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**Associations Between the Subtypes of Aggression, Parenting Styles and
Psychiatric Symptomatology in Children on a Psychiatric Inpatient Unit**

A Dissertation Presented for the
Doctor of Philosophy
Degree
The University of Tennessee, Knoxville

Jamie Lee Rathert
August 2013

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Dedication

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For Owl Girls everywhere, our vision is our burden and our strength.

For Adon who really gave me Lenny

And for Lenny . . . who stuck it out. Eyes closed, snore in full swing.

Acknowledgements

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For the children and families whose generous participation made this project and so many others possible.

Childhood aggression often precedes more costly problem behavior that may result in psychiatric hospitalization. However, aggression is not a unidimensional construct, as there are subdimensions of aggression. A common way that aggression is divided is by the motivation behind the behavior, namely proactive and reactive aggression. Proactive aggression is calculated in nature, whereas reactive aggression occurs in response to a perceived threat. Some evidence suggests differential outcomes for these aggression subtypes; thus, further understanding of the link between the subtypes of aggression and psychiatric problems may help to refine current prevention efforts and reduce the number of hospitalizations.

Consistent with a developmental-ecological perspective, which posits that multiple factors play a role in the development of problem behavior, the current study examined the link between the subtypes of aggression and internalizing and externalizing symptomatology, as well as examined parenting behavior, gender, age, and race as potential moderators of these relations. Participants were 392 children ages 6-12 years of age ($M = 9.4$, $SD = 1.9$) admitted consecutively to a psychiatric inpatient facility for both internalizing and externalizing symptomatology. Results indicated that both proactive and reactive aggression were associated with externalizing problems. Reactive aggression was associated with both anxiety and affective symptoms, but not somatic problems for particular individuals. Proactive aggression was associated with internalizing problems when specific parenting styles and demographic factors were present. Although both proactive and reactive aggression were associated with both internalizing and externalizing symptoms, differential associations were evident. Further, the impact of parenting styles on these associations were dependent upon gender, age and/or race.

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Chapter1

Introduction

Children 6-11 years of age account for almost 35% of all mental healthcare expenditures in the United States (Ringel & Sturm, 2001). Over the last two decades there has been an increased need for mental health services for children, yet a decline in the number of inpatient psychiatric beds and lack of adequate community based, and residential treatment centers to provide these services (Glieb & Cuellar, 2003). Therefore, only the most severely impaired youth are treated with inpatient psychiatric hospitalization. Psychiatric inpatient care accounts for 33% (3.9 billion dollars annually) of the mental health care cost for these youths (Ringel & Sturm, 2001). Thus, it is a costly intervention strategy for children, their families and society as a whole. Moreover, there are high readmission rates associated with child inpatient care (Blader, 2004). Additionally, children who are hospitalized often present behaviors that are dangerous to inpatient staff, other residents, and themselves (Hage, Van Meijel, Fluttert, & Berden, 2009). With growing concerns about the cost of healthcare as well as the safety of staff and patients, it is important to better understand factors that contribute to psychiatric hospitalization in children.

It is well known that childhood aggression often precedes more serious internalizing and externalizing symptomatology (e.g., Card & Little, 2006; Conner, Steingard, Cunningham, Anderson & Melloni, 2004). However, not all aggressive children suffer from psychiatric symptoms and are hospitalized. Furthermore, aggression is not a unidimensional construct. One way that child researchers often categorize aggression is by the motivation behind the behavior, namely proactive and reactive aggression. Proactive (goal oriented) and reactive (hostile) aggression are uniquely associated with both externalizing and internalizing outcomes.

Specifically, proactive aggression is most strongly associated with adolescent and adult delinquency, whereas reactive aggression is associated with depression and anxiety (e.g., Card & Little, 2006; Fite, Raine, Stouthamer-Loeber, Loeber, Pardini, 2010). Thus, one strategy to aid in the prevention of costly inpatient treatment is to investigate the association between the subtypes of aggression and more serious behaviors, including externalizing and internalizing psychiatric symptomatology.

Although previous research has established unique relations between proactive and reactive aggression and externalizing and internalizing symptoms (Vitaro, Brendgen, & Tremblay, 2002; Card & Little, 2006), very few studies have examined how these subtypes of aggression are associated with specific symptomatology at the time of admission to a psychiatric inpatient facility. Examining these associations within a psychiatric inpatient sample could help bring clinical utility to this line of research. This information may ultimately aid in the development of targeted screening, prevention and intervention strategies for children with severe psychopathology.

Moreover, little research has examined factors that may impact the associations between the aggression subtypes and more severe problem behavior, which could help to further develop targeted prevention and intervention strategies. From a developmental-ecological perspective, which suggests that multiple factors play a role in a child's development (Tolan, Guerra & Kendall, 1995), this study will examine individual and contextual factors that may impact these relations. Specifically, parenting style, gender, age, and race will be examined as potential moderators of the aforementioned relations.

Chapter 2

Literature Review

Psychiatric Problems in Children

Psychiatric problems in childhood are divided into two categories of symptomatology, namely externalizing disorders and internalizing disorders (APA, 2000). Although other issues may lead to inpatient admission, the most common reasons for inpatient treatment involves some type of internalizing or externalizing psychiatric difficulties. The hallmark feature of externalizing symptomatology is some form of dysregulation in one's behavior, whereas the hallmark feature of internalizing symptomatology is disordered mood and affect (Kovacs & Devlin, 1998). Although high levels of co-morbidity have been found among these symptom categories, research does provide evidence that these are separate and distinct conditions (For a review see Kovacs & Devlin, 1998). The Diagnostic and Statistical Manual Text Revised (APA, 2000) has grouped common externalizing problems together in the Disruptive Behavioral Disorder Classification, and includes Attention Deficit Hyperactivity Disorder (ADHD), Oppositional Defiant Disorder (ODD), Conduct Disorder (CD) and Disruptive Behavior Disorder not otherwise specified (DBD NOS). These symptoms are associated with disruption to the child and others that is a result of poor behavioral regulation. This disruptive symptomatology includes deficits in attention, as seen in ADHD, difficulty with compliance and emotional regulation as seen in ODD, and deficits in empathy and understanding and following societal rules as seen in CD.

In contrast, internalizing problems in childhood can manifest themselves in symptoms ranging from depressed mood, flattened affect, and withdrawal to excessive worry, anxiety, decreased need for sleep, pressured speech and irritability (APA, 2000). Children suffering from

internalizing difficulties can also exhibit self-harming behaviors and suicidal ideation/behavior (Bettes & Walker, 1986; Greening et al., 2008; Greening, Stoppelbein, Luebbe, & Fite, 2010). DSM-IV-TR internalizing disorder diagnoses include Major Depressive Disorder (MDD), Dysthymic Disorder (DD), Mania (MAN), Generalized Anxiety Disorder (GAD), and Post Traumatic Stress Disorder (PTSD).

The prevalence of externalizing disorders in children and adolescents is estimated to be between 1-16% depending upon the population in which it is examined (APA, 2000). The prevalence rates for internalizing symptomatology ranges from 2.8 % for depression in children 13 and under, to as much as 15% when all forms of internalizing symptomatology are considered (Costello, Erkanli, & Angold, 2006; Sawyer et al., 2001). Despite these high prevalence rates of both types of symptomatology, the majority of inpatient treatment referrals are for some type of externalizing symptomatology. More specifically, the most common disturbance is in conduct such as aggression (AACAP, 1997; Blader, 2004; Blader 2006). Specifically, research has demonstrated that parental ratings of aggression and the frequency of conduct problems are higher for children in inpatient populations than they are for outpatient populations (McDermott, McKeivey, Roberts & Davies, 2002). However, not all aggressive children are placed in inpatient treatment. Thus, it is important to investigate the behavioral precursors to inpatient admission, via an understanding of the relations among the aggression subtypes, psychiatric symptoms and other contextual factors (e.g., parenting) that place these aggressive individuals at an increased risk for inpatient admission. In order to identify targets of intervention and tailor prevention efforts effectively, more research identifying what type of aggression is a risk factor for both internalizing and externalizing behavior problems is warranted. Furthermore,

understanding parenting behavior that impacts these associations at the time of psychiatric admission is needed to further inform prevention and intervention.

Proactive and Reactive Aggression

Aggressive behavior in childhood has been found to be a precursor to both more severe externalizing behavioral problems (e.g., delinquency, antisocial behaviors, disruptive behavior disorders) and internalizing symptoms (e.g., anxiety, depression, low self esteem) (Brendgen, Vitaro, Tremblay, & Lavoie, 2001; Card & Little, 2006; Conner, Duberstein, Conwell & Caine, 2003; Fite, Stoppelbein, & Greening, 2009a; Vitaro, Brendgen, & Barker, 2006), suggesting the importance of identifying those with aggressive behavior in order to prevent subsequent severe problem behavior. However, aggressive behavior is not a unidimensional construct; with researchers often distinguishing between proactive (goal oriented, calculated) and reactive (hostile reactions to provocation) aggression. An example of proactive aggression is a child threatening to hit or push another child in order to obtain a desired object, and an example of reactive aggression is a child hitting his peer when bumped into on the school bus.

There is some debate, however, regarding the utility in distinguishing between proactive and reactive aggression because they are strongly related to one and other (*rs* ranging from .10 to .89; Bushman & Anderson, 2001). Yet factor analytic work supports these distinct aggression subtypes (e.g., Dodge & Coie, 1987; Dodge, 1991; Poulin & Boivin, 2000; Raine et al., 2006; Fite, Colder & Pelham, 2006), and these aggression subtypes are associated with unique behavioral, social, and emotional outcomes (Card & Little, 2006). Furthermore, these subtypes of aggression are best explained by different etiological theories (Dodge, 1991).

The development of proactive aggression may be best explained by social learning theory (Dodge, 1991). That is, proactive aggression is believed to develop from the modelling and

reinforcement of aggressive actions. Social learning theory posits that social and contextual factors impact the development of aggression (Bandura, 1973). More specifically, aggression is learned when the use of aggression is modeled, performed and then reinforced by external reward. Indeed, there is research that demonstrates that children whose caregivers and role models utilize aggression to meet their own needs are more likely to choose aggression or violence over more prosocial tactics (Dodge, 1991; Patterson et al., 1992; Schwartz et al., 1997). Additionally, boys identified as “non-victimized aggressors” (a.k.a., proactively aggressive individuals) have been found to have significant histories of witnessing violence and greater exposure to aggressive role models than non-aggressive children (Schwartz et al., 1997).

In contrast, reactive aggression is believed to be best explained by the frustration aggression hypothesis (Dodge, 1991). This theory assumes that aggression occurs in response to frustration or a perceived threat due to poor emotional regulation and hostile attributional biases (Berkowitz, 1978; Dodge, 1991). Therefore, reactive aggression is posited to be an anger driven reaction to external events that result in frustration. This frustration or anger may be an appropriate response to a real threat or a disproportionate response to a perceived threat. For example, a child may reactively aggress at a peer who is physically assaulting him. On the other hand, the same child may rage and explode when accidentally bumped into on the school bus. This overreaction is consistent with the frustration aggression model, which states that “The goal of aggression is to defend oneself or to inflict harm on the source of the frustration” (Dodge, 1991 p. 202). This overreaction to ambiguous or benign stimuli is believed to be the product of environmental factors that foster low frustration tolerance, increase vigilance and hostile attributions (Dodge, 1991). In fact research has shown that reactive aggression is associated with numerous environmental experiences that foster poor emotional regulation, including traumatic

histories of physical and sexual abuse and inconsistent unpredictable home environments. (Dodge et al., 1997; Connor, Steingard, Cunningham, Anderson, & Melloni, 2004; Shields & Cicchetti, 1998).

Behavioral and Psychological Outcomes of Proactive and Reactive Aggression

The distinction between the two aggression subtypes is important, as proactive and reactive aggression are associated with unique behavioral and psychological outcomes. In particular, proactive aggression, not reactive aggression, is predictive of delinquent violent behavior in youth (e.g., Fite et al., 2008; Vitaro, Brendgen, & Tremblay, 2002). Studies have also established links between proactive, not reactive, aggression and antisocial behavior in adolescence and adulthood (Fite et al., 2010; Pulkkinen, 1996; Scarpa, Haden, & Tanaka, 2010). For example, Vitaro et al., (1998) found that proactive aggression measured at age 12 tripled the risk for a child to receive a disruptive behavior disorder diagnosis (Conduct Disorder & Oppositional Defiant Disorder) at age 15. Furthermore, adolescent proactive, not reactive, aggression at age 16 predicted Anti-Social Personality problems, such as violent behavior and delinquency at age 26 (Fite, Raine, Stouthammer-Loeber, Loeber & Pardini, 2010). This pattern of findings suggests that proactive, not reactive, aggression is associated with the development of more serious externalizing problem behavior.

Reactive aggression, on the other hand, is predictive of internalizing symptoms, such as depression and anxiety, in childhood, adolescence and adulthood (Card & Little, 2006; Fite, et al., 2010; Vitaro et al., 2002). For example, in a cross sectional study of third graders (Mathieson & Crick, 2010) reactive, not proactive aggression, was associated with internalizing symptomatology and not externalizing symptomatology. Furthermore, in a large longitudinal

study that followed adolescent males into adulthood, Fite et al. (2010) found that reactive not proactive aggression measured at age 16, uniquely predicted internalizing difficulties at age 26.

Thus, there is evidence suggesting that proactive aggression is more strongly linked to externalizing problem behaviors than reactive aggression, and reactive aggression is more strongly linked to internalizing symptoms than proactive aggression. However, only one of these studies (Vitaro et al., 1998) actually examined symptoms associated with a clinical diagnosis. Thus, further understanding of which diagnostic symptom clusters that these aggression subtypes are associated with would be useful.

Furthermore, to date there is only a very limited body of research that examines subtypes of aggression in child psychiatric populations. Specifically, proactive aggression has been linked to indicators of psychopathic characteristics and number of disciplinary consequences (time-outs, time-aways, and seclusions) and reactive aggression has been linked to negative affect, depressive symptoms, and suicidality while hospitalized in a psychiatric inpatient facility (Fite, Stoppelbein, & Greening, 2009b). However, this research did not examine the link between proactive and reactive aggression and specific behaviors associated with psychiatric symptoms (internalizing or externalizing) that contributed to admission. This is a notable omission the literature, as these relations need to be examined in order to aid in the development of targeted screening, prevention and interventions for children at risk for psychiatric inpatient admission.

It should not be assumed that previously established relations will be the same in a psychiatric inpatient sample. Although the aggression subtypes are differentially linked to behavioral outcomes in community and aggressive samples (e.g., Card & Little, 2006; Fite et al., in press), these differential associations may not be evident in a sample of such severe psychopathology. Alternatively, given that aggression itself is an externalizing behavior

problem, both proactive and reactive aggression may be linked to externalizing symptomatology, but only reactive aggression may be linked to internalizing symptomatology in an inpatient sample. Moreover, it would be useful to know if reactive/proactive aggression is associated with only certain internalizing/externalizing symptom clusters. For example, reactive aggression may be only associated with affective, but not somatic, symptoms. Identifying which types of symptoms these aggression subtypes are associated with could aid in more targeted prevention intervention strategies. Thus, more research examining the utility in differentiating between proactive and reactive aggression with a focus on the prevention of psychiatric inpatient admission is needed. Consistent with previous research, we expect proactive aggression to be more strongly linked to externalizing psychiatric symptoms (i.e. ODD & CD) than reactive aggression and reactive aggression to be more strongly linked to internalizing psychiatric symptoms (i.e., depression, anxiety, somatic complaints) than proactive aggression, with one exception. While prior research has suggested that proactive aggression is more consistently linked to externalizing symptoms, than reactive aggression (Brendgen, Vitaro, Tremblay, & Lavoie, 2001; Card & Little, 2006) some previous research has linked reactive aggression to externalizing symptoms (Dodge, Lochman, Harnish, Bates, & Pettit, 1997; Vitaro & Brendgen, 2005). Specifically, reactive aggression has been linked to symptoms of ADHD (Card & Little, 2006; Day et al, 1992; Dodge, Lochman, Harnish, Bates & Pettit, 1997; Kempes, Matthys, Maassen et al, 2006; Vitaro, Brendgen, & Tremblay, 2002). In fact in a non-clinical sample, reactive but, not proactive, aggression has been found to be strongly associated with ADHD symptoms (Kempes, Mathyes, & Vries, 2005). Therefore, it was posited that both reactive and proactive aggression would be associated with ADHD symptoms.

Further note that potential moderators of the link between these aggression subtypes and psychiatric symptoms have not been examined. This too is a notable omission in the literature, as it is important to examine contextual (i.e., parenting styles, socioeconomic status) and individual factors (i.e., gender, age, and race) that may impact relations between the aggression subtypes and psychiatric disorders to further aid in refining prevention and intervention efforts. Consistent with a developmental etiological model, which posits that multiple factors influence developmental trajectories of child behavior (Tolan, Guerra, & Kendal, 1995), this study will extend previous research by examining the potential moderating effects of parenting styles, gender, age, and race on these associations. Furthermore, this study will examine the moderating effects of parenting style on the relationships between the aggression subtypes and psychiatric symptomatology for different groups (boys vs. girls, younger vs. older, Caucasians vs. African Americans).

Parenting Styles

Parents play an important role in their child's development and socialization, directly influencing problem behavior (Maccoby, 1992; Patterson, Reid, & Dishion, 1992). Moreover, previous research has demonstrated that parenting behavior impacts relations between the aggression subtypes and behavioral outcomes, suggesting that it is important to examine parenting as a moderator of the link between proactive and reactive aggression and subsequent problem behavior. More specifically, Brendgen et al., (2001) found that parental monitoring moderated the relationship between proactive aggression and socialized delinquency. That is, at high levels of parental monitoring, the relationship between proactive aggression and delinquency was weaker than at low levels of parental monitoring. Furthermore, Brendgen (2001) and colleagues found that parental warmth moderated the relationship between reactive

aggression and interpersonal violence. At high levels of parental warmth, the relation between reactive aggression and interpersonal violence was weaker than at low levels of parental warmth. Thus, there is evidence to suggest that parents may play an important role in the relations between proactive and reactive aggression and problem behavior.

One way that researchers often categorize caregiver behavior is by specific parenting styles. Baumrind (1991) refers to three particular parenting styles: authoritarian, authoritative and permissive styles of parenting. These styles differ based on the amount of warmth and control demonstrated by the parent. Authoritarian parenting is conceptualized as rigid, harsh parenting, that offers little warmth or flexibility. Permissive parenting, on the other hand, is parenting marked by failure to set limits and neglecting to have developmentally appropriate expectations. Lastly, authoritative parenting is consistent, supportive parenting that includes firm limits and developmentally appropriate expectations. Both authoritarian and permissive parenting styles have been associated with negative adjustment outcomes such as substance use, school misbehavior, and delinquency (Baumrind, 1991; Slicker, 1998). Additionally, permissive parenting has been associated with risk for readmission to a psychiatric inpatient unit for children (Fite, Stoppelbein, & Greening, 2009b). Authoritative parenting, in contrast, has been linked to positive adjustment for children and adolescents such as lower rates of substance use, risky sexual behavior, aggression, school misbehavior and a delayed onset in the age of engaging in ones first delinquent activities (Bronte-Tinkew et al., 2006; Slicker, 1998).

From a social learning perspective (Dodge, 1991), parenting that is harsh, rigid, punitive, low in warmth, and includes corporal punishment (i.e., authoritarian parenting) may provide children with a model of externalizing behavior, resulting in the development of proactive aggression (Vitaro et al., 2006). That is, children who tend to engage in high levels of proactive

aggression have been found to have greater exposure to models of using aggression as a way to achieve one's goals (Schwartz et al., 1997). If authoritarian parenting contributes to the development of proactive aggression, then it may also be involved in the development of further problem behavior for proactively aggressive individuals. Thus, at high levels of authoritarian parenting, the relation between proactive aggression and externalizing outcomes was expected to be stronger than at low levels of authoritarian parenting. Note, however, that harsh parenting has also been linked with the development of reactive aggression, as it is believed to foster hypervigilance and emotional dysregulation (Dodge, 1991). Furthermore, harsh parenting including corporal punishment has been found to contribute to the development of childhood internalizing disorders such as depression (Christie-Mizell, Pryor, & Grossman, 2008). Therefore, at high levels of authoritarian parenting, the relation between reactive aggression, and internalizing outcomes as well as ADHD problems, was also expected to be stronger than at low levels of authoritarian parenting.

