MATERNAL, PATERNAL, & CHILD PREDICTORS OF EXTERNALIZING BEHAVIORS: PARENTAL EXTERNALIZING, PARENTING BEHAVIORS, AND CHILD SELF-REGULATION

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ABSTRACT


Amber Fitzpatrick

Predictors for externalizing behavior were investigated in a high-risk sample of males. Parental antisocial histories, parental behaviors and child self-regulation were considered in relation to boys’ externalizing problems during the transition to adolescence. Participants included 201 families (n = 105 with mom only data and n = 96 with dad and mom data). The males were between the ages of 10 and 12 from inner city Pittsburgh, Pennsylvania, and were part of a larger longitudinal study aimed at identifying risk factors for developing antisocial behavior. Multi-rater questionnaires were used to assess study constructs, along with observational measures of parental behaviors. There was no relationship between parental externalizing histories and subsequent child behaviors. There were significant contributions of parental antagonism and maternal regulatory support, as well as child regulation and boys’ prior externalizing to their subsequent externalizing problems. Findings confirm that parents’ exacerbation was associated with elevations in children’s behavior problems, while the child’s self-regulatory system was linked to fewer behavior problems. Overall, prior externalizing is the best predictor of future externalizing difficulties above and beyond parenting behaviors and self-regulation.
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CHAPTER 1

INTRODUCTION

For over 200 years, youth externalizing problems have been an important topic of social and academic concern (Capaldi & Shortt, 2003). Externalizing behaviors are characterized by “difficulties with attention, aggression, conduct, and under-socialization” (Koledin, 2005, p. 9), which negatively impact the child’s psychological development, social environment, and life course. The effects of externalizing behaviors can be felt far and wide, making this disorder one of continued public concern. Adolescents with externalizing behavior are more likely to become criminals in adulthood, to abuse drugs, to drop out of high school, to be unemployed, to remain in the low income bracket and be involved in physically and emotionally abusive relationships (Liu, 2004; Stienben et al., 2007). Consequently, externalizing behaviors affect not only the child’s development but also their family, school and society (Keiley, 2002; Mpofu & Crystal, 2001; Stienben et al., 2007). In 2001, Miller, Fisher and Cohen estimated the cost of juvenile violent crime in the Commonwealth of Pennsylvania to be 48.6 billion dollars in one year. Included in this cost are victim and perpetrator costs from probation, detention, juvenile treatment programs and incarceration in adult prisons. According to Welsh, Loeber, Stevens, Stouthamer-Loeber, Cohen, and Farrington (2008), The Children’s Safety Network Economics and Insurance Resource Center estimated that juvenile crimes cost the United States $158 billion a year. Included in this price tag are costs from assistance to juvenile offenders such as medical treatment and services to victims such as pain, suffering, and lost wages (Welsh et al., 2008). What is missing in this calculation is the cost of intervention programs, and the cost to the juvenile justice system, making this large monetary calculation inaccurate. Due to the enormous effects of externalizing problems on individual development and the costs to society it is crucial to identify predictors of externalizing
behavior in order to implement effective preventative interventions (Bell, 1986).

A great deal of research has been conducted in order to ascertain the prevalence of externalizing problems in children and adolescents. According to the 2006 Youth Risk Behavior Survey (YRBSS), behavioral and emotional difficulties are more common in males than females (12.3% vs. 10.9%) and are found twice as more likely in low income adolescents than higher income families (17.9% vs. 8.0%). In 2006, 35.5% of youth in grades 9 through 12 were in a physical altercation in the past year (Centers for Disease Control & Prevention, 2008). The KIDSCOUNT data book reports that in 2006, 92,854 youth were detained in juvenile facilities or were psychiatrically committed (Annie, 2008). In 2006, 43.7% of youth seeking mental health treatment sought help for depression, 26.8% sought help for breaking rules/acting out, 25.3% for home problems and 22.7% for school problems (Centers for Disease Control & Prevention, 2008). These alarming percentages only represent reported data; the families of many children with externalizing behaviors do not seek or receive professional help for their children’s problem behaviors.

It is important to note, however, that some engagement with externalizing behavior during adolescence is not atypical; youth on this “adolescent-limited” pathway of externalizing problems occasionally engage in low levels of delinquent acts during the teen years, but typically discontinue such antisocial behaviors by the emerging adult years (Moffitt, 2003). The long-term outlook is particularly grim for children whose externalizing behaviors emerge early, persist and worsen through the duration of childhood and adolescence. Individuals on this “early-starting” pathway are more likely to remain involved in antisocial lifestyles throughout adulthood, unless some sort of clinical or legal intervention changes their lives’ directions (Moffitt, 2003).

The various pathways toward externalizing behavior are shaped by a mix of antecedents
that contribute to the emergence and maintenance of maladaptive developmental trajectories. For example, prenatal and perinatal care and complications place children at higher risk for later externalizing problems (Arsenault, Tremblay, Boulerice, & Saucier, 2002; Beck & Shaw, 2005), and difficult child temperament and self-regulation have been identified as child characteristics that interact with quality of care to increase risk for persistent delinquency (Aguilar, Sroufe, Egeland, & Carlson, 2000; Rydell, Thorell, & Bohlin, 2007; Shaw, Gilliom, Ingoldsby, & Nagin, 2003; Silk, Steinberg, & Morris, 2003; Stieben et al., 2007). The quality of attachment has been identified as an important developmental task that must be established for healthy development. Those with insecure avoidant and disorganized attachment have been identified to be at risk for an early-starting externalizing pathway (Aguilar et al., 2000; Appleyard, Egeland, Manfred, & Sroufe, 2005). These risk factors are not generally shared by youth on the adolescent-limited trajectory (Moffitt, 2003; Moffitt & Caspi, 2001).

Social-relational antecedents have also been implicated in the development of externalizing problems. Parental personality characteristics and behaviors, such as limited regulatory skills, elevated hostility, and coercive parenting affect the way that parents interact with people in their world, specifically their children. Studies point to parental behavioral models as well as parenting practices (Button, Lau, Maughan, & Eley, 2007; Cui, Donnellan & Conger, 2007; Fite, Colder, Lochman, & Wells, 2006; Sharma & Sandhu, 2006; Snyder, Stoolmiller, & Wilson, 2003), both of which interact with child characteristics to influence the development of externalizing behaviors (Bradley, 2000; Eisenberg, Cumberland et al., 2001; Koledin, 2005; Lengua, 2003; Rydell, Berlin, & Bohlin, 2003). In short, the three-way interaction between negative parental characteristics, child characteristics and environmental influences create an environment conducive to the emergence of children’s externalizing problems.
Problem Statement

Although the body of research on externalizing problems is well-established and continues to grow, several questions remain unanswered regarding developmental antecedents of externalizing problems. First, it is unknown whether maternal or paternal parenting behaviors and parental externalizing problems are more influential in comparison to each other. Most research on maladaptive development has focused primarily on maternal influences or has failed to distinguish between paternal and maternal effects (Berlin, & Cassidy, 2003; Eisenberg, & Fabes, 1994; Eisenberg, Gershoff, Fabes, Shepard, Cumberland, Lasoya, et al., 2001; Shipman & Zeman, 2001; Silk, Shaw, Forbes, Lane, & Kovacs, 2006; Trentacosta & Shaw, 2008). Secondly, although the link between children’s self-regulation and externalizing problems is well established (Batum & Yagmurlu, 2007; Rydell, Thorell, & Bohlin, 2007; Silk, Steinberg, & Morris, 2003; Stieben et al., 2007; Valiente et al., 2004), more information is needed about how children’s self-regulatory abilities predict future externalizing behaviors above and beyond parental externalizing problems and parenting practices.

CHAPTER 2
REVIEW OF THE LITERATURE

Overview

Study Framework

The developmental psychopathology perspective is a widely used model for explaining the development of externalizing behavior. It is an evolving field that seeks to identify the relationship among biological, psychological and social constructs that attribute to normal and abnormal development. Normal development follows a path directed by complex interactions among genes, internal systems, and external systems at different levels. The course of development can take
individuals in multiple directions toward and away from psychopathology (Masten, 2006). When development is compromised by any of the above influences or interactions between factors, psychopathology develops, thus externalizing behaviors are one result of compromised development. Research on externalizing behavior from the developmental psychopathology perspective has revealed a number of biological and social antecedents, as well as instances in which biological and social factors interact. The following review will encompass the various antecedents of externalizing behavior.

**Biological antecedents.** A number of biological characteristics have emerged as risk factors for externalizing problems. Studies of genetics, hormones, androgen levels, and vagal tone all provide support for biological factors contributing to the development of externalizing behavior (Button, Scourfield, Martin, Purcell, & McGuffin, 2005; Caspi et al., 2002; El-Sheikh, 2005; Foley et al., 2004; Hastings & De, 2008; Maras et al., 2003; Raine, 2002). For example, cortisol levels in middle childhood have been found to fluctuate in response to negative life events (Booth, Carver, & Granger, 2000), and continued increases in cortisol levels are associated with high levels of anxiety, withdrawal, and low self-regulatory capabilities (Granger, Weisz, & Kauneckis, 1994; Granger, Weisz, McCracken, Ikeda, & Douglas, 1996). Researchers are now able to support the notion that biology and environment interact in a circular effect, meaning that environment affects hormone production, which in turn affects behavioral genes, which in turn affects how individuals create and react to their environment (Booth, Carver, & Granger, 2000). Vagal tone is another biological substrate that reacts with external stimuli and is associated with temperament and self regulation (Porges, 1991, 1995; Santucci, Silk, Shaw, Gentzler, Fox, & Kovacs, 2008). Cardiac vagal tone is an index of the parasympathetic nervous system, measured by heart rate and frequency of breathing (respiratory sinus arrhythmia, or RSA; Porges, 1991, 1992, 1994, 1995).
Porges’ (1991, 1995) model states that the development of the parasympathetic nervous system plays an important role in the development of regulation. High cardiac vagal tone in toddlers has been found to be associated with meeting strangers, high activity level and lower levels of aggression (Calkins & Dedmon, 2000). High cardiac vagal tone in young boys has found to be related to greater levels of empathy, social competence, and emotion regulation (Santucci, et al., 2008). Beyond genetics, hormone levels, and cardiac vagal tone, and other biologically-linked risk factors have been associated with the development of externalizing difficulties in a number of investigations from the developmental psychopathology perspective.

Another vital biologically-based antecedent is temperament. Temperament is defined as individual differences in emotional, motor, and attentional reactivity measured by intensity, recovery of response and self-regulation (Rothbart & Derryberry, 1981; as cited in Rothbart, 2007). Difficult temperament is described as high levels of impulsivity, activity, and sensation seeking; negative affectivity, including fear, frustration, sadness, and discomfort; and effortful control, including difficulty with attentional focusing and shifting, inhibitory control, perceptual sensitivity, and low-intensity pleasure. These have all been linked to the development of externalizing behavior (Center & Kemp, 2003; Eysenck, 1995; Rothbart, 2004; Rothbart, 2007). This link is often observed through the child’s inability to self-regulate emotion and behavior. Emotion regulation is described by Thompson (1994) as ”the extrinsic and intrinsic processes responsible for monitoring, evaluating, and modifying emotional reactions, especially their intensive and temporal features to accomplish one’s goal” (pp. 27-28). Thus, the ability to regulate emotions and behavior is influenced by temperament, and consequently, some children may be at a biological disadvantage to developing maladaptive behaviors. Research in developmental psychopathology has found evidence that supports emotion regulation as a factor that contributes
to the development of externalizing behaviors (Keller, 2008; Eisenberg & Valiente, 2004; Eisenberg, Loyosa, et al., 2001; Morris, Silk, Steinberg, Myers, & Robinson, 2007). This link will be described in more detail later in this review.

