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The relations among family stress, negative parenting, and externalizing behavior problems were examined in a cross-sectional sample of 357 ten year-olds. To assess family stress, a composite of mother-reported strain from parenting, romantic partnership, and chaos within the home was created. To assess negative parenting behavior, a mother-reported composite of poor parental monitoring and inconsistent discipline was created. Externalizing behavior was assessed by teacher and mother-reported scores on the Behavior Assessment System for Children (BASC-2). As hypothesized, findings indicated family stress predicted change in both mother and teacher-reported externalizing behavior problems from five years of age to 10 years of age over and above other covariates such as socioeconomic status. As hypothesized, this relation was partially mediated by mother-reported negative parenting for mother-reported externalizing behavior problems. Contrary to the hypotheses, negative parenting did not fully or partially mediate this relation for teacher-reported externalizing behavior problems. Implications, future directions, and strengths and limitations of the current study were examined.

Keywords: family stress, externalizing behavior, negative parenting

THE EFFECTS OF FAMILY STRESS AND NEGATIVE PARENTING
ON EXTERNALIZING BEHAVIOR
PROBLEMS IN CHILDREN

by

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CHAPTER I

INTRODUCTION

Externalizing behavior problems are maladaptive actions that are directed outward and include delinquency, rule-breaking, aggression, violence, and oppositional, rebellious behavior. Child externalizing behaviors are often thought of as a manifestation of current child maladjustment and a predictor of future psychosocial problems (Liu, 2006), such that externalizing symptoms have been associated with personality disorders, substance abuse, job and academic instability and difficulties, and problems in interpersonal relationships in adulthood (Fosco et al., 2012; Liu, 2006; McGrue & Iacono, 2005). Research has highlighted that the best predictor of adult antisocial behavior, criminality, and violence is adolescent externalizing behavior and the best predictor of adolescent antisocial and violent behavior is childhood externalizing behavior (Dishion & Patterson, 2006; Tesil & Cicchetti, 2007). Given this association, focusing on predictors of externalizing behavior problems before adolescence is of great importance.

Externalizing behavior problems are normative and common in very young children, with levels being highest at two or three years of age (Calkins & Keane, 2009; Tremblay, 2000). Displays of overt, or more easily noticeable, externalizing behavior such as physical aggression tend to decrease overtime as children develop and learn new skills to communicate and effectively achieve their goals (Dishion & Patterson, 2006).

Children are better able to inhibit their immediate emotional reactions to stimuli and contemplate their response before enacting it. This is due to normative gains in verbal fluency and cognitive functioning, coupled with multiple dynamic interactions between children, parents and eventually peers and teachers that help to scaffold appropriate social behavior (Dishion & Patterson, 2006; Gilliom & Shaw, 2004; Silver et al., 2005). By middle childhood, relational aggression and other forms of covert antisocial behavior tend to replace overt antisocial behavior as children become more behaviorally and emotionally regulated and savvy in avoiding detection (Dishion & Patterson, 2006). A longitudinal study of over 2,000 children from four to 18 years of age found three subtypes of externalizing behavior, aggression, oppositionality, and “property violations” such as lying and theft, decreased with age while only status violations, such as truancy and substance abuse, tended to increase with age (Bongers et al., 2004). In the developmental trajectory of externalizing behavior problems, the developmental time points of 5 years of age and 10 years of age are particularly important.

The age of five marks a new developmental milestone for children, the transition to school. Before kindergarten, the home is the context in which children learn about adaptive and effective behavior and the regulation of such behavior (Gilliom & Shaw, 2004; Silver et al., 2005). School is a new environmental context with a novel set of demands, expectations, and rules. With the commencement of kindergarten, children must master regulatory abilities rather quickly or face potential consequences from peers and teachers (Gilliom & Shaw, 2004; Silver et al., 2005). Children must also reconcile what is expected of them at home with what is expected at school. An assessment of

mother-reported and teacher-reported externalizing behavior problems at five years of age captures children's problem behavior just as they enter the structured environment of kindergarten, which is a time of substantial change behaviorally and socially (Gilliom & Shaw, 2004; Silver et al., 2005).

The age of 10 marks another transitional time period of preadolescence.

Preadolescence may be a particularly important time to examine individual differences in externalizing behaviors and their predictors because by ten years of age, normative preadolescent gains in executive functioning, a set of cognitive abilities such as memory, planning, and inhibitory control, are coupled with increases in risky, impulsive behavior (Crone, 2009). For example, Steinberg (2010) found self-reported impulsivity was highest during the preadolescent developmental period and slowly declined with age.

Preadolescence is an important developmental time period of transition from childhood into adolescence. Adolescence itself is a developmental stage that consists of multiple physiological and social changes. These changes may engender a heightened vulnerability to the effects of stress (Calkins, 2010; Casey et al., 2010; Repetti et al., 2011; Romeo, 2010). Psychopathology is more likely to emerge during the developmental time period of adolescence than at any other time point (Casey et al., 2010; Kessler et al., 2005; Romeo, 2010). Some physiological systems are maturing at a faster rate than other systems (Casey et al., 2010; Steinberg, 2010). For example, the prefrontal cortex, which governs planning and decision-making, although developing rapidly, has not made the same gains as other systems or structures in the brain, such as the amygdala (Casey et al., 2010). For adolescents, emotionally-valenced cues produce a

stronger reaction in the amygdala, an area in the brain which processes negative emotions such as fear or anger, in comparison to younger children and adults (Casey et al., 2010). As a result, adolescents typically experience increased emotional lability in comparison to their younger and older counterparts (Casey et al., 2010). Therefore, emotionally-laden stimuli such as family stress may be that much more difficult to effectively cope with than during other periods of development. Lastly, research with animal models has illustrated the HPA axis undergoes a sensitive period approximately when the organism reaches puberty, during which the HPA axis is especially vulnerable to stress (McEwen, 2007; Repetti et al., 2011). Individuals entering this sensitive period with higher levels of stress may be at a particularly increased risk for negative outcomes, such as externalizing behavior problems.

Although externalizing behavior problems tend to decrease over time, some children maintain or increase the display of externalizing problems, thus leading to multiple maladaptive outcomes across development. According to the developmental psychopathology perspective, the ontogeny of externalizing behavior results from dynamic interactions at several hierarchical and organizational levels between a multitude of biological and environmental factors (Cicchetti, 2006). One environmental context that may be particularly influential in the development of externalizing behaviors is family stress. Although peers and the scholastic environment become increasingly salient for preadolescents, the family context is still important and affects behavioral outcomes (Forehand et al., 1991). Family stress can be conceptualized as the resulting strain when demands within the family outweigh the family's resources needed to effectively cope

with those demands (Boss, 2002). It may be that increases in family stress, and the psychosocial risk factors that are associated with these increases, do not facilitate the development of appropriate behavioral control. Further, negative parenting may serve as a mediating mechanism through which family stress is related to externalizing behavior problems. Specifically, increased family stress may impair a caregiver's ability to effectively and consistently parent, thus resulting in increased negative parenting, which in turn influences children's inability to control their behavior. Therefore, the current study examined the relation between family stress and externalizing behavior and the mediating role of negative parenting in this association.

Theoretical Issues

The Biosocial Interaction Model of Childhood Externalizing Behavior asserts that psychosocial risk factors are particularly salient environmental factors for the maintenance and increase of externalizing behavior such that their presence is associated with an increased likelihood of maladaptive patterns of behavioral functioning (Liu, 2004). Psychosocial risk factors can include, but are not limited to, stress resulting from parental responsibilities, strain in romantic partnerships, and a chaotic home environment.