Parenting behavior characterized by low levels of monitoring and limit setting has been linked to delinquent behavior (Barber, 1996). Although, some research has examined the relational nature of parental interactions regarding monitoring, (see Stattin & Kerr, 2000), there is a large body of research that demonstrates that the act of monitoring itself provides a stronger buffer for delinquent activity (Dishion & McMahon, 1998; Patterson, Reid, & Dishion, 1998; Pettit, Laird, Dodge, Bates, & Criss, 2001). That is, research has consistently demonstrated that children whose parents set fewer boundaries and engage in lower levels of monitoring have more opportunity to engage in externalizing problem behaviors such as delinquency. Permissive parents may not limit their child's contact with delinquent peers or monitor their whereabouts regularly. Thus, these children may have more exposure to aggressive and delinquent peers that

model and reinforce problem behavior (Patterson et al., 1992; Vitaro, Brendgen, & Tremblay, 2000). Therefore, parenting marked by permissive behavior may contribute to increases in delinquent behavior for proactively aggressive individuals (Brendgen et al., 2001). That is, at high levels of permissive parenting, the relation between proactive aggression and externalizing outcomes was expected to be stronger than at low levels of permissive parenting.

Furthermore, inconsistent parenting that does not foster a child's emotional regulation, such as requiring developmentally appropriate behavior, has been linked with the development of reactive aggression (Dodge, 1991). There is research to support the connection between permissive parenting and internalizing problem behavior as well. For example, Williams et al. (2009) found that of all three parenting styles, permissive parenting was the only style that was associated with internalizing behavior problems. It may be that parents who do not provide an environment that fosters their emotional regulation by setting appropriate limits, such as seen with permissive parenting, may contribute to the development of reactive aggression and subsequent internalizing difficulties. This type of parenting may neglect to scaffold the child's environment in a manner that is conducive to the development of good emotional regulation. Therefore, at high levels of permissive parenting the relation between reactive aggression and internalizing difficulties, as well as the relation between reactive aggression and ADHD problems, was expected to be stronger than at low levels of permissive parenting.

In contrast, the mixture of warmth, limit setting and developmentally appropriate expectations, found in authoritative parenting may weaken the relationship between both aggression subtypes and their outcomes. Authoritative parenting may provide good boundaries and monitoring for proactively aggressive kids, thus preventing them from engaging in delinquent activities (Brendgen et al., 2001). Likewise, authoritative parenting may provide

adequate emotional support and good boundaries for reactively aggressive children that helps them to foster their emotional regulation and thus decrease the development of internalizing problems (Christie-Mizell, Pryor & Grossman, 2008). Thus, the relation between proactive aggression and externalizing outcomes was expected to be weaker at high levels of authoritative parenting when compared to low levels of authoritative parenting. Likewise, at high levels of authoritative parenting, the relation between reactive aggression and internalizing outcomes and ADHD problems were expected to be weaker than at low levels of authoritative parenting.

Note, that there is the issue of causality when examining the current cross-sectional associations. It is very likely that parenting subtypes influence the development of the aggression subtypes and their subsequent outcomes, rather than serve solely as a moderator of the relations. As such, future longitudinal research is needed. Further, parenting may directly impact the development of these psychiatric symptoms. Thus, the first order effects of parenting were included in the regression models, allowing one to examine the unique effects of parenting on symptomatology.

Gender, Age & Race

In addition to contextual factors such as parenting, individual factors such as gender, age and race are important to consider when examining childhood problem behavior. However, little is known about the specific effects of individual demographics on the relationship between the aggression subtypes and subsequent outcomes. Previous research has found some gender differences in levels of problem behavior. For example, boys tend to receive higher ratings of externalizing behavior problems than girls (Coie & Dodge, 1998), and there is evidence that girls experience higher rates of internalizing problems than boys (Kovacs & Devlin, 1998; Myers & Winters, 2002). Moreover, gender has been found to impact parenting behavior (Loyd & Devine,

2006; Bogenschneider, Small, & Tsay, 1997; Conrade & Ho, 2001). Thus, the role of parenting in the link between these aggression subtypes and psychiatric symptoms may depend on gender. Furthermore, in regards to age, it is established that younger children exhibit higher levels of reactive aggression and that overall children become less aggressive as they age (Vitaro & Brendgen, 2005). Moreover, parenting practices and their effects vary with children's age (Amato & Fowler, 2002). However, the role that age plays in the interaction between parenting and the aggression subtypes in relation to psychopathology is still unclear. Lastly, racial differences have been found in levels of problem behavior (Baker, Raine, Liu & Jacobson, 2008; Lansford, 2010) For example, African American children tend to receive lower mother ratings but higher teacher ratings of externalizing problems than Caucasian youths (Deater-Decker et al., 1996). Yet specific to the aggression subtypes, there is no concrete support for demographic differences (e.g., Fite et al., 2007). For example, Conner, Steingrad, Cunninghams, Anderson, and Melloni, (2004) found no gender differences in severity or frequency of proactive and reactive aggression among a group of clinically referred male and female adolescents. However, they did find some differences among males and females in the relations between the aggression subtypes and their correlates. More specifically, they found that for males reactive aggression was associated with hyperactive and impulsive behaviors, and for females proactive aggression was associated with a low verbal IQ, and an early age of exposure to traumatic stress. Therefore, it is important to evaluate gender, age, and race differences in the proposed associations. Given, that there is no clear evidence regarding these demographic factors in the associations between the aggression subtypes and psychiatric symptoms, no a priori differences were posited.

The Current Study

In summary, there is little known about how proactive and reactive aggression are differentially associated with internalizing and externalizing psychiatric symptoms that are present at the time of admission to a psychiatric inpatient unit. Understanding these associations can bring clinical utility to this line of research. Furthermore, potential moderators of these relations are unknown. Consistent with a developmental-ecological perspective, parenting style, gender, age, and race were examined as potential moderators of these relations (See Figure 1). Identifying the impact of parenting style on the relationship between the subtypes of aggression and psychiatric symptomatology will aid in the creation of targeted interventions that go beyond children's behaviors, and target parenting styles and strategies. Lastly, it is important to examine if these relations vary among gender, age or race in order to determine if intervention strategies are appropriate for a diverse group of individuals. It was expected that proactive aggression would be uniquely associated with externalizing symptomatology, specifically ODD and CD symptoms; whereas reactive aggression would be associated with internalizing symptomatology, as well as ADHD problems. Additionally, it was expected that authoritative parenting would buffer the relations between both aggression subtypes and their subsequent outcomes whereas both authoritarian and permissive parenting would exacerbate the relations between aggression and psychiatric symptomatology (see Figure 1 for model heuristics, all figures are contained in the Appendix and begin on page 97). Gender, age, and race were examined as moderators of these relations; however no a priori hypotheses were posited.

Chapter 3

Materials and Methods

Participants

Participants were 392 school aged children who were admitted consecutively to a child psychiatric inpatient facility. It is important to note that this is the only inpatient facility for children in the state where the data was collected, and this facility served several surrounding states as well. Exclusionary Criteria for participants included 1) the child being placed in the Custody of the Department of Human Services, 2) not living with the primary caregiver for the past 12 months, 3) child receiving a primary diagnosis consistent with a developmental delay (i.e., autism spectrum disorders) or psychosis, and 4) non-English speaking families. Children ranged from ages 6-12 years of age ($M = 9.4$, $SD = 1.9$). The majority of the children were male (71.4%) and the racial make up for the sample was approximately 60.7% African American, 39.3% Caucasian. Individuals who did not identify as African American or Caucasian were excluded from analyses (less than 3% of total sample). These individuals were excluded from the analyses due to limited power to detect racial differences. The majority (69%) of the informants were mothers, but also included fathers (7%), both parents (3%), another relative (10%), or another person (identified permanent guardian; 11%). Length of stay in the psychiatric inpatient facility ranged from 3 to 21 days.

Procedures

The information obtained regarding the children admitted to the inpatient unit was a standard part of the clinical assessment process for the facility; therefore no financial compensation was provided to families. This facility is the only psychiatric inpatient facility for children in the state where the data was collected, bringing a wide variety of children from a

variety of different backgrounds to the facility. Families of children admitted for acute treatment underwent an admission process that included caregivers completing a standard battery of questionnaires and a clinical interview. The caregivers completed the questionnaires independently with unit staff members available to aid them if needed. During the admission process the caregivers were asked if they would be willing for their child's clinical data to be used for research purposes. If they agreed, the caregivers provided written consent for the clinical data to be used for research purposes in accordance with the University of Mississippi Medical Center's Institutional Review Board. Less than 3% of the caregivers refused to provide consent for their child's data to be used over the past eight years.

Measures

Demographics. Demographics such as age, gender, and race, were obtained by caregiver admission reports. Unfortunately, data on participants socioeconomic status was not collected in the standard assessment battery, and therefore this information is unavailable for the current study.

Proactive and Reactive Aggression. Proactive and reactive aggression were assessed using caregiver report of Dodge and Coie's (1987) aggression questionnaire. This six-item questionnaire consists of 3 items for each aggression subtype. The measure uses a 5-point Likert Scale, (1 = "never", to 5 = "almost always"), to rate how often the child engages in aggressive behavior. The measure has been found to be a reliable and valid measure of the aggression subtypes (Dodge et al., 1997; Waschbusch, Willoughby, & Pelham, 1998). A proactive aggression item is "My child gets other kids to gang up on somebody that s/he does not like." A reactive aggression item is "When my child has been teased or threatened, he/she gets angry easily and strikes back." For the full questionnaire please refer to Appendix A. The internal

consistency for the proactive scale was $\alpha=.86$, and the internal consistency for the reactive aggression scale was $\alpha=.83$. Items were averaged and used for analyses.

Parenting Styles. Parenting styles were assessed using caregiver reports of the Parental Authority Questionnaire-Revised (PAQ-R; Reitman et al., 2001). This measure consists of three subscales: authoritarian, authoritative, and permissive parenting. Each subscale is comprised of 10 items for a total of 30 items. Caregivers responded to questions using a 5-point likert scale from 1 (*strongly disagree*) to 5 (*strongly agree*). This measure has been found to be valid and reliable (Reitman et al., 1997, 2001). An example authoritarian item is “When I ask my children to do something, I expect it to be done immediately without questions,” and an example authoritative item is “Once family rules have been made, I discuss the reasons for the rules with my children,” and an example permissive item is “In a well-run home children should have their way as often as parents do.” Please refer to Appendix B for the full measure. The internal consistencies for the parenting subscales were as follows: Authoritarian $\alpha=.74$, Authoritative $\alpha=.70$, and Permissive $\alpha=.63$. Items were summed and used for analyses.

Psychiatric Symptoms. Psychiatric symptoms were examined utilizing caregiver report on the Child Behavior Checklist (CBCL/6-18; Achenbach & Rescorla, 2001). The CBCL is a 113 item scale that asks caregivers to rate their child on a 3-point likert scale (0 – “*not true*”, 1 – “*somewhat/sometimes true*” 2 – “*very/often true*”) on a variety of behaviors. The CBCL has been found to be a valid and reliable measure of childhood problem behavior (Fombonne, 1991). The CBCL includes six DSM oriented subscales consisting of items that are directly related to the symptomology of psychiatric disorders. More specifically, the CBCL includes three subscales for internalizing disorders namely, Affective Problems (13 items), Anxiety Problems (6 items), Somatic Problems (7 items), and 3 clusters for externalizing symptoms namely, Attention Deficit

Hyperactivity Problems (7 items), Oppositional Defiant Problems (5 items), and Conduct Problems (14 items). Please see Appendix C for the items that comprise each scale. These subscales have been found to be reliable and valid measure of childhood externalizing and internalizing psychiatric symptomatology (Achenbach, Dumenci, & Rescorla, 2002). In fact, Achenbach & Rescorla (2001) found that approximately 64% of health care workers rated the scales as being “very consistent” with current DSM criteria for psychiatric disorders. Additionally, the CBCL DSM oriented scales have been found to predict the presence of externalizing and internalizing disorders (Ferdinand, 2008; Fombonne, 1991). The current sample provided low to good internal consistencies ranging from .66-.86. Subscales were summed and then computed into *t*-scores for analyses.

Data Analytic Strategy

All analyses were conducted using SPSS/PASW version 19.0 (PASW-SPSS Inc., Chicago IL). Diagnostics of study variables were examined prior to conducting analyses. Two variables were identified as skewed (skewness >1) thus they were log transformed prior to analyses. Specifically, the authoritative parenting score was originally skewed (-2.05) and the CBCL ODD scale (3.05)¹. After log transformation, the ODD scale was still positively skewed 1.856, however the transformed authoritative parenting score met criteria for a normal distribution (-.63).

First, correlation analyses were conducted in order to examine simple relations between study variables. Multiple regression analyses were then used to examine the moderating effects of the parenting style, gender, age and race. More specifically, a series of six models were estimated, one for each of the six DSM oriented scales of the CBCL. A model in which the DSM oriented scale was regressed on the first order effects of proactive aggression, reactive

aggression, parenting styles, gender, age, and race was estimated in order to determine the unique associations between the aggression subtypes and psychiatric symptoms. Two-way interactions (aggression subtype X parenting style) and three-way interactions (aggression subtype X parenting style X gender, and aggression subtype X parenting style X race, aggression subtype X parenting style X age) were then added to the models in order to determine if the associations between the aggression subtypes and psychiatric symptoms depended on the moderators (See Figure 1). Note that all variables were standardized prior to analyses in order to aid in the interpretation of interaction effects. Significant interaction effects were conditioned and probed at high (+1 SD) and low (-1 SD) values according to standardized procedures (Aiken & West, 1991) in order to further evaluate the nature of the effect.

According to Aiken and West's (1991) power tables, with a reliability of .80, the current sample size had more than adequate power to detect moderate to large effects. Effect sizes for significant parameter estimates were calculated and reported in their respective tables. Effect sizes represent the proportion of variance accounted for by each variable relative to the proportion of error (Cohen, 1988). The appropriate effect size for regression is f^2 , with an effect size $.02 > f^2 < .15$ considered small, $.15 f^2 < .35$ considered moderate, and $f^2 > .35$ considered large (Cohen, 1988). In the current sample, all significant effect sizes were small.

Chapter 4

Results

Descriptive Statistics

For correlations, means and standard deviations of variables please refer to Table 1. (all tables are contained in the Appendix and begin on page 66). Consistent with existent literature (Vitaro & Brendgen, 2005; Card & Little, 2006) and expectation, reactive aggression was positively correlated with proactive aggression. Reactive aggression was also positively associated with authoritarian parenting, authoritative parenting, anxiety, ADHD, ODD and CD. Interestingly, reactive aggression was negatively associated with permissive parenting. In contrast, proactive aggression was positively correlated with authoritarian parenting, affective problems, ADHD, ODD, and CD. Gender was positively associated with age and ODD, such that older children tended to be female and females displayed higher levels of ODD problems. Age was negatively associated with ADHD and CD, suggesting that younger children display higher levels of these problems. Race was positively associated with authoritarian parenting, suggesting that Caucasian children experienced higher levels of authoritarian parenting. Race was also negatively associated with affective, anxiety, ADHD, and CD problems, suggesting that African American children exhibited higher levels of these difficulties. Authoritarian parenting was positively associated with authoritative parenting and negatively associated with permissive parenting. However, authoritative and permissive parenting were unrelated. Authoritarian parenting was positively associated with ADHD and CD. Authoritative parenting was positively associated with anxiety, ADHD, and CD problems. Permissive parenting was unrelated to any specific symptom cluster.

Regression Analyses

Note that R^2 values of the models are reported in the tables. R^2 values for the first order effects models ranged from .01 to .46 with the smallest effect for somatic complaints and the largest effects for conduct problems.

ADHD Problems

As seen in Table 2, age, race, authoritarian parenting, authoritative parenting and reactive aggression, were associated with ADHD problems. Specifically, both age and race were negatively associated with ADHD suggesting that younger children and African American children exhibited higher levels of these problems. As expected reactive aggression was positively associated with ADHD, suggesting that high levels of reactive aggression were associated with higher levels of ADHD symptoms. Both authoritarian and authoritative parenting were positively associated with ADHD. No significant two-way interactions emerged (see Table 3). Further, no significant three-way interactions with gender (Table 4) or race (Table 5) emerged. However, there was one significant interaction that included age (see Table 6). More specifically, there was a significant interaction between reactive aggression, age, and authoritative parenting. As seen in Figure 2, for younger children, reactive aggression was positively related to ADHD at low levels of authoritative parenting ($B = .64, p = .002$), and unrelated at high levels of authoritative parenting ($B = -.05, p = .75$). For older children reactive aggression was unrelated to ADHD at both high ($B = .25, p = .09$), and low ($B = .15, p = .30$). As depicted in Figure 2, at high levels of authoritative parenting elevated rates of ADHD symptoms are reported, regardless of levels of reactive aggression. This, in addition to the significant first order effects of authoritative parenting, suggests that authoritative parenting was associated with higher levels of ADHD problems, contrary to expectation.

ODD Problems

In the first order effects ODD model, as seen in Table 7, both reactive and proactive aggression were positively associated with ODD, with no other significant associations identified. The two-way interaction models did not produce any significant relations that were not involved in subsequent three-way interaction models for ODD (see Table 8). The model examining three-way interactions between aggression, parenting and gender produced two significant interactions. As seen in Table 9, there was a significant interaction between proactive aggression, gender and permissive parenting. As seen in Figure 3, for females proactive aggression was positively related to ODD problems at high levels of permissive parenting ($B = .94, p = .00$), and unrelated for females at low levels of permissive parenting ($B = .03, p = .86$). For males, proactive aggression was unrelated to ODD problems at both high ($B = .10, p = .35$) and low ($B = .07, p = .45$) levels of permissive parenting. These findings suggest, that the association between proactive aggression and ODD problems is, as expected, impacted by the use of permissive parenting but only for females.

There was also a significant interaction between proactive aggression, gender and authoritarian parenting. As seen in Figure 4, for females proactive aggression was positively related to ODD problems at low levels of authoritarian parenting ($B = .86, p = .00$), and unrelated at high levels of authoritarian parenting ($B = .11, p = .53$). For males, proactive aggression was unrelated to ODD problems at both high ($B = .10, p = .30$), and low ($B = .21, p = .45$) levels of authoritarian parenting. These results suggest that the link between proactive aggression and ODD problems is evident for females experiencing low levels of authoritarian parenting. Moreover, parenting styles do not appear to contribute to the link between these aggression subtypes and ODD for males.

As seen in Table 10, there were no significant three-way interactions in the model examining race. The model examining interactions between aggression, age and parenting produced two significant interactions (see Table 11). Specifically, there was a significant interaction between proactive aggression, authoritarian parenting, and age. As seen in Figure 5, for older children proactive aggression was positively related to ODD problems at both high ($B = .36, p = .00$) and low levels of authoritarian parenting ($B = .82, p = .00$), but this association was strongest when levels of authoritarian parenting were low. Whereas, for younger children, proactive aggression was unrelated to ODD problems at both high ($B = .10, p = .42$), and low levels of authoritarian parenting ($B = .01, p = .94$). Results suggest that, for younger children, the association between proactive aggression and ODD symptoms does not depend on levels of authoritarian parenting.

There was also a significant interaction between proactive aggression, age, and permissive parenting. As seen in Figure 6, for older children proactive aggression was positively related to ODD problems at high levels of permissive parenting ($B = 1.02, p = .00$), whereas proactive aggression was unrelated to ODD problems at low levels of permissive parenting ($B = .16, p = .16$). For younger children, proactive aggression was unrelated to ODD problems at both high ($B = .10, p = .37$), and low ($B = .01, p = .97$) levels of permissive parenting. These results suggested that the relationship between proactive aggression and ODD problems is exacerbated by the presence of high levels of permissive parenting for older children. However, permissive parenting does not appear to impact the association between proactive aggression and ODD problems for younger children.