Social antecedents. In terms of social influences, there is ample evidence for the influence of parenting styles and parental behaviors and practices on the development and sustainment of externalizing behaviors (Aunola & Nurmi, 2005; Galambos, Barker, & Almeida, 2003; Pettit, Laird, Dodge, Bates, & Criss, 2001; Steinberg, 2001; Wood, McLeod, Sigman, Hwang, & Chu, 2003). Poor parenting practices such as low warmth, hostility, poor emotion coaching, and harsh discipline elicit maladaptive responses from children (Button, et al., 2008; Fite, et al., 2006; Morris, Silk, Steinberg, Myers, & Robinson, 2007). Parental modeling is also an important behavior to consider when dissecting the development of externalizing behaviors, as children not only learn through direct contact with parents but also through watching how parents interact with others in their environment (Harold & Conger, 1997; Dogan, Conger, Kim, & Masyn, 2007; Scaramella, Neppl, Ontai, & Conger, 2008). Parental drinking, parental externalizing behavior, and marital quality (Cui, Conger, & Donnellan, 2007; Johnson, Smailes, Cohen, Kasen, & Brook, 2004) have all been found to impact the development of offspring externalizing behavior. Researchers have also investigated such social influences as neighborhood violence, parental history of externalizing behavior, parental imprisonment and socioeconomic status (Fitzgerald, McKelvey, Schiffman, & Montanez, 2006; Johnson, Smailes, Cohen, Kasen, & Brook, 2004; Kinner, Alati, Najman, & Williams, 2007; Scaramella, Neppl, Ontai, & Conger, 2008) as contributors to the development of externalizing behaviors. Overall, the body of existing research supports the multi-directional ways that the distal and proximal environment impacts children’s behavioral development.
Interactions between biological and social antecedents. As stated previously, research melding the fields of biology and environment has revealed interactive effects on children’s externalizing problems. Studies on genetics suggest that genes are either reactive or active, meaning that reactive genes influence the way that parents and others react to behavior, while active genes influence behaviors that cause the creation of environments that in turn affect behavior (Booth, Carver, & Grander, 2000). It is important to note that temperament is a biologically-based trait that is influenced by external experiences (Rothbart, 2004). Child temperament is thought to mediate the effects of parenting on child externalizing behavior, as well as moderate the relations between negative parenting and child externalizing behavior. Specifically, children with difficult temperaments often elicit a more negative style of parenting, and this quality of care influences the child’s temperament and self regulatory abilities. Negative parenting and difficult temperament in childhood interact with each other (Center & Kemp, 2003; Eyesenk, 1995; Harald & Mathiesen, 2008; Koledin, 2005; Morris, Silk, Sessa, Avenevoli, & Essex, 2002; Van Zeijl, et al., 2007): Infants with difficult temperaments display high levels of behaviors such as fussiness, negative affect, and high activity level can be inconsolable and hard to handle. Parents who are not responsive to their infant or react in harsh and abusive ways, do not meet the infant’s needs of nurturance and stability (Aguilar et al., 2000; Shaw, Bell & Gilliom, 2000). This pattern of interaction reinforces difficult temperamental characteristics by creating biological reactions as well as resulting in insecure attachment, which continues to support coercive reciprocal interactions between parent and child (Shaw, Bell, & Gilliom, 2000). In other words, temperamental traits are genetic and are nurtured through parenting and other external influences. These traits also elicit certain parental reactions, thus perpetuating the negative cycle and creating environments that support the development of maladaptive behaviors.
The Theoretical Model

The focus of this study is on parental externalizing history, parenting behaviors and child emotion regulation as predictors of externalizing behavior. The current study is guided by Morris and colleagues’ (2007) tripartite model of the impact of the family on children’s emotion regulation and adjustment, which specifies the interactions between parental externalizing and future childhood externalizing behavior, dysregulated parenting and future childhood externalizing behavior and childhood emotion regulation and future externalizing behavior (see Figure 1).

Morris and colleagues (2007) proposed that the family context affects the development of emotion regulation and adjustment in five ways: observation, parenting practices and behaviors, parent and child characteristics and the emotional climate of the family. The current investigation focuses on three elements of this model, specifically parent characteristics, parenting practices, and the child’s emotion regulation. Parental characteristics include the parent’s own beliefs about emotion, their own parent-child relationship and attachment, and their ability to control their emotions. Parenting practices include parental behaviors such as warmth, hostility and control. In other words, parental characteristics influence what the child is exposed to, while parenting practices set the tone of the emotional climate of the family and influence the child’s temperament (i.e., emotion regulation) and behavior (i.e., externalizing problems). Both of these things affect how a parent socializes emotion and the way parents interact with their children to create the family environment. In addition, the ability of the child to regulate his emotions plays an important role in the development of externalizing behaviors and moderates the effects of the family environment (Morris et al., 2007).

The literature supporting the maladaptive development of externalizing behavior is immense, thus the remainder of this literature review will focus on parental practices, child self-
regulation, and parental history of externalizing behavior. Special emphasis is placed on what is known about mothers but not fathers, and what is known about the father’s characteristics that may affect the development of externalizing behavior.

**Parenting Practices**

Parental influence is often considered one of the most important ways to socialize children. Parenting is “the rearing of a child or children, especially the care, love, and guidance given by a parent” (Pickett et al., 2000). Things such as punishment, displays of anger, inconsistency in rules, the level of involvement, and affection displayed toward child, as well as use of psychological control, behavioral control, communication style, warmth, and modeling emotions are all parenting behaviors (Johnson et al., 2004). Much research has explored the impact of the family environment and parents’ behaviors on children’s emotions and problem behaviors (Grolnick & Farkas, 2002). This literature supports several conclusions on the aspects of parenting that are beneficial or harmful to children’s behavioral development. For example, harsh parenting and psychological control have been consistently associated with conduct problems in childhood and adolescence (Aunola & Nurmi, 2005; Barber & Harmon, 2001; Stolz, Barber, & Olsen, 2005; Barber, Stolz, Olsen, & Maughan, 2005; Galambos et al., 2003; Trentacosta & Shaw, 2008). Sharma and Sandhu (2006) have found that parental actions such as warmth, supervision, enforcement of family rules, clear consequences, and a democratic viewpoint are all associated with low levels of externalizing behavior, while low levels of warmth, poor supervision, low rules, no consequences, and harsh punitive parenting are all associated with higher levels of externalizing behavior.

Due to the enormous variety of parenting behaviors considered in the literature on externalizing problems, the focal parenting dimensions of this literature review are psychological control, warmth, behavioral control, and hostility. These aspects of parenting overlap with the
dimensions of parental regulatory support and antagonism, which are the parenting behaviors considered in this study. Parental regulatory support is a close cousin to parental warmth or acceptance (Baumrind, 1991). Parental regulatory support is conceptualized as actions that will help reduce a child’s negative affect or will support positive behavior, including parental behaviors such as clear communication, engagement and responsiveness, and showing empathy. In contrast, parental antagonism is viewed as akin to psychological control (Barber & Harmon, 2001). This dimension includes parental behaviors that will increase a child’s negative affect, including rejecting or verbally berating the child, giving commands, or using guilt to control the child.

*Maternal behaviors.* Mothers have been the targets of research on the development of childhood adjustment since the practice began, most likely due to mothers overwhelmingly being children’s primary caregivers (Bond, Thompson, Galinsky, & Prottas, 2002). Current research has focused on maternal parenting practices and has identified numerous behaviors that have adverse effects on children’s development of empathy, self-regulation and eventually externalizing behaviors (Eisenberg, Losoya, et al., 2001; Fite, Colder, Lochman, & Wells, 2006; Morris et al., 2002; Santucci, Silk, Shaw, Gentzler, Fox, & Kovacs, 2008; Valiente et al., 2004). Maternal hostility and psychological control have been identified as two important components in negative parenting that have direct adverse effects on child development (Galambos, Barker, & Almeida, 2003; Morris et al., 2002). Maternal warmth has also been identified as a behavior that can either protect the child from effects of negative parenting or when low, can exacerbate the effects of negative parenting (Karavasilis, Doyle, & Markiewicz, 2003; Sharma & Sandhu, 2006).

In Johnson and colleagues’ (2004) longitudinal study, they identified several maternal and paternal behaviors associated with the development of offspring’s externalizing problems. The maternal behaviors included inconsistent enforcement of rules, low amount of time spent with
child, low levels of affection, poor control of anger, relational hostility, and poor communication skills. Sharma and Sandhu (2006) also found that maternal hostility, punitive discipline, coercion and indulgence led to higher externalizing problems among boys. This is particularly relevant for current study, which focuses on the associations between parental behavior and sons’ externalizing behavior.

Aunola and Nurmi (2005) investigated what combination of mothers’ affection, behavioral control, and psychological control as well as fathers’ affection, behavioral control, and psychological control would have the most influence on the development of internalizing and externalizing problem behaviors from kindergarten through first grade. Their findings yielded surprising results: High levels of maternal psychological control combined with high affection predicted increases in children’s internalizing and externalizing problems during transition from kindergarten to primary school. This combination of psychological control and affection was somewhat surprising: Affection and warmth have been found to attribute to positive adjustment (Grolnick & Farkas, 2002; Wachs, 2000), while psychological control has been found to increase internalizing behavior (Pettit et al., 2001; Wolfradt, Hempel, & Miles, 2003). Affection combined with guilt-induction and manipulative psychological control may send inconsistent messages of approval and love, which may provoke anxiety and diminish the child’s sense of control (Chorpita & Barlow, 1998), leading to undercontrolled behavior (Olsen et al., 2002; Yang et al., 2004). In contrast, children’s externalizing behaviors decreased when their mothers reported showing low levels of affection in conjunction with high levels of psychological control. For children who consistently receive low levels of warmth, the experience of high levels of psychological control may or may not provoke high levels of negative affect. If children experience highly negative emotions, they may fully internalize their negative feelings while obeying parental directives in
order to preserve or improve the parent-child relationship. In regards to behavioral control, Aunola and Nurmi (2005) found high levels of maternal behavioral control combined with low levels of psychological control predicted decreases in levels of children’s externalizing problems. This may be because the combination allows for parenting patterns that provide clear rules on expected behavior, but also allows the child to express emotions and thoughts freely (Hart et al., 2003). When combined with high levels of psychological control, high behavioral control had no impact. This may be due to the combination of them both resulting in parental “over-management” (Pettit et al., 2001), which intrudes on the child’s development of autonomy and self regulation. In regards to maternal affection, no interaction was found between affection and behavioral control in predicting children’s problem behaviors. This finding supports that of Galambos et al. (2003) but contradicts current thought about affection and behavioral control. Although, the study lends support to previous studies that show maternal behavioral control is effective in reducing children’s externalizing behaviors (Galambos, 2003; Pettit et al., 2001), the results suggest that psychological control in combination with affection or behavioral control is a better predictor of child adjustment in regards to maternal behavior (see also Aunola & Nurmi, 2004).

In an attempt to understand rejecting parenting behaviors described as hostile, negative, and controlling, Trentacosta and Shaw (2008) investigated maternal aggressive personality and empathy. These two psychological characteristics are theoretically linked to rejecting parenting and each were found to each play a unique role in explaining observed parenting behavior. Aggressive personality was found to contribute to more youth antisocial behavior both directly and indirectly, through rejecting parenting. Low levels of empathy were found to contribute to more youth antisocial behavior indirectly through rejecting parenting. Trentacosta and Shaw (2008) found that along with maternal empathy and aggressive personality, toddler temperament also
predicted rejecting parenting. Rejecting parenting was also found to predict antisocial behavior during early adolescence. Frequent displays of anger and aggression, and lack of empathy each contributed independently to negative parenting. This supports the models of Belsky (1984) and Dix (1991), who posit there are multiple, unique predictors of rejecting parenting.