Psychosocial risk factors do not occur in isolation. Cumulative risk theory posits that as the number of risk factors increases, regardless of type, combination, or degree, the greater the likelihood of negative outcomes (Appleyard et al., 2005; Lanza et al., 2011). Rutter (1979) examined how six risk factors, such as marital conflict, maternal psychopathology, and overcrowding within the home, increased the likelihood of

psychopathology in 10 year olds. As the number of risk factors in the child's life increased, so did the likelihood of psychopathology. Sameroff and colleagues examined how 10 risk factors, such as stressful life events, affected behavioral and cognitive outcomes in the Rochester Longitudinal Study (Sameroff et al., 1987). The RLS is an ongoing longitudinal study that has assessed participants from birth; and researchers have consistently found that the sheer number of risk factors, not their constellation, was predictive of concurrent and future problems across several domains, including academic performance, behavior problems, and IQ, at every assessment (Sameroff et al., 2000). Appleyard et al. (2005) examined the efficacy of a cumulative risk model in predicting behavior problems, as well as the role of timing in how risk affected 171 children from 12 months to 16 years of age. Cumulative early risk significantly predicted internalizing and externalizing behavior problems, as reported by parents, teachers, and the adolescents, at 16 years of age. Risk factors occurring during middle childhood did not significantly predict adolescent behavior problems; although this may be due to utilizing teacher-report only for their outcome of externalizing behavior problems. Findings from cumulative risk research highlight the importance and utility of examining multiple risk factors that are interrelated and tend to co-occur.

In accordance with cumulative risk theory, previous family stress research has utilized multiple psychosocial risk factors to operationalize the construct of family stress and to better understand the relation between family stress and child behavior problems (Appleyard et al. 2005; Rutter, 1979). While there are many strengths of this literature, there are several limitations. The variety and nature of risk is not usually taken into

consideration, and this may constrain information that can be gleaned from this research for interventions and preventions (Lanza et al., 2011). Specificity of risk factors that can and should be addressed in preventions and interventions cannot be determined using cumulative risks. For example, it is not practical to focus intervention or prevention efforts on 12 possible psychosocial risks that are both distal and proximal in nature. It would be more beneficial to identify particularly salient, interconnected risks occurring within a particular environmental domain that can be targeted for preventions and interventions. Further, cumulative risk theories often dichotomize psychosocial risks as being present or absent, thus significantly reducing the amount of variance that can be attributed to these psychosocial risk factors and limiting the conclusions that can be drawn regarding the degree to which these psychosocial risks matter. Developmental theory highlights that not all risk factors affect children and adolescents equally.

Both Sameroff's transactional model (2000) and Bronfenbrenner's (1977) ecological theory emphasize the importance of the environmental context. There are multiple transactions between the individual and proximal factors in the mesosystem, which is the child's immediate environment, and distal factors in the exosystem, which is not within the child's immediate environment but still affects the child. Salient factors within the mesosystem can include the home environment or interactions with caregivers, and factors within the exosystem can include a caregiver's work or the neighborhood in which the family resides. Therefore, theoretically-driven cumulative risk models specifically addressing such environmental factors related to externalizing behavior problems may be more useful and informative. Thus, the current study attempted to

address these concerns by focusing on multiple, yet specific, psychosocial risks associated with family stress, including parenting stress, partner stress, and home chaos.

Family Stress and Externalizing Behavior

Family stress is aversive and taxes each individual within the family, draining them of cognitive, physical, and emotional energy. According to family systems theory, families are organized units made up of subsystems that are interdependent and dynamically influence each other; and no one individual or subsystem can be fully understood in isolation (Benson, Buehler, & Gerard, 2008; Cox & Paley, 2003; Nelson et al., 2009). According to the spill-over hypothesis, which is couched in family systems theory, impaired functioning in one subsystem, such as distress between romantic partners, can affect the functioning of another subsystem, such as the parent-child relationship (Cox & Paley, 2003; Nelson et al., 2009; Therefore, it is not only ineffective to examine stress occurring within just one subsystem, but potentially inaccurate because strain spills-over into the other subsystems.

One such way this spill-over can occur is threatening emotional security. The emotional security hypothesis proposed by Davies and Cummings (1994) states that children derive, interpret, and internalize information about themselves and their world from interparental conflict. Interparental conflict can engender a set of physiological and behavioral responses children engage in to restore or maintain feelings of emotional security that are threatened during this conflict. These responses can include: emotional dysregulation, which can be demonstrated physiologically or behaviorally; regulation of exposure to the conflict, in which children may directly insert themselves into the conflict

or actively avoid it; and lastly, children can alter their internal working models of their family unit and themselves (Davies & Cummings, 1994). Chronic or frequent interparental conflict can lower the threshold needed for children to engage in these behaviors. Felt emotional security within the family unit is related but separate and distinct from felt security within parent-child relationships (Davies & Cummings, 1994; Davies & Formann, 2002).

While the emotional security hypothesis is specifically about the deleterious effects of partner stress on children, the principles of this theory are applicable to the effects of family stress in general. Conflict and chaos may engender feelings of uncertainty and threat, which can overwhelm children, and thus lead to maladaptive behavioral displays, including externalizing behavior. Conflict within the family subsystems can spill-over into the organization, routines, and structure provided within the home. Individuals, particularly children and adolescents, thrive on predictability, structure, routines, and stability; and therefore chaos and disorganization within the home can lead to maladjustment (Evans et al., 2005). Children and adolescents are learning cause and effect relationships and learning to effectively attend to and cope with stimuli; when an environment is unpredictable and chaotic, these cause and effect relationships may be less easily differentiated, and children and adolescents may be overwhelmed by stimuli and engage in maladaptive behavioral displays, including externalizing behavior (Bronfenbrenner & Evans, 2000; Hardaway et al., 2012).

Lastly, conflict and chaos can engender a negative, tense climate within the home (Anthony et al., 2005; Thompson & Meyer, 2006). Children can be adversely affected by

parents' negative emotions, even if the emotions are not directed at them (Thompson & Meyer, 2006). Children must expend precious regulatory resources and energy on coping with the effects of family stress instead of processing events that occurred at school or practicing new skills. Children may not be able to regulate themselves at home or school as effectively because their regulatory resources are already taxed. Externalizing behavior in particular may elicit desired attention from distracted, stressed caregivers to children that may otherwise not be effectively attended to because this type of behavior is more easily seen than internalizing behavior problems (Achenbach, McConaughy, & Howell, 1987).

While researchers have differed in how they conceptualize and assess family stress, parenting stress, partner stress, and chaos within the home are all risk psychosocial factors that have been theoretically tied to the construct of family stress and empirically linked to externalizing outcomes in children and adolescents (Anthony et al., 2005; Davies & Cummings, 2002; Deater-Deckard et al., 2009). These stressors may have a greater impact on externalizing behavior problems because exposure to them is direct and immediate, as opposed to more distal factors such as parental work stress. Parenting and romantic partner stress capture strain from the relationships within the home, and chaos is the context in which these relationships are embedded. Parenting stress, partner stress, and chaos within the home effectively capture the home environment, a context in which the child spends a lot of time. The home environment is where a child usually begins and ends his or her day; processing events from other environments such as school and extracurricular activities, and learning how to

effectively cope with differing environmental demands. Parenting stress, partner stress, and chaos within the home are conceptually and empirically intertwined and dynamically influence one another (Crnic & Low, 2002; Wachs & Evans, 2010). These factors contribute to the overall climate of the home and therefore, in combination, are a good indicator of general family stress.

Parenting Stress

Parenting stress is defined as stress and strain due to the demands, duties, and expectations of being a parent (Anthony et al., 2005). Parenting stress can affect children and adolescents by negatively affecting the overall “emotional climate of the family” (Thompson & Meyer, 2006, p. 257). Various child outcomes are associated with increases in parenting stress, including increases in externalizing and internalizing behavior problems and other self-regulatory deficits (Anthony et al., 2003; Campbell et al., 1996). Although parenting a child with externalizing behavior problems can be quite difficult and behavior problems may increase levels of parenting stress, there is evidence that parenting stress directly impacts externalizing behavior problems. For example, Blader (2006) found higher levels of parenting stress predicted higher levels of later externalizing behavior, but higher levels of externalizing behavior did not predict higher levels of later parenting stress.

