, to test whether the various aspects of positive parenting would have differential negative correlations with level of CU traits, a series of Pearson correlations with subsequent Fisher's  $r$  to  $Z$  transformations and Steiger's  $Z$  tests were run to compare the correlations with CU traits (Meng, Rosenthal, & Rubin, 1992). The only comparison that was significant was between APQ involvement and PFQ positivity, with PFQ positivity being more strongly related to level of CU traits than APQ involvement ( $Z = -2.31, p = .021$ ).

## Discussion

This study was designed to address several limitations of prior work investigating the associations among parenting, CU traits, and CP. The first goal was to explicitly compare the associations for negative and positive parenting. Contrary to hypotheses, none of the negative parenting practices were associated with ODD symptoms. In past research, higher rates of negative parenting practices were associated with more conduct problems (Loeber & Stouthamer-Loeber, 1986; Shaw, Gilliom, Ingoldsby, & Nagin, 2003; Webster-Stratton, 1998; Wootton, Frick, Shelton, & Silverthorn, 1997). In fact, the specific types of negative parenting measured in this study (inconsistent discipline, punitive parenting) have been measured with the Alabama Parenting Questionnaire in previous studies and found to be correlated with and predict future conduct problems (e.g., Frick et al., 2003; Dadds, Maujean, & Fraser, 2003). The lack of association between negative parenting and ODD symptoms in this study may be due to a number of factors. First, there was a limited range of ODD symptoms. The majority of children had very low rates ODD symptoms (two-thirds of the sample showed one or less symptom). Second, teacher report was used to assess for symptoms of ODD, and as such, assessed the child's behavior at school. A meta-analysis of studies comparing teacher and parent report of child behavior found that teacher and parent ratings of behavior correlate at around .30 (Achenbach, McConaughy, & Howell, 1987), suggesting that there is modest correlation between various informants in regard to children's behavior across settings. Therefore, it is possible that negative parenting practices may influence children's home behavior but not generalize to their school behavior. Third, using different informants for the assessment of parenting (i.e., parent report) and ODD (i.e., teacher report) results in no shared method variance. Our findings suggest that correlations in past research that used the same informant for both parenting and conduct problems may have overestimated the strength of the association due to shared method variance.

In contrast to the lack of association between negative parenting and ODD symptoms, multiple positive parenting practices showed significant correlations with conduct problems. Both parental warmth (as measured by the PFQ positivity scale) and use of positive reinforcement (as measured by the APQ positive reinforcement scale) were significantly negatively correlated with ODD symptoms. The correlation between positive parenting and conduct problems may be stronger than that for negative parenting and conduct problems because positive parenting may relate to socialization across settings, rather than to immediate compliance with direct parent instruction (McHale, Dariotis, & Kauh, 2003). Reprimands and punishment may not generalize from the home setting to the school setting, particularly if the demands and rules across settings differ. However, parent modeling of prosocial, positive behavior may lay the foundation for children to act prosocially in multiple settings.

In addition to zero-order correlations between positive parenting practices and lower levels of conduct problems, two types of parenting were moderated by level of CU traits. The negative association between positive reinforcement and ODD symptoms was significant for youth with high levels of CU traits and non-significant for youth with low levels of CU traits. This finding contradicted the hypothesis that the associations between positive parenting practices and conduct problems would not be moderated by level of CU traits. This hypothesis was based on prior work indicating that in young samples, positive parenting remained related to conduct problems even at high levels of youth CU traits (Dadds et al., 2011; Dadds et al., 2012; Dadds et al., 2013; Waller et al., 2012). However, the current findings may be due to the focus specifically on the parental use of positive reinforcement. That is, prior research has indicated that reward is more effective than punishment for children with high CU traits (Fisher & Blair, 1998; Frick et al., 2003; Hawes & Dadds, 2005; O'Brien & Frick, 1996). Thus, children with higher levels of CU traits may respond highly to

parental reinforcement in particular, whereas the children with low levels of CU traits may be equally responsive to both reinforcement and punishment.

The association between positive parent-child cooperation and communication (PCCC) and conduct problems was not significant at a zero-order level. However, the interaction between CU trait level and PCCC in predicting ODD symptoms was significant but the form of the interaction was opposite to that reported for positive reinforcement. That is, youth with high levels of CU traits did not show a significant relationship between PCCC and ODD symptoms but, unexpectedly, higher levels of PCCC were positively associated with ODD symptoms at low levels of CU traits. This finding indicates that children who were rated by teachers as having higher rates of ODD symptoms had parents who rated themselves as engaging in more cooperation and communication with their children. Thus, the current finding is unexpected and difficult to explain, especially given that PCCC, also termed mutually responsive orientation (MRO), has been negatively related to conduct problems in prior research (Kochanska et al., 2008; 2013).