In sum, there are several maternal behaviors that are counterproductive to healthy development. Mothers who display qualities such as negativity, hostility, low empathy, and poor self regulation engage in parenting behaviors that are negative. The result of internal attributes combined with external stressors result in a mix of parenting practices that negate healthy interaction. Psychological control, low involvement, inconsistent discipline, coercion, and low warmth have consistently been found to impede children’s development resulting in maladaptive development.

**Paternal behaviors.** Research on fathers’ parenting behavior is severely lacking. Researchers have been quick to over generalize maternal effects as broad parental effects; this leaves a large hole in the developmental psychopathological explanations of maladaptive development. Some researchers feel that men and women are biologically designed to parent differently, and that fathers are fundamentally different yet complementary (Day & Mackey, 1989; Stolz, Barber, & Olsen, 2005). Many studies from the 1990s that have investigated the father, explored patterns as well as causes and consequences of varied forms of father involvement, financial support, visitation, and one on one engagement (see Pleck, 1997, for a review). These are not the same behaviors that have been studied for maternal impact. While the same negative parenting dimensions should apply to fathers as well, their impact on children when displayed by the fathers has not been clearly identified.

Although research on the role of fathers is minimal, there have been some inquiries into
this area. In Johnson and colleagues’ (2004) longitudinal study they identified several paternal parenting behaviors that are associated with children’s development of externalizing behaviors. They found that low affection toward the child, poor communication with the child, low involvement, relational hostility, and poor supervision effect children’s psychological development. Aunola and Nurmi’s (2005) study indicated that fathers’ histories only played a marginal role in regards to affection, psychological control and behavioral control. Due to the small number of fathers who participated in the study, they performed simulation analyses to further explore this result. The results showed when the sample of fathers was made equal in size to the sample of mothers, that fathers’ high psychological control predicted an increase in children’s externalizing behavior. No other effects emerged for affection or behavioral control.

Other studies have provided support for the impact of fathers’ negative parental behavior. Verlaan and Schwartzman (2002) found that fathers’ coercive-rejecting parenting was positively associated with sons’ but not daughters’ externalizing behaviors. This finding is particularly relevant for the current study, which focuses on associations between parental behavior and sons’ externalizing problems. Allen and colleagues also found that fathers’ hostility has negative ramifications on child development (Allen, Hauser, O’Conner, & Bell, 2002).

A clear trend in research on fathers is that their level of involvement is important in psychosocial development of children (Flouri & Buchanan, 2002; Johnson et al., 2004), and academic achievement (Williams & Radin, 1993). Williams and Kelly (2005) have found that father-adolescent attachment and paternal involvement explained a unique portion of the variance in adolescent externalizing behaviors, meaning that father involvement and attachment contribute more than previously thought to adolescent externalizing behaviors. For example, Verscheuern and Marcoen (1999) found that the quality of children’s functioning in a group and the way children
explore the world outside of family primarily depended on the quality of attachment toward the father.

Overall, fathers’ use of coercive, rejecting parenting appears to have a bigger impact on sons than daughters, although, their lack of involvement and low warmth is just as detrimental to their daughters as sons (Bronte-Tinkew, Moore, & Carrano, 2006). Current evidence suggests the presence of fathers has an impact; this impact is contingent upon the quality of father involvement and behaviors displayed (Williams & Kelly, 2005; Bronte-Tinkew et al., 2006).

Maternal and paternal parenting in comparison. While some researchers posit that maternal styles and paternal styles closely resemble each other (Lewis & Lamb, 2003; Russell & Saebel, 1997), other researchers have found distinct patterns of interaction, with fathers being more consistently involved in play instead of caretaking (Belsky, 1979; Clarke-Stewart, 1978; Hart, 2003). Despite the differences found, most researchers agree that differences in parenting are few. However, the impact that each has on development is less known, as few researchers have compared the impact of mothers and fathers behaviors simultaneously.

Johnson and colleagues (2004) helped fill that void with their longitudinal study in which they identified crucial parental behaviors that impact the development of externalizing behavior in children. They found that regardless of parent gender, low levels of affection toward the child, relational hostility, and poor communication skills, spending low amounts of time with the child, and providing poor supervision affect child development in negative ways. While this indicates that there are certain parental behaviors that can be applicable to both genders in regards to having negative impact on child, this does not negate gender’s influence on parenting, as Johnson and colleagues (2004) also identified a subset of parenting behaviors that were gender specific. For example, for mothers, harsh punishment of child, possessiveness toward the child, use of guilt, and
verbal abuse of the child was not significant for fathers, while only low assistance to the mother and poor fulfillment of the paternal role was significant for fathers. This does not mean that the maternal behaviors do not apply to fathers, in this study the fathers may not have engaged in enough of those behaviors to make them significant. With research supporting the reality that mothers’ still take primary responsibility for childrearing (Bond et al., 2002) it seems logical that mothers would have a bigger impact when utilizing parenting techniques such as harsh discipline, guilt and verbal abuse.

Another study that sought to disentangle the roles of mothers and fathers looked at behavioral control, psychological control, and parental support (Stolz, Barber, & Olsen, 2005). This study identified the ways that certain maternal and paternal behaviors impact certain areas of child development pertaining to adolescent years. They found differential effects of mothers and fathers in several areas. First, in regards to behavioral control, mothers’ awareness of friends, and where money and time is spent has bigger impact on sons’ externalizing behavior than the father. Overall, the more involved the mom, the less externalizing behavior sons displayed. Fathers’ and mothers’ psychological control predicted both sons’ and daughters’ depression (Stolz, Barber, & Olsen, 2005). In regards to support, Stolz and colleagues’ (2005) defined parental support as the amount of warmth and nurturance provided. The children were asked about their perceptions of being emotionally supported by their parents. While showing positive affect and spending time with children is important regardless of parental gender, this study found that the father’s support dominated all other predictors in explaining both sons’ and daughters’ social initiative. In other words, children whose fathers support them emotionally are more likely to show initiative in engaging in prosocial behaviors. Most noteworthy is the finding of parental support: Children feeling as if their fathers genuinely care about them has a large impact on sons’ and daughter’s
prosocial behavior.

In general, this literature shows similar links to child well-being in regards to the same behaviors by fathers and mothers, but also some differences. Advances need to be made to clarify which parental behaviors play what role in the development of children’s externalizing problems.

**Parental Characteristics**

Parental characteristics that influence child development through indirect contact are things such as emotional expressiveness, history of externalizing behavior, marital hostility, parental imprisonment, mental illness, and substance use (Eisenberg, Losoya, et al., 2001; Johnson et al., 2004; Valiente et al., 2004; Kinner, Alati, Najman, & Williams, 2007). In general, parental characteristics are influenced by their genes and the environment, and the interplay between one another determines multiple trajectories for maladaptive development. These genetic/environment concoctions are displayed in many different ways, and can have direct and indirect effects on the development of children’s behavioral problems. This review will focus specifically on parental history of externalizing behavior.

Parents who are poorly regulated are prone to engage in behaviors that are lower in quality and are more negative. Thus, parental self-regulation may have an indirect impact on children’s effortful control and problem behaviors through their parenting practices and engagement with others (Cumberland-Li, Eisenberg, Champion, Gershoff, Fabes, & Shepard, 2003). For example, when parents directly model positive or negative emotions, children observe these expressions and regard them as an appropriate reaction to stimuli or become avoidant of showing such emotion (Eisenberg, Gershoff, et al., 2001). One path of influence is through the child’s perception or awareness of parental behavior. As stated earlier, parents often socialize emotion through modeling (Morris et al., 2007). Children perceive these displays of emotion and behavior in their own unique
ways that is dependent upon their schemas and cognitive skills. These perceptions may play a major role in the effects of parent antisocial behavior on child adjustment (Dogan et al., 2007). Children may view these behaviors as acceptable and seek to engage in them themselves.

Another more direct pathway is through genes. Several researchers have found evidence for a highly heritable factor that underlies externalizing psychopathology through disinhibition (Kendler, Prescott, Myers, & Neale, 2003; Krueger, 2002; McGue & Iacona, 2005). Studies on adolescents and children show that the genetic effects could vary from nothing to at most three-fourths of the variance in antisocial behavior (see Rhee & Waldman, 2002, for a review). In contrast, other studies have found at least moderate effect sizes for shared environmental influences (Rhee & Whaldman, 2002; Rose, Dick, Viken, Pulkkinen, & Kaprio, 2001). Overall, the genetic transmission of antisocial behavior has been found to be influenced by environmental circumstances (Raine, 1993, 2002). This genetic environmental difference is also contingent upon definition of antisocial behavior, method of measuring behavior, and age at which it is studied (Rhee & Waldman, 2002). McGue, Iacona, and Krueger (2006) found that genetics account for a modest proportion of variance of externalizing behavior prior to age 15. This amplifies to account for the majority of the variance in externalizing problems by age 20. The reason for such amplification is unclear, but one postulation is that genetic effects may reflect an active genotype-environment correlation (Scarr & McCartney, 1983). This means that individuals with genetic propensity for externalizing behaviors actively seek and create environments that support such expression of behavior.

This section will cover paternal and maternal history of externalizing behaviors and how they may directly and indirectly impact their offspring’s development of externalizing behavior.

Maternal history of externalizing problems. Less is known about the impact of maternal
history of externalizing problems on children than is known about paternal history of externalizing difficulties (Belsky & Jaffee, 2006). Females tend to display less severe aggressive behaviors that warrant diagnosis of Antisocial Behavior Disorder (Barnow, Lucht, & Freyberger, 2005), contributing to why more research in this area has been done on males. Although women display lower levels of aggression, they still display behaviors that are considered maladaptive and have negative ramifications on their children. Mothers who display externalizing behaviors have higher change of having children who display externalizing behaviors.

Females with a history of conduct disorder have a significantly higher chance of becoming teen mothers (Bardone, Moffitt, Caspi, & Dickson, 1996; Jaffee, 2002; Kovacs, Krol, & Voti, 1994; Trentacosta & Shaw, 2008), which in turn is a risk factor for their children to develop behavioral problems (Granic & Patterson, 2006). This is most likely because becoming a parent at an early age increases the likelihood that individuals will use poorer parenting practices (Brooks-Gunn & Chase-Lansdale, 1995). In short, young mothers as well as older mothers who engage in externalizing behaviors directly model antisocial behaviors (Gilliom & Shaw, 2004). They also tend to provide a home environment that encourages (or does not actively discourage) the children’s involvement in antisocial activities (Gilliom & Shaw, 2004). In sum, along with modeling behaviors, and the increased genetic risk, mothers with histories of externalizing behavior tend to use more negative parenting skills (Johnson, et al., 2004; Trentacosta & Shaw, 2008; Verlann & Schwartzman, 2002).