Conduct Problems

In the first order effects model, both proactive and reactive aggression were significantly

positively associated with CD problems (see Table 12). Age was negatively associated with CD, suggesting that younger children exhibited more CD symptoms than older children. As seen in Table 13, no significant two-way interactions emerged. As seen in Table 14, there was a significant interaction between proactive aggression, gender, and authoritative parenting. Specifically, as seen in Figure 7a for males, proactive aggression was positively associated with conduct problems at both high ($B = .54, p = .00$) and low ($B = .28, p = .01$) levels of authoritative parenting, but the association was strongest when levels of authoritative parenting were high. However, as seen in Figure 7b, for females proactive aggression was positively associated with conduct problems only at low ($B = .41, p = .01$) levels of authoritative parenting. However, proactive aggression was unrelated to CD problems at high levels of authoritative parenting ($B = .04, p = .83$). These results suggested authoritative parenting buffers the impact of proactive aggression on CD problems for females but not for males. No significant three-way interactions that included race (Table 15) or age (Table 16) emerged.

Affective Problems

In the first order effects model as seen in Table 17, race was the only significant variable associated with affective problems, such that race was negatively associated with affective problems, suggesting that African American children experience higher levels of these symptoms. As shown in Table 18, the only significant two-way interaction found was between authoritative parenting and gender. This interaction was probed to further examine this relation. However, the relation between authoritative parenting and affective problems was not significant for males ($B = .10, p = .21$), nor females ($B = -.17, p = .14$), suggesting that although different from one another both slopes were not significantly different from zero. The model that examined three-way interactions between aggression, parenting and gender produced no

significant interactions (see Table 19). However, several three-way interactions with race and age emerged. Specifically, as shown in Table 20, an interaction was found between proactive aggression, race, and authoritarian parenting. This interaction was probed in order to further understand these relations. As seen in Figure 8a for Caucasian youth, at low levels of authoritarian parenting proactive aggression is positively associated with affective problems ($B = .45, p = .00$). However, at high levels of authoritarian parenting, proactive aggression is unrelated to affective problems ($B = -.07, p = .69$) for Caucasian children. In contrast, as seen in Figure 8b, for African American youth, at low levels of authoritarian parenting proactive aggression was unrelated to affective problems ($B = -.25, p = .09$), whereas at high levels of authoritarian parenting proactive aggression was positively associated with affective problems ($B = .21, p = .05$). Findings suggest that for Caucasian youth, proactive aggression is associated with only affective symptoms when levels of authoritarian parenting are low. However, for African American youth, proactive aggression is only associated with affective problems when levels of authoritarian parenting are high.

A significant interaction was also found between reactive aggression, race and authoritarian parenting. Figure 9a. illustrates that for Caucasian youth, at low levels of authoritarian parenting reactive aggression was negatively related to affective problems ($B = -.34, p = .015$). In contrast, reactive aggression was not related to affective problems at high levels of authoritarian parenting ($B = .15, p = .45$) for Caucasian children. Furthermore, as seen in Figure 9b, for African American children reactive aggression was positively related to affective problems at low levels of authoritarian parenting ($B = .35, p = .007$), and unrelated at high levels of authoritarian parenting ($B = -.02, p = .99$). Note, however, that at high levels of authoritarian parenting, affective problems were consistently high. Thus, for Caucasian children low levels of

authoritarian parenting buffered the relations between reactive aggression and affective problems, whereas for African American children, high levels authoritarian parenting are consistent linked to affective problems, with reactive aggression only linked to affective problems when authoritarian parenting is low.

As seen in Table 21, there was significant interaction between proactive aggression, age and authoritative parenting. For older children proactive aggression and affective problems were unrelated at both high ($B = .23, p = .15$), and low ($B = .08, p = .85$) levels of authoritative parenting. Whereas, as seen in Figure 10 for younger children at low levels of authoritative parenting proactive aggression was positively associated with affective problems ($B = .44, p = .02$). However, at high levels of authoritative parenting proactive aggression was unrelated to affective problems ($B = -.14, p = .40$). Findings suggest that proactive aggression is not associated with affective problems for older children, and that for younger children, proactive aggression was only associated with affective problems when parents did not exhibit high levels of authoritative parenting.

Lastly, a significant interaction between reactive aggression, age, and permissive parenting emerged. For younger children, reactive aggression was unrelated to affective problems at both high ($B = -.20, p = .22$) and low ($B = -.11, p = .45$) levels of permissive parenting. Likewise, for older children reactive aggression and affective problems were not related at high ($B = -.25, p = .22$) or low ($B = .12, p = .34$) levels of permissive parenting. Thus, age did not significantly impact the association between reactive aggression and affective problems.

Anxiety Problems

In the first order effects model for anxiety problems, race, and reactive aggression were significantly uniquely associated with anxiety problems. Specifically, as seen in Table 22, race

was negatively associated with anxiety problems suggesting that African American children experience higher levels of anxiety problems than Caucasian children. Further, as expected, reactive, but not proactive, aggression was positively associated with anxiety problems. No significant two-way interactions emerged (see Table 23). As seen in Table 24, the model examining 3-way interactions between aggression, gender, and parenting revealed one significant interaction that included proactive aggression and authoritative parenting. As seen in Figure 11, at high levels of authoritative parenting proactive aggression is positively related to anxiety ($B = .33, p = .001$) for males. However, at low levels of authoritative parenting proactive aggression was unrelated to anxiety ($B = -.25, p = .07$). In contrast, proactive aggression was unrelated to anxiety at high ($B = -.34, p = .11$), as well as low ($B = .09, p = .64$) levels of authoritative parenting for females. Thus, proactive aggression appears to only be associated with anxiety problems in males, when parents exhibit high levels of authoritative parenting.

As seen in Table 25, the model examining aggression, race and parenting revealed a significant interaction between reactive aggression, race and permissive parenting. This interaction was probed to further explore the relations. For Caucasian children, reactive aggression was unrelated to anxiety at both high ($B = .06, p = .73$), and low ($B = .10, p = .46$) levels of permissive parenting. In contrast, for African American youth, (see Figure 12) reactive aggression was positively related to anxiety problems at low levels of permissive parenting ($B = .27, p = .03$) and unrelated to anxiety problems at high levels of permissive parenting ($B = .12, p = .31$). This finding indicates that the impact of permissive parenting on these associations varies for children of different races, and that low levels of permissive parenting exacerbate the link between reactive aggression and anxiety for African American youth.

As shown in Table 26, there was a significant interaction between proactive aggression,

age and permissive parenting. As seen in Figure 13, for older children proactive aggression was positively related to anxiety problems at high levels of permissive parenting ($B = .23, p = .05$), and unrelated at low levels ($B = -.01, p = .96$). In contrast, for younger children, proactive aggression was unrelated to anxiety problems at both high ($B = .18, p = .15$), and low ($B = -.04, p = .77$) levels of permissive parenting. These results suggest that proactive aggression is only associated with anxiety in older children who experience high levels of permissive parenting.

Somatic Problems

There were no significant first order variables associated with somatic problems, as seen in Table 27. The two-way interactions model that examined parenting and demographic interactions revealed two significant interactions, between permissive parenting and gender as well as between authoritarian parenting and age (see Table 29). These interactions were probed to further understand these relations. As seen in Figure 14, the relationship between permissive parenting and somatic problems was significant for females ($B = .24, p = .04$), and not males ($B = .05, p = .36$) suggesting that a link between permissive parenting and somatic problems is most evident among females. Upon probing, the relationship between authoritarian parenting and somatic complaints was not significant for older ($B = .09, p = .25$) nor younger children ($B = -.13, p = .11$), suggesting that the direction of this association varies for older and younger children, but that the strength of these associations are not statistically significant. The three way interactions examining aggression, gender, age, race and parenting were examined and no statistically significant interactions were found (see Tables 29, 30, & 31).

Chapter 5

Discussion

The primary purpose of this study was to further evaluate the links between childhood proactive and reactive aggression and psychiatric symptoms in an inpatient population, as inpatient hospitalization is a costly intervention for children and their caregivers (Ringel & Sturm, 2001). Further, this study examined the influence of parenting styles on the relations between proactive and reactive aggression and internalizing and externalizing symptomatology. Additionally, this study examined if the moderating effects of parenting styles on the aforementioned relations varied as a function of child gender, age or race. The hypothesis that proactive aggression would be more strongly associated with externalizing symptomatology than reactive aggression was not fully supported in the current study, as both proactive and reactive aggression were associated with both ODD and CD symptoms. Current findings did however, support the posited relation between reactive aggression and ADHD. Further, the hypothesis that reactive aggression would be uniquely associated with internalizing symptoms was only partially supported, with reactive aggression uniquely associated with anxiety symptoms and associated with affective symptoms in the presence of certain parenting conditions for particular individuals. However, proactive aggression was also positively associated with both anxiety and affective symptoms under certain conditions. Finally, the impact of parenting style on the relations between aggression and psychiatric symptomatology was dependent upon demographic factors, and parenting style effects were not consistently in the expected direction. Specific descriptions of these relations and potential implications of these findings are further discussed below.

Associations between the Aggression Subtypes and Externalizing Behavior

As expected, proactive aggression was uniquely associated with both ODD and CD symptoms in first-order effects models. Further, interaction models indicated that parenting styles play an important role in these associations, specifically for females and older children (see below). Current findings are consistent with developmental models of risk (Kochanska et al., 2003; Liddle & Hogue, 2000; Grant, Compas, Stuhlmacher, Thurm, McMahon, et al., 2003; Tolan, Guerra & Kendall, 1995) and prior research, suggesting unique associations between proactive aggression and externalizing symptoms (Card & Little, 2006; Raine, Dodge, Loeber, Gatzke-Kopp, et al., 2006; Vitaro, Gendreau, Tremblay & Oligny, 1998) and further advance the literature by determining that parenting moderates these associations for females and older children.

Contrary to expectation, however, reactive aggression, was also uniquely related to ODD and CD. Previous research examining cross-sectional associations in normative samples has found that reactive aggression is associated with externalizing behavior (Card & Little, 2006; Fite et al., 2012). However, these associations are not consistently demonstrated across various sample types, particularly when longitudinal associations are evaluated (Fite et al., 2012). Current associations may, in part, be due to the age of children in this sample, as all children were under the age of 12. Reactive aggression is a more common form of aggression and is more prevalent in younger children (Baker, Raine, Liu, & Jacobson, 2008; Vitaro & Brendgden, 2005). Thus, it is likely that high levels of reactive aggression would be related to high levels of externalizing behaviors. Additionally, externalizing difficulties are the most common reason for inpatient, hospitalization in youth (AACAP, 1997; Blader, 2004, 2006). Thus, the results of the

current study, may have been impacted by an overall higher level of reactive aggression among this population and the severity of psychiatric impairment in the sample.

Reactive aggression was also uniquely related to ADHD, and these effects appear to be robust across demographic characteristics and parenting. Reactive aggression and ADHD share common temperamental factors, which likely explains this association (Shields & Cicchetti, 1998; Vitaro, Barker, Boivin, Brendgen, & Tremblay, 2006). For example, previous literature supports the links between reactively aggressive children and individual factors that are associated with ADHD such as mood dysregulation, poor impulse control, social information processing difficulties and other executive functioning deficits (Connor, Chartier, Preen, & Kaplan, 2010; Dodge et al., 1997; Ellis, Weiss, & Lochman, 2009).

Associations between the Aggression Subtypes and Internalizing Behavior

As stated above, the hypothesis that reactive aggression would be uniquely related to internalizing outcomes was only partially supported in this sample. Specifically, first-order effects suggested that reactive, not proactive, aggression was uniquely related to anxiety problems. Further, interaction models suggested that permissive parenting impacted the association between reactive aggression and anxiety among African American, but not Caucasian children (see below). Additionally, interaction effect models suggested that low levels of authoritarian parenting may buffer the association between reactive aggression and affective problems for Caucasian youth, but exacerbate the impact of reactive aggression on affective problems for African American youth. Note, however, reactive aggression was not related to somatic complaints in any model. Although prior research has linked reactive aggression to various types of internalizing symptoms (Bubier & Drabik, 2009; Fite, Raine, Stouthamer-Loeber, Loeber, & Pardini, 2010; Marsee et al., 2007; Vitaro, Barker, Boivin, Brendgen, &

Trembley, 2006), the association with somatic complaints has not been readily studied. It is also interesting that reactive aggression appears to be more consistently associated with anxiety symptoms than affective problems. Reactive aggression is associated with hypervigilance to threat and punishing cues (Dodge, 1991) and thus may be most strongly tied to anxiety related internalizing symptomatology. Further, longitudinal research examining associations into late adolescence found that reactive aggression was only associated with anxiety symptoms over time (Fite et al., 2010). Thus, it may be that reactive aggression is more strongly linked to more severe, long-standing anxiety related symptoms than affective difficulties.

Proactive aggression, however, was also associated with both anxiety and affective symptoms in the presence of particular parenting styles for particular individuals (see below). Thus, it appears that although reactive aggression is more strongly associated with internalizing symptoms, there are times in which proactive aggression may be a risk factor for anxiety related symptoms.

The Impact of Parenting

The current study examined the direct effects of parenting on psychiatric symptomatology. Moreover, the effects of parenting styles on the relations between the subtypes of aggression and psychiatric symptomatology were evaluated. Interestingly, the only unique direct parenting effects found were with ADHD symptoms. More specifically both authoritarian and authoritative parenting were positively associated with ADHD symptoms. Consistent with prior research (Baumrind, 1991; Slicker, 1998) the use of authoritarian parenting is associated with negative outcomes. However, one would not expect authoritative parenting to be associated with elevated levels of ADHD. This may be the result of using cross-sectional data, reflecting parents attempts to use positive parenting with firm limits to curtail ADHD symptoms. Why parenting

styles were only uniquely associated with ADHD is unclear. As there has only been one study to date that found, unique links between parenting and ADHD, and not with ODD or CD symptoms (Ellis & Nigg, 2009). It may be that aggression is more strongly associated with other psychiatric symptomology than parenting behavior in these severely impaired individuals. Parenting may also be strongly linked to ADHD symptoms rather than other symptoms due to the nature of the symptoms being more obvious, repetitive and in continual view of the parent, thus they may be perceived as in need of immediate attention (Barkley, 1995,2006; Harvey, Danforth, Ulaszek & Eberhardt, 2001).

The results of this study also indicated that the moderating effects of parenting on associations between aggression subtypes and psychiatric symptoms were dependent on demographic variables, with parenting effects only detected when demographic-specific effects were examined. Further, parenting effects were not always in the expected direction. With regard to parenting effects, authoritative parenting was expected to buffer any relations between aggression and psychiatric symptoms, with this buffering effect evident in some cases but not others. Further, both permissive and authoritarian parenting were expected to exacerbate the relations between aggression and internalizing and externalizing outcomes. Permissive parenting consistently exacerbated associations. However, authoritative parenting effects were not always in the expected direction. The specific effects of parenting are discussed further in regards to the findings surrounding demographic differences.

Gender

In general, gender differences in these associations were minimal, with gender differences more prominent in externalizing symptoms than internalizing symptoms. Further, it appears that parenting has more of an effect on these associations for girls than boys.

Specifically, relations between proactive aggression and ODD were exacerbated by high levels of permissive parenting and low levels of authoritarian parenting for females, but not males. Further, proactive aggression was only positively associated with CD symptoms at low levels of authoritative parenting for girls (while proactive aggression was positively associated with CD symptoms at both high and low levels of authoritative parenting for boys).

These gender differences may be indicative of larger socialization processes (Bronfenbrenner, 1977). It may also be that the link between proactive aggression and psychiatric outcomes is a reflection of responsivity to poor parenting behavior. Girls may be more susceptible to lack of parenting, particularly poor parental monitoring, as in the cases of high permissive, low authoritarian, and low authoritative parenting. Indeed, a lack of monitoring appears to result in the exacerbation of problem behavior, (Brendgen, et al., 2001; Dishion & McMahon, 1998). Moreover, research has shown that both monitoring and parental involvement are associated with adjustment in girls (Fletcher & Shaw, 2000).

Only one gender difference emerged in the internalizing outcomes. Specifically, authoritative parenting exacerbated the relation between proactive aggression and anxiety for males. This finding may support the predicted buffering effect of authoritative parenting in a unique way. Proactively aggressive children have been shown to demonstrate less anxiety, and more callous/unemotional traits (Raine, Dodge, Loeber et al., 2006; Frick et al., 1999). Thus authoritative parenting may facilitate the development of some awareness and anxiety in proactively aggressive boys and may ultimately aid these children in engaging in more caring and less callous behavior.

Age

It appears that the only meaningful age differences found in the current study involved

proactively aggressive behavior. Although significant age effects for reactive aggression emerged, upon further investigation of these associations no meaningful differences were evident. Additionally age effects for the impact of authoritative parenting on associations between reactive aggression and ADHD were found; however, as discussed prior, this relationship appeared to be more driven by parenting effects than age.

Current results indicate that permissive parenting strengthens the associations between proactive aggression and both ODD symptoms and anxiety symptoms for older but not younger children. Perhaps permissive parenting does not have as deleterious effect on the impact of goal-oriented aggression until children age. As children age they have more time alone with peers, and thus more opportunities to be socially reinforced for calculated aggressive behavior (Gilford-Smith, Dodge, Dishion, et al., 2005; Patterson et al., 1992; Thornberry & Krohn, 1997). Furthermore, this may reflect a pattern of cognitive sophistication among more proactively aggressive children as they age. That is these children are utilizing calculated acts of aggression to obtain goals and meet their needs (Dodge, 1991), a skill that is refined as children develop (Crick & Dodge, 1996). Furthermore, as proactively aggressive youth age and experience a lack of monitoring and supervision, they may put themselves in less safe situations, which may result in experiencing elevated levels of anxiety.

In the presence of low authoritarian parenting, the link between proactive aggression and ODD symptoms was exacerbated for older, but not younger, children. Proactive aggression is associated with callous-unemotional traits (Fite, Stoppelbein & Greening, 2009; Frick et al., 2003). Perhaps it is more important to have high limit setting (rather than supportive parenting) that is provided at high levels of authoritarian parenting to prevent subsequent problem behavior for proactively aggressive youth.

Lastly, authoritative parenting buffered the relations between proactive aggression and affective problems, but only for younger children. Research suggests that as children age, parents tend to decrease the amount of positive parenting strategies they utilize (Frick, Christian, & Wootton, 1996; Loeber, Drinkwater, Yin, Anderson, Schmidt, & Crawford, 2000). Therefore, authoritative parenting may not be as important for these relations as individuals age.

The current findings support developmental ecological models, suggesting that individual and contextual factors interact to contribute to problem behavior, and these effects may change as individuals age (Bornstien, 2002; Dishion, 1998). Further, the current findings support previous literature indicating that the effects of parenting do vary with age. Thus the developmental stage of the child is important to consider in regards to prevention and intervention efforts (Dishion & McMahon, 1998; Dishion & Patterson, 1992).

Race

Lastly, racial differences in this sample were minimal, with racial differences only emerging when examining internalizing outcomes. Most evident, were racial differences in associations that included authoritarian parenting and affective problems. However, specific findings were not consistent, making it difficult to draw any conclusions. Findings suggested that proactive aggression was only associated with affective problems when parents of Caucasian youth exhibited low levels of authoritarian parenting. In contrast, but consistent with expectation, authoritarian parenting exacerbated relations between proactive aggression and affective problems for African American children. However, results for the relations between reactive aggression and affective problems were in the opposite direction, with the relation between reactive aggression and affective problems unrelated at low levels of authoritarian parenting for Caucasian children, but exacerbated at low levels of authoritarian parenting for African

American children.

Racial differences also emerged in regards to anxiety. Contrary to expectation, reactive aggression was related to anxiety at low, not high levels of permissive parenting. This effect was only significant for African American children.

There have been inconsistent findings regarding racial differences in parenting effects. Some research has demonstrated differences among parenting effects across racial groups while others have found that parenting effects do not vary across culture (Pardini, Fite & Burke, 2008; Wynn, Fite, & Pardini, 2011). For example, previous research has demonstrated that harsh rigid parenting has been found to be deleterious to child adjustment in Caucasian children and unrelated to negative adjustment in African American children (Deater-Decker, 1996). Moreover, Steinberg, Dornbusch, & Brown (1992) found that authoritative parenting was related to positive grades in Caucasian and Latino students but not in African American or Asian American students. While other studies have found that the effect of family influences on child and adolescent adjustment, such as harsh and positive parenting did not vary among racial groups (Amato & Fowler, 2002; Rowe, Vazsonyi, & Flannery, 1994). Thus, additional research further elucidating racial differences regarding the impact of parenting on child problem behavior is needed.