One issue that could have influenced our findings is the limited number of children with high rates of ODD symptoms. This issue may have been even more influential at low levels of CU traits, given that CU traits and ODD symptoms were strongly negatively correlated ( $r = .70, p < .001$ ). Thus, until replicated, it is possible that this unexpected finding is an artifact of the restricted range of ODD symptoms in the sample. Also, in past studies, MRO has largely been measured using behavioral observations, whereas this is the first study to assess this parenting dimension using parent report. Further, the current study used reporters for the assessment of parenting and ODD symptoms who see the child in different settings. As a result, the positive association may reflect the parents' perceived attempts to create cooperative and mutually responsive relationships with their children who are oppositional and defiant. Parents may also view children with low levels of CU traits but high

levels of ODD behaviors as trying to control their behavior and to be cooperative because they show remorse or regret after the conflict. Thus, parents of children with high levels of ODD and low levels of CU traits may have interpreted the PCCC positive scale as a measure of how much effort the parent and child are putting into fostering positive communication and cooperation, irrespective of the actual outcome.

In addition to examining the role parenting plays in the development of conduct problems for youth, the relationship between parenting and the development of CU traits was also examined. Nearly all of the positive parenting variables (i.e., parental warmth, positive reinforcement, and the positive scale of the PCCC) were significantly negatively correlated with CU traits. Further, parental warmth and positive PCCC remained significantly negatively correlated with level of CU traits even after controlling for level of conduct problems. Parental warmth and positive cooperation and communication may be particularly relevant for the development of CU traits. Prior work examining parent-child interactions has found that shared positive affect, ease of communication and interaction between mother and child, and maternal responsiveness to the child relate to lower levels of conduct problem behavior in children with fearless temperaments and CU traits (Kochanska, 1997; Kochanska, Aksan, & Joy, 2007; Kochanska et al., 2013). Maternal sensitivity has also shown to relate to the development of empathy (Kiang, Moreno, & Robinson, 2004). By modeling empathetic concern, care, and prosocial behavior with their children, parents can help their children learn to express empathy as well. Social learning theory (Bandura, 1977; 1978) would suggest that children learn how to act by watching their parents' actions; therefore, a parent demonstrating affective warmth and facilitating positive cooperation and communication with the child would promote the development of these skills in the child. Positive parenting practices may protect against the development of CU traits by teaching children positive, prosocial behaviors that can be generalized across settings. Additionally, the finding in the current

study that parental warmth more strongly related to CU traits than parental involvement indicates that parental warmth may be especially important for the development of empathy in children.

### **Limitations**

All of these findings should be interpreted in the context of several study limitations. First, the internal consistency of several scales were modest. The parental involvement scale had particularly low internal consistency ( $\alpha = .46$ ) and thus all results using the involvement scale should be interpreted with caution. Second, the methodology of the study has a couple limitations. The parenting data were collected through parent report and, as a result, are subject to potential biases in reporting. Thus, the results need to be replicated using observational data. Additionally, there was only one informant for the child's behavioral problems. Children's behavior problems in settings outside school were not captured by the measures. Relying on one informant in one setting does not provide a comprehensive view of a child's behavior problems. Including a secondary reporter (such as a parent or other caretaker) could provide more information about a child's behavior across settings.

Third, the data were collected at one time point. Thus, establishing causality or even the temporal associations between parenting and the two outcomes was not possible. It may be the case that children develop higher levels of CU traits in response to less positive parenting practices, but parents also may respond with more positive parenting when their children have lower levels of CU traits (Hawes et al., 2011; Muñoz et al., 2011; Waller et al., 2014).

Fourth, the sample characteristics may influence the generalizability of the findings. The modest sample size reduced the power to detect small effects. Also, the restricted age range means that these findings may not generalize to other developmental levels. Additionally, participants were recruited through a private school system. Though schools

were specifically chosen in varying locations to increase the diversity of race/ethnicity and social economic status, the families and teachers in a private school setting may not be representative of all families and teachers.

### **Implications**

While recognizing the limitations of this study, these findings also have important implications for future research and clinical work. These findings support the need to further examine the associations between positive parenting and CU traits. Future studies need to continue to capture varying types of positive parenting in order to disentangle which aspects of parenting matter most in the development of CU traits. Future studies should also be longitudinal in order to better establish the directionality of the effects between parenting and child behavior.