Mothers with a history of externalizing behaviors tend to use mixed parenting practices. Bosquet and Egeland (2000) found that when they observed the behavior of mothers with and without histories of externalizing behavior, mothers with externalizing problem histories were indistinguishable at times from mothers without histories. Specifically, mothers with and without
histories mirrored each other in the amount of prosocial behaviors they displayed when interacting with their children (e.g., smiling, and level of interaction). However, the mothers with histories displayed fewer empathetic skills, and were more coercive, harsh, hostile and abusive toward their children. This disparity in behavior could be due to the fact that females with histories of externalizing behaviors lack the necessary skills to regulate emotions (Trentacosta & Shaw, 2008). While the mother may know how she should act toward child and may be able to do so in certain situations, she may not always be able to regulate her innate hostile response when provoked by anger, frustration, or stress. Other studies support the finding that mothers who have a history of antisocial behavior are more likely to use ineffective discipline with their school age children (Johnson et al, 2004; Verlaan & Schwartzman, 2002). Johnson and colleagues’ (2004) study identified five maternal behaviors that are associated with histories of externalizing behavior, namely, relational hostility, poor supervision of the child, poor maintenance of the home, regular cigarette smoking, and verbal abuse directed toward the child. This supports the direction of impact from maternal maladaptive history to current behaviors that affect child development. Johnson and colleagues (2004) also reported that a history of maternal externalizing behavior was associated with overall child externalizing behavior until parenting behaviors were statistically controlled for. Verlaan and Schwartzman (2002) revealed contradictory results; they found that maternal antisocial history was directly linked to children’s externalizing behavior after dysfunctional parenting was considered.

Overall, mothers with histories tend to model negative behaviors, engage in dysfunctional parenting behaviors, as well as provide genes. The environment created interacts with genes to support the development of externalizing behaviors in offspring.

*Paternal history of externalizing problems.* Paternal history of externalizing is one area
where more research has been conducted about fathers than mothers (Belsky & Jaffee, 2006). Fathers who display externalizing behaviors have higher risk of having offspring who display externalizing behaviors (Johnson et al., 2004; Verlaan & Schwartzman, 2002). It’s possible that more is known about paternal history could be at least partially due to the prevalence of aggression in males, thus resulting in more males being classified with antisocial behavior. Furthermore, Wei, Loeber, & Stouthamer-Loeber (2002) found that although the numbers of males diagnosed with antisocial personality disorder may be small, they father a disproportionately larger number of children. They are also less likely than other fathers to see their children daily, to be involved in care, or support their children financially (Jaffee, Moffitt, Caspi, & Taylor, 2003; Wei et al., 2002).

Fathers with a history of externalizing behaviors often display poorer quality of parent-child of interaction (Belsky & Jaffee, 2006). Verlaan and Schwartzman (2002) found that fathers with a history of externalizing behavior report using more hostile, rejecting behavior with their sons. Johnson et al. (2004) found that fathers’ history of externalizing behavior was positively associated with offspring aggression but this association also disappeared when problematic parental behaviors were controlled in analyses. Johnson and colleagues’ (2004) findings also support research that parental problem behaviors mediate the effects of parental history of externalizing problems on child externalizing problems (Maccoby 2000; McCord, 2001). This was not the case for Verlaan and Schwartzman (2002), who found that fathers’ parenting behaviors were not a relevant mediator of the influence of parental antisocial behavior on sons’ antisocial behaviors. Johnson and colleagues (2004) identified six paternal behaviors that are associated with histories of externalizing behaviors. They were high levels of relational hostility, low amount of time spent with the child, low assistance to the mother, poor care of children’s physical needs, poor fulfillment of the paternal role, and poor maintenance of the home. These identified behaviors are
of particular interest because they involve both direct and indirect ways in which parents with externalizing histories impact their children. The amount of time spent with child, poor care of child’s needs, and the fulfillment of paternal role impacts the child directly, while rough arguments with mother, low assistance to mother, and the poor care of home impact the child indirectly and encompass several different levels of interaction.

Another study that supports the indirect affect of parental history on offspring aggression looked at neighborhood violence as a mediator. Fitzgerald, McKelvey, Schiffman, and Montanez (2006) found that the cumulative risk for both paternal history of externalizing behavior and neighborhood violence indicated higher externalizing behavior in youth. There was no difference found between high and low levels of father antisocial behavior and child externalizing behavior when neighborhood violence was low. These findings acknowledges that the neighborhood as well as the immediate family environment impact the development of children (Evans, 2004; Osofsky, 2002) and that parental developmental history impacts present and ongoing parental behaviors (Johnson et al., 2004; Maccoby, 2000; McCord, 2001).

Overall, fathers who have histories of externalizing behaviors have formed maladaptive ways of interacting with their environment. These patterns are displayed by resistance to authority, impulsivity, lack of consistency and harsh, coercive exchanges (Dogan et al., 2007). These behaviors have direct and indirect impacts on child development.

Maternal and paternal externalizing history in comparison. One of the most important gaps in current research on parental influence is the insufficient distinction between maternal and paternal effects. Mothers are typically the primary caregiver and have theoretically had the largest impact on child development. This is because historically researchers have failed to place emphasis on the paternal role. Fathers play a significant role in the lives of their children and it is worthwhile
to explore the contributions fathers make to children’s externalizing behaviors.

Little is known about the effects of maternal and paternal externalizing history in comparison to each other. One exception is a study by Dogan and colleagues (2007), who proposed two possible mediating pathways of transmission from parents to adolescents. These were through the adolescent’s awareness of parents externalizing behavior as well as perceptions of parenting behaviors. They found that parental antisocial behavior predicted adolescents’ perceptions of the parent behavior as being deviant, which then predicted adolescents’ subsequent involvement in externalizing behaviors. This indicates that adolescent perceptions mediate the familial transmission of antisocial behavior for both mothers and fathers. When adolescents are aware of their parents’ behavior they tend to engage in such behavior themselves.

When comparing Johnson and colleagues’ (2004) findings, mothers’ and fathers’ histories of problem behavior impact their current behavior in similar ways. They both were likely to engage in more hostile interactions with each other, and were less likely to care for the home. They also impact offspring externalizing in distinct ways; mothers, for example, use more verbal abuse and provide poor supervision, while for fathers, lack of involvement, providing low levels of assistance to their children’s mother, and poor fulfillment of his role were indicative of men’s maladaptive development. In summation, parental histories of externalizing behaviors play a role in offspring externalizing behavior. Parental intrinsic characteristics impact externalizing behaviors which in turn, affects parenting capabilities. Parents with histories of externalizing behaviors often utilize more negative and rejecting ways of parenting regardless of gender (Johnson, et al., 2004; Maccoby, 2000; McCord, 2001; Verlaan & Schwartzman, 2002). This further supports the findings that poor parenting plays an important role in the development of offspring externalizing behavior (Aunola & Nurmi, 2005; Galambos, Barker, & Almeida, 2003; Petit, Laird, Dodge, Bates, & Criss, 2001).
Overall, it appears that parents who have histories of externalizing behaviors tend to engage in negative behaviors in front of their children, create environments that perpetuate dysfunction and use negative parenting practices. Although much research points to parental characteristics and behaviors attributing to maladaptive child development, it is just as important to mention internal attributes of the child. As mention earlier, the child’s ability to self-regulate is just as important a predictor as parents’ ability to self-regulate.

Child Self-Regulation

The association between children’s self-regulation and externalizing problems will also be examined. Self-regulation is the ability to stimulate, restrain, maintain, and/or adapt behavioral, emotional, attentional, and cognitive responses (Barkley, 1997; Demetriou, 2000; Lengua, 2003). Self-regulation is contains multiple components, including inhibitory control, attentional processes, and effortful control that make up two subsets of self-regulation that have been deemed emotion regulation and behavior regulation (Thompson, 1994; Posner & Rothbart, 2000). Each is shaped by genes, parental behaviors, cognitive skills, and other interactions with the environment (Eisenberg & Valiente, 2004, Valiente, Fabes, Eisenberg, & Spinard, 2004). As children grow their abilities to regulate develop as well. This development is shaped by parental behaviors such as expression of emotion, discipline style, warmth, behavioral and psychological control (Cumberland et al., 2003; Eisenberg et al, 2003; Karreman, Van Tuijl, Van Arken, & Dekovic, 2006). Children’s own characteristics also play a role in how their self-regulation develops. Children with temperamental vulnerabilities to experience negative emotions will have higher chance of having underdeveloped regulatory abilities, which may lead to a variety of behavioral problems (Morris et al., 2002).

There is growing evidence to suggest that self-regulation is also an important protective
factor in the development of psychological and behavioral adjustment (Gardner, Dishion, & Connell, 2008). Overall, children who display high levels of regulatory capabilities engage in more prosocial behavior, and have greater academic success (Rydell et al., 2003; Bandura, Caprara, Barbaranelli, Gerbino, & Pastorelli, 2003; Tangney, Baumeister, & Boone, 2004). Conversely, poor regulation in early childhood has been linked to externalizing behaviors in later childhood in multiple investigations (Lengua, 2003; Supplee, Skuban, Shaw, & Prout, in press; Trentacosta & Shaw, in press). Low levels of self-regulatory abilities have also been tied to higher levels of internalizing and externalizing behaviors during adolescence (Brody & Ge, 2001; Martel et al., 2007; Moilanen, 2007; Tangney et al., 2004). In addition to being associated with self-regulatory abilities, externalizing problems also seem to be related to self-regulatory strategy choices: For example, in one investigation, adolescents with externalizing problems displayed maladaptive use of cognitive emotion regulation strategies (Garnefski, Kraaij, & van Etten, 2005). Morris and Silk (2001) also found that children with high levels of negative emotionality were less successful using attentional shifting when experiencing disappointment. While self-regulation appears to play an important role in the development of externalizing behaviors it can also serve as a protective factor against adverse situations, making the ability to self-regulate emotions and behaviors an important factor in child development.

Although not a focus of the current study, one influence on self-regulation that has attracted attention from researchers is the role that parents play in influencing their offspring’s ability to regulate. The same sorts of parenting behaviors that are believed to direct children away from psychopathology are implicated in the development of children’s self-regulatory abilities (Dishion, Nelson, & Bullock, 2004; Scaramella, Conger, & Simons, 1999). High levels of maternal warmth and lower levels of physically punitive discipline in early childhood have been linked to
better regulation in middle childhood (Colman, Hardy, Albert, Raffaelli, & Crockett, 2006). This pattern has also emerged in cross-sectional research on self-regulation during adolescence: In a sample of Dutch youth ages 10 to 14, Finkenauer and colleagues (2005) revealed that higher levels of parental acceptance and lower levels of psychological control were indicative of better self-control. Purdie and colleagues (Purdie, Carroll, & Roche, 2004) linked parental involvement to academic and prosocial self-regulation in a sample of Australian high school students. Another study revealed modest, negative associations between high levels of conflicted-harsh parenting and adolescents’ contemporaneous self-regulation (Brody & Ge, 2001). Finally, Eisenberg and colleagues (2003) reported that maternal expression of dominant negative emotion negatively impacted child regulation from 4 to 7 years old but not at age 9. In contrast to negative expressivity, maternal positive expressivity was found to positively impact child self regulation regardless of age.

Although the effects of parenting on the development of self-regulation have been established, less is known about how the child’s own self-regulatory skills predict future externalizing behavior during middle childhood. Middle childhood is a time period where maturation of neural regions in the prefrontal cortex may contribute to the development of self-regulation; however this maturation does not reach full potential until late adolescence (Spear, 2000). As a result, this neurological transformation may have a direct impact on the development of self-regulation (Calkins & Bell, 1999), with continued consequences for children’s engagement in externalizing problem behaviors.