Although clear racial differences cannot be drawn from the current study, there are two important findings to highlight. First, note that the effects of authoritative parenting did not vary as a function of race. This suggests that the “gold standard” of good parenting functions similarly across racial groups. Secondly, no racial differences emerged when examining externalizing outcomes. It may be that for this severely impaired population, with the majority of individuals experiencing at least some externalizing difficulties, the effects of parenting on externalizing

behaviors are not evident. It may be that internalizing interventions are in need of more tailored programs that address specific cultural considerations (Barrett & Ollendick, 2007; Kaslow, & Thompson, 1998; Miranda, Bernal, Lau, Kohn, Hwang, & LaFromboise, 2005; Yasui & Dishion, 2007).

Limitations & Future Directions

Although this study had many strengths, such as a large sample size, well validated measurement tools and a unique at risk population in which to examine these relations, there were several limitations that need to be acknowledged. First, the cross sectional nature of the data must be taken into consideration when interpreting the results. This limitation is underscored by the differences that emerged in the effects of parenting for older and younger children, highlighting the impact of age and developmental level on the relationship between aggression and psychopathology. Further, relations between parenting styles and the development of both proactive and reactive aggression need to be examined in future research, as parenting behavior influences the development of aggressive behavior (Dodge, 1991; Mash & Barkley, 2003). However, it should be noted that parenting styles were controlled for in all models, and authoritarian and authoritative parenting were associated with ADHD. The association between authoritarian and authoritative parenting and ADHD emerged as the only significant parenting effect in any first order effects model of this study. The use of single informant data should also be considered as a study limitation. Future studies would benefit from utilizing multiple informants of parent and child behavior, and include an exploration of the utility of each informant. Another potential limitation of the current study is the low internal consistency of the parenting style measures. In particular, there may be some concern about the low internal consistency of the permissive parenting scale.² Note, however, that significant

effects were found. There may also be concerns that parenting styles assessed for in clinical samples may not represent the same parenting styles assessed for in community samples. Note however, that parenting style means and internal consistencies found in the current inpatient sample are similar to scores found in community samples (α s ranging from .72-.79 with M s of 31.5-38.8 for authoritarian parenting; α s ranging from .71-.74 and M s 21.6-24.1 for permissive parenting, and α s ranging from .66-.77 and M s of 39.1-41.5 for authoritative parenting; Campbell & Gilmore, 2007; Reitman et al., 2002). Further, prior research in a clinical population of children produced similar psychometric properties (i.e. authoritarian α = .68 M = 29.23, authoritative α =.71 M =42.53, and permissive α =.51, M =21.63; Rowinski & Wahler, 2010; Williams & Wahler, 2010). Therefore, the measurement of parenting does not appear to be a concern. Nonetheless, future studies should include alternative measures, as well as measures that have higher internal consistencies and have been designed to measure parenting in a severely impaired population of individuals.

An additional limitation of the current study is the unknown variability among socioeconomic status of the families, as income information was not collected in this sample. Therefore we were unable to examine the potential moderating effect of socioeconomic status on these associations. It is well known that contextual information such as family size, income and family composition effect child development (Carlson & Corcoran, 2001). Children in the custody of DCS were also not included in the study due to issues of consent and guardianship. Future studies should include children in DCS custody, as these children are at increased risk of hospitalization (Romanosky, Lyons, Lehner, & West, 2003).

Chapter 6

Conclusions & Recommendations

In sum, findings suggest that not all previously established patterns between proactive and reactive aggression and subsequent outcomes are apparent in this psychiatric inpatient population. The results of this study indicate that reactive aggression may be more important in this population than previously proposed. Specifically, for inpatient children in this age group, reactive aggression may be more indicative of a broader spectrum of problem behavior and related to the development of both internalizing and externalizing psychiatric problems. Findings may indicate that prevention and intervention efforts should be tailored across the board to address behavioral inhibition that is associated with reactive aggression. As previously stated, children tend to develop more proactively aggressive behavior as they age (Vitaro & Brendgen, 2005) and thus another future area of research should include longitudinal investigations in this population as well as samples that include a larger age range to see if these relations exist in older children and adolescents as well as to examine if these relations hold over time.

Surprisingly, parenting depended on specific demographic characteristics, suggesting that parenting is an important target of intervention, but interventions need to be demographically and culturally specific. For example, continued clinical efforts to curtail permissive parenting would likely be an important area of intervention for this population. Permissive parenting may be especially harmful to this group of children as it does not model or foster consistent behavioral regulation or behavioral inhibition skills (Bornstein, 2002; Brendgen, Vitaro, Tremblay, & Lavoie, 2001.)

Additionally, girls appeared to be more affected by parenting than boys, specifically in regard to externalizing outcomes. It may be that parents feel ill equipped to handle behavioral

problems that directly oppose “traditional” female behaviour such as aggression, lying, or other antisocial activities (Bussey & Bandura, 1999; Lytton & Romney, 1991). Thus, tailoring parenting interventions to address these issues specific to girls at risk for these behaviors is an important area of future exploration. Furthermore, girls are more often diagnosed with externalizing problems at a later age (APA, 2004) and thus the current results may reflect a parent’s reaction to newly developed behavioral problems among girls. Lastly, it is possible that in light of a later onset of externalizing difficulties for girls that the current results reflect the presence of bidirectional interactions between parents and children. New externalizing behaviors may elicit or heighten a poor parenting behavior within a family system, thus future studies should include bi-directional examinations of these relations.

In regards to age, the most meaningful age effects involved proactive aggression and likely reflects the cognitive sophistication required to anticipate and utilize aggression to meet ones needs (Dodge, 1991). Furthermore, as children age they have more opportunities to be reinforced by peers for proactively aggressive behavior (Gilfordsmith, Dodge, Dishion, et al., 2005). Thus appropriate levels of parental monitoring and an awareness of a child’s tendency to utilize proactive aggression would be useful interventions within this population. In light of the relationship between age and proactive aggression, future research should include older children in order to examine these relations.

The specific clinical implications of the racial differences in this study should be interpreted with caution due to the inconsistent nature, not only within this sample but within larger bodies of child psychopathology research. In this sample the rates of externalizing difficulties may have been so high that differences in these symptoms may not have occurred. Furthermore, racial difference being limited to internalizing outcomes should be considered in

future studies as clinicians may need to further investigate a child's culture before attempting to tailor parenting or other clinical interventions involved in the child's treatment. Thus, demographic differences in associations is an important area to continue to study, as the identification of these differences can help to further tailor targeted prevention and intervention efforts for severely psychiatrically impaired populations.

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Appendix

Footnotes

¹ Two variables in this study were non-normally distributed. The proposed statistical analyses encompass an assumption of normally distributed data and thus these variables were log transformed. The ODD variable was still positively skewed after log transformation and thus alternate models were run with the non-transformed variables and this did not impact the results of the study or the pattern of findings. Thus the transformed variable was used, as it more closely approximates the normal distribution.

² Due to the low internal consistency of the permissive parenting variables, models were run without permissive parenting and no additional significant relationships were revealed. Furthermore in order to test models with the most parsimony and limit the overall number of models. Two way interactions between aggression and parenting styles were run in separate models and these models did not produce any additional significant findings than those found when all parenting styles were maintained in the same model.

Table 1. *Correlations, Means, Standard Deviations*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Sex	-													
2. Age	.10*	-												
3. Race	-.04	-.03	-											
4. Proactive Aggression	-.02	.00	-.03	-										
5. Reactive Aggression	-.06	-.05	-.06	.62**	-									
6. Authoritarian	-.08	-.04	.16**	.24**	.23**	-								
7. Authoritative	.04	-.07	.03	.09	.12*	.19**	-							
8. Permissive	.05	-.06	.08	-.02	-	-.11*	-.08	-						
9. CBCL Affective	-.06	.01	-	.14**	.12*	.04	.01	.02	-					
10. CBCL Anxiety	-.03	-.08	-	.07	.14**	.05	.14**	-.03	.59**	-				
11. CBCL Somatic	-.03	.01	-.01	.04	.05	.02	.05	.05	.44**	.38**	-			
12. CBCL ADHD	.01	-	-	.25**	.35**	.17**	.21**	-.06	.38**	.39**	.24**	-		
13. CBCL ODD	.10*	.04	.01	.20**	.14**	.01	.02	.07	.01	-.03	.02	.08	-	
14. CBCL CD	-.03	-	-.10*	.57**	.60**	.19**	.12*	-.04	.29**	.22**	.14**	.57**	.15**	-
Mean	.29	9.39	1.60	2.11	3.32	36.35	40.17	22.39	69.18	63.77	62.38	69.01	74.34	74.27
Standard Deviation	.45	1.90	.49	1.21	1.30	5.87	6.04	5.86	9.66	8.56	10.59	8.46	43.53	9.83

* $p \leq .05$, ** $p \leq .01$

Table 2. *Standardized Betas, Standard Errors ADHD First Order Effects*

	β	SE	<i>t</i>	f^2
Outcome: ADHD				
	R ² = .198			
Age	-.176**	.048	-3.705	.04
Race	-.153**	.048	-3.155	.03
Gender	.037	.048	.774	
Reactive	.256**	.062	4.113	.05
Proactive	.053	.062	.854	
Permissive	-.002	.049	-.040	
Authoritarian	.109*	.050	2.166	.01
Authoritative	.129*	.048	2.685	.01

Note: * $p \leq .05$, ** $p \leq .001$.

Table 3. *Two way interactions ADHD Model*

	β	<i>SE</i>	<i>t</i>
Aggression X Demographics $R^2 = .198$			
Age	-.179**	.048	-3.719
Race	-.154**	.049	-3.146
Gender	.041	.049	.836
Reactive	.250**	.063	3.969
Proactive	.059	.062	.939
Permissive	.004	.050	.081
Authoritarian	.112*	.051	2.189
Authoritative	.130**	.049	2.673
Reactive X Gender	.018	.064	.286
Proactive X Gender	-.059	.062	-.952
Reactive X Race	-.019	.063	-.302
Proactive X Race	-.025	.062	-.403
Reactive X Age	.054	.061	.880
Proactive X Age	.015	.064	.237
Parenting X Demographics $R^2 = .201$			
Age	-.169**	.049	-3.480
Race	-.138**	.049	-2.793
Gender	.041	.049	.837
Reactive	.244**	.064	3.838
Proactive	.058	.063	.918
Permissive	-.028	.051	-.553
Authoritarian	.092	.052	1.761
Authoritative	.174**	.064	2.722
Permissive X Gender	.065	.048	1.364
Authoritarian X Gender	.044	.052	.853
Authoritative X Gender	.039	.062	.633
Permissive X Race	.054	.051	1.053
Authoritarian X Race	.043	.052	.826
Authoritative X Race	-.006	.067	-.097
Permissive X Age	-.023	.050	-.471
Authoritarian X Age	.048	.051	.954
Authoritative X Age	-.085	.063	-1.350
Aggression X Parenting $R^2 = .213$			
Age	-.179**	.048	-3.724
Race	-.150**	.049	-3.060
Gender	.038	.048	.780
Reactive	.256**	.063	4.097
Proactive	.051	.064	.794
Permissive	.011	.052	.214
Authoritarian	.090	.052	1.722
Authoritative	.196**	.064	3.053
Reactive X Permissive	.039	.065	.599
Reactive X Authoritarian	-.040	.067	-.599
Reactive X Authoritative	-.090	.085	-1.053
Proactive X Permissive	-.090	.060	-1.500
Proactive X Authoritarian	-.028	.066	-.419
Proactive X Authoritative	.132	.084	1.567

Note: * $p \leq .05$, ** $p \leq .001$.

Table 4. *Three-way Interactions ADHD (Gender Model)*

	R ² = .225	β	SE	t
Age		-.178	.049	-3.641
Race		-.152**	.051	-2.972
Gender		.053	.052	1.012
Reactive		.259**	.065	4.022
Proactive		.049	.066	.737
Permissive		5.5	.054	.001
Authoritarian		.087	.054	1.602
Authoritative		.197**	.067	2.946
Reactive X Permissive		.059	.067	.879
Reactive X Authoritarian		-.067	.100	-.675
Reactive X Authoritative		-.022	.069	-.322
Proactive X Permissive		-.090	.062	-1.447
Proactive X Authoritarian		.146	.088	1.662
Proactive X Authoritative		-.045	.068	-.661
Reactive X Gender		.033	.069	.481
Proactive X Gender		-.042	.066	-.634
Permissive X Gender		.077	.052	1.480
Authoritarian X Gender		-.011	.067	-.166
Authoritative X Gender		.076	.054	1.391
Proactive X Gender X Permissive		-.066	.064	-1.029
Proactive X Gender X Authoritarian		-.012	.072	-.167
Proactive X Gender X Authoritative		-.100	.086	-1.167
Reactive X Gender X Permissive		.062	.072	.852
Reactive X Gender X Authoritarian		.126	.124	1.021
Reactive X Gender X Authoritative		.032	.072	.450

Note: * $p \leq .05$, ** $p \leq .001$.

Table 5. *Three-way Interactions ADHD (Race Model)*

	$R^2 = .227$	β	<i>SE</i>	<i>t</i>
Age		-.187**	.049	-3.804
Race		-.143**	.052	-2.764
Gender		.048	.050	.950
Reactive		.267**	.065	4.127
Proactive		.042	.066	.631
Permissive		-.004	.053	-.067
Authoritarian		.070	.055	1.274
Authoritative		.169*	.068	2.470
Reactive X Permissive		.054	.067	.813
Reactive X Authoritarian		-.070	.093	-.756
Reactive X Authoritative		-.009	.072	-.124
Proactive X Permissive		-.133*	.066	-2.001
Proactive X Authoritarian		.098	.090	1.086
Proactive X Authoritative		-.063	.069	-.918
Reactive X Race		-.071	.065	-1.089
Proactive X Race		.078	.065	1.200
Permissive X Race		.038	.077	.499
Authoritarian X Race		.012	.069	.169
Authoritative X Race		.037	.056	.657
Proactive X Race X Permissive		.064	.054	1.184
Proactive X Race X Authoritarian		.098	.070	.469
Proactive X Race X Authoritative		.044	.093	1.409
Reactive X Race X Permissive		.003	.056	.058
Reactive X Race X Authoritarian		-.053	.098	-.540
Reactive X Race X Authoritative		-.101	.074	-1.372

Note: * $p \leq .05$, ** $p \leq .001$.

Table 6. *Three-Way Interaction ADHD (Age Model)*

	$R^2 = .239$	β	SE	t	f^2
Age		-.180**	.050	-3.603	
Race		-.151**	.049	-3.052	
Gender		.044	.049	.910	
Reactive		.245**	.066	3.731	
Proactive		.061	.066	.932	
Permissive		.009	.052	.178	
Authoritarian		.106*	.054	1.970	
Authoritative		.161**	.073	2.209	
Reactive X Permissive		.009	.069	.133	
Reactive X Authoritarian		-.149	.097	-1.538	
Reactive X Authoritative		-.012	.069	-.172	
Proactive X Permissive		-.078	.063	-1.232	
Proactive X Authoritarian		.118	.097	1.207	
Proactive X Authoritative		-.054	.067	-.804	
Reactive X Age		-.049	.065	-.757	
Proactive X Age		.033	.066	.494	
Permissive X Age		-.029	.054	-.535	
Authoritarian X Age		.043	.051	.845	
Authoritative X Age		-.020	.072	-.277	
Proactive X Age X Permissive		-.006	.062	-.097	
Proactive X Age X Authoritarian		-.111	.069	-1.107	
Proactive X Age X Authoritative		-.099	.089	-1.603	
Reactive X Age X Permissive		-.066	.065	-1.015	
Reactive X Age X Authoritarian		.033	.070	.470	
Reactive X Age X Authoritative		.198*	.101	1.961	.01

Note: * $p \leq .05$, ** $p \leq .001$.

Table 7. *Standardized Betas, Standard Errors, First Order Effects ODD*

	β	SE	t	f^2
Outcome: ODD				
	R ² = .200			
Age	-.046	.049	-.936	
Race	-.072	.050	-1.45	
Gender	.090	.049	1.82	
Reactive	.210**	.064	3.29	.03
Proactive	.202**	.063	3.18	.03
Permissive	.024	.050	.486	
Authoritarian	.012	.052	.238	
Authoritative	.069	.049	1.40	

Note: * $p \leq .05$, ** $p \leq .001$.

Table 8. Two Way Interactions ODD Model

	β	SE	t
Aggression X Demographics R²= .226			
Age	-.051	.014	-1.068
Race	-.092	.049	-1.890
Gender	.082	.048	1.71
Reactive	.179**	.062	2.87
Proactive	.210**	.062	3.40
Permissive	.028	.049	.567
Authoritarian	.029	.051	.573
Authoritative	.063	.048	1.306
Reactive X Gender	-.063	.063	-.991
Proactive X Gender	.217**	.062	3.517
Reactive X Race	.006	.061	.090
Proactive X Race	.093	.060	1.538
Reactive X Age	-.078	.062	-1.261
Proactive X Age	.198**	.064	3.11
Parenting X Demographics R²= .187			
Age	-.052	.050	-1.058
Race	-.070	.051	-1.39
Gender	.081	.050	1.628
Reactive	.195**	.065	3.003
Proactive	.215**	.064	3.345
Permissive	.014	.052	.259
Authoritarian	-.009	.053	-.172
Authoritative	.077	.065	1.182
Permissive X Gender	.108*	.049	2.215
Authoritarian X Gender	.039	.053	.738
Authoritative X Gender	-.039	.063	-.621
Permissive X Race	.066	.052	1.258
Authoritarian X Race	-.033	.053	-.054
Authoritative X Race	.000	.068	.004
Permissive X Age	.071	.051	1.397
Authoritarian X Age	-.010	.052	-.198
Authoritative X Age	-.019	.064	-.293
Aggression X Parenting R²= .200			
Age	-.024	.049	-.489
Race	-.051	.050	-1.030
Gender	.076	.049	1.55
Reactive	.184**	.063	2.89
Proactive	.262**	.064	4.068
Permissive	-.021	.052	-.408
Authoritarian	-.022	.053	-.419
Authoritative	.057	.065	.880
Reactive X Permissive	-.102	.065	-1.551
Reactive X Authoritarian	-.073	.068	-1.076
Reactive X Authoritative	.034	.086	.398
Proactive X Permissive	.165**	.061	2.733
Proactive X Authoritarian	-.085	.066	-1.278
Proactive X Authoritative	-.030	.086	-3.50

Note: * $p \leq .05$, ** $p \leq .001$.

Table 9. *Three-way Interactions ODD (Gender Model)*

	$R^2 = .286$	β	SE	t	f^2
Age		-.025	.047	-.538	
Race		-.104*	.049	-2.112	
Gender		.080	.050	1.589	
Reactive		.223**	.062	3.576	
Proactive		.322**	.064	3.126	
Permissive		.004	.052	-.142	
Authoritarian		-.014	.052	.061	
Authoritative		.080	.065	.417	
Reactive X Permissive		-.157	.065	-1.305	
Reactive X Authoritarian		-.066	.067	-.411	
Reactive X Authoritative		.033	.096	-1.207	
Proactive X Permissive		.240*	.060	2.370	
Proactive X Authoritarian		-.094	.066	-1.487	
Proactive X Authoritative		-.013	.085	-.376	
Reactive X Gender		.014	.066	.214	
Proactive X Gender		.179**	.064	2.803	
Permissive X Gender		.086	.050	1.711	
Authoritarian X Gender		-.006	.052	-.122	
Authoritative X Gender		-.117	.065	-1.800	
Proactive X Gender X Permissive		.197**	.062	3.187	.03
Proactive X Gender X Authoritarian		-.176**	.070	-2.516	.01
Proactive X Gender X Authoritative		-.064	.083	-.768	
Reactive X Gender X Permissive		-.070	.070	-1.001	
Reactive X Gender X Authoritarian		.063	.069	.904	
Reactive X Gender X Authoritative		-.191	.119	-1.600	

Note: * $p \leq .05$, ** $p \leq .001$.