Such research has great potential to inform clinical work. Randomized controlled trials incorporating multiple aspects of parenting, with a focus on increasing positive parenting practices in particular, need to be conducted with youth with high levels of CU traits. Addressing conduct problem behavior through encouraging the use of positive reinforcement (as is often already done in many interventions for child externalizing behavior; Weisz & Kazdin, 2010), should be emphasized when developing treatments for youth with high levels of CU traits. In support of this recommendation, an intervention study for conduct problems found that the part of a parenting intervention that focused on increasing parents' use of positive reinforcement was effective in reducing the conduct problems in children with CU traits (Hawes & Dadds, 2005). In addition to reducing conduct problems in children with elevated CU traits, some recent intervention work suggests that the focus on certain types of positive parenting can reduce the level of CU traits themselves (Kimonis, Bagner, Linares, Blake, & Rodriguez, 2014). For example, some recent treatment studies that focus on various ways of enhancing parental warmth (e.g., increasing parent-

child eye contact, increasing parental expression of affection to the child) have been effective in decreasing child levels of CU traits (Dadds et al., 2011; 2012; 2013). In short, interventions that focus on increasing positive parenting may be critical for addressing the needs of youth with high levels of CU traits.

Additionally, this study demonstrates that it is important to study CU traits in children at an early age. In this relatively young sample, CU traits and ODD symptoms were already highly correlated ( $r = .70$ ,  $p < .001$ ). Further, there is evidence that parenting interventions are most effective for reducing conduct problems when initiated early in childhood (Frick, 2012). Thus, it is critical that treatments based on the current findings are instituted as early as possible.

In summary, the findings of the current study contradict early suggestions that the behavior of children with CU traits are insensitive to the types of parenting they experience. Their level of conduct problems and their level of CU traits are related to certain aspects of parenting, especially positive aspects of parenting, such as parental warmth and parental involvement. These aspects of the child's context are amenable to treatment. By addressing the need for treatment for this specific, clinically significant group, the lives of the youth themselves, as well parents, teachers, and peers, could be improved. Therefore, the continuance of research on positive parenting, CU traits, and conduct problems at young ages in particular is vital to addressing the paucity of clinical interventions for these youth.

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Table 1. Zero-Order Correlations between Demographic and Study Variables

	Ethnicity	Marital Status	Gender
CU	-.38***	-.40***	.06
ODD	-.52***	-.42***	-.06
<b>Negative Parenting</b>			
PFQ Negativity	.36***	.22*	-.14
APQ Inconsistent	-.01	.01	-.28**
APQ Punitive	-.15	.06	-.04
PCCC Negative	.26*	.18	-.04
<b>Positive Parenting</b>			
PFQ Positivity	-.05	.10	.19
APQ Involvement	-.07	-.16	.13
APQ Reinforcement	-.12	-.09	.15
PCCC Positive	-.07	.00	-.06
Percentage	56.5%	67.4%	39.1%
	Caucasian	Married	Male

Note. Ethnicity: 0 = Minority; 1 = Caucasian. Marital Status: 0 = Not Married; 1 = Married. Gender: 0 = Female; 1 = Male. \* $p < .05$ , \*\*  $p \leq .01$ , \*\*\*  $p \leq .001$

POSITIVE PARENTING, CP, AND CU TRAITS

Table 2. Zero Order Correlations and Descriptive Statistics for Main Study Variables.

	1	2	3	4	5	6	7	8	9	10
1. CU	1									
2. ODD	.70***	1								
<b>Negative Parenting</b>										
3. PFQ Neg	.17	-.01	1							
4. APQ Inconsistent	.15	.13	.37***	1						
5. APQ Punitive	.13	.10	.20	.16	1					
6. PCCC Neg	.17	-.01	.64***	.25*	.31**	1				
<b>Positive Parenting</b>										
7. PFQ Pos	-.38***	-.30**	-.39***	-.15	-.19	-.34***	1			
8. APQ Involvement	-.10	-.01	-.18	-.12	-.16	-.19	.33**	1		
9. APQ Reinforcement	-.28**	-.23*	-.34***	-.22*	-.05	-.28**	.56***	.50***	1	
10. PCCC Pos	-.25*	-.06	-.50***	-.15	-.14	-.38***	.54***	.27**	.49***	1
Mean	19.66	10.37	30.78	12.50	7.30	8.62	42.93	22.97	23.50	26.92
SD	8.29	3.68	12.69	3.99	2.15	3.21	2.76	1.74	1.96	1.98
Cronbach's $\alpha$	.84	.91	.93	.75	.60	.68	.64	.46	.67	.83