Overview of the Current Study

The goal of the current study was to explore several questions regarding the developmental antecedents of externalizing problems. Although the links between parenting
practices, children’s self-regulation and externalizing problems are well established and are articulated in Morris and colleagues’ (2007) tripartite model, more information is needed about how children’s self-regulatory abilities predict future externalizing behaviors above and beyond parental externalizing problems and parenting practices. Furthermore, most existing research on children’s externalizing problems has focused primarily on maternal influences, or has not compared mothers and fathers on the same constructs. Thus, it remains unknown whether maternal or paternal parenting behaviors and history of externalizing problems are more influential in comparison to each other. These important gaps will be addressed in the current study, which examines the following hypotheses and research question.

_Hypothesis 1._ Evidence provided by Johnson and colleagues (2004) and Verlaan and Schwartzman (2002) indicates that parental and child behavioral problems are associated. Thus, the first hypothesis is that maternal and paternal antisocial behavior history will directly predict child externalizing behavior. It is anticipated that high levels of prior parental antisocial behavior will be indicative of high levels of the child’s externalizing behavior.

_Hypothesis 2._ Various studies have provided support that variations in children’s externalizing problems can be attributed to parenting practices, behaviors, or styles. Specifically, psychological control and hostility have been consistently revealed as important elements (Sharma & Sandhu, 2006; Stolz, Barber, & Olsen, 2005). Thus, the second hypothesis is that maternal and paternal supportive and antagonistic parenting will predict child externalizing behavior. It is predicted that low levels of supportive and high levels of antagonistic parenting will be linked to high levels of children’s externalizing problems.

_Hypothesis 3._ Children’s self-regulation has emerged as an important correlate of their behavioral problems (Morris et al., 2007). Thus, the third hypothesis is that child self regulation at
age 10 will predict externalizing behavior at age 12. Specifically, it is anticipated that children with poorer self-regulation skills will engage in higher levels of externalizing behaviors at age 12.

**Hypothesis 4.** On a more exploratory level, I will also consider the roles of mothers and fathers in conjunction. Few studies examined the impacts of mothers and fathers in conjunction when seeking to explain children’s externalizing problems. Thus, one goal of this investigation is to explore whether maternal or paternal antecedents (i.e., externalizing behavior history and parenting) are more vital predictors of children’s externalizing problems. Tentatively, it is hypothesized that the effects of maternal and paternal externalizing would be approximately equal.

This study contributes to prior research in several ways. First, it is longitudinal in design: this is important because longitudinal studies are situated to explain possible changes. This study does not look at one point in time but rather multiple points to explore direction of effects. Secondly, the community sample of at-risk boys from low SES backgrounds was picked for the purpose of studying the development of externalizing behaviors. Thirdly, this study also extends prior research by examining two observed parenting behaviors, specifically, parental antagonism and regulatory supportive parenting. The observed method is more objective and is potentially less biased than child- or parental self-reports of parenting. This is important for identifying which parenting constructs affect the development of externalizing behaviors. This study also looks at both mother and father parenting constructs and externalizing behavior history in comparison to each other. Lastly, data from multiple sources are used. Teachers, moms, alternate caregivers, as well as observational data sources are employed.
Participants

This study used data from a larger project on vulnerability and resiliency in low socioeconomic status (SES) families with sons (Shaw, Gilliom, Ingoldsby, & Nagin, 2003). The sample was restricted to boys because the original intent of the study was to examine precursors of antisocial behavior. Recruitment took place at Women, Infants and Children (WIC) Nutritional Supplement Program clinics throughout the metropolitan Pittsburgh area. Mothers with male infants 6 to 17 months of age were asked to take part in a longitudinal study on child development. Of 421 mothers approached at the WIC sites, 310 participated in the first assessment at age 1.5 years.

The sample used for this study consisted of 201 boys at the time points of 10 and 12 years old. Data were collected during home visits when boys were ages 10 and 12. Of these 201, 52.24% had mom only data and the remaining 47.76% had both mom and dad data. To obtain a clear description of the full sample see Table 1. Because approximately half of the sample was
missing dad data, study variables, means, and child/family demographics were compared between groups. These analyses revealed subtle differences between the two subsamples (see Table 2). The boys’ race was primarily African American in the mom only group (47%), and European American in the two parent group (56%). Of the mom only group, 31% were classified as married (29% of the mother-only data subsample reported that they were married to or cohabited with their son’s biological father), and 66% of two parent group were married (49% of mothers in the two parent subsample reported that their son’s biological father resided in the same household). In terms of family income, the median income at the child’s age 10 assessments is $24,000. According to the United States Census (2000), the median annual family income in Pittsburgh, Pennsylvania was $38,795. In regards to mom’s antagonistic and regulatory supportive behavior, and dads’ antagonistic and regulatory supportive behavior, moms appear to provide more regulatory support when alone than in the mom and dad group, $F(1, 199) = 4.73, p < .05$. This is also consistent with antagonistic behavior, in that mothers in mom alone group engaged in less antagonistic behavior than mom and dad group, $F(1, 199) = 8.12, p < .05$. There were no other differences between the two subsamples.

**Measures and Procedures**

*Demographic questionnaire.* Mothers provided family demographic information during the age 10 assessments. Research assistants interviewed mothers about their current levels of education, their occupation, marital status, the child’s father’s education and occupation, family size, family income, and other demographic characteristics. Marital status was a check box option (married, living together, separated, divorced, widowed, single, or other). Family SES was calculated using the Hollingshead Four Factor Index of Social Status (Hollingshead, 1975). Mothers provided information about their own and their partner’s educational level and
employment at each assessment. The Hollingshead index is widely used, and allows for calculation of socioeconomic status scores for both one- and two-parent families. The index has been shown to be highly correlated with an occupation index designed by the National Opinion Research Center ($r = .93$). The only demographic variable not measured at age 10 was the boy’s race/ethnicity, which was obtained at the initial age 18 month demographic interview.

*Child externalizing problems.* The Child Behavior Checklist (CBCL; Achenbach & Edelbrock, 1983) and the Teacher Report Form of the CBCL (TRF; Achenbach, 2001) were used to measure boys’ externalizing behavior at ages 10 and 12. The CBCL and TRF are widely used parent- or teacher-report measures of childhood behavioral problems. Mothers and alternative caregivers were asked to fill out the 123 items of the CBCL, and teachers completed the 115 items of the TRF. All respondents answered all items using a 3-point scale, ranging from 0 (*not true*) to 2 (*very true or often true*). The broad-band externalizing factor consisted of 33 items in the CBCL and 34 items in the TRF. Sample items from the CBCL include “argues a lot”, “cruelty, bullying, or meanness to others”, and “swearing or obscene language”. Sample items from the TRF include “defiant, talks back to staff”, “talks out of turn”, and “disrupts class discipline”. Responses to these items were summed within-reporter to form externalizing scale scores. For all respondents at both ages 10 and 12, internal consistency of the externalizing factor was sufficiently high (Cronbach’s $\alpha$ range = .91 - .96). Mother, alternate caregiver, and teacher scale scores were positively correlated (age 10 $r$ range = .28 - .58; age 12 $r$ range = .31 - .59), and thus were averaged within each time point in order to form two single multi-reporter indices of boys’ externalizing problems at age 10 and 12.

*Child self-regulation.* The Social Skills Rating System (Gresham & Elliott, 1990) was used to ascertain the child’s self regulatory skills. Mothers and fathers completed the questionnaire
when the child was 10. The full questionnaire comprises 38 questions in 4 subscales (cooperation, assertion, self-control, and empathy). The self control subscale consists of 10 items. Sample items included “speaks in appropriate tone of voice”, “controls temper when arguing with other children”, and “receives criticism well”. Parents responded to each item on a 3 point scale, ranging from 0 (never) to 2 (very often). Responses were summed within-reporter to form self-regulatory scale scores. Internal consistency for both respondents was reasonably high, mothers’ (Cronbach’s $\alpha = .81$), and fathers’ (Cronbach’s $\alpha = .80$). Mothers and fathers scale scores were positively correlated ($r = .41$). Thus they were averaged to form a single multi-reporter index of boys’ self-regulatory skills at age 10.

Parental externalizing history. The Adolescent and Adult Activities Scale (Elliott & Ageton, 1985) was used to assess mothers’ and fathers’ histories of externalizing behavior at the boys’ age 15 assessment. Mothers and fathers who were present were asked to fill out this 17-item questionnaire in regards to their behavior prior to age 15. Parents were asked to indicate which antisocial actions they had or had not engaged in prior to their 15th birthday. Sample items include “purposely damaged or destroyed property that did not belong to you,” “hit someone with the idea of hurting them,” “sold marijuana or hashish,” and “sold hard drugs such as heroin, cocaine, and LSD.” For the actions they endorsed positively, participants were asked to indicate how often they had engaged in the behavior on a 4 point scale, with response options including 1 (once), 2 (2-3), 3 (4-10), and 4 (more than 10). Responses to these items were summed, and as they were mildly skewed and kurtotic, these scores were then square rooted to form normally-distributed externalizing history scale scores. Internal consistency was sufficiently high for mothers (Cronbach’s $\alpha = .79$) and for fathers (Cronbach’s $\alpha = .88$).
Observed parenting. During the age 10 home visit boys, moms, and alternative care givers (e.g., fathers, stepfathers, grandmothers, or other alternate caregivers) participated in a videotaped discussion task designed to examine how the family discusses and solves typical family conflicts. As part of the assessment protocol, mothers and sons completed a 24-item questionnaire of typical family conflicts (e.g., child’s choice of friends, child keeping room tidy; Prinz, Foster, Kent, & O’Leary, 1979) in order to ascertain the most problem-inducing situations between parents and children. Their answers were used as discussion prompts. The interaction task was based on procedures developed by Hetherington et al. (1992) and adapted by Conger and colleagues (Melby & Conger, 2001). During the eight-minute task, the dyad discussed two issues. These discussions were videotaped, and then were coded by trained undergraduate research assistants.

Maternal and paternal regulatory support was based on several global codes of maternal and paternal behavior directed toward the son during the discussion task, including acknowledgment of ideas/responding to the son’s ideas, non verbal expressions of engagement, clear communication, and consistency/firmness of rule enforcement, supportive family talk and empathy. Maternal and paternal antagonism toward the son was measured by nonverbal expressions of disengagement, put downs of person/ideas, negative humor/sarcasm, complaining, the use of guilt, mindreading, and rejection versus acceptance, interruptions, and emotional reactivity. Research assistants rated each dimension using a 10 point scale ranging from 0 (not present) to 9 (a lot). The regulatory supportive factor consisted of 7 items and the antagonistic factor consisted of 9 items. Codes for each scale were standardized then averaged to form either a regulatory supportive score or an antagonistic score. For both categories the internal consistency was sufficiently high (maternal regulatory support $\alpha = .81$; paternal regulatory support $\alpha = .98$; maternal antagonism $\alpha = .79$; paternal antagonism $\alpha = .94$).
To assess interrater reliability, approximately 25% of the tapes ($N = 30$) were assigned randomly to a primary coder (whose ratings were used in the analyses) and a reliability coder (Criss, Shaw, & Ingoldsby, 2003). The coders independently rated their assigned tapes and were blind as to which tapes had been assigned for reliability purposes. Reliability between the primary and reliability coders was calculated using intraclass correlations ($r$). In general, intraclass correlations above .55 are thought to be acceptable for these types of data (Mitchell, 1979). Interrater reliability was in an acceptable range (Interrater reliability: $r = .73; p < .001$; within 1% agreement = 81%).