Empirical work supports the association between parenting stress and children’s externalizing behaviors. For example, Crnic, Gaze, and Hoffman (2005) examined the effects of cumulative parenting stress on parenting and behavior problems in 125 children at five years of age. Mothers completed a questionnaire on the frequency and intensity of

20 daily hassles associated with parenting and endorsement of negative experiences listed in the Life Experiences Survey. Results indicated stressors were relatively stable across time, and both types of cumulative stress predicted both mother-reported and observer-reported child behavior problems and indices of emotion dysregulation. Parenting behavior did not mediate the relation between both types of stress and child behavior problems and negativity. The researchers even controlled for child negativity, and parenting stress still predicted later child behavior problems. Anthony et al. (2005) examined how parenting stress predicted teacher-reported levels of externalizing behavior, and found parenting stress accounted for significant variance in externalizing behavior, above and beyond the effects of parenting behavior. The link between parenting stress and externalizing behavior was not significantly mediated by parenting behavior. These studies indicate that the actual stress experienced by the parent has a unique influence on children's behavior above and beyond the effects of parenting behavior. This may be due to the overall climate in the family that is being engendered by parental stress.

Partner Stress

Returning to family systems theory, because families are comprised of interdependent subsystems and strain from one subsystem can spill-over into another subsystem, stress between mothers and their partners can affect children as well as parenting stress (Nelson et al., 2009). This may occur by threatening emotional security (Davies & Cummings, 1994; Davies & Formann, 2002). There is evidence suggesting higher levels of partner stress and conflict is associated with higher levels of maladaptive

outcomes for children, including externalizing behavior (Campbell et al., 1996; Davies & Cummings, 2002; El-Sheikh et al., 2009; Gerard, Krishnakumar, & Buehler, 2006; Krishnakumar & Buehler, 2000).

The association between partner stress and externalizing behavior cannot be reduced to how partner stress can affect parenting or the parent-child relationship. Buehler and Gerard (2002) examined if ineffective parenting, conceptualized as higher levels of parent-child conflict and harsh discipline and lower levels of parental involvement, mediated the link between partner conflict and negative outcomes in children and adolescents. Researchers utilized data from 2,541 families in the National Survey of Families and Households. Results indicated that ineffective parenting only partially mediated the link between partner conflict and child and adolescent adjustment problems, meaning partner conflict had direct effects on child and adolescent adjustment problems. Stone, Buehler, and Barber (2002) found parental psychological control, a type of ineffective parenting characterized by intrusiveness, did not fully or partially mediate the link between interparental conflict and child behavior problems in two separate samples of children between 10 and 15 years of age. Interparental conflict did, however, significantly predict both internalizing and externalizing behavior problems in the sample of almost 900 participants indicating that partner stress, like parenting stress, has a unique influence on children's behavior above and beyond the effects of parenting.

Home Chaos

Chaos within the home is another source of family stress and levels of disorganization, chaos, and environmental confusion, defined as general conditions or

elements in the home that can be seen as stressful or distracting, are highly correlated with frequency of stressful life events and overall stress levels reported by parents (Deater-Deckard, 2009). Chaos, disorganization, and a lack of routines may engender feelings of uncertainty, unpredictability or threat and lead to maladjustment (Evans et al., 2005).

Chaos is associated with negative child behaviors and psychopathology (Deater-Deckard et al., 2009; Dumas et al., 2005; Matheny & Wachs, 1995; Nelson et al., 2009; Pike et al., 2006), including child outcomes indicative of self-regulatory deficits, such as emotional lability, increased reactivity to distress, and increased levels of internalizing and externalizing behavioral symptoms (Deater-Deckard, 2009; Dumas et al., 2005). Home chaos has been shown to be associated with not just concurrent externalizing behavior, but future levels of externalizing behavior as well (Deater-Deckard, 2009). Previous research has illustrated consistent links between household chaos and externalizing behavior problems from infancy to throughout adolescence (Fiese & Winter, 2010; Hardaway et al., 2012).

Empirical work by Coldwell, Pike, and Dunn (2006) examined how household chaos is related to parenting and behavior problems in 188 families with children between four and eight years old. Household disorganization was assessed by the Confusion, Hubbub, and Order Scale (CHAOS) that has been used in previous research and asks about noise levels, unpredictability, disorganization, differing schedules of people living in the house, and crowdedness. Maternal and paternal reports of household chaos significantly predicted level of child behavior problems for both older and younger

siblings, above and beyond the effects of parenting. Similarly, Deater-Deckard et al. (2009) found household chaos significantly predicted concurrent and future levels of child externalizing behavior problems above and beyond the effects of stressful life events, parental warmth, and parental negativity in 306 families. This effect was found even after taking into account other salient housing conditions, such as clutter, cleanliness, and safety. These studies indicate that the effects of household chaos on children's behavioral problems cannot be reduced to its effects on parenting. Household chaos has a direct, unique effect on child behavioral outcomes.

Although some empirical work provides evidence that the family stress psychosocial risk factors of parenting stress, partner stress, and household chaos are directly associated with externalizing behavioral problems in children, inconsistencies still remain in the family stress literature. For example, additional research suggests negative parenting can play a mediating role. Therefore, negative parenting that may arise in the context of parenting stress, romantic partner stress, and a chaotic home environment, may partially mediate the association between family stress and children's externalizing problems.

Negative Parenting and Externalizing Behavior

Research has illustrated that family stress can have both direct and indirect effects on parenting, as well as child behaviors and psychopathology (Anthony et al., 2003; Crnic, Gaze, & Hoffman, 2005; Webster-Stratton, 1990). Therefore, one possible mechanism explaining the link between family stress and externalizing behaviors is negative parenting, such that family stress may increase the amount of negative

parenting. Negative parenting can be defined as ineffective parenting techniques, such as inconsistent discipline or poor monitoring, that when utilized, have a higher likelihood of maladaptive outcomes (Shelton, Frick, & Wootton, 1996). Family stress can affect a parent's mood and existing psychopathology, consume time and energy, drain physical and emotional regulatory resources, and thus alter a parent's ability to sensitively, effectively, and consistently interact with a child (Campbell, 1995; Campbell et al., 1996; Morgan, Robinson, & Alridge, 2002; Nelson et al., 2009).

There is empirical support illustrating the association between family stress and negative parenting. For example, increased parenting stress is associated with unrealistic expectations of child behavior, and increased use of negative parenting tactics, such as harsh discipline, inconsistent discipline, controlling and intrusive behavior, and coercion (Abidin, 1995; Anthony et al., 2003; Campbell et al., 1996; Crnic, Gaze, & Hoffman, 2005; Morgan, Robinson, & Alridge, 2002; Webster-Stratton, 1990;).

Home chaos is also associated with more negative parenting tactics, such as punitive, harsh discipline, and inconsistent discipline (Deater-Deckard, 2009; Dumas et al., 2005; Nelson et al., 2009). For example, Nelson et al. (2009) examined several sources of family stress and found spill-over effects specifically from home chaos and marital dissatisfaction, but not for maternal depression or job dissatisfaction, onto parent-child interactions. Parents suffering from high levels of home chaos and marital dissatisfaction displayed significantly less supportive reactions to their children's negative emotions.

Several studies found similar results regarding the effects of romantic partner stress on parents and children (Campbell et al., 1996; Davies & Cummings, 2002; El-Sheikh et al., 2009; Gerard, Krishnakumar, & Buehler, 2006; Krishnakumar & Buehler, 2000). There is evidence of spill-over effects from marital conflict onto parent-child conflict (Gerard, Krishnakumar, & Buehler, 2006). Higher levels of marital stress and marital dissatisfaction are correlated with negative parenting tactics, including harsh and inconsistent discipline, and intrusive and controlling parent behavior (Campbell et al., 1996; Davies & Cummings, 2002; El-Sheikh et al., 2009; Gerard, Krishnakumar, & Buehler, 2006; Krishnakumar & Buehler, 2000). In a meta-analysis of 39 studies examining the link between interparental conflict and parenting behavior, Krishnakumar and Buehler (2000) found a consistent, moderate correlation between increased levels of conflict and stress and increased levels of negative parenting. Kaczynski et al. (2006) also found ineffective parenting, as measured by child report and laboratory observation, fully mediated the link between marital conflict and externalizing behavior in 226 children aged seven to 11 years old. Benson, Buehler, and Gerard (2008) found inconsistent discipline partially mediated the association between interparental conflict and externalizing behavior problems in almost 2,000 sixth graders.

