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## Examining Cognitive and Emotional Correlates to Proactive and Reactive Relational and Overt Aggression in a Community Sample

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Examining Cognitive and Emotional Correlates to Proactive and  
Reactive Relational and Overt Aggression in a Community Sample

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

Annie Crapanzano

B.A. Loyola University New Orleans, 2005

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## Abstract

This study attempts to further test the importance of distinguishing between the reactive, proactive, relational, and overt forms of aggression by examining the distinct correlates to these types of aggression and test potential gender differences in these correlates. This study also attempts to tie research on aggression with research on bullying . A sample of 282, 4<sup>th</sup> through 6<sup>th</sup> graders were surveyed on instruments meant to assess the subtypes of aggression, as well as their correlates. Participants were placed in categories based on self-reports and peer ratings of whether they acted as bullies and/or whether they were victims of bullying. Results indicated that reactive aggression was associated with anger dysregulation and impulsivity in both boys and girls. Reactive relational aggression remained associated with anger dysregulation and impulsivity when controlling for overt aggression in girls but not boys. Proactive overt aggression was associated with CU traits in boys. Boy bullies were more reactively aggressive, whereas girl bullies and bully/victims were high on both reactive and proactive aggression.

## Introduction

It has become clear that there are many different types of aggressive behavior that can be observed in children and adolescents (Dodge & Coie, 1989; Marsee, 2005; Underwood, 2003). The main goal of this study is to examine distinctions between the subtypes of relational, overt, reactive and proactive aggression by examining their correlates with various emotional and cognitive variables. This study also attempts to further tie together research on aggressive behavior with research on the construct of bullying. That is, one form of aggression that is often displayed in school children is bullying. However, research on bullying and research on aggression has largely been conducted independently of each other. Thus, the current study examines whether children who bully others show specific types of aggressive behavior.

### *Reactive and Proactive Aggression: Emotional, Cognitive, and Behavioral Processing*

The distinction between the constructs of reactive and proactive aggression has been observed repeatedly through research. Proactive aggression is characterized as being unprovoked and used in order to attain some gain or dominance over others (Dodge & Coie, 1987). Reactive aggression is aggression in response to some type of provocation or anger (Berkowitz, 1993).

There is a large body of research that supports the distinction between these constructs. For instance, children in each group process information in different ways. Reactively aggressive children make more hostile attributions than non-aggressive children (Crick & Dodge, 1996; Poulin & Boivin, 1999). Hostile attributions involve responding to neutral social cues as though they are intentionally hostile (e.g. Sam trips over Alex's schoolbag; Sam believes that Alex placed the schoolbag in his way so that he would trip and fall) (Dodge, 1980). Reactively aggressive children also exhibit several types of emotional regulation difficulties. For example,

they may have a difficult time inhibiting their emotions with attentional control (Day et al., 1992; Shields & Cicchetti, 1998; Vitaro et al., 2002). Reactively aggressive children also become more physiologically aroused than other children at smaller provocations (Munoz et al., 2006). This physiological arousal could lead these reactive children to jump to conclusions about their peers, thus leading to more hostile attributions (Munoz et al., 2006). Reactively aggressive children also exhibit high levels of hyperactive and impulsive behaviors and a low frustration tolerance (Day et al., 1992; Dodge et al., 1997; Hubbard, 2002; Vitaro et al., 1998; 2002; Frick & Morris, 2004). Research indicates that boys with disorders that are characterized by high levels of hyperactivity, impulsive behavior, reckless behavior, and poor frustration tolerance such as ADHD and CD are more reactively aggressive than other children (American Psychiatric Association, 1994; Waschbusch et. al., 2002).

Proactively aggressive children exhibit a lower level of physiological responsiveness to provocation (Hubbard et al., 2002; Munoz et al. 2006; Pitts, 1997). Proactively aggressive children also are more likely to have positive outcome expectations for aggressive behaviors and are more supportive of the use of these aggressive behaviors (Crick & Dodge, 1996; Pardini, Lochman, & Frick, 2003). Children who are proactively aggressive believe that their aggressive behavior will be rewarded in some way; this reward could be obtaining material things or dominating another individual (Crick & Dodge, 1996). Lower levels of physiological responsiveness in children with proactive aggression can be associated with other precursors to aggression such as callous-unemotional traits. Specifically, CU traits are seen more often in proactively aggressive boys and girls (Frick et al., 2003; Munoz et al., 2006). These children often exhibit low levels of fearfulness (Eisenberg et al., 2001; Frick et al., 1999; Frick et al., 2003). They seem to show preferences for novel, exciting, and dangerous activities, as well as a

decreased sensitivity to punishment and threatening and distressing stimuli (Newman, Patterson, & Kosson, 1987; Levenston et al., 1993). These low levels of fearfulness could explain why individuals with CU traits exhibit a tendency to emphasize the positive aspects of violence, such as obtaining rewards and gaining dominance (i.e. proactive aggression), while deemphasizing the negative aspects (see Frick & Morris, 2004 for review).

#### *Reactive and Proactive Aggression: Social Implications*

The outcomes for these two groups of aggressive individuals are also very different. Reactively aggressive children are rejected more often by their peers (Dodge et al., 1997; Salmivalli & Helteenviori, 2007; Schwartz et al., 1998; Waschbusch et al., 1998). Reactively aggressive children are more likely to be victims of aggression themselves and are more likely to have other social adjustment problems (Dodge et al., 1997; Poulin & Boivin, 2000; Schwartz et al., 1998). This social difficulty can take an emotional toll on an individual. Reactively aggressive children show higher rates of depression and anxiety (Dodge et al., 1997; Vitaro et al., 1998; 2002).

The outcomes for proactively aggressive children are different but no less harmful. Proactive aggression is more strongly related to delinquency, disruptive behaviors, and drug use in adolescence (Pulkkinen, 1996; Vitaro et al., 1998; 2002; Smithmyer et al., 2000). However, proactively aggressive children are not victimized as often as reactively aggressive children, they often have friends, and are seen as leaders in their social groups (Dodge & Cois, 1987; Poulin & Boivin, 2000).

#### *Relational Aggression: Gender Differences*

An increasing focus of research on subtypes of aggression is on potential gender differences. There is evidence that boys and girls use different types of aggression. When girls



behave aggressively they, are more likely to use relational aggression than overt aggression (Crick & Grotpeter, 1995). “Relational aggression is aggression that is not physical, but that harms others through manipulation, social inclusion or exclusion, and damaging social relationships” (Crick & Grotpeter, 1995). Relational aggression can include behaviors such as spreading rumors, gossiping, and eliciting peer rejection of others (Crick & Grotpeter, 1995). Some research also uses the terms indirect aggression (Bjorkqvist, 2001), and social aggression (Underwood et. al., 2001) to describe these particular behaviors. However, many researchers agree that these terms can be used almost interchangeably to describe the same set of behaviors (Archer & Coyne, 2005; Merrell et. al., 2006; Underwood, 2003). For the purposes of this paper the term “relational aggression” will be used to describe acts that focus on harming an individual’s social relationships.

Though relational aggression may be more difficult to detect by an outside observer than overt aggression ( Merrell et. al., 2006; Underwood, 2003), relational aggression is still an important construct to examine. Studies indicate that girls perceive relational aggression as more harmful and more morally wrong than boys (Coyne et. al., 2006; Murray-Close & Crick, 2006). Relational aggression is also predictive of several negative effects including peer rejection, depression, and anxiety in girls but not for boys (Underwood, 2003). It is also linked to substance abuse in both genders (Crick, 1996; Crick & Grotpeter, 1995; Werner & Crick, 2004; Prinstein, Boergers, & Vernberg, 2001; Storch et al., 2003).Further, Werner and Crick (1999) found that relational aggression in college women was associated with more antisocial behavior, less life satisfaction, features of depression, negative relationships, stimulus seeking, egocentricity, self harm behavior, and bulimic symptoms. Relational aggression was associated with peer rejection in the college men in this study. On personality factors, high relational

aggression in men is correlated with more neuroticism, whereas high relational aggression was correlated with lower conscientiousness in women (Burton et. al., 2007). Callous-unemotional (CU) traits and narcissism are also characteristics exhibited by girls who are frequently relationally aggressive (Marsee, Silverthorn, & Frick, 2005). Thus, relationally aggressive girls appear to show a number of psychosocial impairments and show many of the same characteristics of physically aggressive boys.