**Analysis Plan**

Prior to substantive statistical analyses, the bivariate correlations between all study variables were examined. The first hypothesis, (i.e., that maternal and paternal antisocial behavior history would be positively associated with child externalizing behavior) was tested by examining bivariate correlations. The second and third hypotheses (i.e., that maternal and paternal supportive and antagonistic parenting would be predict child externalizing behavior, and child self regulation at age 10 would predict externalizing behavior at age 12) were tested simultaneously in three hierarchical multiple regression models (one for mom only data, one with dad only data, and one for mom and dad data). The dependent variable for each regression was boys’ externalizing problems at age 12, and each regression model contained the following steps in this order: Step one included control variables such as ethnicity, marital status and SES. The second step included mom’s externalizing scores, as well as dad’s externalizing scores in the dad only and mom and dad data model. At the third step, the maternal parenting variables (both regulatory supportive and antagonistic parenting) were added to the mom only model as well as the mom and dad model. The two variables for dad data were included on this same step in the dad only model and the mom and
dad model. Step four contained children’s self regulatory scores for all three models. This follows the order of Morris and colleagues’ (2007) model of impact of the family on children’s adjustment. At the fifth and final step of the model, boys’ age 10 externalizing problems was added in order to explore whether any of these associations remained once boys’ prior externalizing problems are controlled. The final exploratory question (i.e., whether maternal or paternal antecedents are more vital predictors of children’s externalizing problems) was addressed in the second regression model with the mom and dad subsample.

**Missing Data**

Preliminary examination of study variable descriptive statistics revealed that a portion of data were missing, concentrated particularly in the parental antisocial behavior variables. In order to maximize the sample size, missing data points were replaced using linear trend point estimation. For the maternal sample, this resulted in the replacement of 25 missing maternal antisocial behavior values, 16 values for family per capita income, 3 self-regulation datapoints, 2 scores for age 10 externalizing, and 6 datapoints for age 12 externalizing problems. For the subsample with paternal data, this resulted in the replacement of 43 missing paternal antisocial behavior values, 9 maternal antisocial behavior datapoints, 5 values for family per capita annual income, and 2 datapoints for externalizing problems at age 12. All descriptive statistics in Table 1 and all substantive analyses were conducted with these imputed variables.

CHAPTER 4

RESULTS

**Preliminary Analyses**

The first goal was to examine direct associations between ethnicity, marital status, SES, parental antisocial behavior, the dimensions of parenting, boys’ self-regulation, and boys’
externalizing behavior at ages 10 and 12. This goal was addressed through two sets of bivariate correlation analyses (see Table 3 for maternal correlations, and Table 4 for the subsample with paternal data). These correlations were also used to address the first hypothesis (i.e., that maternal and paternal antisocial behavior histories would be associated with sons’ externalizing problems).

Maternal sample. The correlations with the full sample indicated that race was positively correlated with marital status and SES, indicating that white families had higher per capita incomes and that white mothers were more likely to be either married or cohabitating with a partner. Race was also negatively correlated with boys’ age 10 externalizing difficulties, suggesting that white boys had fewer externalizing problems than African American boys. Marital status was positively correlated with SES and boys’ self-regulation, and negatively correlated with maternal antagonism and boy’s age 10 externalizing, indicating that boys from married or cohabitating homes had better self-regulation, and that single mothers used more antagonism and had sons with more externalizing problems. Family SES was positively correlated with maternal regulatory support and boys’ self regulation, and was negatively correlated with boys’ externalizing at both ages 10 and 12. This indicates that boys from higher income homes had more regulatory supportive mothers and higher self-regulation, and fewer externalizing problems at ages 10 and 12.

Maternal regulatory support was negatively correlated with maternal antagonism and positively correlated with boys’ self regulation, meaning that mothers who demonstrated more regulatory supportive behaviors engaged in fewer antagonistic behaviors and had sons with higher levels of self-regulation. Maternal antagonism was negatively correlated with boys’ self regulation and positively correlated with boy’s age 10 externalizing, meaning that the mothers who demonstrated more antagonism had sons with lower levels of self-regulation and more externalizing problems. Boys’ self regulation was negatively correlated with boys’ age 10 and 12
externalizing, meaning that higher levels of self-regulation were associated with lower levels of externalizing. Boys’ age 10 externalizing also showed a positive correlation with age 12 externalizing, indicating that boys with high levels of externalizing behaviors at age 10 also had high levels of externalizing problems at age 12.

Contrary to the first hypothesis, maternal antisocial behavior history was not correlated with boys’ externalizing at 10 and 12. Maternal antisocial behavior history was also not correlated with any of the study variables.

Paternal Subsample. For the subsample with paternal data, study variable bivariate correlations were examined separately (see Table 4). Race was positively correlated with SES, indicating that white families had higher per capita annual incomes than African American families. Marital status was also positively correlated with SES, indicating that SES was higher in married families. Marital status was also positively correlated with paternal antagonism, suggesting that married fathers use more antagonism in interactions with their sons. Family SES was positively correlated with paternal antisocial behavior history, indicating that income was higher in families with fathers with greater antisocial behavior histories. Family SES was also positively correlated with maternal regulatory support, suggesting that mothers in higher income homes used more regulatory support. Family SES was positively correlated with boys’ self-regulation and negatively correlated with age 10 externalizing, indicating that boys from higher income homes had higher self-regulation and lower externalizing problems.

Maternal regulatory support was negatively correlated with externalizing at both ages, as well as positively correlated with child self-regulation, indicating that high levels of regulatory support from mothers were associated with lower levels of boys’ externalizing at both ages and higher levels of boys’ self-regulation at age 10. Maternal antagonistic behavior was positively
correlated with boys’ age 10 externalizing and negatively correlated with boys’ self-regulation, indicating that high levels of antagonism were associated with more externalizing problems and lower self-regulation. Paternal regulatory supportive and antagonistic parenting were not correlated with child externalizing or self-regulation. However, paternal regulatory support was positively associated with paternal antagonistic behavior, indicating that fathers who used high levels of regulatory supportive behaviors also showed high levels of antagonistic behaviors. Boys’ self regulation was negatively correlated with boys’ externalizing at both 10 and 12, indicating that boys with self-regulation had lower levels of externalizing problems. Boys’ age 10 externalizing problems were positively correlated with age 12 externalizing problems, indicating that boys who engaged in high levels of externalizing behaviors at age 10 also engaged in high levels of externalizing behaviors at age 12.

It was expected that maternal and paternal antisocial behavior histories would be associated with higher child externalizing (Hypothesis 1). This was not the case in the subsample with paternal data; paternal antisocial behavior history was not associated with child externalizing at 10 or 12 years old, although maternal antisocial history was positively associated with child externalizing at age 10, but not at 12. While not part of the first hypothesis, parental antisocial history was positively correlated with maternal regulatory support, meaning that fathers with antisocial histories have partners who used more regulatory support. Maternal antisocial history was positively correlated with paternal antisocial history, maternal regulatory support, and boys’ age 10 externalizing, and was negatively correlated with boy’s self-regulation. This means that mothers with higher levels of antisocial behavior history had partners with higher levels of antisocial behavior history, and although these mothers displayed more regulatory supportive behaviors, they had sons with higher age 10 externalizing and lower self-regulation.
Regression Analyses

Three hierarchical regression analyses were modeled to explore the potential effects that parental antisocial history, parental behaviors and child self-regulation had on the development of externalizing behavior during early adolescence (Hypotheses 2, 3, and 4). In these analyses, the dependent variable (boys’ age 12 externalizing problems) was regressed on child race, parental marital status, family per capita income, parental antisocial history, parenting behaviors, boys’ self-regulation, and boys’ externalizing at age 10. The first regression included maternal only data, included the full sample (N = 201), and addressed hypotheses two and three (Table 5). The second regression contained paternal only data from the dad and mom subsample (N = 96), and also addressed hypotheses two and three for fathers (Table 6). The third regression was conducted with the paternal subsample with both dad and mom data (N = 96), and addressed hypotheses three and four (Table 7). For all three regressions, the first step included the control variables of child ethnicity, maternal marital status and household SES. At the second step, maternal externalizing scores were added to the maternal model, as well as paternal externalizing scores in the paternal only and paternal and maternal models. At the third step, the maternal parenting variables (both regulatory supportive and antagonistic parenting) were added to the model. The two paternal parenting variables were included on this same step in the paternal only model and in the paternal and maternal model. Step four contained children’s self regulatory scores in all three models. All three regressions controlled for boys’ prior externalizing at age 10 on the fifth and final step of the model.

Maternal model. The maternal-only regression model is presented in Table 5. Child ethnicity, maternal marital status, and family income were entered on the first step of the model.
This step of the model did not explain a significant portion of the variance in boys’ age 12 externalizing problems, $F (3, 197) = 2.06, p > .05, R^2 = .03$. On this step, children’s ethnicity and maternal marital status were unrelated to children’s externalizing at age 12, but family per capita income attained trend-level significance ($p < .10$), such that levels of boys’ age 12 externalizing behaviors were lower for families with higher per capita incomes. The addition of maternal antisocial behavior history on the second step did not improve the model, which also did not explain a significant portion of the variance in boys’ age 12 externalizing problems, $\Delta F (1, 196) = .12, p > .05, \Delta R^2 = .001$. The trend-level association for family income remained at this step. At the third step, maternal parenting behaviors were added, and they also did not explain a significant portion of the variance in boys’ age 12 externalizing, $\Delta F (2, 194) = .91, p > .05, \Delta R^2 = .01$. Contrary to the second hypothesis, maternal regulatory support and antagonism were unrelated to children’s age 12 externalizing. Once self-regulation was added on the fourth step, self-regulation improved the model significantly, which explained a significant portion of the variance in externalizing behaviors at age 12, $\Delta F (1, 193) = 45.73, p < .001, \Delta R^2 = .18$. This supported hypothesis three, in that high levels of self-regulation were associated with lower levels of age 12 externalizing. On the fifth step, children’s age 10 externalizing problems were added to the model. While self-regulation remained a significant predictor, prior externalizing further improved the model, which explained a significant portion of the variance in externalizing at age 12, $\Delta F (1, 192) = 37.56, p < .001, \Delta R^2 = .13$. Children with higher levels of self-regulation had lower levels of externalizing at age 12, and those with higher levels of externalizing problems at age 10 also had higher levels of externalizing at age 12.

*Paternal model.* The paternal-only regression model is presented in Table 6. Child ethnicity, paternal marital status, and family income were entered on the first step of the model.
This step of the model did not explain a significant portion of the variance in boys’ age 12 externalizing problems, $F(3, 92) = 1.68, p > .05, R^2 = .05$. On this step, children’s ethnicity, paternal marital status, and family income were unrelated to children’s externalizing problems at age 12. The addition of paternal antisocial behavior history on the second step did not improve the model, which did not explain a significant portion of the variance in boys’ age 12 externalizing problems, $\Delta F(1, 91) = .11, p > .05, \Delta R^2 = .00$. At the third step, paternal parenting behaviors improved the model significantly, $\Delta F(2, 89) = 4.24, p < .001, \Delta R^2 = .08$. Both regulatory support and antagonism explained a significant portion of the variance, such that lower levels of regulatory support and higher levels of antagonism were associated with higher levels of age 12 externalizing.

The addition of self-regulation on the fourth step further strengthened the model, $\Delta F(1, 88) = 5.22, p < .05, \Delta R^2 = .05$. Paternal antagonism remained significant at this step ($p < .05$), and lower levels of self-regulation were associated with higher levels of externalizing behavior at age 12.

Upon entering prior externalizing on the fifth step, children’s self-regulation no longer contributed to the model, although paternal antagonism continued to explain variance in boys’ externalizing problems at age 12 ($p < .05$). Child prior externalizing further strengthened the model, which explained a significantly greater portion of the variance in children’s age 12 externalizing, $\Delta F(1, 87) = 27.12, p < .001, \Delta R^2 = .19$. Children with higher levels of age 10 externalizing problems had higher levels of age 12 externalizing problems.