Two types of negative parenting, inconsistent discipline and poor parental monitoring, may be especially salient in the development of externalizing behavior problems. Inconsistent discipline may contribute to externalizing behavior problems by unintentionally reinforcing negative behaviors (Dishion & Patterson, 2006; Patterson, 1982). Patterson's (1982) coercion model posits that externalizing behavior may be

maintained and escalate due to repeated coercive interactions in which parents actually reinforce delinquent and maladaptive behavior. For example, during an interaction, a child may respond to a parental request with a negative behavior, such as yelling or screaming. The parent may respond with anger, escalating the negative interaction, or give in to the child by altering the request. Children learn these maladaptive behaviors are effective and may then utilize these strategies in different environmental contexts and relationships, such as in school with teachers and peers. Also, inconsistent discipline does not allow parents to clearly establish consistent consequences for maladaptive behaviors. Children may be more likely to engage in maladaptive behaviors if the risk for negative consequences is less evident.

Poor parental monitoring can also lead to externalizing behavior problems (Dishion & Patterson, 2006). This is because poor monitoring may lead to greater opportunities for deviancy training, in which peers socialize and positively reinforce delinquent behaviors, and more opportunities to engage in deviant acts. A major contributor to the maintenance and increase in delinquency from middle childhood to adolescence is the influence of peers (Dishion et al, 1996, Dishion & Patterson, 2006) and there is evidence that deviancy training is occurring during middle childhood (Dishion & Tipsord, 2011). Even if parents are able to eventually deter unhealthy relationships with deviant peers, poor parental monitoring may delay that process. It may take longer for poorly-monitoring parents to discover such friendships and behaviors, and a pattern of delinquent behavior may already be established (Dishion & Patterson, 2006).

In summary, parenting stress, partner stress, and chaos within the home collectively are indicators of family stress, and are theoretically and empirically supported psychosocial risk factors for the development of externalizing behavior. Family stress may have direct effects on children's behavior problems, such that increases in family stress are associated with increases in externalizing behavior problems. This may be due in part to how family stress impacts parenting. Higher levels of family stress may lead parents to engage in higher levels of negative parenting tactics. Therefore, family stress may have direct and indirect effects on children's behavior, and negative parenting may play a mediating role. While there is an established link between family stress and externalizing behavior, a wide range of outcomes for children exposed to family stress is still possible and further research is necessary (Boss, 2002; El Sheikh et al., 2009).

Limitations of Previous Research and the Current Study

Family stress is an important psychosocial risk factor for the development and maintenance of externalizing behavior problems in children and preadolescents. Although there are many strengths in the previous literature, there are some gaps. Davies and Cicchetti (2004) argue there is a dearth of studies utilizing both developmental psychopathology and family systems perspectives, and this study was informed by and incorporated both. The limitations of cumulative risk theories are that variance may be lost because risk factors are often dichotomized as present versus absent (Lanzana et al., 2011). Utilizing a composite measure of multiple stressors within the family home environment, created by transforming scores on measures into z-scores and summing

them, will allow for variation in the severity of the risk factor. This is not only more informative, but more accurately captures the continuous nature of stressors in real life. The current study examined three interrelated, proximal risk factors specifically within the home environment unlike other models that include a multitude of both proximal and distal factors, while also taking into account that risk factors tend to co-occur and strain within family subsystems cannot be effectively examined in isolation of one another. Also, although parenting stress, partner stress, and home chaos have been examined in isolation or in combination with other risk factors, there is a paucity of research examining these three specific factors together.

Parenting research has been dominated by examinations of maternal warmth and hostility, but less has focused on inconsistent discipline and poor monitoring, which may be particularly salient factors during the preadolescent developmental period (Dishion & Patterson, 2006). Also, as some studies have found full (Kacynski et al., 2006), partial (Buehler & Gerard, 2002), or no mediating effects (Anthony et al., 2005) of negative parenting, more research is needed to elucidate the relations among family stress, negative parenting, and externalizing behavior.

Lastly, previous research has often relied on single reporters of problem behavior (Achenbach, McConaughy, & Howell, 1987; Appleyard et al., 2005; Barry et al., 2007; Ostrander & Herman, 2006). Inter-rater correlations of preadolescent child behavior are often statistically significant, but only small in magnitude, suggesting they are tapping into slightly different constructs. For example, a meta-analysis conducted by Achenbach and colleagues suggested correlations among differing reporters of behavior problems

average .28 (Achenbach, McConaughy, & Howell, 1987). It is possible children may act out primarily at home or school, not both, or parental psychopathology or the social desirability bias skews parent-reports. Some researchers have successfully utilized composite measures of mother and teacher-reported externalizing behavior in an effort to capture the different contexts that can elicit differential behavior (Barry et al., 2007; Ostrander & Herman, 2006). However, using a composite measure from both teachers and parents may obscure potential differences in the relations among family stress, negative parenting, and behavior problems that are due to the reporter of externalizing behavior.

Better measurement and assessment of these constructs will help with the design and implementation of more effective intervention and prevention programs, as well as having a more accurate interpretation of the relations among these constructs. Past research indicates there are direct effects of family stress on externalizing behavior, as well as indirect effects via parenting. Family stress may impair parenting such that parents engage in more negative tactics; therefore, parenting practices may mediate the association between family stress and externalizing behavior. Preadolescence is an important developmental time period of transition from childhood into adolescence. There are multiple co-occurring physiological and social changes that take place during adolescence; and these changes engender a heightened vulnerability to the deleterious effects of stress. Individuals entering this sensitive period with higher levels of family stress and higher levels of negative parenting may be at a particularly increased risk for negative outcomes. Therefore, the relations between family stress, negative parenting,

and externalizing behavior during the developmental period of preadolescence were further examined in the current study.

Goals and Hypotheses of Current Study

The present study had several goals and hypotheses aimed to investigate individual differences in and relations among family stressors, parenting practices, physiological regulation, and externalizing behavior problems in a cross-sectional sample of 357 ten-year olds.

Goal 1): The first goal was to examine the relations between a composite measure of family stress, which assessed parenting stress, romantic partner stress, and chaos within the home, and both mother and teacher-reported externalizing behavior problems in ten-year olds.

Hypothesis 1): It was expected that concurrent family stress would be positively associated with externalizing behavior problems in preadolescents, meaning higher levels of family stress would be associated with higher levels of both mother and teacher-reported externalizing behavior problems. Family stress would significantly predict levels of externalizing behavior, above and beyond any significant demographic covariates.

Goal 2): As theoretical and empirical work has indicated that there are mediating factors in the relation between family stress and behavior problems in addition to direct effects, the second goal was to examine whether negative parenting, specifically a composite of inconsistent discipline and poor monitoring, would mediate the relation between family stress and externalizing behavior problems.

Hypothesis 2a): It was expected that negative parenting would partially mediate the relation between family stress and both mother and teacher-reported externalizing behavior problems, as defined by Baron and Kenny (1986).

Hypothesis 2b): Family stress would significantly relate to negative parenting. Family stress would be positively associated with negative parenting, meaning higher levels of family stress would be associated with higher levels of negative parenting.

Hypothesis 2c): Negative parenting would be associated with externalizing behaviors. Higher levels of negative parenting would significantly relate to higher levels of both mother-reported and teacher-reported externalizing behavior.