### *Relational Aggression: Developmental Differences*

Although there has not been much research directly examining developmental differences in relational aggression, it has been observed that pre-school age children use more direct forms of relational aggression (e.g., not inviting a friend to a birthday party) (Crick et. al., 1997; Crick et al., 1999). Later in childhood, thinking becomes more complex and sophisticated, and children begin to gain the social intelligence to manipulate social relationships (Salmivalli, et. al., 2000). These new behaviors seem to lead to more malicious forms of relational aggression, including more complex forms of social exclusion, gossip, and friendship manipulation (Crick et al., 1999). As children move into adolescence, the opportunity for relational aggression increases as relationships become more intimate and involve higher levels of self-disclosure. This self-disclosure provides more opportunities for betrayal and other forms of relational aggression (see Underwood, 2003 for review). Studies have demonstrated that the use of relational aggression peaks in later childhood (Bjorkqvist et al., 1992; Tiet et al., 2001). Examples of relational aggression in later childhood and early adolescence can include spreading rumors about peers and threatening to expose confidential information. A study by Bjorkqvist et al. (1992) found that older children and adolescents were better able to discriminate between

relational and overt aggression. The study also found that relational aggression was more intense at age 11 than at age 8.

As children move into adulthood the opportunity for relational aggression moves beyond the peer group and into romantic relationships. Examples of romantic relational aggression include; giving the silent treatment to get back at a partner or flirting with others to make a romantic partner jealous (Linder et al., 2002). College men and women both report using relational aggression in their romantic relationships. However, men report that they are victims of relational aggression more often than women (Linder et al., 2002). Relational aggression within romantic relationships has been associated with frustration, ambivalence, jealousy, anxious clinging, loneliness, depressive, symptoms, and substance use in both men and women (Bager, et. al., 2007; Linder, et. al. 2002). Thus, although relational aggression can be observed in early childhood, its rate and severity seems to increase in later childhood and adolescence and can continue into adulthood.

#### *Distinctions among Proactive/Reactive Aggression and Relational/Overt Aggression*

Although research suggests that relational aggression may be an important construct when studying girls, few studies have examined proactive and reactive distinctions in relational aggression. One exception was a study of boys and girls in a community sample by Little et al. (2003). This study provided initial support for the hypothesis that both relational and overt aggression can be broken down into reactive and proactive subtypes.

In their study, Little et. al. (2003) attempted to develop and test the validity of a measurement tool that would distinguish among the four subtypes of aggression. To do this, they developed a 36-item self report instrument developed to disentangle the forms (overt and relational) and functions (proactive and reactive) of aggression. The final instrument measured

six subscales, including pure overt aggression, reactive-overt aggression, proactive-overt aggression, pure relational aggression, reactive-relational aggression, and proactive-relational aggression. This instrument was tested on 1723 5<sup>th</sup> through 7<sup>th</sup> grade students. A factor analysis was run to test the internal validity. Results were supportive of the two forms of aggression (relational and overt) and the two functions of aggression (proactive and reactive). To further test the validity of this scale, Little et. al. (2003) correlated these forms and functions of aggression with expected outcome measures. Results were consistent with what has been demonstrated by past research (Crick & Grotpeter, 1995; Dodge & Coie, 1987); frustration tolerance was positively correlated with reactive aggression and negatively correlated with proactive aggression, victimization was negatively correlated with overt aggression and positively correlated with relational aggression, and social competence was negatively associated with relational aggression.

As noted by Marsee (2005), Little's study, while suggestive, did have some limitations. First, although he examined associations of different outcome variables with the individual forms (overt and relational) and functions (proactive and reactive) of aggression, he did not compare these forms and functions directly with one another to examine if there were similar correlates. He also did not control for the other form or function (e.g. examining proactive aggression while controlling for reactive aggression) to see if these associations between the subtypes and the outcome variables would still exist.

As further noted by Marsee (2005), Little's measure only examined items that measured aggression for gain, or instrumental aggression when measuring proactive aggression and aggression as result of anger for reactive aggression. Research does demonstrate that these are motivations for using these subtypes of aggression (Dodge & Coie, 1987; Berkowitz, 1993).

However, research also demonstrates that there can be other motivations for using these subtypes of reactive and proactive aggression. For example, a reactively aggressive individual could react aggressively out of pure impulse (Waschbusch et. al., 2002) and proactively aggressive individual could aggress purely to harm or dominate another individual (Frick & Marsee, 2006).

In an attempt to address these limitations, Marsee (2005) studied 58 girls from 12 to 18 years of age who were housed in three short-term detention facilities in southeastern Louisiana. This study assessed overt and relational aggression, as well as reactive and proactive aggression using self-report questionnaires. These questionnaires specifically assessed reactive, proactive, overt, and relational aggression on items that are clearly related to harm towards the victim. The study also examined correlates to aggression including CU traits, emotional dysregulation, attributional tendencies, and outcome expectations. The results of this study indicated that reactive relational aggression was strongly associated with emotional dysregulation and susceptibility to anger, while proactive relational aggression was more strongly associated with CU traits and positive outcome expectations for aggression. These findings provide support for the similarity between the constructs of overt and relational aggression. However, most of these correlations with relational aggression did not remain significant when controlling for overt aggression, with the notable exception of the correlation between CU traits and proactive relational aggression.

The current study attempted to replicate the findings of Marsee (2006) using a mixed gender community sample. It is important to study relational aggression in a mixed gender sample because, although research has demonstrated that girls employ relational aggression more often than they do physical aggression (see Crick & Grotpeter, 1995), gender differences in the use of relational aggression have been largely inconsistent. That is, research also suggests that

boys who show high rates of overt aggression also show high rates of relational aggression (Pakaslahti & Keltikangas-Jarvinen, 2000; Tiet et al. 2001; Tomada & Schneider, 1997). On the other hand, relationally aggressive girls seem to show lower rates of overt aggression (Crick & Grotpeter, 1995). It is also important to note that there are distinct differences in traits that are associated with high levels of relational aggression in girls and boys. While research suggests that social anxiety, fear of negative evaluation by peers, peer rejection, and neuroticism are all associated with increased relational aggression in overtly aggressive males (Burton et. al., 2007; Loudin et. al., 2003; Werner & Crick, 1999), in strictly relationally aggressive girls, high rates of relational aggression is associated with antisocial behavior, lower levels of conscientiousness, egocentricity, and depression (Burton et. al, 2007; Werner & Crick, 1999). Because of this, it is important to determine if the incremental predictive validity of relational aggression is greater in girls, when controlling for overt aggression. It was important to investigate the incremental validity of relational aggression in a community sample for a variety of reasons. One possible reason that the Marsee study (2006) did not consistently find that relational aggression accounted for unique variance in cognitive and emotional variables when controlling for overt aggression is the higher than normal rate of overt aggression in a detained sample.

### *Bullying and Aggression*

Another reason that this research was important to replicate within the school setting is because it allows for the integration of research on relational aggression with research on the construct of bullying. A bully is defined as “a person who intentionally inflicts, or attempts to inflict, injury or discomfort in someone perceived to be weaker than them”(Olweus, 1991). These negative actions can be carried out through physical contact, verbally, or in more indirect ways, such as making mean faces or gestures, spreading rumors, or purposely excluding

someone in a group (Olweus, 2003). One of the reasons that it is important to study bullying is because it can often cause lasting adjustment problems in victims (Storch et al., 2005).

Recent research has identified two main types of bullies: the pure bully and the bully/victim (Dixon, 2002; Unever, 2005). Bully/victims, children who both bully others and are bullied by others, are characterized by impairments in self-regulation, more specifically they are more likely than their peers to fight back as a reaction to some real or perceived attack (Schwartz, 2000). Bully/victims are more likely to have high levels of emotional dysregulation, hyperactivity, a lower GPA, and are widely disliked by their peers when compared to bullies (Salmivalli, 2000; Toblin, 2005). They also have higher rates of depression and loneliness (Toblin, 2005) and show more severe conduct problems and lower self-esteem (Kokkinos, 2004). In contrast pure bullies exhibit self-esteem that is comparable to the non-bullies (Kokkinos, 2004). They are less impulsive and have more friends (Unever, 2005). Bullies report more positive outcomes for employing aggression, specifically bullies seem to use aggression instrumentally against weaker peers (Pellegrini, 1998; Unever, 2005). Research has found that bullies have more leadership skills but they are less prosocial, indicating that bullies may use aggression against weaker peers as a way to increase their social standing (Perren & Alsaker, 2006). These different characteristics seem similar to the different characteristics of reactively and proactively aggressive youth.