Table 10. *Three-way Interactions ODD (Race Model)*

	R ² = .241	β	SE	t
Age		-.030	.049	-.620
Race		-.038	.051	-.741
Gender		.043	.050	.858
Reactive		.175**	.065	2.712
Proactive		.278**	.066	4.242
Permissive		-.025	.053	-.468
Authoritarian		-.036	.054	-.659
Authoritative		.039	.068	.569
Reactive X Permissive		-.112	.067	-1.675
Reactive X Authoritarian		-.093	.072	-1.298
Reactive X Authoritative		.043	.092	.460
Proactive X Permissive		.149*	.066	2.264
Proactive X Authoritarian		-.112	.068	-1.645
Proactive X Authoritative		-.056	.089	-.628
Reactive X Race		.025	.065	.389
Proactive X Race		.141*	.064	2.190
Permissive X Race		.153*	.077	1.993
Authoritarian X Race		-.072	.056	-1.297
Authoritative X Race		.015	.069	.224
Proactive X Race X Permissive		.089	.054	1.665
Proactive X Race X Authoritarian		-.076	.069	-1.097
Proactive X Race X Authoritative		.026	.093	.280
Reactive X Race X Permissive		-.106	.055	-1.918
Reactive X Race X Authoritarian		.029	.073	.399
Reactive X Race X Authoritative		-.075	.098	-.763

Note: * $p \leq .05$, ** $p \leq .001$.

Table 11. *Three-Way Interaction ODD (Age Model)*

	$R^2 = .287$	β	SE	t	f^2
Age		-.022	.048	-.449	
Race		-.066	.048	-1.366	
Gender		.078	.047	1.653	
Reactive		.122	.064	1.908	
Proactive		.322**	.064	5.041	
Permissive		.004	.051	.074	
Authoritarian		-.014	.052	-.274	
Authoritative		.080	.071	1.129	
Reactive X Permissive		-.157*	.067	-2.361	
Reactive X Authoritarian		-.066	.067	-.977	
Reactive X Authoritative		.033	.094	.352	
Proactive X Permissive		.240*	.061	3.923	
Proactive X Authoritarian		-.094	.066	-1.431	
Proactive X Authoritative		-.013	.095	-.133	
Reactive X Age		.042	.052	.809	
Proactive X Age		-.042*	.071	-.601	
Permissive X Age		-.037	.050	-.734	
Authoritarian X Age		-.107	.066	-1.689	
Authoritative X Age		.268	.064	4.165	
Proactive X Age X Permissive		.191**	.060	3.170	.01
Proactive X Age X Authoritarian		-.138*	.067	-2.057	.03
Proactive X Age X Authoritative		-.052	.087	-.597	
Reactive X Age X Permissive		-.112	.063	-1.777	
Reactive X Age X Authoritarian		.000	.068	.004	
Reactive X Age X Authoritative		.126	.098	1.277	

Note: * $p \leq .05$, ** $p \leq .001$.

Table 12. *Standardized Betas, Standard Errors CD First Order Effects*

	β	SE	<i>t</i>	f^2
Outcome: CD				
	$R^2 = .457$			
Age	-.155**	.039	-4.005	.04
Race	-.077	.039	-1.945	
Gender	.014	.039	.362	
Reactive	.358**	.051	7.069	.14
Proactive	.346**	.050	6.886	.13
Permissive	.011	.040	.270	
Authoritarian	.025	.041	.615	
Authoritative	.032	.039	.827	

Note: * $p \leq .05$, ** $p \leq .001$.

Table 13. *Two Way Interactions CD Model*

	β	<i>SE</i>	<i>t</i>
Aggression X Demographics $R^2 = .465$			
Age	-.161**	.039	-4.135
Race	-.073	.040	-1.839
Gender	.014	.039	.359
Reactive	.353	.051	6.913
Proactive	.353**	.051	6.995
Permissive	.018**	.040	.448
Authoritarian	.026	.041	.629
Authoritative	.029	.039	.748
Reactive X Gender	-.008	.052	-.161
Proactive X Gender	-.051	.050	-1.009
Reactive X Race	-.026	.051	-.505
Proactive X Race	.062	.049	1.256
Reactive X Age	-.026	.051	-.505
Proactive X Age	.011	.052	.213
Parenting X Demographics $R^2 = .464$			
Age	-.153**	.040	-3.860
Race	-.072	.040	-1.772
Gender	.015	.040	.388
Reactive	.356**	.052	6.847
Proactive	.347**	.051	6.755
Permissive	-.011	.042	-.265
Authoritarian	.018	.043	.426
Authoritative	.035	.052	.669
Permissive X Gender	.034	.039	.863
Authoritarian X Gender	.026	.042	.627
Authoritative X Gender	.058	.051	1.155
Permissive X Race	.037	.042	.883
Authoritarian X Race	.045	.043	1.057
Authoritative X Race	.004	.054	.077
Permissive X Age	-.019	.041	-.462
Authoritarian X Age	-.001	.041	-.023
Authoritative X Age	-.023	.051	-.453
Aggression X Parenting $R^2 = .460$			
Age	-.150**	.039	-3.808
Race	-.072	.040	-1.807
Gender	.013	.040	.319
Reactive	.350**	.051	6.833
Proactive	.357**	.052	6.847
Permissive	.003	.042	.071
Authoritarian	.012	.043	.277
Authoritative	.055	.052	1.043
Reactive X Permissive	-.016	.053	-.311
Reactive X Authoritarian	-.026	.055	-.470
Reactive X Authoritative	.014	.070	.2-5
Proactive X Permissive	.020	.049	.418
Proactive X Authoritarian	-.025	.054	-.461
Proactive X Authoritative	.031	.069	.453

Note: * $p \leq .05$, ** $p \leq .001$.

Table 14. *Three-way Interactions CD (Gender Model)*

	$R^2 = .483$	β	SE	t	f^2
Age		-.148**	.039	-3.753	
Race		-.077	.041	-1.865	
Gender		.037	.042	.865	
Reactive		.351**	.052	6.737	
Proactive		.356**	.053	6.656	
Permissive		-.015	.043	-.349	
Authoritarian		.004	.044	.102	
Authoritative		.046	.054	.855	
Reactive X Permissive		-.017	.054	-.311	
Reactive X Authoritarian		-.018	.056	-.315	
Reactive X Authoritative		.035	.081	.433	
Proactive X Permissive		.037	.050	.749	
Proactive X Authoritarian		-.048	.055	-.874	
Proactive X Authoritative		.040	.071	.557	
Reactive X Gender		-.006	.056	-.111	
Proactive X Gender		-.084	.054	-1.561	
Permissive X Gender		.033	.042	.786	
Authoritarian X Gender		.045	.044	1.022	
Authoritative X Gender		.004	.054	.082	
Proactive X Gender X Permissive		-.040	.052	-.770	
Proactive X Gender X Authoritarian		-.048	.059	-.816	
Proactive X Gender X Authoritative		-.143*	.069	-2.068	.02
Reactive X Gender X Permissive		.023	.058	.390	
Reactive X Gender X Authoritarian		-.008	.058	0.141	
Reactive X Gender X Authoritative		.127	.100	1.275	

Note: * $p \leq .05$, ** $p \leq .001$.

Table 15. *Three-way Interactions CD (Race Model)*

	$R^2 = .468$	β	SE	t
Age		-.155**	.040	-3.852
Race		-.085*	.042	-1.995
Gender		.027	.041	.648
Reactive		.341**	.053	6.411
Proactive		.356**	.054	6.593
Permissive		-.004	.044	-.090
Authoritarian		.013	.045	.281
Authoritative		.053	.056	.938
Reactive X Permissive		-.008	.055	-.150
Reactive X Authoritarian		.020	.076	.258
Reactive X Authoritative		-.011	.059	-.189
Proactive X Permissive		-.013	.054	-.234
Proactive X Authoritarian		.023	.074	.311
Proactive X Authoritative		-.050	.056	-.888
Reactive X Race		-.040	.053	-.751
Proactive X Race		.053	.053	.992
Permissive X Race		.005	.063	.077
Authoritarian X Race		-.006	.056	-.100
Authoritative X Race		.037	.046	.815
Proactive X Race X Permissive		.014	.044	.318
Proactive X Race X Authoritarian		.050	.057	.883
Proactive X Race X Authoritative		.044	.076	.571
Reactive X Race X Permissive		.023	.046	.494
Reactive X Race X Authoritarian		-.001	.061	-.023
Reactive X Race X Authoritative		.003	.081	.032

Note: * $p \leq .05$, ** $p \leq .001$.

Table 16. *Three-Way Interaction CD (Age Model)*

$R^2 = .472$	β	<i>SE</i>	<i>t</i>
Age	-.146**	.041	-3.562
Race	-.078	.041	-1.900
Gender	.013	.040	.336
Reactive	.346**	.054	6.375
Proactive	.361**	.054	6.662
Permissive	.000*	.043	-.011
Authoritarian	.024	.044	.551
Authoritative	.023	.060	.380
Reactive X Permissive	-.036	.056	-.637
Reactive X Authoritarian	-.007	.057	-.120
Reactive X Authoritative	-.033	.080	-.414
Proactive X Permissive	.025	.052	.482
Proactive X Authoritarian	-.051	.056	-.917
Proactive X Authoritative	.056	.080	.697
Reactive X Age	-.060	.054	-1.114
Proactive X Age	.048	.055	.879
Permissive X Age	-.002	.044	-.044
Authoritarian X Age	.004	.042	.083
Authoritative X Age	.015	.060	.253
Proactive X Age X Permissive	-.031	.051	-.610
Proactive X Age X Authoritarian	-.097	.057	-1.702
Proactive X Age X Authoritative	-.078	.074	-1.052
Reactive X Age X Permissive	-.011	.054	-.200
Reactive X Age X Authoritarian	.038	.058	.667
Reactive X Age X Authoritative	.106	.083	1.274

Note: * $p \leq .05$, ** $p \leq .001$.

Table 17. *Standardized Betas, Standard Errors for First Order Effects for Affective Problems*

	β	SE	t	f^2
Outcome: Affective Problems				
R ² = .092				
Age	.011	.050	.216	
Race	-.243*	.051	-4.811	.06
Gender	-.053	.050	-1.065	
Reactive	.027	.065	.414	
Proactive	.105	.064	1.632	
Permissive	.059	.051	1.165	
Authoritarian	.037	.053	.702	
Authoritative	.093	.050	1.848	

Note: * $p \leq .05$, ** $p \leq .001$.

Table 18. *Two-way interactions Affective Problems*

	β	<i>SE</i>	<i>t</i>	f^2
Aggression X Demographics $R^2 = .106$				
Age	.010	.050	.195	
Race	-.241**	.051	-4.735	
Gender	-.067	.050	-1.325	
Reactive	.029	.065	.449	
Proactive	.100	.065	1.546	
Permissive	.055	.052	1.057	
Authoritarian	.035	.053	.658	
Authoritative	.086	.050	1.699	
Reactive X Gender	-.058	.066	-.880	
Proactive X Gender	.043	.065	.666	
Reactive X Race	.129*	.064	2.000	
Proactive X Race	-.068	.063	-1.070	
Reactive X Age	-.031	.065	-.478	
Proactive X Age	.028	.067	.420	
Parenting X Demographics $R^2 = .123$				
Age	.004	.050	.077	
Race	-.235**	.051	-4.584	
Gender	-.059	.050	-1.163	
Reactive	.019	.066	.281	
Proactive	.110	.065	1.690	
Permissive	.049	.053	.925	
Authoritarian	.013	.054	.242	
Authoritative	.023	.066	.354	
Permissive X Gender	.076	.049	1.548	
Authoritarian X Gender	-.018	.053	-.339	
Authoritative X Gender	-.124*	.064	-1.934	.03
Permissive X Race	.097	.053	-.339	
Authoritarian X Race	.060	.054	1.101	
Authoritative X Race	-.020	.069	-.292	
Permissive X Age	.024	.052	.470	
Authoritarian X Age	-.009	.053	-.180	
Authoritative X Age	.110	.065	1.693	
Aggression X Parenting $R^2 = .094$				
Age	.011	.051	.221	
Race	-.245	.051	-4.768	
Gender	-.047	.051	-.924	
Reactive	.027	.066	.411	
Proactive	.101	.067	1.505	
Permissive	.063	.054	1.158	
Authoritarian	.045	.055	.816	
Authoritative	.068	.067	1.006	
Reactive X Permissive	.006	.068	.088	
Reactive X Authoritarian	-.021	.071	-.298	
Reactive X Authoritative	.079	.090	.875	
Proactive X Permissive	-.010	.063	-.155	
Proactive X Authoritarian	.031	.069	.456	
Proactive X Authoritative	-.069	.089	-.778	

Note: * $p \leq .05$, ** $p \leq .001$.

Table 19. *Three-way interactions Affective Problems (Gender Model)*

	$R^2 = .127$	β	SE	t
Age		.015	.051	.291
Race		-.253**	.053	-4.748
Gender		-.039	.054	-.719
Reactive		.040	.067	.602
Proactive		.061	.069	.886
Permissive		.077	.056	1.378
Authoritarian		.042	.056	.747
Authoritative		.063	.070	.903
Reactive X Permissive		.036	.070	.518
Reactive X Authoritarian		.137	.104	1.323
Reactive X Authoritative		-.014	.072	-.196
Proactive X Permissive		-.031	.065	-.485
Proactive X Authoritative		-.093	.091	-1.016
Proactive X Authoritarian		.033	.071	.461
Reactive X Gender		-.048	.072	-.674
Proactive X Gender		.028	.069	.399
Permissive X Gender		.066	.054	1.223
Authoritative X Gender		-.140	.070	-2.004
Authoritarian X Gender		-.005	.057	-.083
Proactive X Gender X Permissive		.035	.067	.521
Proactive X Gender X Authoritarian		-.051	.075	-.676
Proactive X Gender X Authoritative		-.168	.089	-1.885
Reactive X Gender X Permissive		.049	.075	.646
Reactive X Gender X Authoritarian		.051	.075	.681
Reactive X Gender X Authoritative		.217	.129	1.687

Note: * $p \leq .05$, ** $p \leq .001$.

Table 20. *Three-way interactions Affective Problems (Race Model)*

	$R^2 = .150$	β	SE	t	f^2
Age		.009	.050	.169	
Race		-.232**	.053	-4.367	
Gender		-.047	.052	-.916	
Reactive		.058	.067	.869	
Proactive		.073	.068	1.082	
Permissive		.032	.055	.585	
Authoritarian		.000	.056	-.008	
Authoritative		.056	.070	.798	
Reactive X Permissive		-.009	.069	-.137	
Reactive X Authoritative		.053	.095	.552	
Reactive X Authoritarian		-.014	.074	-.187	
Proactive X Permissive		-.008	.068	-.115	
Proactive X Authoritative		-.073	.092	-.794	
Proactive X Authoritarian		.038	.071	.535	
Reactive X Race		.146*	.067	2.182	
Proactive X Race		-.115	.067	-1.729	
Permissive X Race		.121	.079	1.523	
Authoritative X Race		-.039	.071	-.556	
Authoritarian X Race		.072	.058	1.249	
Proactive X Race X Permissive		-.028	.055	-.507	
Proactive X Race X Authoritarian		.228**	.072	3.188	.00
Proactive X Race X Authoritative		-.131	.096	-1.373	
Reactive X Race X Permissive		-.002	.057	-.037	
Reactive X Race X Authoritarian		-.193**	.076	-2.548	.02
Reactive X Race X Authoritative		.075	.101	.737	

Note: * $p \leq .05$, ** $p \leq .001$.

Table 21. *Three-way interaction Affective Problems (Age Model)*

	R ² = .129	β	SE	t	f ²
Age		-.026	.052	-.499	
Race		-.250**	.052	-4.803	
Gender		-.058	.051	-1.139	
Reactive		.000	.069	.002	
Proactive		.139*	.069	2.016	
Permissive		.079	.055	1.434	
Authoritarian		.055	.056	.974	
Authoritative		.053	.076	.693	
Reactive X Permissive		-.008	.072	-.108	
Reactive X Authoritative		.046	.102	.452	
Reactive X Authoritarian		-.035	.073	-.477	
Proactive X Permissive		.021	.066	.324	
Proactive X Authoritative		-.095	.102	-.933	
Proactive X Authoritarian		.037	.071	.529	
Permissive X Age		-.014	.056	-.241	
Authoritative X Age		.148*	.076	1.950	
Authoritarian X Age		-.014	.054	-.268	
Proactive X Age		.009	.070	-.136	
Reactive X Age		-.040	.068	-.591	
Proactive X Age X Permissive		.098	.065	1.504	
Proactive X Age X Authoritarian		-.018	.073	-.245	
Proactive X Age X Authoritative		.195*	.094	2.080	.00
Reactive X Age X Permissive		-.154*	.068	-2.257	.01
Reactive X Age X Authoritarian		.033	.073	.454	
Reactive X Age X Authoritative		-.002	.106	-.020	

Note: * $p \leq .05$, ** $p \leq .001$.

Table 22. *Standardized Betas & Standard Errors for First Order Effects Anxiety Problems*

	β	SE	<i>t</i>	f^2
Outcome: Anxiety Problems				
R ² = .105				
Age	-.091	.049	-1.847	
Race	-.250**	.050	-4.969	.07
Gender	-.018	.050	-.364	
Reactive	.137*	.065	2.122	.01
Proactive	-.021	.064	-.324	
Permissive	.019	.051	.365	
Authoritarian	.045	.052	.868	
Authoritative	.090	.050	1.801	

Note: * $p \leq .05$, ** $p \leq .001$.

Table 23. *Two-way interactions Anxiety Model*

	β	<i>SE</i>	<i>t</i>
Aggression X Demographics $R^2 = .125$			
Age	-.084	.050	-1.702
Race	-.247**	.051	-4.869
Gender	-.015	.050	-.294
Reactive	.153	.065	2.348
Proactive	-.029*	.064	-.448
Permissive	.015	.052	.290
Authoritarian	.042	.053	.791
Authoritative	.096	.050	1.910
Reactive X Gender	.047	.066	.716
Reactive X Race	.038	.064	.589
Reactive X Age	.014	.065	.212
Proactive X Gender	-.034	.064	-.533
Reactive X Race	-.100	.062	-1.595
Proactive X Age	-.076	.066	-1.147
Parenting X Demographics $R^2 = .110$			
Age	-.088	.050	-1.741
Race	-.240**	.051	-.4675
Gender	-.017	.050	-.342
Reactive	.126	.066	1.912
Proactive	-.010	.065	-.154
Permissive	-.002	.053	-.035
Authoritarian	.029	.054	.536
Authoritative	.106	.066	1.600
Permissive X Gender	.039	.049	.787
Authoritarian X Gender	.003	.053	.064
Authoritative X Gender	.023	.064	.361
Permissive X Race	.096	.053	1.813
Authoritarian X Race	.060	.054	1.099
Authoritative X Race	-.080	.069	-1.155
Permissive X Age	.015	.052	.299
Authoritarian X Age	.011	.053	.205
Authoritative X Age	-.040	.065	-.609
Aggression X Parenting $R^2 = .125$			
Age	-.089	.050	-1.778
Race	-.245**	.051	-4.802
Gender	-.021	.050	-.410
Reactive	.139*	.065	2.121
Proactive	-.031	.066	-.474
Permissive	.013	.054	.249
Authoritarian	.039	.055	.712
Authoritative	.116	.067	1.730
Reactive X Permissive	-.032	.067	-.481
Reactive X Authoritarian	-.023	.070	-.323
Reactive X Authoritative	-.097	.089	-1.091
Proactive X Permissive	-.008	.062	-.127
Proactive X Authoritarian	.039	.068	.568
Proactive X Authoritative	.081	.088	.922

Note: * $p \leq .05$, ** $p \leq .001$.

Table 24. *Three-way Interactions Anxiety Problems (Gender Model)*

	$R^2 = .153$	β	SE	t	f^2
Age		-.082	.050	-1.627	
Race		-.278**	.053	-5.300	
Gender		-.006	.054	-.118	
Reactive		.156*	.066	2.346	
Proactive		-.086	.068	-1.264	
Permissive		.010	.055	.190	
Authoritarian		.056	.056	1.008	
Authoritative		.109	.069	1.585	
Reactive X Permissive		-.015	.069	-.223	
Reactive X Authoritative		-.049	.102	-.478	
Reactive X Authoritarian		-.007	.071	-.100	
Proactive X Permissive		-.011	.064	-.178	
Proactive X Authoritative		.070	.090	.777	
Proactive X Authoritarian		.035	.070	.499	
Reactive X Gender		.041	.071	.581	
Proactive X Gender		-.025	.068	-.371	
Permissive X Gender		.036	.054	.668	
Authoritative X Gender		.019	.069	.271	
Authoritarian X Gender		.001	.056	.020	
Proactive X Gender X Permissive		.081	.066	1.229	
Proactive X Gender X Authoritarian		-.137	.074	-1.839	
Proactive X Gender X Authoritative		-.182*	.088	-2.061	.01
Reactive X Gender X Permissive		-.006	.074	-.076	
Reactive X Gender X Authoritative		.244	.127	1.923	
Reactive X Gender X Authoritarian		.074	.074	1.006	

Note: * $p \leq .05$, ** $p \leq .001$.