Hypothesis 2d): The association between family stress and externalizing behavior would significantly decrease when negative parenting was added to the model. However, it was expected there would still be a significant association between family stress and both mother-reported and teacher-reported externalizing behavior even with negative parenting in the model, suggesting a partial mediation.

CHAPTER II

METHODS

Participants

The participants were 357 ten year-olds from three cohorts in a longitudinal study assessing developmental trajectories of externalizing and internalizing behavior problems, and the familial, physiological, and psychosocial risk and resiliency factors that mediate and moderate these trajectories. Participants were assessed at 2, 4, 5, 7, and 10 years of age for the longitudinal study, however measures from the five year and 10 year assessment only were utilized for the current study. Participants for the current study included those preadolescents who (a) had mother-reported measures of family stress and negative parenting (b) had mother and teacher-reported measures of externalizing behavior at both five years of age and ten years of age and (c) had data about control variables.

Participants were originally recruited from the Women, Infants, and Children (WIC) program, Guilford County Health Department, and day cares. Cohorts 1 and 2 were recruited when they were two years old, whereas Cohort 3 was recruited when participants were six months old. Participants at risk for developing externalizing behavior problems were oversampled and consist of 37% of the original 447 participants. T-scores of 60 or higher on the externalizing subscale of the Child Behavior Checklist (CBCL) were used to classify participants in Cohorts 1 and 2 as “at-risk,” while

laboratory-assessed and parent-reported frustration reactivity were used as criteria to classify participants in the third cohort. There were 357 families that participated in the 10-year assessment. Attrition from the original 447 was due to an inability to locate or contact families, or families relocating geographically, or terminating participation in the study. Previous analyses had determined there were no significant differences in sex, race, or SES between participants still involved in the study and those who attrited.

In the current sample, 53.8% of participants were female. Also, 65% were Caucasian, 28.5% African-American, 4% “biracial” and 2.3% “other.” The average age at the time of the visit was 128.06 months (10.6 years-old). The majority of mothers (97.3%) were biologically related to the child participants, and 69.8% were married, 2.5% were remarried, 6.2% were separated, 11.7% were divorced, and 9.8% were single. Approximately 85% of mothers obtained at least some college education. Hollingshead socio-economic status scores ranged from 12 to 66, with a mean of 44.29 and a standard deviation of 12.04.

Procedure

Laboratory Assessments

When children were approximately 10.5 years old, they came to the lab with their guardians and both completed several laboratory tasks and questionnaires. Children earned tickets for the tasks they completed as an incentive to try their best.

Measures

Family Stress

A composite score was created by from standardized scores on the following three measures. Scores were standardized by transforming them into z-scores. The mean score from each measure was subtracted from an individual's score and that resulting number was divided by the measure's standard deviation. The standardized scores from each measure were summed to create a single composite score. The three measures were significantly correlated at the $p < .001$ level. CHAOS had a .47 correlation with the PSI and a .37 correlation with the RDAS, and the PSI had a .37 correlation with the scores on the RDAS. The Cronbach's alpha for the family stress composite was .92.

The *Parenting Stress Index Short Form* (PSI-SF; Abidin, 1995) is a 36-item questionnaire assessing overall stress from parenting, including the perceived difficulty of the child, quality of functioning as a parent, and functionality of parent-child relationship. The PSI-SF is based on the original 120-item PSI and was created using factor analysis. The PSI-SF possesses similar adequate convergent and divergent construct validity to the original PSI, and has been successfully used in diverse populations. The PSI-SF produces three subscales; and one-year test-retest reliabilities range from .68 to .85 and internal consistency ranges from .80 to .91. The Total Stress score was utilized, which is an indication of overall levels of parenting stress and is calculated by summing all of the items on the PSI-SF. Scores can range from 36 to 180; and scores over 90 characterize highly stressed parents.

The *Confusion, Hubbub, and Order Scale* (CHAOS; Matheny & Wachs, 1995) is a 15-item, true/false self-report questionnaire assessing the amount of perceived environmental confusion, disorganization, and general “chaos” in the household. Environmental confusion is defined as general conditions or elements in the home that can be stressful or distracting. Examples include noise, daily schedules of family members, and crowding. Higher scores indicate higher levels of confusion and disorganization. The CHAOS scale has an internal consistency of .79 and a test-retest reliability of .74. CHAOS possesses excellent divergent and convergent validity; and has been successfully used with diverse populations. The total sum of all 15 items was utilized to indicate levels of disorganization, chaos, and confusion.

The *Revised Dyadic Adjustment Scale* (RDAS; Busby et al., 1995) is a 14-item questionnaire assessing the overall quality of a romantic partnership. It is a shorter version of the 32-item Dyadic Adjustment Scale. The RDAS measures consensus, satisfaction, unity, and levels of conflict between partners. The RDAS has an overall reliability of .90 and possesses good construct validity. Ten of the 14 items were reverse-scored and summed with the remaining four items to create an overall score reflecting conflict, distress, and dissatisfaction. This overall score has been used previously as a proxy of relationship stress (Nelson et al., 2009).

Negative Parenting

The *Alabama Parenting Questionnaire* (APQ; Shelton, Frick, & Wootton, 1996) is a 42-item self-report questionnaire about parenting practices. There are five subscales, including Involvement, which assesses the quantity of parent-child activities and

interactions, the Positive Parenting, which assesses praise, affection, and other attempts to reward adaptive child behavior, Poor Monitoring/Supervision, which assesses how informed parents are of their children's daily activities, Inconsistent Discipline, which assesses how often parents fail to carry-out discipline as they originally intended, and Corporal Punishment, which assesses the frequency of spanking or slapping as a form of discipline. Previous research has effectively combined the Inconsistent Discipline and Poor Monitoring/Supervision subscales to create a measure of maladaptive parenting (Prevatt, 2003). Scores on the Poor Monitoring/Supervision and Inconsistent Discipline were transformed into z-scores and then summed to create a maladaptive parenting composite. The Inconsistent Discipline and Poor Monitoring subscales were significantly correlated at $p < .001$, with a correlation of .32, suggesting these scales can be combined. The Cronbach's alpha of the negative parenting composite was .70.

Externalizing Behaviors

The *Behavior Assessment System for Children 2nd ed.* (BASC-2nd ed.; Reynolds & Kamphaus, 2004) is a widely used questionnaire assessing adaptive and maladaptive behaviors, including internalizing and externalizing symptoms. The BASC-2 has successfully been used with diverse populations and demonstrates high internal consistency, particularly for its externalizing subscale, high test-retest reliability, and moderate inter-rater reliability between parents and teachers. The BASC-2 displays excellent convergent validity, and the externalizing subscale is highly correlated with CBCL's externalizing subscale (Gladman & Lancaster, 2003). The General-T Externalizing subscale from the *Teacher Report Scale* and *Parent Report Scale* only were

utilized for statistical analyses. The *General-T* subscales have a mean of 50 and a standard deviation of 10, and are representative of the US population. The Cronbach's alpha for the parent-reported General-T Externalizing subscale was .92. The Cronbach's alpha was .96 for the teacher-reported General-T Externalizing subscale.

CHAPTER III

RESULTS

Statistical Plan

There were two goals of the current study. The first was to examine the relation between concurrent family stress and externalizing behavior problems. The second goal was to examine whether negative parenting mediated the relation between family stress and externalizing behavior problems. A composite measure of family stress was created by transforming scores on the PSI, RDAS, and CHAOS measures into z-scores and summing them. This composite of family stress was created in such a way that higher scores indicated higher levels of stress. A composite measure of negative parenting was created by transforming scores on the APQ's inconsistent discipline and poor parental monitoring subscales into z-scores and summing them. Hierarchical regression analysis was utilized to examine relations among family stress, negative parenting, and externalizing behavior.