A few studies have explicitly tied proactive and reactive aggression to the constructs of the pure bully and the bully/victim. One study conducted by Unever (2005) examined 206 pure bullies, 514 pure victims, and 206 bully/victims in middle schools. The adolescents were divided into these groups based on a self-report questionnaire that measured the type and frequency of the boys and girls bullying and victimization. This study assessed reactive and proactive

aggression, parenting and family conflict, low self-control, and social bonds. Although bully/victims and pure bullies did not differ on how frequently they bullied other students, bully/victims were significantly more likely to physically bully and be physically bullied than pure bullies. Results of this study indicated that bully/victims were less likely to be proactively aggressive than pure bullies and more likely to be reactively aggressive. Another study also found that bully/victims were more reactively aggressive than pure bullies (Camodeca, 2002). Importantly, these studies both measured overt aggression and did not assess relational aggression in relation to bullying.

### *Theoretical Model*

To summarize, the current study aims to add to the available research which clearly supports the importance of distinguishing between the reactive and proactive forms of aggression (Little et. al., 2003; Marsee, 2005). Proactive overt aggression is associated with reduced levels of emotional reactivity, callous and unemotional personality traits, and the tendency to view aggression as an effective way to reach a goal (Dodge & Coie, 1987). Reactive overt aggression is linked to the misinterpretation of ambiguous behaviors as hostile and to the propensity to react with high levels of negative emotion to negative stimuli (Berkowitz, 1993). Research also suggests that the construct of relational aggression may also be a particularly important, especially when examining the way in which girls harm others (Crick & Grotpeter, 1995). However, few studies have considered whether, like overt aggression, relational aggression can be divided into reactive and proactive types. In one previous study, Marsee (2005) used a detained sample of adolescent girls to examine the constructs of proactive and reactive aggression within the context of relational aggression and found that proactive relational



aggression and reactive relational aggression showed similar divergent correlates as has been reported for overt aggression.

The current study attempted to replicate Marsee's (2005) findings using a community, mixed gender sample of children in early adolescence. This replication is important because this sample is likely to show lower levels of overt aggression; thus, relational aggression may be more important in accounting for unique variance in cognitive and emotional variables when controlling for overt aggression in this sample. Also, this study was conducted on early adolescents between the ages of 9 to 14. This age group is important because this is the age when more complex forms of relational aggression start to emerge. Using a mixed gender sample is also important because gender differences in the overall rate of relational aggression have been inconsistent and the importance of relational aggression (e.g. ability to predict problems in adjustment) independent of overt aggression may be stronger in girls. Another advance in this study, using a school-based sample, is that the relationship between forms of aggression and bullying behaviors can be tested. The current study attempted to further tie proactive and reactive aggression to the constructs of bully and bully/victim and test whether the same associations found in past research with overt aggression are found for relational aggression and bullying.

### *Hypotheses*

Based on these considerations, the following hypotheses were made for this study.

1. Both reactive relational aggression and reactive overt aggression were predicted to be significantly associated with anger dysregulation and impulsivity after controlling for proactive aggression.

- a. Reactive relational aggression was predicted to remain significantly associated with these variables after controlling for overt aggression for girls but not boys.
2. Both proactive relational aggression and proactive overt aggression were predicted to be significantly associated with callous-unemotional (CU) traits, thrill and adventure seeking, and positive outcome expectations for aggression after controlling for reactive aggression.
  - a. Proactive relational aggression was predicted to remain significantly associated with these variables after controlling for overt aggression for girls but not boys.
3. When comparing pure bullies and bully-victims with victims and control boys and girls,
  - a) bully-victims were predicted to be more reactively aggressive but not proactively aggressive (both on relational aggression and overt aggression scales) than non bullies
  - and b) pure bullies were predicted to be more proactively and reactively aggressive (both on relational and overt aggression scales) than non-bullies.
4. The differences between the bullying and non-bullying groups predicted in hypothesis 3 and 4 were predicted to be due to relational aggression in girls but overt aggression in boys.

## Methods

### *Participants*

Participants were recruited from the 4<sup>th</sup> through 7<sup>th</sup> grades of the Tangipahoa Public School System in Southeastern Louisiana. Data was collected from 349 students and 282 (81%) fully completed the survey and were included in the study. Boys and girls in special education classes were excluded from the study. The boys and girls were all between the ages of nine and fourteen, with the mean age being 11.28 (SD=1.82). 45.8% of the participants were boys and 54.2% of participants were girls. Nearly half of the sample was Caucasian, 49.3% with 38.4% being African American and the other 10.3% not reporting an ethnicity.

### *Procedures*

Institutional Review Board approval at the University of New Orleans was obtained prior to data collection. Students were contacted for the study via letters with consent forms sent home to parents. Consent was obtained from the teachers and parent before the administration of the questionnaires. The questionnaires were then group administered to the students during class at a time when it was least disruptive for them (i.e. study period, guidance counseling time). Students were asked to sign an assent form. Any student who did not wish to participate in the study or whose parents did not sign a consent form were asked to do an alternative activity while the questionnaire was administered. To control for deficits in reading ability and to keep the timing consistent, the questionnaires were read out loud.

### *Measures*

*Impulsivity and Callous-Unemotional Traits.* In order to measure impulsivity and callous-unemotional traits, the self-report version of the Antisocial Process Screening Device (APSD, Frick & Hare, 2001) was administered. The APSD is a self-report behavior rating scale with

each item scored either 0 (Not at all true), 1 (Sometimes true), or 2 (Definitely true). This scale measures three factors including Impulsivity, Narcissism, and Callous-Unemotional traits. Only the 5-item Impulsivity (i.e. I act without thinking of the consequences) and 6-item Callous-Unemotional subscales (i.e. I feel guilty or bad when I do something wrong, which is reversed score) were used in the proposed project. The self-report version of the APSD has demonstrated adequate reliability and validity for use with samples similar to the sample of the proposed project (Vitacco, Rogers, & Neumann, 2003; Munoz & Frick, in press). For example, the three factor structure has been supported in samples of adolescents (Vitacco et al., 2003) and scores from this scale have shown to be relatively stable over 3 years (Munoz & Frick, in press) and have been associated with aggressive behaviors (Frick et al., 2003). The internal consistency of the two scales in the current sample was somewhat low (impulsivity  $\alpha = .51$ ; callous-unemotional  $\alpha = .60$ ) but consistent with findings from past samples (Munoz & Frick, in press).

*Overt/Relational Aggression and Proactive/Reactive Aggression.* To measure overt/relational aggression and proactive/reactive aggression, the self-report version of the Peer Conflict Scale (PCS; Marsee, Kimonis, & Frick, 2004) was administered. The PCS is a 40-item measure of aggressive behavior. The PCS was developed to break aggressive behaviors into more homogenous types. The PCS includes 4, 10 item scales: Reactive-Overt (If others make me mad, I hurt them”), Proactive-Overt (“I carefully plan out how to hurt others”), Reactive-Relational (“If others make me mad, I tell their secrets”), Proactive-Relational (I gossip about others to become popular”). These 4 scales were created in several different steps. First, items that assessed reactive and proactive relational and overt aggression from previous aggression scales were combined to create an initial item pool. These scales included the Aggressive

Behavior Rating Scale (Brown et. al., 1996), the Direct and Indirect Aggression Scales (Bjorkqvist, Lagerspetz, & Osterman, 1992), the Aggressive Subtypes Scale (Dodge & Coie, 1987), and the other aggression scales created by Little et. al., (2003); Crick & Grotpeter (1995); and Galen and Underwood (1997). All items that did not relate to harm were deleted. All of the items were then reworded so that each reactive item (overt and relational) had a corresponding proactive item (overt and relational). The items were then reviewed by faculty, graduate, and undergraduate students who made sure the wording was clear.