Note. CU = callous-unemotional traits; ODD = Oppositional Defiant Disorder symptoms; PFQ = Parent Feelings Questionnaire; APQ = Alabama Parenting Questionnaire; PCCC = Parent Child Communication and Cooperation. \* $p < .05$ , \*\*  $p \leq .01$ , \*\*\*  $p \leq .001$

POSITIVE PARENTING, CP, AND CU TRAITS

Table 3. Multiple Regression Analyses Testing the Main and Interactive Effects of Callous-Unemotional Traits and Parenting Variables on Oppositional Defiant Disorder Symptoms

Variable	Standardized Beta						$R^2$	$F$
	Ethnicity	Gender	MS	Parenting	CU	Parenting X CU		
<b>Negative Parenting</b>								
PFQ negativity	-.44***	-.04	.12	.09	.53***	-.02	.54	14.51
APQ inconsistent	-.38**	-.02	.09	.01	.53***	.11	.55	14.88
APQ punitive	-.40***	-.03	.10	-.04	.57***	.05	.54	14.36
PCCC negative	-.37**	-.02	.11	-.04	.57***	-.01	.54	14.21
<b>Positive Parenting</b>								
PFQ positivity	-.41***	-.05	.13	-.10	.52***	-.08	.55	15.14
APQ involvement	-.38***	-.02	.11	.02	.58***	-.04	.54	14.22
APQ reinforcement	-.37***	-.07	.10	-.12	.51***	-.20*	.59	17.57
PCCC positive	-.35**	-.03	.10	.12	.60***	-.18*	.56	15.88

*Note.* MS = marital status; CU = callous-unemotional traits; PFQ = Parent Feelings Questionnaire; APQ = Alabama Parenting Questionnaire; PCCC = Parent Child Communication and Cooperation. Ethnicity: 1 = Caucasian; 2 = Minority. Marital Status: 1 = Married; 2 = Not married. Gender: 1 = Male; 2 = Female. All  $F$  values had (1, 74) degrees of freedom and were statistically significant at the  $p < .001$  level. \* $p < .05$ , \*\* $p \leq .01$ , \*\*\* $p \leq .001$

## POSITIVE PARENTING, CP, AND CU TRAITS

Table 4. Partial Correlations between Parenting Variables and Callous-Unemotional Traits

	<i>R</i>
<b>Negative Parenting</b>	
PFQ Negativity	.14
APQ Inconsistent	.12
APQ Punitive	.10
PCCC Negative	.31**
<b>Positive Parenting</b>	
PFQ Positivity	-.24*
APQ Involvement	-.23*
APQ Reinforcement	-.18
PCCC Positive	-.24*

Note. Gender, ethnicity, marital status, and level of conduct problems were controlled for in all partial correlations. PFQ = Parent Feelings Questionnaire; APQ = Alabama Parenting Questionnaire; PCCC = Parent Child Communication and Cooperation. \* $p < .05$ , \*\*  $p \leq .01$

Figure 1. ODD Symptoms Predicted by Parental Reinforcement at High and Low Levels of Callous-Unemotional Traits.