Missing Data

Missing data from the RDAS, PSI, CHAOS, and APQ were imputed using the Expectation Maximization (EM) method. This was done by calculating the most probable response for the missing item given the participant's previous responses and the overall distribution of the data. Imputation was conducted at the item-level only and conducted for variables with less than 5% missing for the entire sample. Imputation was conducted

only if participants had at least half of the responses needed to calculate a score for a given variable. EM imputation was not conducted for scores on the BASC. Scores on the BASC are standardized and normed for age and gender. Imputation may adversely affect the BASC's standardization in a manner that may be inconsistent with the way the measure was intended to be utilized and/or interpreted.

To examine if there were systematic differences between participants with and without complete data on all study variables, several t-tests were conducted. T-tests revealed those with and without complete data did not significantly differ on several variables of interest including: scores on the composite of family stress, composite of negative parenting, mother-reported externalizing behavior at five years of age, teacher-reported externalizing behavior at five years of age, mother-reported externalizing at 10 years of age, or teacher-reported externalizing behavior at 10 years of age. There were also no differences between those with and without complete data in participant race, sex or family structure. However, t-tests revealed participants with complete data had significantly higher Hollingshead scores ($M = 45.81$, $SD = 11.02$) than those with missing data ($M = 43.04$ $SD = 12.72$), $t(324) = -2.08$, $p < .05$.

Preliminary Analyses

The descriptive statistics of all study variables, including means, standard deviations, range of scores, skew, and kurtosis appear in Table 1. Results indicate there was adequate variation in and distribution of all variables.

To consider the potential need for covariates, relations among demographic variables and study variables were analyzed. T-tests revealed males displayed higher

levels of externalizing behavior as rated by mothers ($M = 47.79$, $SD = 7.84$) than females ($M = 45.76$, $SD = 7.96$), $t(303) = 2.43$, $p < .05$. Teachers also rated males as displaying higher levels of externalizing behavior ($M = 51.36$, $SD = 10.07$) than females ($M = 46.59$, $SD = 6.58$), $t(200.66) = 4.50$, $p < .001$. T-tests revealed differences between Caucasian and non-Caucasian children, with non-Caucasian children being rated by teachers as displaying higher levels of externalizing behaviors ($M = 51.63$, $SD = 10.66$) than Caucasian children ($M = 47.23$, $SD = 6.95$), $t(134.17) = -3.6$, $p < .001$. T-tests revealed children of single, divorced, or separated mothers were rated by mothers as displaying higher levels of externalizing behavior ($M = 49.33$, $SD = 9.10$) than children of married or remarried mothers ($M = 45.89$, $SD = 7.40$), $t(117.50) = -3.01$, $p < .01$. Teachers also rated children of single, divorced, or separated mothers as displaying higher levels of externalizing behavior ($M = 50.49$, $SD = 9.87$) than children of married or remarried mothers ($M = 47.79$, $SD = 8.24$), $t(252) = -2.33$, $p < .05$. Due to these significant associations, child sex, child race, and mother's marital status were utilized as covariates in the hierarchical regression analysis. The family stress composite was also significantly negatively correlated with socioeconomic status, indicating higher levels of family stress were associated with lower levels of socioeconomic status. Families of married or remarried mothers had significantly higher Hollingshead scores, an index of socioeconomic status ($M = 45.61$, $SD = 10.76$), than families of single, divorced, or separated mothers ($M = 40.86$, $SD = 14.10$), $t(127) = 2.86$, $p < .001$. Caucasian children had significantly higher Hollingshead scores ($M = 46.17$, $SD = 11.83$) than non-Caucasian children ($M = 40.73$, $SD = 11.67$), $t(324) = 3.96$, $p < .001$. Due to these

significant associations and to ensure the family stress composite was not just a proxy for socioeconomic status, Hollingshead scores were also utilized as a covariate in the hierarchical regression analyses.

Bivariate Analyses

Correlations among study variables can be found in Table 2. Mother and teacher-reported externalizing behavior was positively correlated with the mother-reported composite of family stress, the mother-reported composite of negative parenting, and mother and teacher-reported previous externalizing behavior at five years of age. The mother-reported composite of family stress was positively correlated with the mother-reported negative parenting composite, indicating higher levels of family stress are associated with higher levels of inconsistent discipline and poor monitoring. Along with the positive association among concurrent externalizing behavior, family stress was also associated with both mother-reported and teacher-reported externalizing behavior at 5 years of age, indicating higher levels of family stress were associated with higher levels of previous and concurrent levels of externalizing behavior problems. All associations were in the expected direction and consistent with previous literature.

Hierarchical Regression Analyses

To assess the first goal of testing whether family stress predicts externalizing behavior at age 10, two sets of hierarchical regressions were utilized. Relations among predictors were examined separately for mother-reported and teacher-reported externalizing behavior. In Step 1, previous externalizing behavior at age 5 and the covariates of child sex, child race, mother marital status, and socioeconomic status were

regressed onto externalizing behavior. Previous externalizing behavior, race, and mother-marital status significantly predicted mother-reported externalizing behavior at age ten. Higher levels of previous externalizing behavior, minority status, and having a single, divorced, or separated mother were associated with higher levels of later mother-reported externalizing behavior. Previous externalizing behavior, race, and sex significantly predicted teacher-reported externalizing behavior at age ten. Higher levels of previous externalizing behavior, minority status, and being male were associated with higher levels of later teacher-reported externalizing behavior.

In Step 2, controlling for previous level of externalizing behavior and the covariates entered in Step 1, the composite measure of family stress was regressed onto externalizing behavior problems at 10-year. Family stress significantly predicted both mother and teacher-reported externalizing behavior above and beyond the covariates and previous level of externalizing behavior. Higher levels of family stress were associated with higher levels of mother and teacher-reported externalizing behavior, congruent with the hypothesis. Tables 3 and 4 illustrate these findings.

For completeness and to provide empirical evidence of the utility of the stress composite, two separate sets of hierarchical regressions were conducted to examine the independent effects of parenting stress, partner stress, and chaos within the home on mother and teacher-reported externalizing behavior problems. Relations among predictors were examined separately for mother-reported and teacher-reported externalizing behavior. In Step 1, previous externalizing behavior at age 5 and the covariates of child sex, child race, mother marital status, and socioeconomic status were

regressed onto reported externalizing behavior. The relations were the same as the hierarchical regressions examining the stress composite. Higher levels of previous externalizing behavior, minority status, and having a single, divorced, or separated mother were associated with higher levels of later mother-reported externalizing behavior. Higher levels of previous externalizing behavior, minority status, and being male were associated with higher levels of later teacher-reported externalizing behavior.

In Step 2, controlling for previous level of externalizing behavior and the covariates entered in Step 1, parenting stress, partner stress, and chaos within the home were regressed onto externalizing behavior problems at 10-year. Parenting stress ($\beta = .32$, $p < .001$) and chaos within the home ($\beta = .13$, $p < .01$) significantly and independently predicted mother-reported externalizing behavior above and beyond the covariates and previous level of externalizing behavior. Though not statistically significant, there was a trend positive association between partner stress and mother-reported externalizing behavior ($\beta = .07$, $p = .12$). Higher levels of parenting stress, chaos within the home, and partner stress were associated with higher levels of mother-reported externalizing behavior, congruent with the hypothesis, although not all of these associations were significant. All independent associations were in the expected direction and the stress composite significantly predicted mother-reported externalizing behavior, providing evidence for the utility of the stress composite. None of the components of the family stress composite, parenting stress ($\beta = .09$, $p = .28$), chaos within the home ($\beta = .01$, $p = .95$), or partner stress ($\beta = .13$, $p = .11$) were significantly associated with teacher-reported externalizing behavior when all three were simultaneously in the model,

however all associations were in the expected direction and there was a trend association between partner stress and externalizing behavior. As the relation between the family stress composite and teacher-reported externalizing behavior was significant and the independent effects of parenting stress, partner stress, and chaos within the home were all in the expected direction, this suggests there is utility in examining the combined effects of these stressors as a composite.