This scale has demonstrated adequate reliability and validity. For example, a principle components analysis extracted 4 factors which accounted for 47% of the variance in a sample of 470 adolescents (age range= 12-18) who were involved in the juvenile justice system. A confirmatory factor analysis demonstrated that this 4 factor model fit better than a one factor model (general aggression factor), a two-factor model (overt and relational factors), and a four-uncorrelated factor model. The reactive and proactive overt aggression scales were positively associated with a self-report of the number of violent acts that were committed by juveniles in this sample. These scales were also correlated with a laboratory sample of aggressive responding (Munoz et. al., 2006). In the current sample, the internal consistency of the four aggression scales were adequate: reactive relational aggression  $\alpha=.85$ ; reactive overt aggression  $\alpha=.88$ ; proactive relational aggression  $\alpha=.85$ ; proactive overt aggression  $\alpha=.85$ .

*Anger Dysregulation.* To measure anger dysregulation, the Children's Emotion Management Scale (Zeman, Shipman, & Penza-Clyve, 2001) was administered. This scale contains 23-item instrument measuring 6 subscales of anger and sadness. For the purposes of this study, only the anger dysregulation and inhibition subscales were used. These included a 3-item

anger dysregulation scale (i.e. I attack whatever it is that makes me mad), and a 4-item anger inhibition scale (i.e. I get mad inside but don't show it). This scale has demonstrated adequate reliability and validity for use with participants similar to those in this project. For example, a principle components analysis with varimax rotation extracted 3 factors which accounted for 51.5% of the variance in sample of 227 4<sup>th</sup> and 5<sup>th</sup> graders in a community sample (Zeman, Shipman, & Penza-Clyve, 2001). The first factor, Inhibition demonstrated strong internal consistency ( $\alpha=.77$ ) and strong test retest reliability over a period of two weeks ( $r=.80$ ,  $p<.01$ ). The second factor, Emotional Regulation Coping demonstrated moderate internal consistency ( $\alpha=.62$ ) and test retest reliability over a period of two weeks ( $r=.63$ ,  $p<.01$ ). The final factor Dysregulation Expression also demonstrated moderate internal consistency ( $\alpha=.60$ ) and test retest reliability ( $r=.63$ ,  $p<.01$ ) (Zeman, Shipman, & Penza-Clyve, 2001). In the present study the combined the anger inhibition and anger dysregulation items had an internal consistency of  $\alpha=.58$ .

*Thrill and Adventure Seeking.* To examine thrill and adventure seeking, the Thrill and Adventure Seeking (TAS) subscale of the Sensation Seeking Scale for Children (Russo et al., 1993) was used. It is a twelve item scale that measures self-reported behavioral inhibition. A modified version of this scale was used by Frick, Cornell, Bodin, Dane, & Loney (2003) in a community sample of older children and adolescents. As in the original version of the scale, the participant chooses between a pair of statements to indicate which one was more true of him or her. One statement (e.g., "I enjoy the feeling of riding my bike fast down a big hill") described sensation seeking behaviors. The other statement (e.g., "Riding my bike fast down a big hill is scary for me") described a preference for avoiding sensation seeking behaviors. To increase the variance in scores, the scale was modified to include a question regarding how well the chosen

behavior described the child by selecting either sort of true for me or really true for me. This modification created a four-point scale for each item. This modification led to an internal consistency of  $\alpha = .84$  in a sample of non-referred school children in grades 4 – 8 (Frick et al., 2003). Also, both the original (Frick et al., 1999) and revised (Frick et al., 2003) version of the TAS subscale have been shown to differentiate between different groups of children with conduct problems, with children high on CU traits showing higher scores on the TAS. In the current sample, the internal consistency of the TAS scales was  $\alpha = .78$ .

*Positive Outcome Expectations for Aggression.* To examine positive outcome expectations for aggression, the Attitudes and Beliefs toward Aggression measure (Vernberg, Jacobs, & Hershberger, 1999) was used. The measure is an eleven-item, self-report measure that can be broken down into three scales: Aggression Legitimate (it is okay to be aggressive/victims deserve it), Aggression Pays (aggression gets you what you want), and Stay Out (whether or not you should intervene when witnessing violence involving others). In a sample of 1,033 boys and girls in the 7<sup>th</sup> through 9<sup>th</sup> grades, Aggression Legitimate and Aggression Pays scales demonstrated strong internal consistency ( $\alpha = .88$  and  $.72$ ), whereas the Stay Out demonstrated moderate internal consistency ( $\alpha = .68$ ) (Vernberg, Jacobs, & Hershberger, 1999). Also, all of the attitudes toward aggression scales correlated positively and significantly with measures of bullying and aggression. In this study the Aggression Legitimate and the Aggression Pays scales were combined and this total scale had an internal consistency of  $\alpha = .82$  in the current sample.

*Placement in Bully, Bully/Victim, and Victim Categories.* Both self-report and peer ratings were used to designate girls and boys as bullies, bully/victims, victims, and controls. Using the self-report, the student was classified as a victim if he or she scored a 4 or above on a 5

point Likert scale (1=never, 2=almost never, 3=sometimes, 4=almost always, 5=always) on the question, “Do other students bully you at school? A student was classified as a bully if he or she scored a 4 or above on a 5 point Likert scale on the question “How often to you bully classmates?”

Before administering the peer rating section of the questionnaire, the definition of bullying was provided to students: “Bullying is when a student is mean to another student over and over again. The student who is being bullied usually is 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” (Olweus,1978; 1991; 2001). After the definition, the children were asked to rate each individual in their class on two questions. This method has been used reliably in several studies (see Perren & Alsaker, 2006; Salmivalli & Nieminen, 2002; Unever & Cornell, 2004). A mean score of 2 or above (1 being never, 2 being sometimes, and 3 being often) on the questions “How often does this classmate bully others?” and “How often does this student get bullied by others.” was used to classify the student as a bully, victim, or bully/victim based on peer report. The correlations between the self-report item and peer ratings was  $r=.32$  ( $p < .01$ ) for bullying and  $r= .17$  ( $p < .01$ ) for victims.

A child was placed into bully and victim categories if they were rated in that category by either self-report or by their peers. The validity of this method of classification was demonstrated in a study by Peskin (2006). In this study, Peskin (2006) examined bullying and victimization behaviors in a sample of 1,492 Hispanic and Black students. Within this population 7% of the students were categorized as bullies, 12% of the populations were categorized as victims, and 5% were bully-victims. These percentages are consistent with other studies of youth (Demaray & Malecki, 2003; Espelage & Holt, 2001; Juvonen et. al., 2003). In another study



using the same categorization, being a victim was significantly correlated with measures of depression and anxiety, while bullying was positively correlated with popularity, particularly for 6<sup>th</sup> grade males (Espelage, 2001).

## Results

### *Preliminary Analyses*

The distributions of all study variables are described in Table 1. The distributions indicate that most variables were relatively normally distributed in this sample, with the exception of the proactive aggression measure. Both the relational and overt proactive aggression scales were positively skewed. The correlations between the main study variables and demographic variables are reported in Table 2. Age, ethnicity, and sex were all correlated with the main study variables. Although the age of the child was not significantly correlated with anger dysregulation ( $r=.04, p=n.s.$ ) and thrill and adventure seeking ( $r=.01, p=n.s.$ ), it was positively correlated with impulsivity ( $r=.16, p<.05$ ), positive expectations for aggression ( $r=.16, p<.01$ ), and CU traits ( $r=.14, p<.05$ ). Age of the child was positively correlated to all subtypes of aggression (see Table 2), indicating that older boys and girls show higher rates of aggression in general.

Table 1  
Distributions of all Study Variables

	Mean(SD)	Min-Max	Skew	Kurtosis	Alpha
<b>Aggression</b>					
Reactive	29.00(9.17)	20-75	1.66	3.66	.92
Overt	15.12(5.57)	10-37	1.36	1.73	.88
Relational	13.87(4.42)	10-38	1.89	4.73	.85
Proactive	23.87(6.5)	20-65	3.66	14.03	.92
Overt	11.63(3.14)	10-33	3.39	13.70	.85
Relational	12.24(3.47)	10-34	3.16	13.85	.85
<b>Social/Behavioral/Emotional</b>					
Emotional Dysregulation	9.96(2.42)	6-16	.12	-.81	.58
Impulsivity	6.72(1.61)	4-11	.52	-.12	.51
CU	7.54(2.03)	5-15	1.16	1.35	.60
Thrill and Adventure Seeking	35.48(6.40)	22-48	.01	-.82	.78
Positive Expectation	27.33(7.96)	16-58	1.06	1.04	.82

Note. CU=Callous Unemotional

Ethnicity was also positively correlated with the different subtypes of aggression, particularly reactive overt aggression ( $r=.24, p<.01$ ) and positive expectations for aggression ( $r=.21, p<.01$ ). These results indicate that ethnic minorities were more overtly aggressive when provoked and had more positive expectations for aggression. Ethnicity was negatively correlated with thrill and adventure seeking ( $r=-.16, p<.01$ ), but was not significantly associated with impulsivity ( $r=.05, p=n.s.$ ) or CU traits ( $r=.09, p=n.s.$ ).