Table 25. *Three-way Interactions Anxiety Problems (Race Model)*

	$R^2 = .162$	β	SE	t	f^2
Age		-.085	.050	-1.691	
Race		-.241**	.053	-4.560	
Gender		-.004	.051	-.080	
Reactive		.148*	.066	2.233	
Proactive		-.037	.067	-.556	
Permissive		-.018	.055	-.327	
Authoritarian		.027	.056	.474	
Authoritative		.146*	.070	2.080	
Reactive X Permissive		-.081	.068	-1.183	
Reactive X Authoritative		-.143	.095	-1.505	
Reactive X Authoritarian		-.010	.074	-.133	
Proactive X Permissive		.044	.068	.641	
Proactive X Authoritative		.112	.095	1.213	
Proactive X Authoritarian		.055	.070	.785	
Reactive X Race		.046	.067	.687	
Proactive X Race		-.157*	.066	-2.369	
Permissive X Race		.230**	.079	2.910	
Authoritative X Race		-.072	.070	-1.026	
Authoritarian X Race		.082	.057	.106	
Proactive X Race X Permissive		-.061	.055	--1.106	
Proactive X Race X Authoritarian		.087	.071	1.228	
Proactive X Race X Authoritative		.010	.095	.106	
Reactive X Race X Permissive		-.120*	.057	-2.109	.03
Reactive X Race X Authoritarian		-.079	.075	-1.047	
Reactive X Race X Authoritative		.105	.101	1.046	

Note: * $p \leq .05$, ** $p \leq .001$.

Table 26. *Three-way interaction Anxiety Problems (Age Model)*

	$R^2 = .144$	β	SE	t	f^2
Age		-.108*	.052	-2.078	
Race		-.254**	.052	-4.925	
Gender		-.025	.051	-.490	
Reactive		.170*	.069	2.486	
Proactive		-.038	.068	-.555	
Permissive		.016	.054	.297	
Authoritarian		.030	.056	.534	
Authoritative		.081	.076	1.072	
Reactive X Permissive		-.018	.071	-.254	
Reactive X Authoritative		-.197*	.101	-1.954	
Reactive X Authoritarian		-.014	.072	-.195	
Proactive X Permissive		-.016	.066	-.238	
Proactive X Authoritative		.094	.101	.922	
Proactive X Authoritarian		.024	.070	.348	
Permissive X Age		.061	.056	1.092	
Authoritative X Age		.124	.076	1.640	
Authoritarian X Age		.017	.054	.326	
Proactive X Age		-.109	.069	-1.573	
Reactive X Age		-.003	.068	-.048	
Proactive X Age X Permissive		-.125*	.065	-1.933	.01
Proactive X Age X Authoritarian		-.011	.072	-.153	
Proactive X Age X Authoritative		.051	.093	.543	
Reactive X Age X Permissive		.054	.068	.791	
Reactive X Age X Authoritarian		-.077	.073	-.099	
Reactive X Age X Authoritative		.199	.105	1.887	

Note: * $p \leq .05$, ** $p \leq .001$.

Table 27. *Standardized Betas, Standard Errors for First Order Effects Somatic Problems*

	β	SE	t
Outcome: Somatic Problems			
	R ² = .014		
Age	.017	.052	.326
Race	-.013	.053	-.254
Gender	-.050	.052	-.963
Reactive	.029	.068	.433
Proactive	.049	.067	.729
Permissive	.059	.053	1.112
Authoritarian	-.004	.055	-.066
Authoritative	.062	.052	1.178

Note: * $p \leq .05$, ** $p \leq .001$.

Table 28. *Two Way Interactions Somatic Model*

	β	<i>SE</i>	<i>t</i>	<i>f</i> ²
Aggression X Demographics $R^2 = .017$				
Age	.017	.052	.319	
Race	-.014	.053	-.268	
Gender	-.052	.053	-.991	
Reactive	.027	.069	.397	
Proactive	.052	.068	.764	
Permissive	.059	.054	1.080	
Authoritarian	.002	.056	.034	
Authoritative	.061	.053	1.159	
Reactive X Gender	-.023	.070	-.336	
Reactive X Race	-.003	.068	-.041	
Reactive X Age	-.035	.068	-.508	
Proactive X Gender	.047	.068	.691	
Proactive X Race	-.007	.066	-.111	
Proactive X Age	.001	.070	.012	
Parenting X Demographics $R^2 = .051$				
Age	.004	.052	.080	
Race	-.022	.053	-.405	
Gender	-.059	.052	-1.125	
Reactive	.047	.069	.682	
Proactive	.038	.068	.556	
Permissive	.040	.055	.718	
Authoritarian	-.019	.056	-.331	
Authoritative	-.028	.069	-.411	
Permissive X Gender	.125*	.051	2.448	.03
Authoritarian X Gender	.001	.056	.010	
Authoritative X Gender	-.052	.067	-.779	
Permissive X Race	.069	.055	1.252	
Authoritarian X Race	.045	.056	.792	
Authoritative X Race	-.029	.072	-.401	
Permissive X Age	-.009	.054	-.159	
Authoritarian X Age	-.108*	.055	-1.969	.00
Authoritative X Age	.113	.068	1.676	
Aggression X Parenting $R^2 = .033$				
Age	.023	.054	.434	
Race	-.009	.052	-.161	
Gender	-.043	.053	-.827	
Reactive	.032	.053	.476	
Proactive	.038	.068	.546	
Permissive	.052	.069	.919	
Authoritarian	.012	.056	.206	
Authoritative	-.017	.070	-.238	
Reactive X Permissive	-.078	.070	-1.110	
Reactive X Authoritarian	-.062	.073	-.847	
Reactive X Authoritative	.045	.093	.490	
Proactive X Permissive	-.004	.065	-.055	
Proactive X Authoritarian	.111	.071	1.558	
Proactive X Authoritative	-.141	.092	-1.532	

Note: * $p \leq .05$, ** $p \leq .001$.

Table 29. *Three-way Interactions Somatic (Gender Model)*

	R ² = .063	β	SE	t
Age		.023	.053	.427
Race		-.013	.055	-.244
Gender		-.043	.056	-.770
Reactive		.031	.070	.448
Proactive		.003	.071	.044
Permissive		.039	.058	.674
Authoritarian		.009	.059	.147
Authoritative		-.023	.072	-.314
Reactive X Permissive		-.060	.073	-.823
Reactive X Authoritative		.141	.108	1.306
Reactive X Authoritarian		-.067	.075	-.896
Proactive X Permissive		-.016	.067	-.240
Proactive X Authoritative		-.166	.095	-1.746
Proactive X Authoritarian		.144*	.073	1.959
Reactive X Gender		-.019	.074	-.255
Proactive X Gender		.021	.072	.296
Permissive X Gender		.102	.056	1.808
Authoritative X Gender		.028	.073	.383
Authoritarian X Gender		-.060	.059	-1.015
Proactive X Gender X Permissive		.001	.069	.021
Proactive X Gender X Authoritarian		.023	.078	.291
Proactive X Gender X Authoritative		-.036	.093	-.389
Reactive X Gender X Permissive		.030	.078	.380
Reactive X Gender X Authoritarian		-.036	.077	-.467
Reactive X Gender X Authoritative		.263	.134	1.968

Note: * $p \leq .05$, ** $p \leq .001$.

Table 30. *Three-way interactions Somatic (Race Model)*

	$R^2 = .058$	β	SE	t
Age		.024	.053	.451
Race		.011	.056	.205
Gender		-.044	.054	-.806
Reactive		.055	.070	.779
Proactive		.030	.071	.417
Permissive		.037	.058	.642
Authoritarian		-.011	.059	-.177
Authoritative		-.004	.074	-.052
Reactive X Permissive		-.105	.072	-1.445
Reactive X Authoritative		-.008	.101	-.084
Reactive X Authoritarian		-.038	.078	-.488
Proactive X Permissive		.032	.072	.446
Proactive X Authoritative		-.115	.097	-1.184
Proactive X Authoritarian		.112	.074	1.512
Reactive X Race		.002	.071	.033
Proactive X Race		-.034	.070	-.491
Permissive X Race		.157	.083	1.882
Authoritative X Race		-.104	.075	-1.397
Authoritarian X Race		.060	.061	.984
Proactive X Race X Permissive		-.021	.058	-.353
Proactive X Race X Authoritarian		.110	.075	-1.460
Proactive X Race X Authoritative		-.143	.101	-1.425
Reactive X Race X Permissive		-.095	.060	-1.569
Reactive X Race X Authoritarian		-.136	.080	-1.702
Reactive X Race X Authoritative		.105	.106	.987

Note: * $p \leq .05$, ** $p \leq .001$.

Table 31. *Three-Way Interaction Somatic (Age Model)*

	R ² = .071	β	SE	t
Age		-.004	.054	-.072
Race		-.022	.054	-.416
Gender		-.055	.053	-1.046
Reactive		.029	.071	.400
Proactive		.052	.071	.729
Permissive		.065	.057	1.145
Authoritarian		.012	.058	.208
Authoritative		-.055	.079	-.702
Reactive X Permissive		-.090	.074	-1.205
Reactive X Authoritative		-.017	.105	-.163
Reactive X Authoritarian		-.080	.075	-1.060
Proactive X Permissive		.004	.068	.057
Proactive X Authoritative		-.139	.106	-1.314
Proactive X Authoritarian		.108	.073	1.482
Permissive X Age		-.014	.058	-.246
Authoritative X Age		.140	.079	1.781
Authoritarian X Age		-.106	.056	-1.901
Proactive X Age		-.004	.072	-.059
Reactive X Age		-.056	.070	-.788
Proactive X Age X Permissive		.008	.067	.126
Proactive X Age X Authoritarian		-.046	.075	-.617
Proactive X Age X Authoritative		.110	.097	1.135
Reactive X Age X Permissive		-.124	.071	-1.752
Reactive X Age X Authoritarian		-.009	.076	-.115
Reactive X Age X Authoritative		.075	.110	.683

Note: * $p \leq .05$, ** $p \leq .001$.

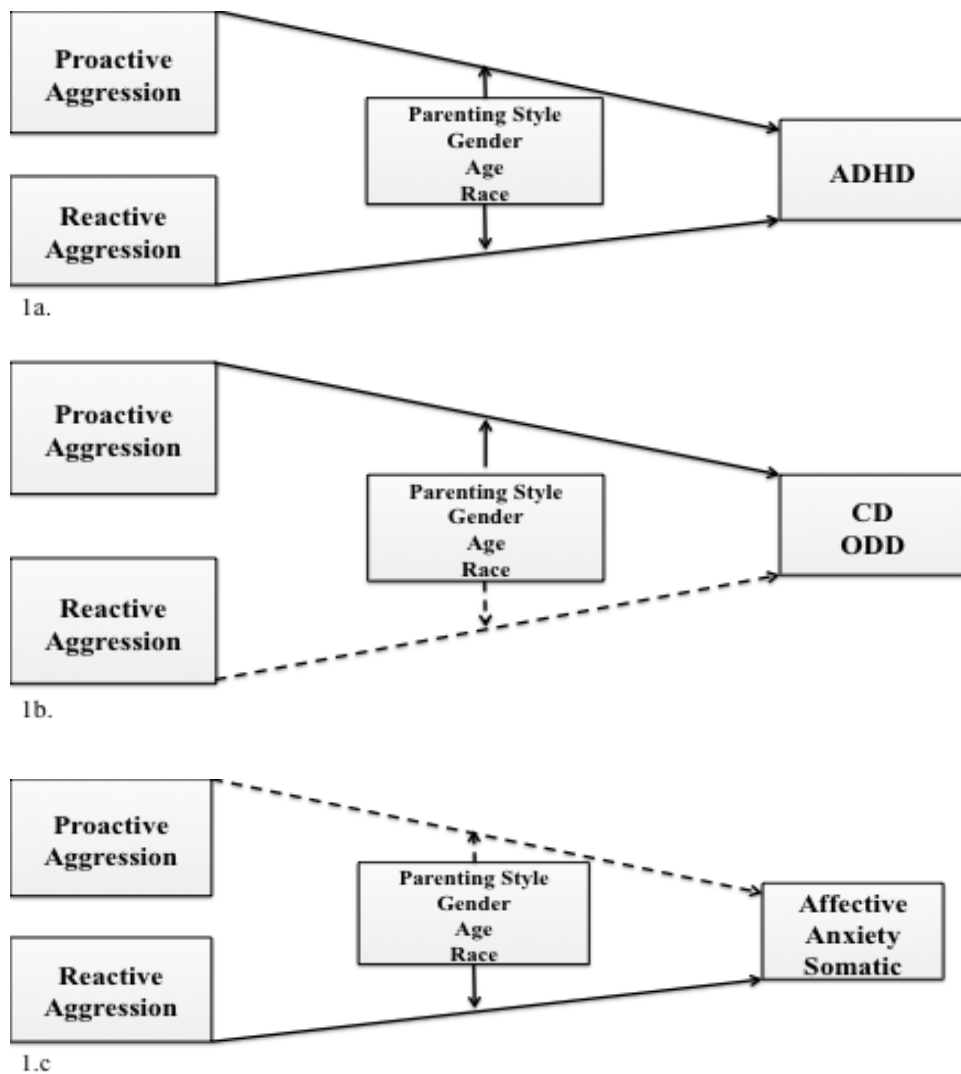


Figure 1. Heuristic of regression models.

Note. Dashed lines indicate paths that will be estimated but are not expected to be significant.

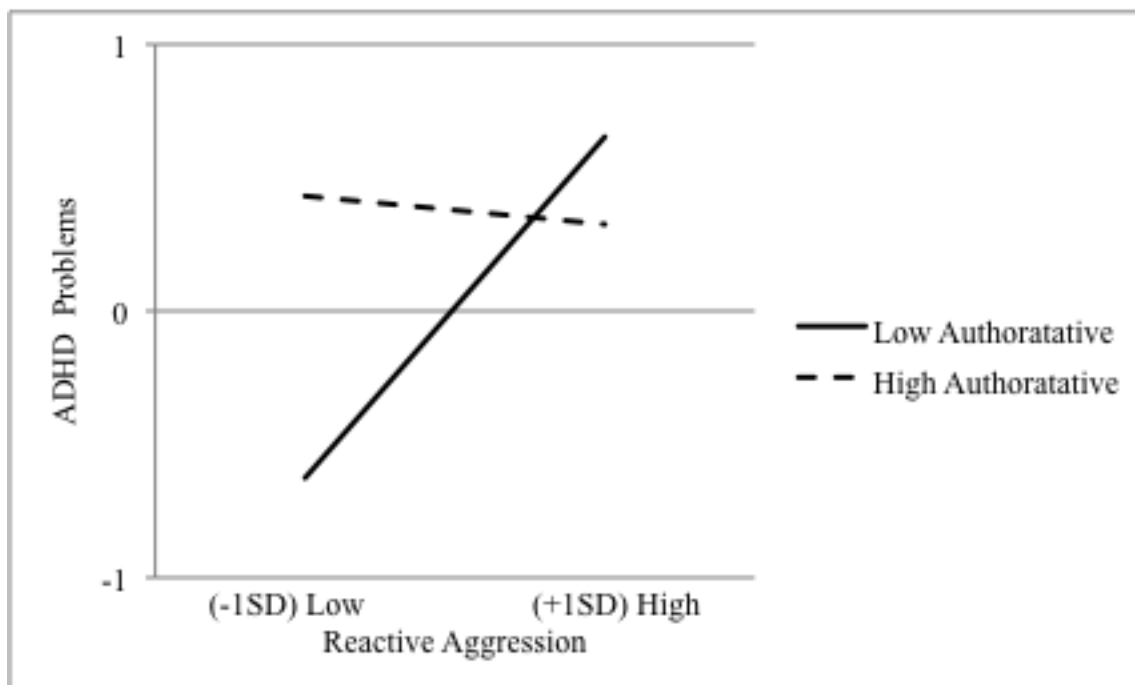


Figure 2. Associations between reactive aggression & ADHD problems at high & low levels of authoritative parenting for younger children.

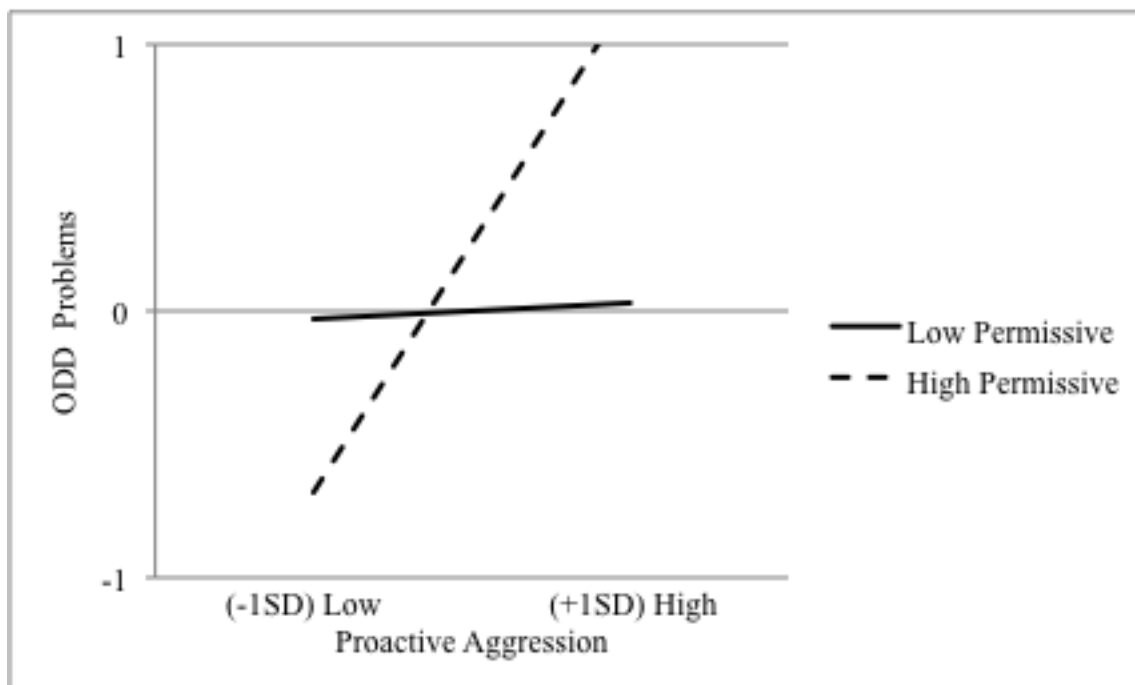


Figure 3. Associations between proactive aggression & ODD problems at high & low levels of permissive parenting for females.

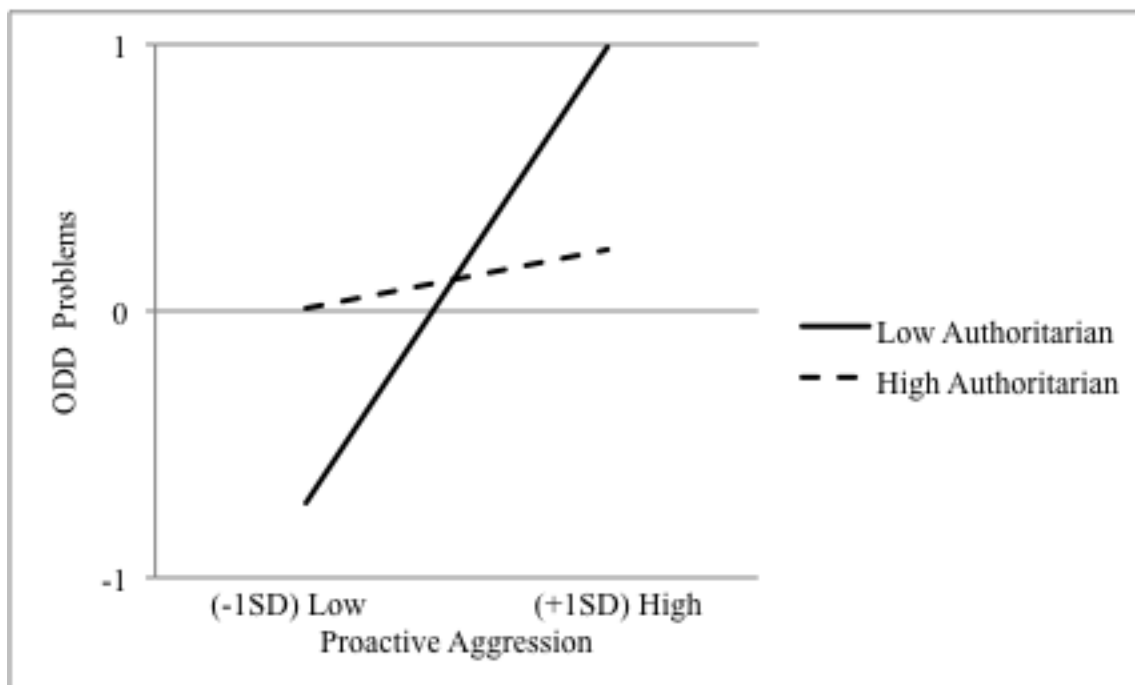


Figure 4. Associations between proactive aggression & ODD problems at high & low levels of authoritarian parenting for females.