To assess the second goal of examining whether negative parenting mediates the link between family stress and externalizing behavior, a series of hierarchical regressions were utilized following techniques outlined by Baron and Kenny (1986) for mediational analyses. Mother-reported and teacher-reported externalizing behavior were examined separately. Four conditions must be met for mediation, and each model must be significant for full mediation to be established. First, the family stress composite was regressed onto mother-reported externalizing behavior, which was conducted to test the first goal. Family stress significantly predicted mother-reported externalizing behavior ($\beta = .27, p < .001$). Next, the family stress composite was regressed onto the mother-reported negative parenting composite of inconsistent discipline and poor monitoring. Family stress significantly predicted negative parenting ($\beta = .32, p < .001$). Third, negative parenting was regressed onto the outcome variable, mother-reported externalizing behavior. Negative parenting significantly predicted mother-reported externalizing behavior ($\beta = .30, p < .001$). Lastly, both family stress and negative parenting were regressed onto externalizing behavior. Full mediation occurs if the relation between family stress and externalizing drops to nonsignificance with negative parenting in the

model. Partial mediation occurs if the link between family stress and externalizing behavior significantly decreases, even though the link between the two is still significant. As both family stress ($\beta = .18, p < .001$) and negative parenting ($\beta = .27, p < .001$) significantly predicted externalizing behavior indicating a potential partial mediation, a Sobel test was utilized to determine if the decrease in the relation between family stress and externalizing behavior was significant. The Sobel test revealed negative parenting did partially mediate the relation between family stress and externalizing behavior (Sobel = 3.76, $p < .001$), suggesting the positive association between family stress and mother-reported externalizing behavior was due, in part, to how family stress negatively affects parenting. These findings support the hypothesis that negative parenting would partially mediate the relation between family stress and externalizing behavior.

The same set of hierarchical regressions was utilized to examine whether negative parenting mediated the association between family stress and teacher-reported externalizing behavior. Family stress significantly predicted externalizing behavior ($\beta = .18, p < .05$). Family stress significantly predicted negative parenting ($\beta = .47, p < .001$). Negative parenting significantly predicted teacher-reported externalizing behavior ($\beta = .21, p < .001$). Lastly, neither negative parenting ($\beta = .15, p = .08$) nor family stress ($\beta = .11, p = .19$) significantly predicted externalizing behavior when both variables were included in the model, although there was a trend association between negative parenting and externalizing behavior. Therefore, Baron and Kenny's (1986) criteria for mediation was not met and there was no evidence for full or partial mediation, contrary to the hypothesis. Tables 5, 6, 7, 8 and Figure 1 illustrate these findings.

Table 1

Descriptive Statistics for Study Variables and Measures that Comprised the Study Variables.

Study Variables	N	Range	Mean (SD)	Skew (SE)	Kurtosis (SE)
PSI Total Stress Score	324	36 – 134	65.86 (18.48)	.77 (.14)	.79 (.27)
Total Chaos Sum	320	0 - 14	3.15 (3.18)	1.07 (.14)	.23 (.27)
Total Marital Dissatisfaction	288	7 - 68	22.02(10.12)	1.41 (.14)	2.82 (.29)
Stress Composite	285	-3.93 – 7.84	.00 (2.35)	.79 (.14)	.15 (.29)
Externalizing General T-Scores (parent-report 10yr)	305	34 - 77	46.75 (7.97)	1.02 (.14)	1.37 (.28)
Externalizing General T-Scores (teacher-report 10yr)	272	41 - 83	48.72 (8.63)	1.58 (.15)	2.22 (.29)
Externalizing General T-Scores (parent report 5yr)	326	27-92	46.06 (10.50)	1.06 (.14)	2.31 (.27)
Externalizing General T-scores (teacher-report 5yr)	257	36 – 90	47.68 (9.48)	1.32 (.15)	2.24 (.30)
Poor Monitoring	322	10 - 25	12.81 (2.76)	1.28 (.14)	1.78 (.27)
Inconsistent Discipline	322	6 - 21	12.3 (3.23)	.21 (.14)	-.33 (.27)
Negative Parenting Composite	322	-2.97 – 5.36	0 (1.63)	.74 (.14)	.66 (.27)

Table 2

Correlations Among Study Variables.

Variables at 10yr	1	2	3	4	5	6
1. Mother-Reported Externalizing						
2. Teacher-Reported Externalizing	.42 ^{***}					
3. Stress Composite	.52 ^{***}	.20 ^{**}				
4. Negative Parenting Composite	.47 ^{***}	.24 ^{***}	.44 ^{***}			
5. Socioeconomic Status (Hollingshead Score)	-.08	-.06	-.14 [*]	-.06		
6. 5yr Mother-Reported Externalizing	.70 ^{***}	.34 ^{***}	.46 ^{***}	.40 ^{***}	-.03	
7. 5yr Teacher-Reported Externalizing	.30 ^{***}	.43 ^{***}	.14 [*]	.25 ^{***}	-.01	.37 ^{***}

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

Table 3

Goal 1) Summary of Regression Analysis for Family Stress Predicting 10-year Mother-Reported Externalizing Behavior Problems (N =223)

	Externalizing (mother-reported @ 10 yr)		
	β	t	ΔR^2
Step 1			.53***
Externalizing (mother reported @ 5yr)	.67***	13.92	
Sex	-.05	-.96	
Race	.11*	2.41	
Mother Marital Status	.13**	2.76	
SES (Hollingshead)	.01	.23	
Step 2			.06***
Stress Composite	.27***	5.51	

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

Table 4

Goal 1) Summary of Regression Analysis for Family Stress Predicting 10-year Teacher-Reported Externalizing Behavior Problems (N =154)

	Externalizing (teacher report @ 10 yr)		
	β	t	ΔR^2
Step 1			.26***
Externalizing (teacher report @ 5yr)	.34***	4.60	
Sex	-.22**	-3.00	
Race	.20**	2.67	
Mother Marital Status	.07	.95	
SES (Hollingshead)	-.05	-.62	
Step 2			.03*
Stress Composite	.18*	2.34	

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

Table 5

Goal 2) Summary of Regression Analysis for Family Stress Predicting Mother-Reported Externalizing Behavior Problems and the Mediating Role of Negative Parenting Behavior (N =223)

	Externalizing (mother-reported @ 10 yr)		
	β	t	ΔR^2
Model 1			
Step 1			.54***
Externalizing (mother-reported @ 5yr)	.67***	13.92	
Sex	-.05	-.96	
Race	.11*	2.41	
Mother marital status	.13**	2.76	
SES (Hollingshead)	.01	.23	
Step 2			.06***
Stress Composite	.27***	5.51	
Model 2			
Step 1			.54***
Externalizing (mother-reported @ 5yr)	.67***	13.92	
Sex	-.05	-.96	
Race	.11*	2.41	
Mother marital status	.13**	2.76	
SES (Hollingshead)	.01	.23	
Step 2			.08***
Negative Parenting Composite	.33***	7.13	
Step 3			.02***
Stress Composite	.18***	3.72	

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

Table 6

Goal 2) Summary of Regression Analysis for Family Stress Predicting Teacher-Reported Externalizing Behavior Problems and the Mediating Role of Negative Parenting Behavior (N =154)

	Externalizing (teacher-reported @ 10 yr)		
	β	t	ΔR^2
Model 1			
Step 1			.26***
Externalizing (teacher-reported @ 5yr)	.34***	4.60	
Sex	-.22**	-3.00	
Race	.20**	2.67	
Mother marital status	.07	.95	
SES (Hollingshead)	-.05	-.62	
Step 2			.03*
Stress Composite	.16*	2.39	
Model 2			
Step 1			.26***
Externalizing (teacher-reported @ 5yr)	.34***	4.6	
Sex	-.22	-3.00	
Race	.20**	2.67	
Mother marital status	.07	.95	
SES (Hollingshead)	-.05	-.62	
Step 2			.03**
Negative Parenting Composite	.20**	2.67	
Step 3			.01
Stress Composite	.11	1.32	