Sex was not correlated with reactive relational aggression ( $r=-.02, p=n.s.$ ) or proactive relational aggression ( $r=-.10, p=n.s.$ ). It was, however, correlated with reactive overt aggression ( $r=-.22, p<.05$ ) and proactive overt aggression ( $r=-.18, p<.01$ ). These results coincide with previous research that indicates that, while boy and girls are both likely to use similar rates of relational aggression, boys are more likely to be overtly aggressive than girls. Sex was also correlated with CU traits ( $r=-.26, p<.01$ ), thrill and adventure seeking ( $r=-.14, p<.05$ ), and

positive expectations for aggression ( $r=-.17, p<.05$ ) with boys showing higher levels of each variable.

Table 2  
*Correlations between demographic variables and main study variables*

	<i>Age</i>	<i>Ethnicity</i>	<i>Sex</i>
<b>Aggression</b>			
Reactive	.17**	.22**	-.15*
Overt	.18**	.24**	-.22**
Relational	.13*	.14*	-.02
Proactive	.17**	.14*	-.15*
Overt	.17**	.14*	-.18**
Relational	.16**	.13*	-.10
<b>Social/Behavioral/Emotional</b>			
Emotional Dysregulation	.04	.15*	-.02
Impulsivity	.16**	.05	-.26**
CU	.14*	.09	-.14*
Thrill and Adventure Seeking	.01	-.16**	-.34**
<b>Positive Expectation</b>	.16**	.21**	-.17**

*Note.* Ethnicity was coded as 0=Caucasian and 1=minority; Sex was coded as 1=male and 2=female. CU=Callous Unemotional; \*\* $p<.01$ ; \*  $p<.05$

In Table 3 the correlations among aggression and the social, behavioral, and emotional indices are provided for the full sample. As expected from past research, reactive overt aggression and reactive relational aggression were correlated ( $r=.68, p<.001$ ). Proactive overt aggression and proactive relational aggression were also highly correlated ( $r=.68, p<.001$ ).

Table 3  
Zero-Order Correlations Among Main Study Variables

	<i>Pos.</i>	<i>Thrill</i>	<i>CU</i>	<i>IM</i>	<i>AD</i>	<i>PR</i>	<i>PO</i>	<i>PA</i>	<i>RR</i>	<i>RO</i>	<i>RA</i>
<b>Aggression</b>											
Reactive	.58***	.17**	.29**	.44**	.56**	.81***	.77**	.82***	.90***	.94***	
Overt	.55**	.20**	.28**	.42**	.57**	.68***	.71***	.72***	.68***		
Relational	.51**	.10	.25**	.39**	.44**	.82***	.71***	.80***			
Proactive	.56**	.13*	.31**	.36**	.43**	.96***	.96***				
Overt	.51**	.13*	.32**	.35**	.41**	.84***					
Relational	.51**	.11	.27**	.35**	.40**						
<b>Soc/Beh./Emot</b>											
Anger Dys.	.43**	.17**	.27**	.34**							
Impulsivity	.32**	.33**	.78***								
CU	.18**	.12*									
Thrill	.19**										
Pos. Exp											

Note: RA=Reactive Aggression; RO=Reactive Overt Aggression; RR=Reactive Relational Aggression; PA=Proactive Aggression; PO=Proactive Overt Aggression; PR=Proactive Relational Aggression; AD=Anger Dysregulation; IM=Impulsivity; CU=Callous Unemotional Traits. \*\*\*p<.001; \*\*p<.01; \*p<.05

### Test of Main Study Hypotheses

*Hypothesis 1.* Tests of hypothesis 1 are reported in Table 4. This hypothesis predicted that reactive relational aggression and reactive overt aggression would be significantly associated with anger dysregulation and impulsivity after controlling for proactive aggression. Given the associations with age and ethnicity, we also controlled for these variables in analyses. Further, it was predicted that the associations with relational aggression would remain significant for girls but not boys when controlling for overt aggression.

As predicted, anger dysregulation was significantly correlated with reactive relational aggression for both boys ( $r=.43, p<.01$ ) and girls ( $r=.44, p<.01$ ). This association remained significant associated when controlling for age and race. It was reduced, but remained significant as predicted, when also controlling for proactive aggression (boys partial  $r = .13, p < .05$  and girls partial  $r = .28, p < .01$ ). Similar, results were found for reactive overt aggression.

Reactive overt aggression was significantly correlated with anger dysregulation in boys ( $r=.61$ ,  $p<.001$ ) and girls ( $r=.54$ ,  $p<.01$ ). This association remained significant when controlling for age and race and when controlling for proactive aggression (boys partial  $r = .45$ ,  $p < .01$  and girls partial  $r = .38$ ,  $p < .01$ ). Finally, as predicted, when controlling for reactive overt aggression, the correlations between reactive relational aggression and anger dysregulation was no longer significant in boys (partial  $r=-.01$ ,  $p=n.s.$ ) but remained significant in girls (partial  $r=.18$ ,  $p<.05$ ).

To test the specificity of these associations, the association between proactive aggression and anger dysregulation was tested when controlling for reactive aggression. These results are also reported in Table 4. As predicted the relationship between relational proactive aggression and anger dysregulation did not remain significant when controlling for reactive relational aggression in boys (partial  $r=.12$ ,  $p=n.s.$ ) or girls (partial  $r=.02$ ,  $p=n.s.$ ). This effect also was found for proactive overt aggression in boys (partial  $r=-.06$ ,  $p=n.s.$ ) and girls (partial  $r=.11$ ,  $p=n.s.$ ). Thus, as predicted, reactive aggression was significantly associated with anger dysregulation when controlling for proactive aggression but the reverse was not true.

Hypothesis 1 made similar predictions for the associations between reactive aggression and impulsivity. As predicted, impulsivity was significantly correlated with reactive relational aggression for both boys ( $r=.31$ ,  $p<.01$ ) and girls ( $r=.49$ ,  $p<.01$ ). The association was not changed substantially when controlling for age and race alone. This association was reduced but remained significant when controlling for age, race, and proactive aggression in boys (partial  $r=.19$ ,  $p<.05$ ) and girls (partial  $r=.27$ ,  $p<.05$ ). Similar results were found for reactive overt aggression. As predicted, impulsivity was significantly correlated with reactive overt aggression in both boys ( $r=.38$ ,  $p<.01$ ) and girls ( $r=.38$ ,  $p<.01$ ) and these correlations were not substantially changed when controlling for age and race. The correlation was reduced but remained

significant in both boys (partial  $r=.27, p<.01$ ) and girls (partial  $r=.16, p<.01$ ) after controlling for proactive aggression. Further, when controlling for reactive overt aggression, the correlations with reactive relational aggression and impulsivity remained significant in girls (partial  $r=.37, p<.01$ ) but not in boys (partial  $r=.04, p=n.s.$ ), consistent with predictions.

To test the specificity of these associations, the association between impulsivity and proactive aggression, when controlling for reactive aggression, was tested. These results are also reported on Table 4. As predicted, the association between proactive relational aggression and impulsivity did not remain significant when controlling for reactive aggression in boys (partial  $r=-.04, p=n.s.$ ). Although it was significantly reduced, it did remain significant in girls (partial  $r=.11, p<.01$ ). Similarly, proactive overt aggression also did not remain significantly associated with impulsivity when controlling for reactive overt aggression in boys (partial  $r=-.02, p=n.s.$ ) but did remain significant in girls (partial  $r=.25, p<.01$ ). Thus, although impulsivity was more associated with reactive aggression for both boys and girls, it was also associated with proactive aggression in girls.