*Combined paternal and maternal model.* The paternal and maternal subsample regression is presented in Table 7. Child ethnicity, family income, and parental marital status failed to explain a significant portion of the variance in boys’ age 12 externalizing problems, $F(3, 92) = 1.68, p > .05, R^2 = .05$. On this step, these control variables were unrelated to children’s externalizing at age 12. Paternal and maternal antisocial histories were added on the second step, and they did not
improve the model, also failing to explain any variance in boys’ age 12 externalizing problems, $\Delta F(2, 90) = .20, p > .05, \Delta R^2 = .00$. Step three included both maternal and paternal parenting behaviors. Maternal regulatory support was the only parenting dimension to contribute to the model, $\Delta F(4, 86) = 3.33, p < .05, \Delta R^2 = .13$. Lower levels of maternal regulatory support were associated with higher levels of child externalizing. The addition of self-regulation on the next step reduced the effect of maternal regulatory support to trend-level significance ($p < .10$), but did not significantly improve the model’s explanatory value, $\Delta F(1, 85) = 3.20, p < .10, \Delta R^2 = .03$. The fifth step included prior externalizing at age 10, which explained a significant portion of the variance in children’s age 12 externalizing problems, $\Delta F(1, 84) = 28.25, p < .001, \Delta R^2 = .20$. Children with higher levels of prior externalizing at age 10 had higher levels of externalizing at age 12. The addition of prior externalizing also brought the effects of maternal regulatory support and paternal antagonism to trend-level significance ($p < .10$), such that children with higher levels of externalizing problems had mothers with lower levels of regulatory support and fathers with higher levels of antagonism.

CHAPTER 5

DISCUSSION

The main goal of this study was to examine parent and child predictors of children’s externalizing behaviors. In accordance with Morris and colleagues’ (2007) model of tripartite family interaction, it was proposed that multiple parenting influences as well as child internal influences would predict future externalizing problems during the transition to adolescence. The current investigation explored whether child, maternal or paternal predictors would make stronger contributions to boys’ externalizing problems at age 12. In contrast to previous research (e.g., Verlaan & Schwartzman, 2002) and contradicting hypothesis one, neither maternal nor paternal
antisocial behavior histories were associated with boys’ externalizing problems in early adolescence. Multivariate regression analyses revealed inconsistent evidence for parenting effects, providing partial support for hypothesis two. There were effects for paternal regulatory support and antagonism in the paternal only model, and trend-level associations for paternal antagonism and maternal regulatory support in the combined model, but no evidence for maternal parenting effects in the maternal only model. Consistent with hypothesis three, boys’ self-regulation was implicated in the mother-only and father-only models. Prior externalizing, while not a direct part of study hypotheses, significantly contributed to all three models. Finally, maternal and paternal antisocial behavior histories were equally non-significantly associated with boys’ externalizing problems, but the effects of maternal and paternal parenting were not equal, as was hypothesized. Each of these links will be described in turn below.

Maternal and Paternal Antisocial Histories

The first hypothesis, that maternal and paternal antisocial histories would predict child externalizing behavior was not completely supported. Paternal antisocial history was not associated with children’s externalizing behavior at either age in the correlation model. Maternal antisocial history was associated with child externalizing at age 10 in the paternal subsample model. This provides mixed support for the findings of Verlaan and Schwartzman (2002) who found that maternal and paternal antisocial histories were directly associated with child externalizing. Johnson and colleagues (2004) also found that parental antisocial histories were associated with offspring aggression until parenting behaviors were controlled for, meaning that parenting behaviors partially mediated the effects of parental antisocial histories on their offspring’s aggression. One reason these findings contradict results of other studies could be due to sample differences. Verlaan and Schwartzman (2002) had a larger sample size of 189 children (males and females)
with 189 mothers and 158 fathers from a small industrial city in Quebec, Canada. The majority (83%) lived with both parents, and the sample was classified as being of working middle class SES. Johnson and colleagues’ (2004) study also had a much larger sample size of 593 mothers and children (males and females), and used maternal reports of paternal behavior history and parenting behaviors. Johnson and colleagues (2004) did not identify family income in their study, therefore it is not feasible to say whether or not that sample was of low SES or middle class. In contrast, the current study involved a smaller sample that by design consisted of male children from urban, low SES households. Therefore, it may be that while parental history of externalizing problems matters for lower-risk adolescent males and females, it may not matter for inner city, low SES adolescent boys. Other factors, such as intergenerational exposure to risk factors (e.g., poverty), prenatal malnutrition or substance use, genetic predispositions toward externalizing problems, and child perceptions of parental behaviors are likely to account for their maladjusted development (Baker, Jacobson, Raine, Lozano, & Bezdjian, 2007; Beck & Shaw, 2005; Dogan et al., 2007; Scaramella et al., 2008). Studies provide support for poverty being a high risk factor in the development of externalizing behaviors (Bradley & Corwyn, 2002; Evans, 2004). Poverty increases children’s exposure to family and neighborhood risk factors that negatively impact development (Evans, 2004; Fitzgerald et al., 2006), but the impact of these risk factors seems to be particularly detrimental for boys’ development (Shaw, Winslow, Owens, Vondra, Cohn, & Bell, 1998).

The lack of association between parental externalizing histories is in partial support of Morris and colleagues’ (2007) model that states parenting characteristics influence children’s adjustment through parenting practices, emotional climate of the family, the child’s observations, and child characteristics. Morris and colleagues’ (2007) model does not provide a direct link from parenting characteristics to child adjustment, as was tested in this study. The link from maternal
antisocial behavior to child age 10 externalizing in the paternal subsample model could be explained by a mediating pathway that was not tested in the current investigation (e.g., in their 2004 study, Johnson and colleagues found that parenting behaviors mediated the pathway from parental history to child adjustment).

**Maternal and Paternal Parenting**

It was expected that maternal and paternal parenting behaviors would equally predict boys’ externalizing problems, in that high observed parental antagonism and low regulatory support at boys’ age 10 years would predict high levels of externalizing problems at boys’ age 12. Slightly different patterns emerged in the three separate regression analyses.

In the maternal model, neither aspect of parenting behaviors were associated with their sons’ age 12 externalizing behaviors. This finding contradicts prior research: Several studies have looked at aspects of maternal regulatory support as conceptualized in the current study (Denham, 1993; Lunkenheimer et al., 2007; Morris, Silk, Steinberg, Aucoin, & Keyes, 2007), and they have all found evidence that aspects of maternal regulatory support are negatively related to child externalizing. Numerous other studies that have examined dimensions of antagonism have found associations between harsh, antagonistic parenting and children’s maladaptive development (Fite et al., 2006; Galambos et al., 2003; Morris et al., 2002, 2007; Sharma & Sanhdu, 2006). This inconsistency could be due to the unique characteristics of this study’s sample, which as mentioned above, diverges from the largely typically-developing, two-gender, younger aged samples employed in the studies cited above. Alternately, the lack of associations in the maternal model could be because inner city boys at this age may have already established coercive interactions with their mothers, and thus may not be influenced by parenting behaviors any longer (Bosmans et al., 2006). In other words, the stage may have already been set: maternal parenting may have
already exerted its effect on externalizing problems, and will not make any additional contribution
to behavior problems during this period of time. This is consistent with Morris and
colleagues’ (2007) model that parenting practices are indirectly associated with externalizing
behaviors through emotion regulation. Another study that used the same sample as this study found
support for maternal parenting predicting child self-regulation (Moilanen, Shaw, & Fitzpatrick,
2009). This indicates that while maternal parenting behaviors do not predict externalizing, they are
still associated with children’s regulatory skills. Future studies should explore this issue when
studying parenting behaviors and their longitudinal impact on child behavior.

On the other hand, in the paternal model, paternal regulatory support and antagonism
contributed significantly to boys’ future externalizing problems. Fathers who used less regulatory
support and more antagonism had sons with higher levels of externalizing problems at age 12. This
is consistent with previous research that has found that paternal psychological control (Aunola &
Nurmi, 2005) and rejecting and coercive paternal parenting (Verlaan & Schwartzman, 2004) have
negative ramifications for child behavior. This provides support for the importance of fathers in the
lives of their young adolescent sons. At this age, boys may look to their fathers for guidance, and if
dads fail to provide support and behave in antagonistic ways, their sons may internalize this as
acceptable behavior and/or react by acting out in externalizing ways to deal with the rejection
(Loeber & Stouthamer-Loeber, 1998; Verlaan & Schwartzman, 2002). Bronte-Tinkew and
colleagues (2006) found that when dads were controlling and critical but had close relationships
with their children, their children evidenced few externalizing problems, but in the absence of a
close relationship, paternal control and criticism predicted elevations in externalizing difficulties.
Another study by Williams and Kelly (2005) also found support for the increasing importance of
the father/child relationship during early adolescence. This provides support that both supportive
father-child and negative father-child relationships are important components to study in conjunction with each other. Once self-regulation was entered into the model, paternal regulatory support lost significance although the effect of paternal antagonism remained. This suggests that fathers play a crucial role in the development of their son’s externalizing behaviors above and beyond the child’s internal characteristics.

A slightly different pattern emerged when maternal and paternal effects were considered simultaneously. In the combined model, only maternal regulatory support made a significant contribution, such that low levels of regulatory support predicted high levels of age 12 externalizing problems. While paternal behaviors were important without maternal influences controlled in the model, when considered simultaneously with paternal behaviors, maternal regulatory support appeared to be a better predictor of future externalizing in sons. This could be due to the small paternal sample size ($N = 96$), which was not fully representative of the larger study sample ($N = 201$). This finding for maternal regulatory support is in opposition with Morris and colleagues’ (2007) model that does not provide a direct pathway from parenting behaviors and child adjustment. These finding also contradict findings from Bronte-Tinkew and colleagues (2006) who found that the father-child relationship had significant and unique influences on adolescent risky behaviors, above and beyond mother-child relationship. This difference could be due to sample differences, as the Bronte-Tinkew and colleagues (2006) study sample contained primarily Mormon, middle class, European American families. With the addition of prior self-regulation and externalizing problems, the effects of mom’s regulatory support and dad’s antagonism declined to trend-level significance, suggesting that self-regulation and prior externalizing are better predictors of future externalizing problems. Regardless, this indicates that mom’s lack of regulatory support and dad’s use of antagonism contribute to the development of
externalizing problems, as indicated by other research (Johnson et al., 2004; Stolz et al., 2005), but other risk factors still exert larger effects.

Overall, the findings imply that the lack of maternal regulatory support in conjunction with paternal antagonism play important roles in the development of adolescent externalizing behaviors. While maternal behaviors alone provide no associations with child externalizing, paternal antagonism appears to contribute to the development of sons’ externalizing behavior. When considering maternal and paternal behaviors together, the lack of maternal regulatory support contributes to the development of externalizing at age 12.