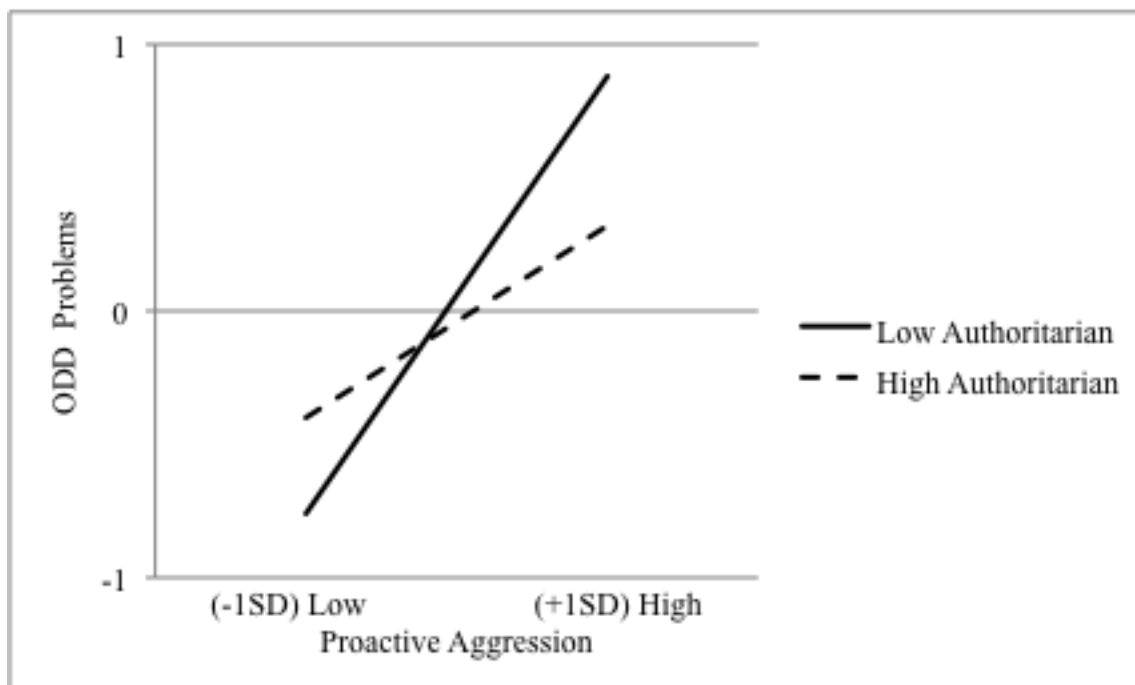


Figure 5. Associations between proactive aggression & ODD problems at high & low levels of authoritarian parenting for older children.

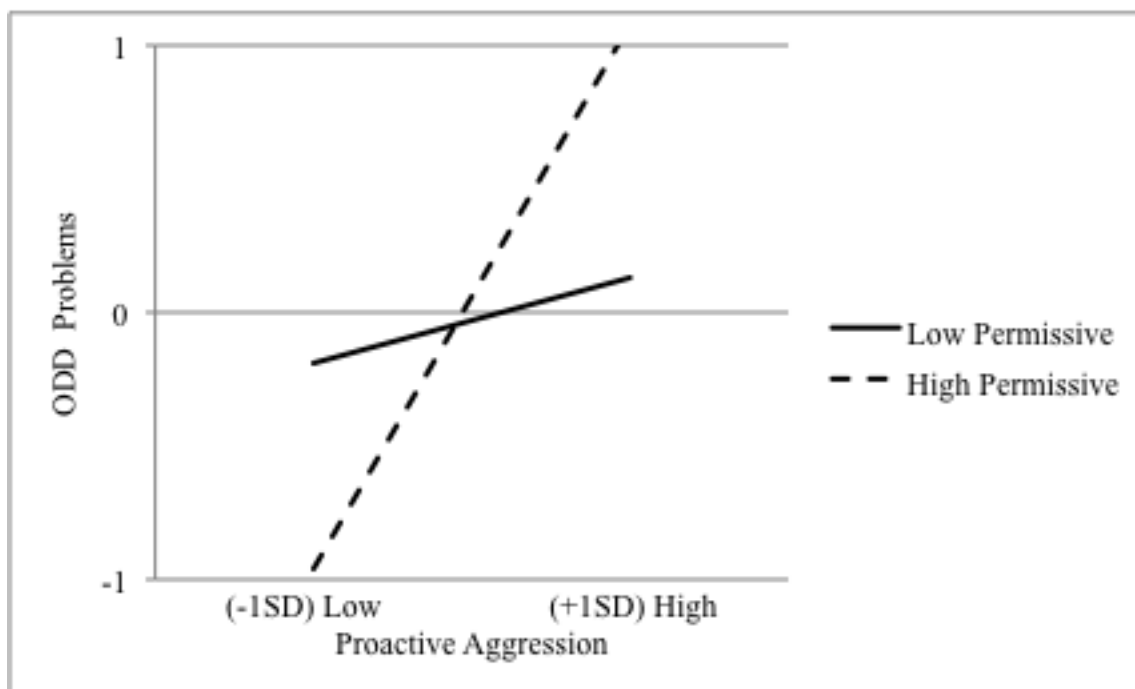


Figure 6. Associations between proactive aggression and ODD problems at high & low levels of permissive parenting for older children.

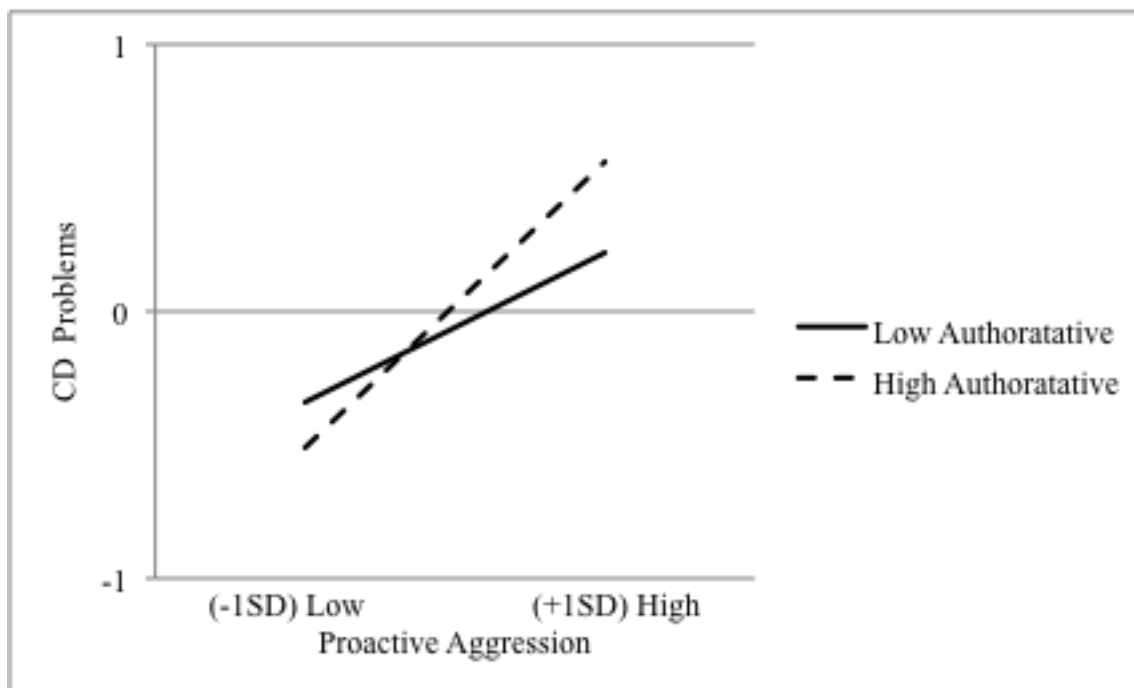


Figure 7a. Association between proactive aggression and CD problems at high and low levels of authoritative parenting for males.

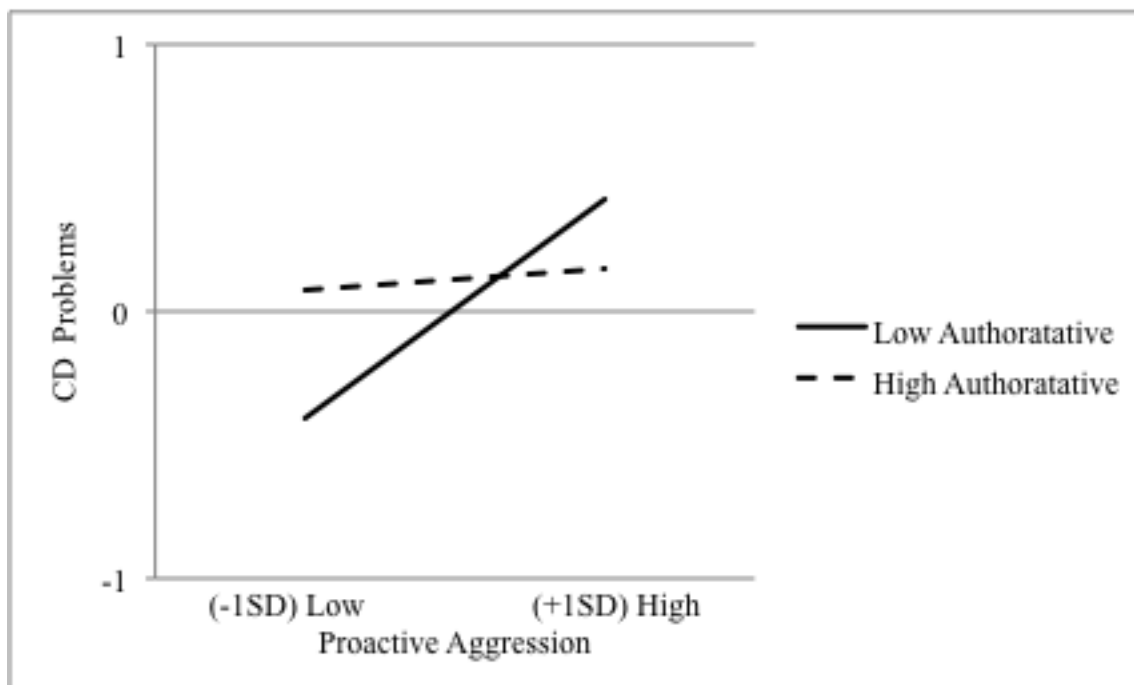


Figure 7b. Association between proactive aggression and CD problems at high and low levels of authoritative parenting for females.

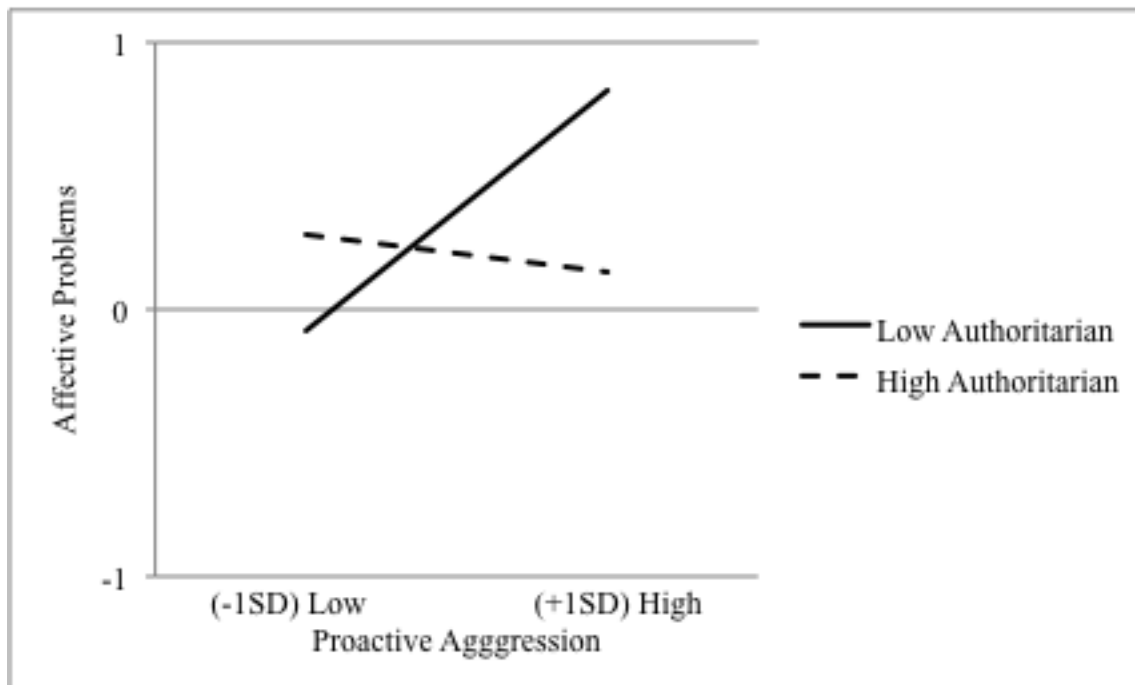


Figure 8a. Associations between proactive aggression & affective problems at high & low levels of authoritarian parenting for Caucasian children.

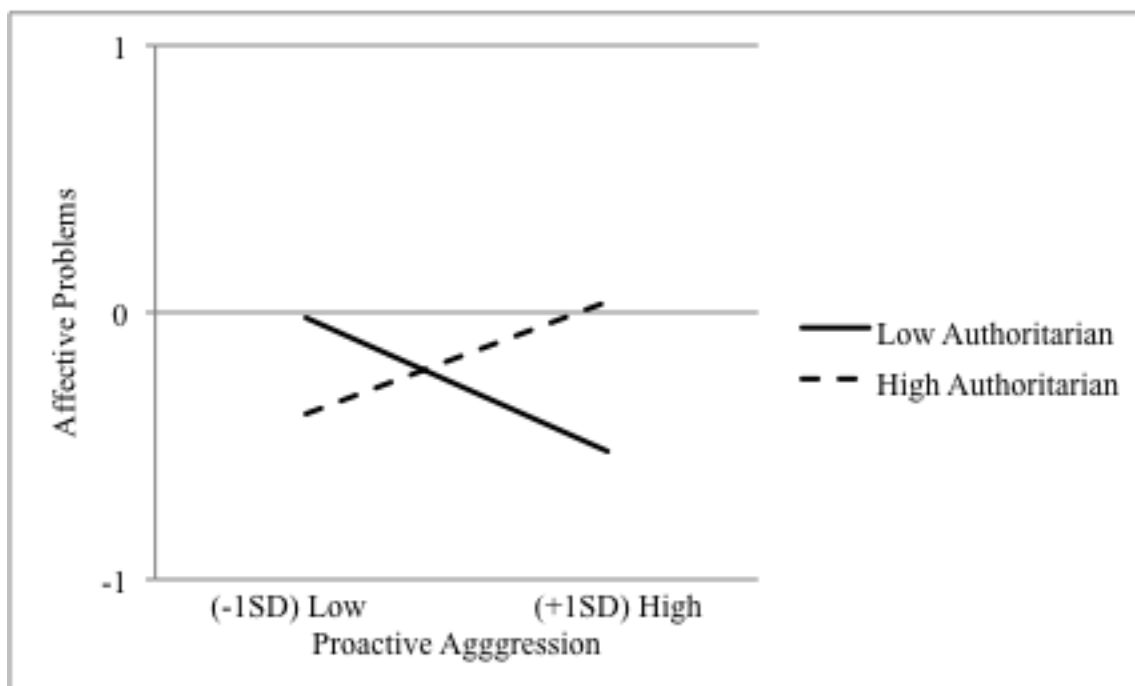


Figure 8b. Associations between proactive aggression & affective problems at high & low levels of authoritarian parenting for African American children.

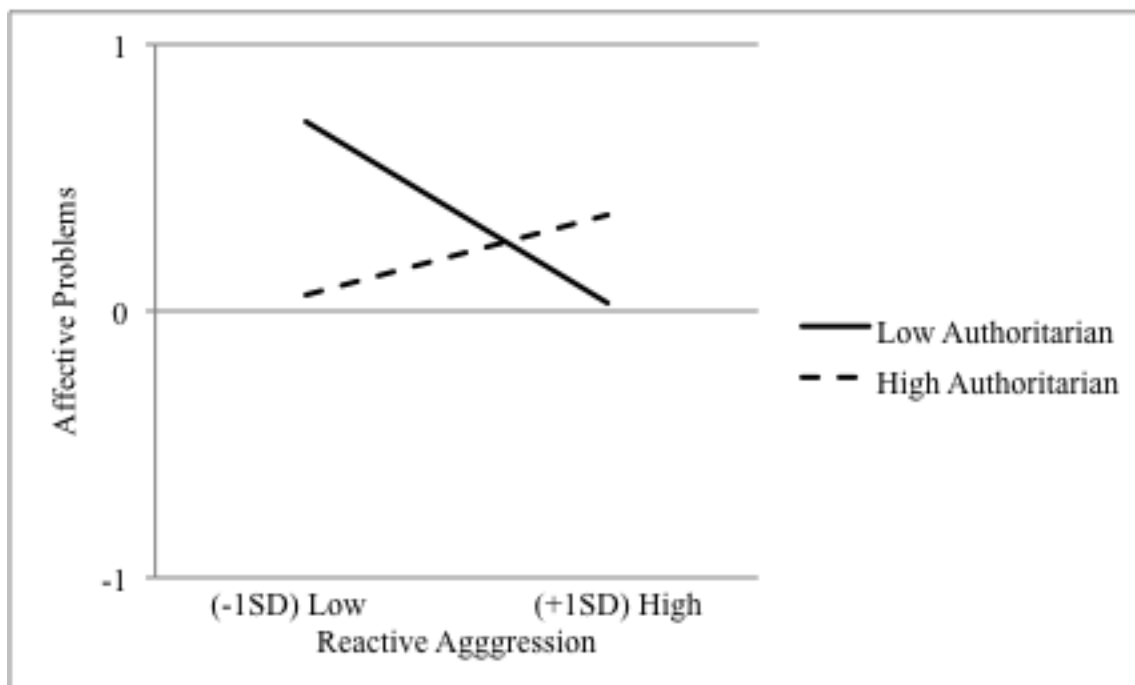


Figure 9a. Associations between reactive aggression & affective problems at high & low levels of authoritarian parenting for Caucasian children.