Table 4

*Correlations between Types of Aggression with Anger Dysregulation and Impulsivity.*

	Anger Dysregulation		Impulsivity	
	<i>Boy</i>	<i>Girl</i>	<i>Boy</i>	<i>Girl</i>
Reactive Relational Aggression	.43**	.44**	.31**	.49**
a) Partial Age/Race	.41**	.43**	.30**	.49**
b) Partial Age/Race/Proactive Aggression	.13*	.28**	.19**	.27**
c) Partial Age/Race/Overt	-.005	.18*	.04	.37**
-----				
Reactive Aggression				
Reactive Overt Aggression	.61***	.54**	.38**	.38**
a) Partial Age/Race	.58***	.50**	.38**	.35**
b) Partial Age/Race/Proactive Aggression	.45**	.38**	.27**	.16**
-----				
Proactive Relational Aggression	.43**	.37**	.24**	.44**
a) Partial Age/ Race	.41**	.33**	.23**	.43**
b) Partial Age/Race/Reactive Aggression	.12*	.02	-.04	.11*
-----				
Proactive Overt Aggression	.44**	.38**	.28**	.39**
a) Partial Age/Race	.41**	.36**	.28**	.39**
b) Partial Age/ Race/ Reactive Aggression	-.06	.11*	-.02	.25*

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

*Hypothesis 2.* Tests of hypothesis 2 are reported in Table 5. This hypothesis predicted that proactive relational aggression and proactive overt aggression would be significantly associated with CU traits, thrill and adventure seeking, and positive outcome expectations for aggression after controlling for reactive aggression. Further, it was predicted that the associations with relational aggression would remain significant for girls but not boys when controlling for overt aggression.

As predicted, CU traits were significantly correlated with proactive relational aggression in both boys ( $r=.27, p<.01$ ) and girls ( $r=.25, p<.01$ ). This association remained significant when controlling for age and race. The correlation was further reduced but remained significant in boys (partial  $r=.14, p<.05$ ) but not for girls (partial  $r=.07, p=n.s.$ ), when controlling for reactive aggression. Also as predicted, proactive overt aggression was significantly correlated with CU traits in boys ( $r=.37, p<.01$ ) and girls ( $r=.22, p<.01$ ). This association also remained significant when controlling for age and race. However, similar to the findings for relational aggression, the correlation was reduced but remained significant in boys (partial  $r=.21, p<.05$ ) but not for girls (partial  $r=.11, p=n.s.$ ) when controlling for reactive aggression.

Thus, the predictions concerning CU traits were largely supported for boys but not for girls. Also contrary to hypothesis 2, proactive relational aggression did not remain correlated with CU traits in either girls (partial  $r=.12, p=n.s.$ ) or boys (partial  $r=-.13, p=n.s.$ ), when controlling for overt aggression.

To test specificity of these associations, the association between CU traits and reactive aggression when controlling for proactive aggression was tested. These results are also reported on Table 4. As predicted the association between reactive relational aggression and CU traits did not remain significant when controlling for proactive relational aggression in boys (partial  $r=-.03, p=n.s.$ ) or girls (partial  $r=.09, p=n.s.$ ). Reactive overt aggression also did not remain significantly associated with CU traits when controlling for proactive overt aggression in boys (partial  $r=.01, p=n.s.$ ) or girls (partial  $r=.07, p=n.s.$ ). Thus results indicate that proactive relational and overt aggression are related to CU traits in boys, even after controlling for reactive aggression but the opposite is not true. In girls, the results are less clear because proactive forms



of aggression did not remain significantly associated with CU traits, after controlling for reactive aggression.

Contrary to our hypothesis, thrill and adventure seeking was not significantly correlated with proactive relational aggression in boys ( $r=.11$ ,  $p=n.s.$ ) or girls ( $r=.05$ ,  $p=n.s.$ ) or proactive overt aggression in boys ( $r=.09$ ,  $p=n.s.$ ) or girls ( $r=.09$ ,  $p=n.s.$ ). In fact, and contrary to our hypotheses, it appeared to be more strongly associated with reactive forms of aggression. That is, reactive overt aggression was positively correlated with thrill and adventure seeking when controlling for proactive aggression in both boys (partial  $r=.13$ ,  $p<.05$ ) and girls (partial  $r=.19$ ,  $p<.05$ ).

As predicted proactive relational aggression was significantly correlated with positive expectations for aggression in boys ( $r=.58$ ,  $p<.001$ ) and girls ( $r=.40$ ,  $p<.01$ ). This association also remained significant when controlling for age and race. The correlation was reduced but remained significant in boys (partial  $r=.19$ ,  $p<.05$ ) but not for girls (partial  $r=.09$ ,  $p=n.s.$ ) when controlling for reactive aggression. Similar associations were found for proactive overt aggression. As predicted, proactive overt aggression was significantly correlated with positive expectations for aggression in boys ( $r=.63$ ,  $p<.001$ ) and girls ( $r=.45$ ,  $p<.01$ ). This association remained significant when controlling for age and race. When also controlling for reactive aggression, the correlations remained significant in both boys (partial  $r=.20$ ,  $p<.01$ ) and girls (partial  $r=.23$ ,  $p<.01$ ).

It was also predicted that proactive relational aggression would remain significantly associated with positive expectations for aggression when controlling for overt aggression in girls but not boys. Contrary to our hypothesis, when controlling for overt aggression, positive

expectations for aggression did not remain significant in girls ( $r=.07$ ,  $p<n.s.$ ) or boys ( $r=.12$ ,  $p<n.s.$ ).

When testing the specificity of these associations, contrary to our hypothesis, reactive relational aggression was also significantly correlated with positive expectations for aggression in both boys (partial  $r=.15$ ,  $p<.05$ ) and girls (partial  $r=.21$ ,  $p<.05$ ) when controlling for proactive aggression. This was also true for reactive overt aggression. That is, reactive overt aggression was associated with positive expectations for aggression when controlling for proactive overt aggression in boys (partial  $r=.23$ ,  $p<.01$ ) and girls (partial  $r=.25$ ,  $p<.01$ ).

Table 5

*Correlations between Types of Aggression with Callous-unemotional Traits, Thrill and Adventure Seeking, and Positive Expectations for Aggression.*

	CU Traits		Thrill and Adventure		Pos. Expectations	
	<i>Boy</i>	<i>Girl</i>	<i>Boy</i>	<i>Girl</i>	<i>Boy</i>	<i>Girl</i>
Proactive	.27**	.25**	.11	.05	.58***	.40**
Relational						
Aggression						
a) Partial	.23**	.21**	.11	.08	.52**	.35**
Age/Race						
b) Partial Age/	.14*	.07	.00	-.02	.19**	.09
Race/Reactive						
c) Partial	-.13	.12	.03	-.01	.12	.07
Age/Race/Overt						
-----						
Proactive Overt	.37**	.22**	.09	.08	.63***	.45**
Aggression						
a) Partial	.33**	.18**	.11	.11	.54**	.41**
Age/Race						
b) Partial	.21**	.11	-.03	-.01	.20**	.23**
Age/Race/						
Reactive						
-----						
Relational	.23**	.26**	.13*	.09	.59***	.43
Reactive						
Aggression						
a) Partial Age/	.19**	.22**	.13*	.12	.51**	.39**
Race						
b) Partial Age/	-.03	.09	.07	.09	.15*	.21**
Race/ Proactive						
-----						
---						
Reactive Overt	.30**	.21**	.13*	.15*	.58***	.48**
Aggression						
a) Partial Age/	.26**	.16**	.17**	.22**	.53**	.42**
Race						
b) Partial Age/	.01	.07	.13*	.19**	.23**	.25**
Race/ Proactive						

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

*Hypotheses 3 and 4.* To test hypotheses 3 and 4, a series of 2 X 4 (gender by bullying group) ANOVA's were conducted with the four measures of aggression as dependent variables. These hypotheses predicted that bully/victims would be more reactively aggressive but not proactively aggressive than non bullies. Pure bullies were predicted to be more proactively and reactively aggressive (both on relational and overt aggression scales) than non bullies. The differences

between the bullying and non-bullying groups predicted in hypothesis 3 and 4 were predicted to largely be due to relational aggression in girls but overt aggression in boys. Using the procedures described previously, 24 boys and 27 girls were classified as pure bullies based on either self-report or peer-report. Also, 28 boys and 28 girls were classified as pure victims and 11 boys and 10 girls were classified as bully/victims. As a result, 62 boys and 87 girls were not classified as either bullies or victims.