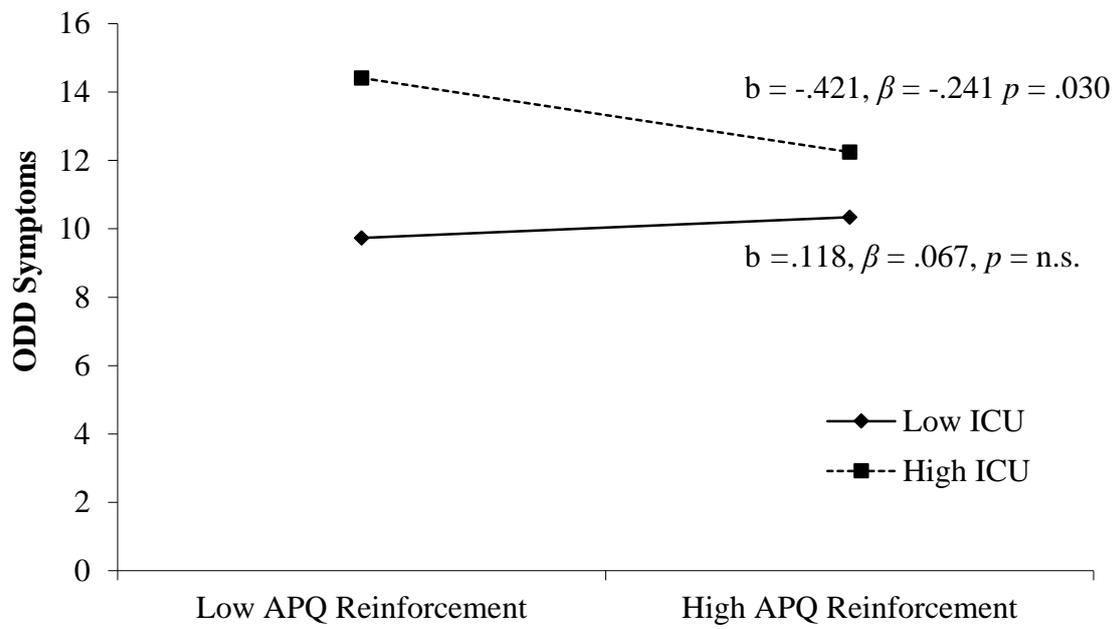
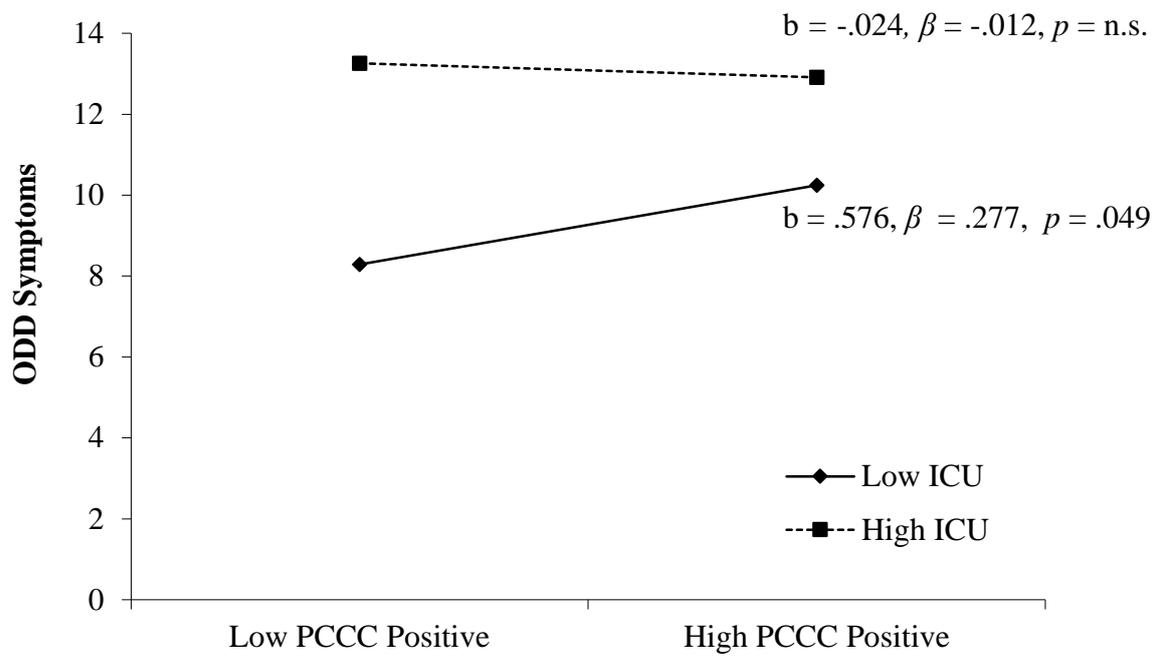


Figure 2. ODD Symptoms Predicted by Positive Parent Child Cooperation and Communication at High and Low Levels of Callous-Unemotional Traits.



## Appendix A: IRB Approval Letter

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

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*Campus Correspondence*

Principal Investigator: Paul J. Frick  
Co-Investigator: Julia Clark  
Date: October 01, 2014  
Protocol Title: "Positive Parenting, Conduct Problems, and Callous-  
Unemotional Traits"  
IRB#: 01Oct14

The IRB has deemed that the research and procedures are compliant with the University of New Orleans and federal guidelines. The above referenced human subjects protocol has been reviewed and approved using expedited procedures (under 45 CFR 46.116(a) category (7)).

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. Use the IRB number listed on this letter in all future correspondence regarding this proposal.

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 wishes on your project!

Sincerely,



Robert D. Laird, Ph.D., Chair  
UNO Committee for the Protection of Human Subjects in Research

## **Vita**

The author was born in Palo Alto, California. She obtained her Bachelor's degree in psychology from Whitman College in 2011. She joined the University of New Orleans psychology graduate program to pursue a PhD in applied developmental psychology, and became a member of Professor Paul Frick's research lab in 2013. She now attends Louisiana State University's psychology graduate program and is pursuing a PhD in clinical child psychology, and is a member of Professor Paul's Frick research lab at Louisiana State University.