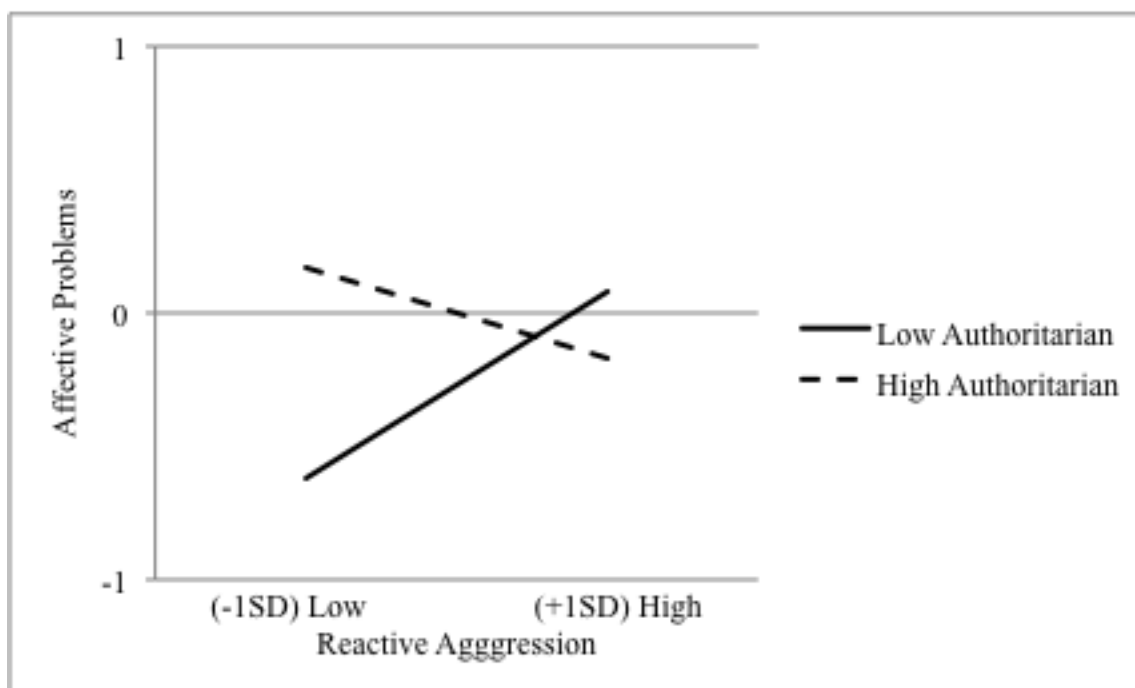


Figure 9b. Associations between reactive aggression & affective problems at high & low levels of authoritarian parenting for African American children.

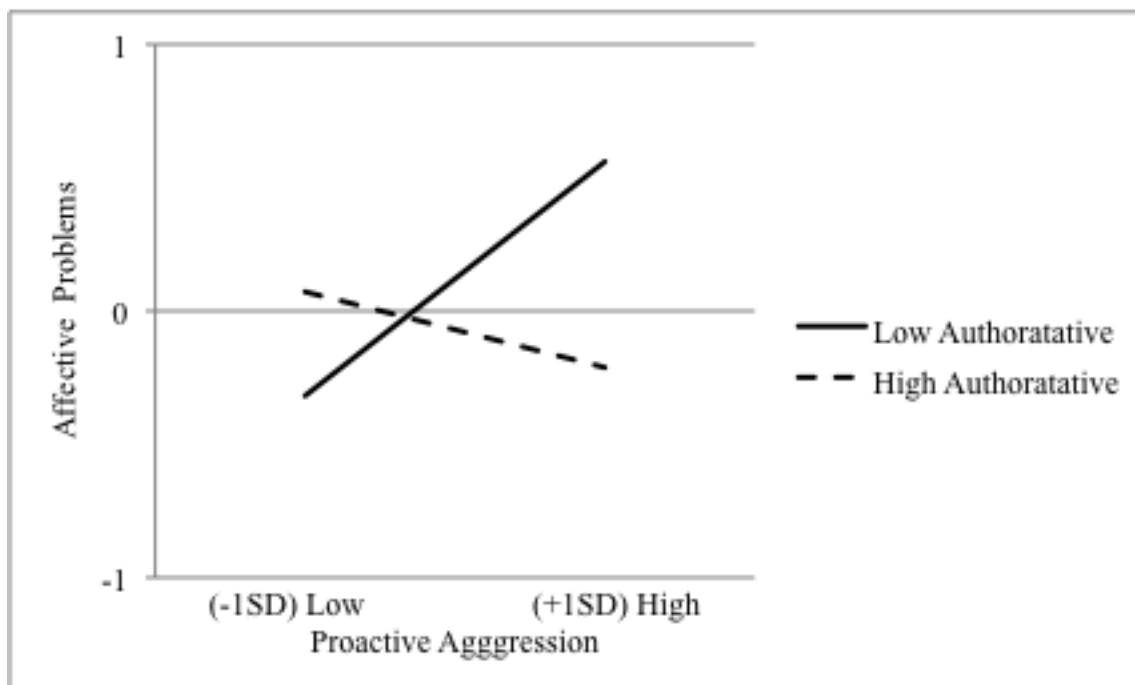


Figure 10. Associations between proactive aggression & affective problems at high & low levels of authoritative parenting for younger children.

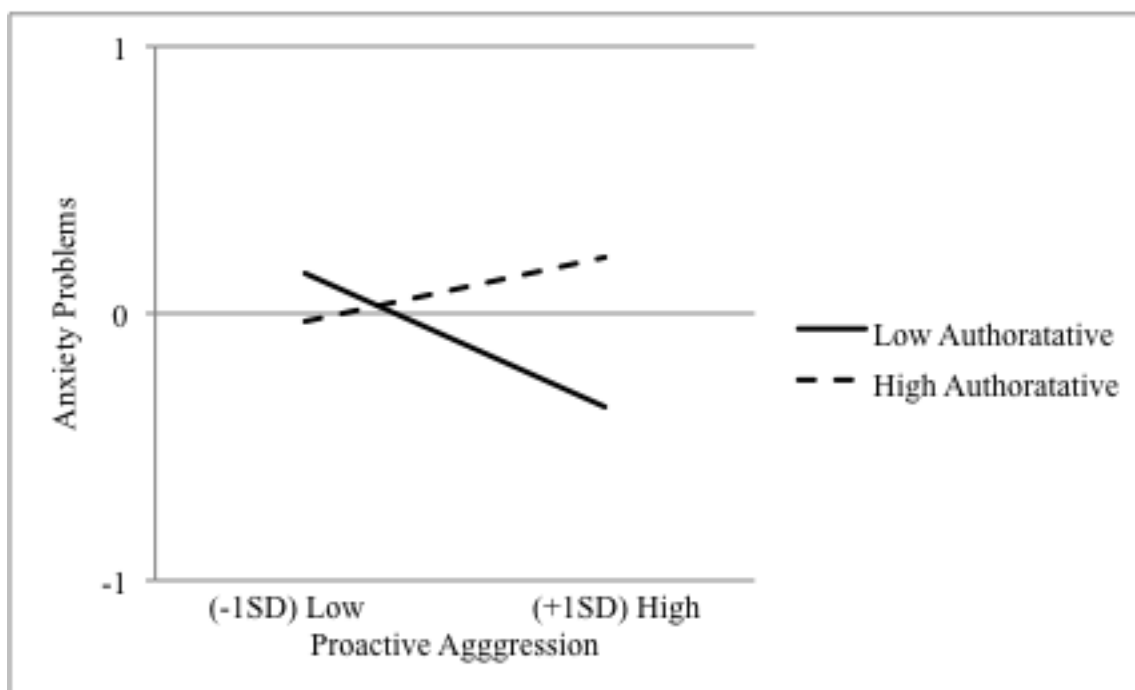


Figure 11. Associations between proactive aggression & anxiety problems at high & low levels of authoritative parenting for males.

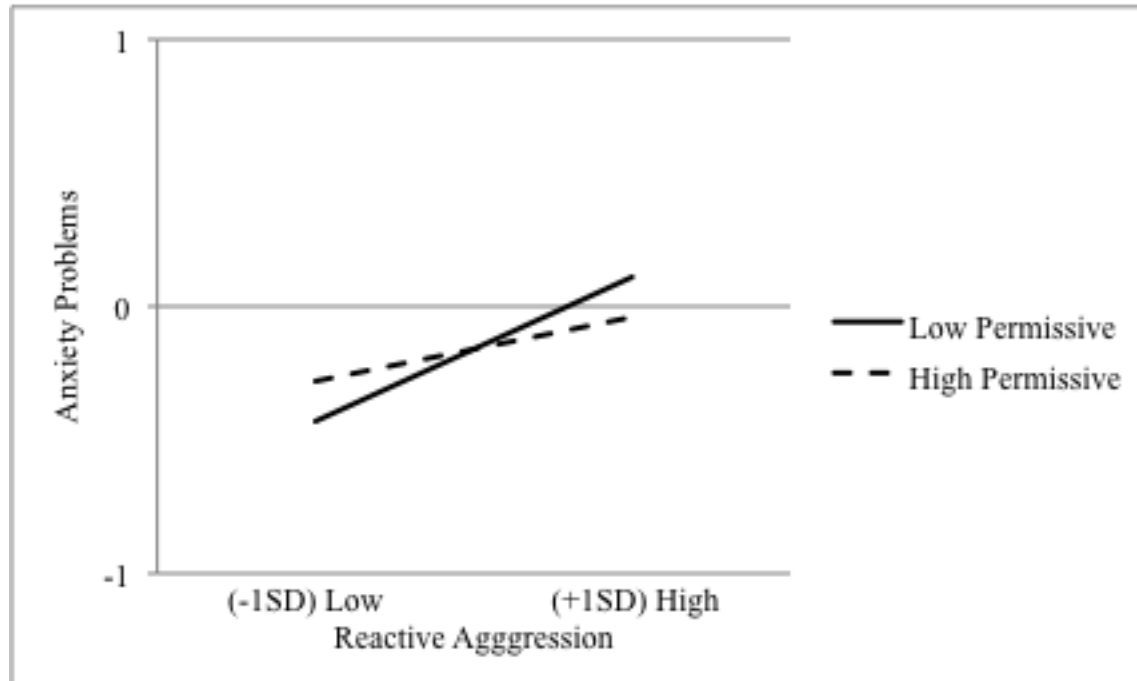


Figure 12. Associations between reactive aggression & anxiety problems at high & low levels of permissive parenting for African American.

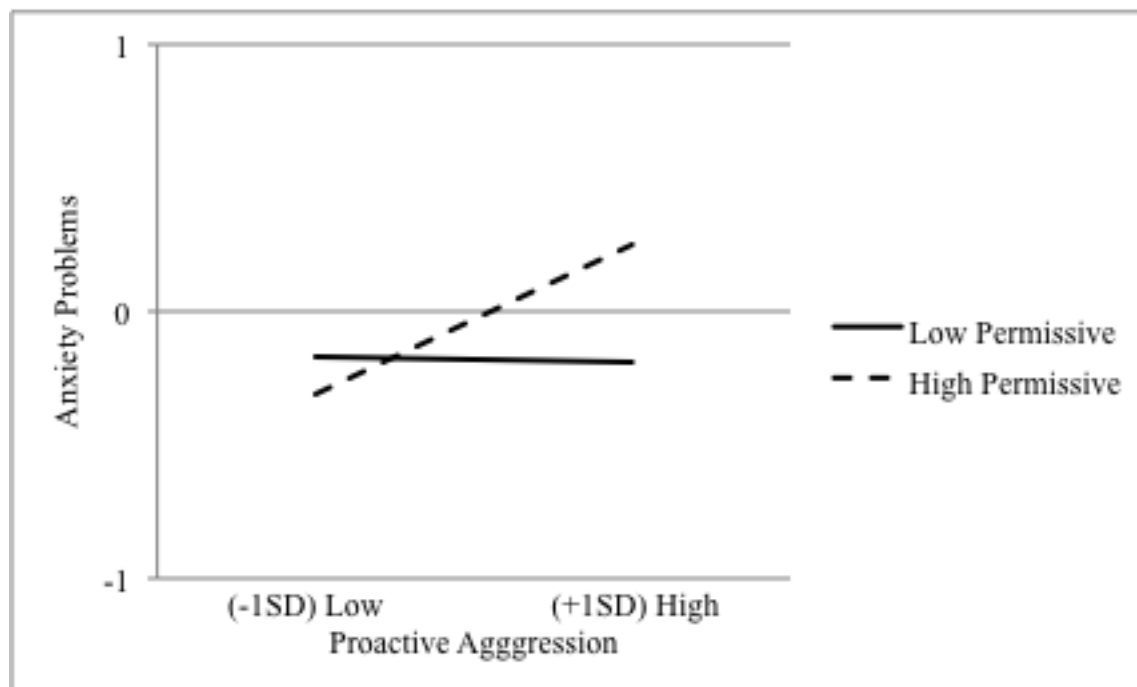


Figure 13. Associations between proactive aggression & anxiety problems at high & low levels of permissive parenting for older children.

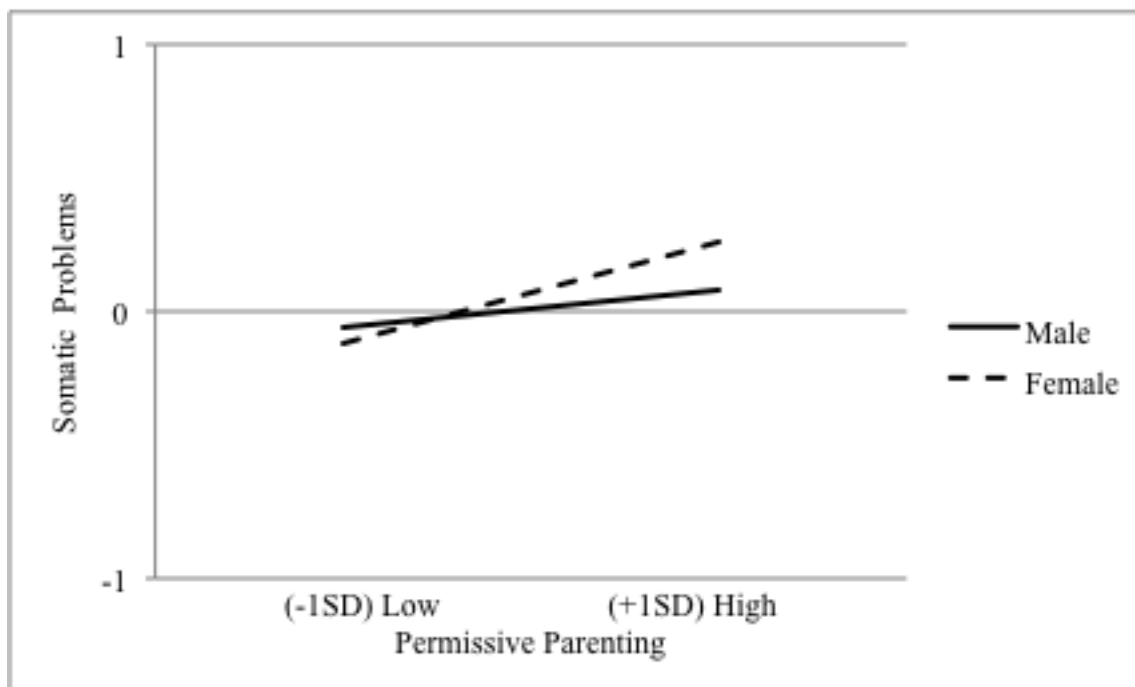


Figure 14. Associations between permissive parenting at high and low levels and somatic problems for males and females.

Proactive and Reactive Aggression
Dodge & Coie (1987)

For the following questions, please respond by using the following scale:

1	2	3	4	5
Never	Very Rarely	Sometimes	Often	Almost Always

1. When my child has been teased or threatened, he/she gets angry easily and strikes back.
2. My child always claims that other children are to blame in a fight and feels that they started the trouble.
3. When someone accidentally hurts my child (such as bumping into him/her), s/he assumes that the peer meant to do it and then reacts with anger/fighting.
4. My child gets other kids to gang up on somebody that s/he does not like.
5. My child uses physical force (or threatens to use physical force) in order to dominate other kids.
6. My child threatens or bullies others in order to get his/her own way.

Parental Authority Questionnaire-Revised (PAQ-R; Reitman et al., 2001)

Parent Name: _____ Child's Name: _____ Child Age: _____ Child Gender: _____
male/female

PAQ-R Instructions: For each statement below circle the number that best describes your beliefs about parenting you child. There are no right or wrong answers. We are looking for your overall impression regarding each statement. In the right column, please CIRCLE your answer for each item: SA = Strongly Agree; A = Agree; N = Neither Agree nor Disagree; D = Disagree; SD = Strongly Disagree.

1. In a well-run home children should have their way as often as parents do.
2. It is for my children's own good to require them to do what I think is right, even if they don't agree.
3. When I ask my children to do something, I expect it to be done immediately without questions.
4. Once family rules have been made, I discuss the reasons for the rules with my children.
5. I always encourage discussion when my children feel family rules and restrictions are unfair.
6. Children need to be free to make their own decisions about activities, even if this disagrees with what a parent might want to do.
7. I do not allow my children to question the decisions I make.
8. I direct the activities and decisions of my children by talking with them and using rewards and punishments.
9. Other parents should use more force to get their children to behave.
10. My children do not need to obey the rules simply because people in authority have told them to
11. My children know what I expect from them, but feel free to talk with me if they feel my expectations are unfair.
12. Smart parents should teach their children early exactly who is the boss in the family.
13. I usually don't set firm guidelines for my children's behavior.
14. Most of the time I do what my children want when making family decisions.
15. I tell my children what they should do, but explain why I want them to do it.
16. I get very upset if my children try to disagree with me.
17. Most problems in society would be solved if parents would let their children choose their activities, make their own decisions, and follow their own desires when growing up.
18. I let my children know what behavior is expected and if they don't follow the rules they get punished.
19. I allow my children to decide most things for themselves without a lot of help from me.
20. I listen to my children when making decisions, but I do not decide something simply because my children want it.
21. I do not think of myself as responsible for telling my children what to do.
22. I have clear standards of behavior for my children, but I am willing to change these standards to meet the needs of the child.

23. I expect my child to follow my directions, but I am always willing to listen to their concerns and discuss the rules with them.
24. I allow my children to form their own opinions about family matters and let them make their own decisions about those matters.
25. Most problems in society could be solved if parents were stricter when their children disobey.
26. I often tell my children exactly what I want them to do and how I expect them to do it.
27. I set firm guidelines for my children but am understanding when they disagree with me.
28. I do not direct the behaviors, activities or desires of my children.

Child Behavior Checklist (CBCL)
Achenbach and Rescorla, 2001

Instructions: Below is a list of items that describe children and youths. For each item that describes your child now or within the past 6 months, please circle the 3 if the item is very true or often true of your child. Circle the 2 if the item is somewhat or sometimes true of your child. If the item is not true of your child, circle the 1. Please answer all the items as well as you can, even if some do not seem to apply to your child.

DSM-Oriented Scales

Affective Problems	Anxiety Problems	Somatic Problems
5. There is very little he/she enjoys	11. Clings to adults or too dependent	56a. Aches or pains (not stomach or headaches)
14. Cries a lot	29. Fears certain animals, situations, or places other than school (describe):	56b. Headaches
18. Deliberately harms self or attempts suicide	30. Fears going to school	56c. Nausea, feels sick
24. Doesn't eat well	45. Nervous, high strung, or tense	56d. Problems with eyes (not if corrected by glasses) (describe):
35. Feels worthless or inferior	50. Too fearful or anxious	56e. Rashes or other skin problems
52. Feels too guilty	112. Worries	56f. Stomach aches
54. Overtired without good reason		56g. Vomiting, throwing up
76. Sleeps less than most kids		
77. Sleeps more than most kids during day and/or night (describe):		
91. Talks about killing self		
100. Trouble sleeping (describe):		
102 Underactive, slow moving, or lacks energy		
103. Unhappy, sad, or depressed		
Attention Deficit Hyper	Oppositional Defiant	Conduct Problems
4. Fails to finish things he/she starts	3. Argues a lot	15. Cruel to animals
8. Can't concentrate, can't pay attention	22. Disobedient at home	16. Cruelty, bullying, or meanness to others
10. Can't sit still, restless, or hyperactive	23. Disobedient at school	21. Destroys things belonging to his/her family or others
41. Impulsive or acts without thinking	86. Stubborn, sullen, or irritable	28. Breaks rules at home, school or elsewhere
78. Inattentive or easily distracted	95. Temper tantrums or hot temper	37. Gets in many fights
93. Talks too much		39. Hangs around with others who get in trouble
104. Unusually loud		43. Lying or cheating
		72. Sets fires
		81. Steals at home
		82. Steals outside home
		90. Swearing or obscene language
		97. Threatens people
		101. Truancy, skips school
		106. Vandalism

Note: Item numbers refer to the items place on the full Child Behavior Checklist.

Vita

Jamie Rathert was born in a small town in southern Indiana. She graduated from Saint Mary's College in 2005 with a Bachelor of Arts Degree in Psychology. After several years working with incarcerated and underserved youth she was accepted into the Clinical Psychology Doctoral program at The University of Tennessee. She received a Master's degree in 2009 as part of her program requirements. Jamie completed her clinical internship at Mississippi State Hospital in Jackson Mississippi. Her French Bulldog Leonard is very grateful that his mother is finished with all of this studying.