Consistent with these hypotheses a significant group by gender interaction was found for one of the four aggression measures, and the interaction effect for two of the other aggression measures approached significance: proactive relational aggression ( $F(3,121) = 3.26, p < .05; \eta^2 = .04$ ), proactive overt aggression ( $F(3,121) = 2.43, p = .07, \eta^2 = .03$ ), and reactive overt aggression ( $F(3, 121) = 2.30, p = .07; \eta^2 = .03$ ). These tests were followed by an examination of simple effects, studying group differences separately for boys and girls. Overall group differences were followed with Tukey's procedure to determine the source of group differences in pairwise comparisons. Results of these simple effects are provided in Table 6.

For boys, results indicated significant group differences on all of the aggression measures: proactive relational aggression ( $F(3, 121) = 11.68, p < .001; \eta^2 = .23$ ), proactive overt aggression ( $F(3,121) = 11.02, p < .001; \eta^2 = .22$ ), reactive relational aggression ( $F(3,121) = 8.56, p < .001; \eta^2 = .18$ ); and proactive relational aggression ( $F(3,121) = 11.68, p < .001; \eta^2 = .23$ ). Follow-up pairwise comparisons revealed that contrary to our hypothesis, boy bullies demonstrate higher levels of both reactive relational ( $M = 15.49; SD = 4.79$ ) and reactive overt ( $M = 19.93; SD = 6.33$ ) aggression but not proactive relational ( $M = 13.64; SD = 4.37$ ) or overt ( $M = 13.71; SD = 4.70$ ) aggression. Bully/victims were the most aggressive boy group overall. They displayed high

levels of reactive relational (M=19.50; SD=9.25), reactive overt(M=23.07; SD=8.67), proactive relational (M=18.09; SD=8.32), and proactive overt(M=17.46; SD=8.31) aggression.

In girls, results also indicated significant group differences on all of the aggression measures:

proactive relational aggression (F(3, 121)=7.39,  $p < .001$ ;  $\eta^2 = .13$ ), proactive overt aggression

(F(3,121)=8.92,  $p < .001$ ;  $\eta^2 = .15$ ), reactive relational aggression (F(3,121)=8.52,  $p < .001$ ;

$\eta^2 = .15$ ); and proactive relational aggression (F(3,121)=7.39,  $p < .001$ ;  $\eta^2 = .13$ ). Follow-up

pairwise comparisons revealed that, contrary to hypothesis 3, girl bully/victims demonstrated

high levels of all types of aggression: reactive relational (M=18.00; SD=5.12), reactive overt

(M=15.70; SD=6.33), proactive relational(M=13.48; SD=3.03), and proactive overt (M=13.20;

SD=3.39) aggression. Girl bullies were as aggressive as the bully/victims in all areas of

aggression: reactive relational (M=15.89; SD=5.50), reactive overt (M=18.93; SD=6.35),

proactive relational (M=13.97; SD=4.81), and proactive overt (M=12.59; SD=4.19) aggression.

Contrary to hypothesis 4 the differences between the bullying and the non-bullying groups were not more apparent for relational aggression in girls than in boys.

Table 6  
Types of Aggression across Bullying Groups.

	Control (n=62)	Victim (n=28)	Bully (n=24)	Bully/Victim (n=11)	F (3,121)	Eta <sup>2</sup>
Boys						
React Rel. Agg.	12.86 (3.20) <sup>a</sup>	13.13 (3.28) <sup>a</sup>	15.49 (4.79) <sup>ab</sup>	19.50 (9.25) <sup>b</sup>	8.56***	.18
React. Overt. Agg.	14.98 (3.98) <sup>a</sup>	14.23 (3.98) <sup>a</sup>	19.93 (6.33) <sup>b</sup>	23.07 (8.67) <sup>b</sup>	13.73***	.25
Proact.Rel. Agg	11.75 (2.02) <sup>a</sup>	11.62 (1.95) <sup>a</sup>	13.64 (4.37) <sup>a</sup>	18.09 (8.32) <sup>b</sup>	11.68***	.23
Proact. Overt Agg.	11.20 (2.17) <sup>a</sup>	11.39 (2.10) <sup>a</sup>	13.71 (4.70) <sup>a</sup>	17.46 (8.31) <sup>b</sup>	11.02***	.22
-----						
Girls	(n=87)	(n=28)	(n=27)	(n=10)		
React. Rel. Agg.	12.86 (3.10) <sup>a</sup>	13.07 (3.77) <sup>a</sup>	15.89 (5.50) <sup>b</sup>	18.00 (5.12) <sup>b</sup>	8.52***	.15
React. Overt. Agg.	13.01 (4.26) <sup>a</sup>	11.83 (2.73) <sup>a</sup>	18.93 (6.35) <sup>b</sup>	15.70 (6.33) <sup>ab</sup>	14.02***	.22
Proact.Rel. Agg	11.29 (2.02) <sup>a</sup>	11.37 (2.54) <sup>a</sup>	13.97 (4.81) <sup>b</sup>	13.48 (3.03) <sup>ab</sup>	7.39***	.13
Proact. Overt Agg.	10.68 (1.44) <sup>a</sup>	10.29 (.98) <sup>a</sup>	12.59 (4.19) <sup>b</sup>	13.20 (3.39) <sup>b</sup>	8.92***	.15

Note:React. Rel. Agg.= Reactive Relational Aggression; React.Overt. Agg= Reactive Overt Aggression; Proact.Rel. Agg.= Proactive Relational Aggression; Proact. Overt Agg= Proactive Overt Aggression; \*\*\* p<.001; a and b superscripts indicate significant differences using Tukey's procedures for pairwise comparisons. a superscripts have similar means and b superscripts have similar means.

## Discussion

This study examined the associations among different subtypes of aggression with different social, cognitive, and emotional characteristics in a mixed gender community sample. Consistent with our first hypothesis, anger dysregulation and impulsivity were significantly correlated with both reactive relational and reactive overt aggression even after controlling for proactive aggression. This finding is consistent with other findings that reactively aggressive individuals become more physiologically aroused at smaller provocations (Munoz et al., 2006), that they have a low frustration tolerance (Frick & Morris, 2004), and that they are more likely to have diagnoses of ADHD (Dodge et al., 1997; Vitaro et al., 2002; Waschbusch et al. 2002). It

also supports the contention that this type of aggression is more strongly related to problems regulating angry feelings (Frick & Morris, 2004).

It is also important to note that this finding held true for not only overt aggression but also for relational aggression. More importantly, the associations with reactive aggression remained significant even after controlling for reactive overt aggression for girls but not for boys. Thus, these findings support the possibility that relational aggression is an important construct, especially for understanding aggression in girls (Underwood, 2004). As in past research (Crick & Grotpeter, 1995), boys showed more overt aggression than girls in our sample but not more relational aggression. However, the fact that relational aggression in girls remained significant after controlling for overt aggression suggests that it assesses an important dimension in girls that is not fully captured by traditional measures of overt aggression (Crick & Grotpeter, 1995; Underwood, 2003).

The findings concerning predicted correlates with proactive aggression were less consistent. Consistent with hypothesis 2, CU traits remained significantly correlated with proactive relational and proactive overt aggression in boys when controlling for reactive aggression. However, this was not the case for girls. CU traits were associated with proactive aggression, both overt and relational, in girls which is consistent with past research (Frick et al., 2003; Marsee & Frick, 2007; Munoz et al., 2006). However, the fact that it did not remain significant when controlling for reactive aggression could suggest that it is equally associated with both forms of aggression in girls. Also, when controlling for proactive overt aggression, the association with proactive relational aggression did not remain significant in either boys or girls. This latter finding could suggest that CU traits are associated with aggression in general, and is not specific to either overt or relational aggression.