Child Self-Regulation & Prior Externalizing Problems

It was expected that child self-regulation would predict future externalizing, in that lower levels of self-regulation would predict higher levels of externalizing. In the maternal only model child self-regulation was a significant predictor of child externalizing. This provides additional support for previous research findings (Brody & Ge, 2001; Lengua, 2003; Martel et al., 2007; Supplee, Skuban, Shaw, & Prout, in press; Trentacosta & Shaw, in press) indicating that child self-regulation plays an important role in the development and maintenance of externalizing behaviors. In the paternal only model, self-regulation had a small effect but this effect disappeared once prior externalizing was added. Interestingly, paternal antagonism remained a significant predictor once prior externalizing was controlled. This suggests that paternal antagonism plays an important role in child externalizing, when considering paternal characteristics alone. Interestingly, for the combined model, self-regulation at least partially mediated the effects of parenting on externalizing problems. The effect of maternal regulatory support was decreased to trend-level significance when self regulation was entered into the model. This indicates that the child’s self-regulation plays more of a role than maternal or paternal behaviors when both parents are considered in
conjunction with each other. This is consistent with Morris and colleagues’ (2007) model that implies children’s ability to self-regulate mediates parental behavioral influences on the development of externalizing problems. Prior research also supports the notion that self-regulatory capabilities influence the development of behavior problems (Calkins & Bell, 1999). Ultimately, self-regulation difficulties as well as externalizing problems could be due to the age of the child and the history of the parent child interactions. Once coercive interactions have been established, children at this age may rely less on parenting behaviors for guidance and rely more on their own internal regulatory skills (Morris et al., 2007), or peer influence (Zeman & Shipman, 1997).

Once prior externalizing was added, self regulation became an insignificant predictor. This could be due to the shared relationship of self-regulation and externalizing problems. The two are intricately entwined in that self-regulation is an enduring temperamental trait and deficits in self-regulatory abilities at a young age are linked to externalizing problems at a young age, and early externalizing also leads to later externalizing (Morris & Silk, 2001).

These findings indicate that when considered in conjunction, prior levels of externalizing are the best predictor of future externalizing difficulties in early adolescence, showing larger effects than for parenting behaviors and child self-regulation. At this stage of development children’s internal regulatory abilities are developing and they are learning to rely on their own internal characteristics for guidance on how to act and react, as well as external peer influence (Silk, Steinberg, & Morris, 2003). Maternal parenting may have exerted its full influence. The amount of nurturance (optimal or minimal) has helped wire the brain, and budding adolescents will rely more on internal forces and depend less on external parental forces for guidance on how to react to situations (Eisenberg & Morris, 2002). This supports previous studies that have found
aspects of self-regulation to mediate parental influence on child externalizing problems (Valiente et al., 2007).

Commentary on the Theoretical Model

Morris and colleagues’ (2007) model was partially tested in this study. This study evaluated the role of parental characteristics, parenting practices, and child self-regulation as predictors of future externalizing, and found partial support for Morris and colleagues’ 2007 model. Hypothesis one was not fully supported by this study but this null finding was consistent with this model. Morris and colleagues (2007) model did not indicate a direct link from parenting characteristics to child adjustment; this link is indirect through influence on child characteristics, parenting practices, observation and emotional climate of the family. Such an indirect pathway from parent characteristics to adjustment was not tested in this study.

In further support of the model, fathers who engage in antagonistic behaviors were not only modeling such behaviors to their sons, but also were negatively impacting the father-son relationship (Ainsworth, Blehar, Walters, & Wall, 1978; Coley & Coletrane, 2007), as well as contributing to the emotional climate of the family, all of which are hypothesized to influence the development of self-regulatory skills (Morris et al., 2007). At this age of development, inner city boys may look to their fathers for guidance and begin to rely on them for modeling socially appropriate behaviors (Allen et al., 2002), however “socially-appropriate” is defined for the particular social context. Maternal parenting alone also contributed support for Morris and colleagues’ (2007) model, in the maternal model, neither parenting behavior was associated with child externalizing. The indirect link through self-regulation was also not tested in this study but should be considered for future research. In contention with the model, when considering paternal and maternal parenting together, both paternal antagonism and maternal regulatory support
contributes to the development of child externalizing above and beyond child self-regulation. This study identifies a need to further investigate parenting behaviors in conjunction with each other. Also in support of the model, self-regulation appears to predict future externalizing, although only in the maternal and paternal only models. Further, suggesting future research into the effects of parenting and child characteristics in conjunction with each other on the development of externalizing behaviors.

Study Limitations & Future Directions

As with any other investigation, the current study had several notable limitations. One limitation of this study was the small paternal sample size ($N = 96$). This small sample size may be the reason why paternal behaviors did not reach significance in the combined model. The paternal sample was not fully representative of the full sample ($N = 201$). Researchers should make a concerted effort in the future to retain fathers when looking at parental effects.

This study also only investigated low income, European American and African American males ages 10 to 12, limiting the generalizability of the current study’s findings to girls, youth from other social classes, and children of different ages. Studies should be done to compare typically-developing, lower risk parent/child relationships to identify whether the same associations hold for children at lower levels of risk for externalizing problems. On one hand, a strength of the current study is that boys were of the same age at each assessment point. On the other hand, however, the role that parents play at differing ages and stages needs to be investigated longitudinally over longer periods of time and starting at younger ages, as maternal and paternal influence may wax and wane over the years. In order to develop effective, efficient intervention strategies, it is imperative to know when and to what degree parents influence development and when parental influence may diminish.
Additionally, this study did not investigate Morris and colleagues’ (2007) full model. This study was not designed to address the emotional climate of the family or the children’s perceptions and observations of parental behavior. Further explorations into these areas are crucial for testing the full model.

Contributions

Overall, the findings of this study shed an interesting light on the development of externalizing behaviors during the transition to early adolescence. This study highlights the importance of looking at parenting dimensions in conjunction with each other, as well as self-regulation. The influence of parenting is dependent upon the combination of parenting characteristics displayed and by which parent. This study also highlights the importance of fathers in the development of externalizing behaviors in sons. The role of self-regulation also varies depending upon which parenting behaviors are being displayed. Most notably, nothing was a better predictor of early adolescent externalizing problems than prior history of externalizing difficulties. This supports the “early-starting” theory (Moffitt, 2003), that the earlier children begin displaying behavior problems, the more pronounced and long term the effects will be. These findings also lend initial support to Morris and colleagues’ (2007) model that parenting characteristics as well as child characteristics contribute to the development of externalizing behaviors. According to the findings, child self-regulation, paternal antagonism, and maternal regulatory support play important roles in boys’ future externalizing although, not above and beyond the role of prior externalizing.
The goals of the study were met by considering mom and dad data separately and then in conjunction with each other in regards to the predictive power of parental histories, parental parenting, and child self-regulation. Despite study limitations, this study made a contribution to the field of development psychopathology by identifying the need to further investigate the impacts of different parenting behaviors on the development of child externalizing, as well as providing some initial support for Morris and colleagues’ (2007) Tripartite Model of Family Interaction.
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**Table 1**

*Full Sample Demographic Characteristics*

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<th>Study Variable</th>
<th>M (SD) / %</th>
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<tr>
<td>Race/ethnicity</td>
<td>50% European American</td>
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<tr>
<td></td>
<td>50% African American</td>
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<tr>
<td>Marital Status</td>
<td>47% married</td>
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<td></td>
<td>38% to biological dad</td>
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<tr>
<td>Family SES</td>
<td>$28,030 (17,643)</td>
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<tr>
<td>Mom antisocial behavior</td>
<td>1.14 (1.31)</td>
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<tr>
<td>Dad antisocial behavior</td>
<td></td>
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<tr>
<td>Mom regulatory support</td>
<td>.02 (.67)</td>
</tr>
<tr>
<td>Dad regulatory support</td>
<td></td>
</tr>
<tr>
<td>Mom antagonistic behavior</td>
<td>.01 (.61)</td>
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<tr>
<td>Dad antagonistic behavior</td>
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<tr>
<td>Boys’ self-regulation</td>
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<td>Boys’ externalizing (age 10)</td>
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<td>Boys’ externalizing (age 12)</td>
<td>10.38 (9.32)</td>
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<td>N</td>
<td>201</td>
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Table 2

Subsample Demographic Characteristics

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<th>Study Variable</th>
<th>Mom Only</th>
<th>Mom and Dad</th>
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</thead>
<tbody>
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<td></td>
<td>(M (SD) / %)</td>
<td>(M (SD) / %)</td>
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<td>Race/ethnicity</td>
<td>45% European American</td>
<td>56% European American</td>
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<td></td>
<td>47% African American</td>
<td>32% African American</td>
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<tr>
<td>Marital Status</td>
<td>31% married</td>
<td>66% married</td>
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<tr>
<td>Family SES</td>
<td>$24,650 (15,300)</td>
<td>$31,558 (19,253)</td>
</tr>
<tr>
<td>Mom antisocial behavior</td>
<td>1.14 (1.22)</td>
<td>1.26 (1.23)</td>
</tr>
<tr>
<td>Dad antisocial behavior</td>
<td>2.32 (1.82)</td>
<td>1.75 (1.35)</td>
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<td>12.20 (2.74)</td>
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<tr>
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<td>11.47 (8.10)</td>
<td>11.22 (7.52)</td>
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<tr>
<td>Boys’ externalizing (age 12)</td>
<td>10.38 (9.18)</td>
<td>10.47 (8.83)</td>
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<tr>
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Table 3

*Study Variable Correlations (Mom only data; N = 201)*

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<td>.23**</td>
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<td>.09</td>
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<td>.55**</td>
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*Note.* *p* < .05; **p** < .01 (two-tailed). Dummy codes were used for child’s race (1 = white, 0 = non white) and marital status (1 = together, 0 = not married).
Table 4

*Study Variable Correlations (Dad and Mom Subsample; N = 96)*

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<td>.25*</td>
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<td>.20*</td>
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<td>-.10</td>
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<tr>
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<td>.12</td>
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<td>.79**</td>
<td>.17</td>
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<td>.10</td>
<td>.27**</td>
<td>-.42**</td>
<td>.00</td>
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<td>-.18</td>
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<td>-.01</td>
<td>.17</td>
<td>.19</td>
<td>-.33**</td>
<td>.57**</td>
</tr>
</tbody>
</table>

*Note.* *p* < .05; **p* < .01 (two-tailed). Dummy codes were used for child’s race (1 = white, 0 = non white) and marital status (1 = together, 0 = not married).
Table 5

*Results of Hierarchical Regression Analyses for Model One (Mom only data)*

<table>
<thead>
<tr>
<th></th>
<th>Step 1</th>
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<th>Step 3</th>
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<td>-.06</td>
<td>-.03</td>
<td>-.01</td>
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<td>-.14†</td>
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<td>-.46***</td>
<td>-.24***</td>
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<td>.45***</td>
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</table>

| $R^2$                  | .03    | .03    | .04    | .22**  | .35**  |
| $\Delta R^2$           | .00    | .01    | .18*** | .13*** |        |

*Note. All weights are standardized ($\beta$s). † $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$.***
Table 6

Results of Hierarchical Regression Analyses for Model Two (Dad only data)

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<td>Boys’ externalizing age 10</td>
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</table>

\[ R^2 \]  
0.05 0.05 0.14** 0.18* 0.38***

\[ \Delta R^2 \]  
0.00 0.08** 0.05* 0.19***

Note. All weights are standardized (βs). * p < .10; * p < .05; ** p < .01; *** p < .001.
Table 7

*Results of Hierarchical Regression Analyses for Model Three (Dad and Mom Subsample)*

<table>
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*Note.* All weights are standardized (βs). * p < .10; * * p < .05; * ** p < .01; * *** p < .001.
Figure 1

*The Theoretical Model*

- **Parent characteristics** (reactivity, regulation, mental health, family history, history of externalizing behaviors)
- **Adjustment** (internalizing, externalizing, social competence)
- **Parenting practices** (emotionally dysregulated parenting, emotion coaching, reaction to emotions, warmth, control)
- **Child’s emotion regulation** (anger, sadness, fear, positive affect, negative affect, anxiety)