Our study attempted to replicate some of the findings in Marsee and Frick's (2007) study within the context of a community sample. Our study found that reactive aggression was associated with anger dysregulation and impulsivity. Similarly, Marsee's study found that reactive aggression was associated with anger to perceived provocation and poorly regulated emotion. In our study, we also found reactive relational aggression remained significantly associated with anger dysregulation and impulsivity when we partialled out for overt aggression in girls but not boys. In contrast, in Marsee's all girl detained sample, relational aggression did not account for the unique variance in poorly regulated emotion and anger to perceived provocation when controlling for overt aggression. The discrepancy in our findings could be due to the different types of samples used in the two studies. The delinquent sample studied by Marsee likely showed higher rates of overt aggression than girls in a community sample. That is, girls in Marsee's sample who had a difficult time regulating emotions and anger were most likely highly relationally and overtly aggressive. Our community sample likely had girls who were more relationally aggressive who may not have been overtly aggressive.

Another discrepancy in our findings compared with Marsee's was our finding regarding CU traits. In our study CU traits remained significantly associated with proactive overt aggression in boys but not girls. It did not remain significantly correlated with relational aggression when controlling for overt aggression in either gender. Marsee, on the other hand, not only found that CU traits were significantly associated with proactive aggression, she also found that this interaction remained significant in proactive relational aggression in her sample when controlling for overt aggression. One possible explanation for the discrepancy in findings could be that few children in our community sample showed high rates of CU traits and proactive aggression.



Contrary to hypothesis 2, proactive aggression was not significantly correlated with thrill and adventure seeking once we controlled for reactive aggression. In fact, there was evidence that thrill and adventure was more strongly associated with reactive aggression. This finding is not consistent with research linking thrill and adventure seeking to proactive forms of aggression (Levenston et al., 1993). However, these findings would be consistent with research suggesting that some forms of sensation seeking are indicative problems of impulse control (Mathias & Stanford, 1999).

The findings for positive expectations for aggression were also not completely consistent with hypotheses. On the one hand, such expectations did remain significantly correlated with proactive aggression when controlling for reactive aggression. However, they also remained significantly associated with reactive aggression, controlling for proactive aggression. These findings are not consistent with some past research suggesting a unique association with proactive forms of aggression (Crick & Dodge, 1996; Pardini, Lochman, & Frick, 2003). Instead, they suggest that positive expectations for aggression may be related to aggressive behavior in general and not to one specific form of aggression. Meaning both reactively and proactively aggressive individuals perceive some benefit to behaving aggressively.

A final set of hypotheses related to the association between bullying behavior and victimization from bullying and types of aggression. The pattern of findings was somewhat different for boys and girls. For boys, bully/victims tended to engage in the most proactive and reactive aggressive behavior of all types. This was not consistent with our hypothesis or with previous research that suggests that bully/victims are less likely to be proactively aggressive than pure bullies and more likely to be reactively aggressive (Unever, 2005). However, boy bully/victims tended to engage in the most proactive and reactive aggression, whereas boy bullies only engaged in reactive

aggression. The differences in these two bullying groups do support previous findings that the bully/victim is a distinct category (Toblin, 2005; Salmivalli, 2000). However, future research needs to clarify how they differ.

For girls, both bullies and bully/victims were very similar in their level and type of aggression. Contrary to previous research, bully/victims were not more reactively aggressive than pure bullies (Camodeca, 2002; Unever, 2005). These findings seem to suggest that the addition of being victimized was not important for differentiating among bullying groups for girls. One possible reason could be that girls who bully are more likely to perceive themselves as victims of bullying.

### *Limitations*

All of these findings need to be interpreted in light of several limitations. One limitation of this study was that the different subtypes of aggression were highly correlated. This is consistent with past research (Marsee, 2006) and does suggest that many highly aggressive individuals use both reactive and proactive aggression and are going to engage in both relationally aggressive and overtly aggressive ways. This could call into question the importance of distinguishing between the types of aggression (Little et al., 2003). However, it bears noting that even with this high level of association, we were still able to find a few distinct correlates with the individual types of aggression.

Another limitation of this study was that this study was done in a community sample. Consequently, the rates of aggression, particularly in girls, were likely to be lower than in samples of juvenile offenders or clinic-referred samples of youths with conduct problems (Marsee & Frick, 2006). In our sample there was likely to be only a few highly aggressive individuals. Therefore, it is not clear how well our findings might generalize to samples with

higher rates of aggression. This is likely to be especially true for proactive aggression. Proactive aggression is premeditated and associated with low levels of fearfulness (Eisenberg et al., 2001), decreased sensitivity to punishment and distressing stimuli (Levenston et al. 1993), and lower levels of physiological responsiveness to provocation (Hubbard et al., 2002). These traits are generally not common in normal populations (see Frick & Morris, 2004 for review). The low number of individuals who engage in proactive aggression could have contributed to the predictions being less strongly supported for this type aggression.

Another limitation of this study was that the internal consistencies of some of the study variables, especially for CU traits, impulsivity, and positive expectations for aggression were quite low. This low reliability may have reduced our ability to find significant correlations with other variables. Thus, these results need to be replicated using other measures that may have stronger psychometric properties.

Another limitation is that this study relied primarily upon self-report and peer-report measures. This can be problematic because it relies the willingness of the individual to disclose their behavior accurately and it only assesses their perceptions of their behavior. Because of the large number of participants in this sample and practical time constraints, behavioral observations were not used in this study. Also, some forms of aggression, such as relational aggression, are difficult to observe because they are often covert in nature (Crick & Grotpeter, 1995; Underwood, 2003). Further, it is difficult to observe very low base rate behaviors, such as proactive aggression. Finally, one would not ethically want to set up an observational system to illicit serious aggression. However, laboratory measures of simulated aggression (e.g., retaliatory responses on a computer game) have been used in past research with youth (Munoz et

al., in press) and having other methods of assessing aggression and the proposed correlates to aggression would have increased confidence in our results.

### *Directions for Future Research and Practice*

This study found some support for continuing to study different subtypes aggression. Because of the low aggression rates in this sample, one possible direction for future research would be to study the correlates to aggression in only those students who show the highest rates of aggression. It may be that the differential correlates to the subtypes are strongest when only those youth who show abnormal levels of aggression are studied.

Research on aggressive girls is just beginning to demonstrate how important it is to examine the construct of relational aggression and its developmental correlates and relation to more serious behavioral problems (Moretti & Odgers, 2002). Our results, although not conclusive, provide some support for the importance of this construct in girls. The reason that this finding was not more consistent across types of aggression may again be a result of focusing on normative patterns of aggression, rather than focusing only on non-normative levels. That is, gender differences may become clear when studying only youth who show extreme forms of relational aggression.

Although further testing is needed, these and other findings (Crick & Grotpeter, 1995) support the importance of developing intervention programs that target relational aggression (Underwood, 2003). Underwood (2003) suggests that such interventions can be implemented in schools and could consist of social-cognitive interventions, awareness training, structured activities, and teaching specific peers to actively defend victims. One of the first of such programs to specifically target relational aggression is the Second Step program (Frey, Hirschstein, & Guzzo, 2000). It is a school-based social-emotional learning program. It is

composed of many sessions devoted to teaching students about relational aggression. The program's goal is to prevent aggression by encouraging perspective taking, empathy, anger-management skills, and problem solving. A follow up empirical study regarding the effectiveness of this program found that at the end of the school year students who participated in this program were less likely to be supportive of relationally aggressive behavior than students in a control group (Van Schoiack-Edstrom, Frey, & Beland, 2002).

The differences in the risk factor in those students who are proactively aggressive vs. reactively aggression provide some significant implications for the development of treatment programs. Reactively aggressive individuals, who are characterized by their high levels of physiological arousal and difficult time inhibiting emotions, might benefit from cognitive behavioral therapy (CBT) which challenges the individual to better cope with their strong emotions recognize and change those thoughts and emotions that lead to aggressive behavior (Mpofu & Crystal, 2001). Proactively aggressive individuals, on the other hand, are presumably in control of their emotions to such a degree that they can discriminate when to use aggression and when not to use aggression. These individuals might benefit from a different form of therapy that focuses more on sensitivity training and pro-social methods of attaining social goals. In conclusion, this study examined whether like reactive and proactive aggression can be divided into overt and relational subtypes. This study provides further evidence that reactive and proactive relational aggression have similar correlates to reactive and proactive overt aggression. This study also attempted to further tie proactive and reactive aggression to the constructs of bully and bully/victim and test whether the same associations found in past research with overt aggression are found for relational aggression and bullying. The current study's finding did not

match those found in previous studies, however, more research is needed in order to conclusively state how the constructs of bully and bully/victim are related.

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## Vita

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