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

Table 7

Goal 2) Summary of Regression Analysis for Family Stress Predicting 10-year Mother-Reported Externalizing Behavior Problems and Mediating Role of Negative Parenting Behavior (N =223)

Predictors	b(s.e.)	t	F	df	R ²	Sobel
			Model 1			
Stress Composite	.94(.17)***	5.51	53.28	(6, 216)	.60	
			Model 2			
Negative Parenting Composite	1.34(.23)***	5.73				
Stress Composite	.62(.17)***	3.72	57.09	(7, 215)	.65	3.76***

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

Table 8

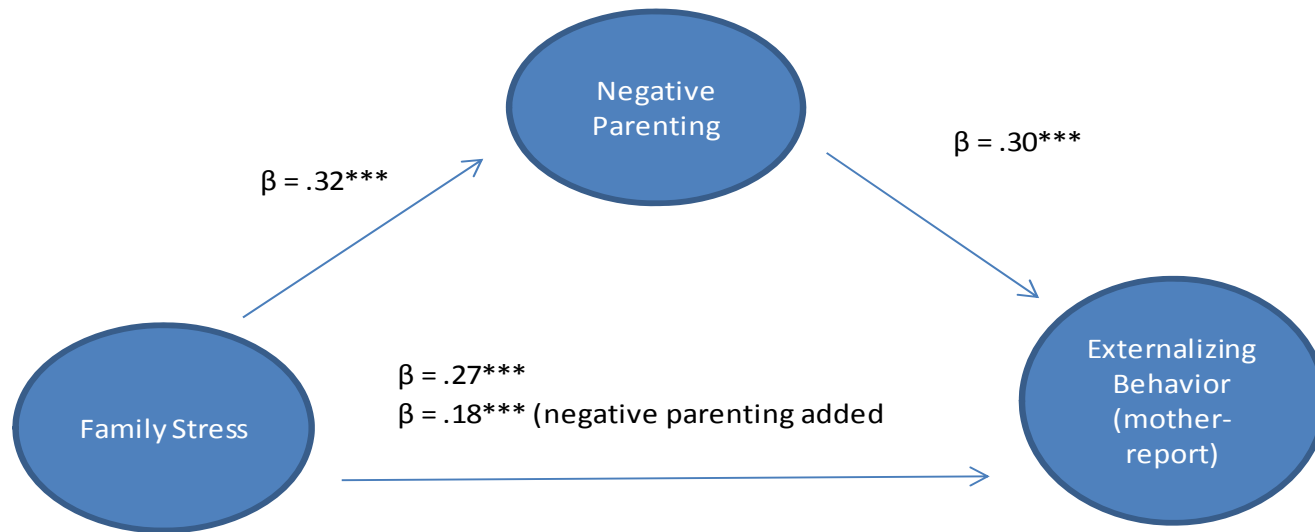
Goal 2) Summary of Regression Analysis for Family Stress Predicting 10-year Teacher-Reported Externalizing Behavior Problems and Mediating Role of Negative Parenting Behavior (N =154)

Predictors	b(s.e.)	t	F	df	R ²	Sobel
			Model 1			
Stress Composite	.60(.25)*	2.39	10.04	(6, 147)	.29	
			Model 2			
Negative Parenting Composite	.69(.39) [†]	1.77				
Stress Composite	.37(.28)	1.32	9.18	(7, 146)	.31	

[†] $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$

Figure 1

Figure Illustrating the Mediating Role of Negative Parenting



CHAPTER IV

DISCUSSION

The current study examined the relations among family stress, negative parenting, and child externalizing behavior problems in a large, community sample of 10 year olds. As the best predictor of externalizing behavior is past externalizing behavior, and adolescence may be a particularly salient developmental time point for the effects of stress and trajectory of externalizing behavior, examining psychosocial risk factors during preadolescence is essential (McEwen, 2007; Repetti et al., 2011; Tesil & Cicchetti, 2007). According to the Biosocial Interaction Model of Childhood Externalizing Behavior, psychosocial risk factors are particularly pertinent environmental factors that influence the development and maintenance of externalizing behavior problems (Lui, 2004). Often these psychosocial risk factors tend to co-occur, and cumulative risk research has illustrated that the more numerous the risk factor, the higher likelihood of negative psychosocial outcomes (Appleyard et al., 2005; Rutter, 1979; Sameroff, 1998). There is a paucity of research examining specifically the combined effects of maternal parenting stress, romantic partner stress, and chaos within the home on externalizing behavior problems. Stress from parenting and romantic partners reflect strain in relationships within the home, and home chaos reflects the potentially stressful context in which this strain occurs. While it is important to examine

multiple risk factors for externalizing behavior, there are limitations to cumulative risk theory including: treating all risks as being either present or absent, an inability to determine degree or severity of risk, and examining less interconnected proximal and distal factors within the same model (Lanza et al., 2011). There are fewer studies examining poor parental monitoring and inconsistent discipline in comparison to those examining warmth, sensitivity, and hostility. This study added to existing literature by utilizing a theoretically-based set of multiple stressors specific to the home environment rather than a multitude of nonspecific risk factors, examining poor parental monitoring and inconsistent discipline instead of more generalized aspects of parenting, and utilizing multiple reporters of children's behavior. Findings from this study illustrate the complex nature of the interplay among family stress, negative parenting, and externalizing behavior problems.

The Role of Family Stress

There were two goals of the current study. The first goal was to examine the relation between concurrent mother-reported family stress and externalizing behavior problems in ten year-old children as reported by mothers and teachers. It was expected that family stress would predict level of externalizing behavior, even after taking into account other potential factors such as previous level of parent and teacher-reported externalizing behavior, child sex, child race, mother marital status, and socioeconomic status. Congruent with expected outcomes, family stress did significantly predict change in both mother-reported and teacher-reported externalizing behavior from five years of age to ten years of age, consistent with previous literature (Appleyard et al., 2005; Crnic,

Gze, & Hoffman, 2005; Dishion & Patterson, 2006; Hardaway et al., 2012). The deleterious effect of family stress on the level of externalizing behavior displayed both at home and at school could not be reduced to the strain from socioeconomic hardship, which is consistent with other research that suggests constructs such as home chaos are related to but distinct from socioeconomic status (Coldwell, Pike, & Dunn, 2006; Hardaway et al., 2012; Wachs & Evans, 2010). The effect of family stress on concurrent externalizing behavior also could not be reduced to a child's pre-existing trajectory of externalizing behavior, which is also consistent with previous literature (Blader, 2006).

Despite differences in the strength of the associations among the independent effects of parenting stress, partner stress, and chaos within the home, all were in the expected direction for both mother and teacher-reported externalizing behavior problems. Although none of the three individual family stress predictors were statistically significant, suggesting there is something unique about the combined effects of these specific components of family stress, there was a trend association among partner stress and teacher-reported externalizing behavior. Conversely, for mother-reported externalizing behavior problems, both parenting stress and chaos within the home were significantly and independently associated with externalizing behavior, however there was only a trend association for partner stress. This may be because externalizing behavior and conflict within peer relationships, which previous research suggests is more easily observable by teachers than parents, is most directly connected with and similar to conflict between romantic partners (Katz, 2007; Miner & Clarke-Stewart, 2008). Conflict styles, such as yelling or intimidation, may be modeled in peer relationships and there

may be more opportunities for teachers rather than mothers to observe conflict within peer relationships (Katz, 2007; Miner & Clarke-Stewart, 2008).

The differences in the strength of the associations among components of family stress highlight the importance of examining externalizing behavior in multiple contexts. Despite these differences, findings from this study also provide evidence for the utility of examining the combined effects of multiple, interrelated risk factors that capture the home environment. As family systems theory explicates, the family unit is comprised of multiple, dynamically interacting subsystems that cannot truly be assessed or understood in isolation (Cox & Paley, 2003). Spill-over strain from one subsystem can impair functioning in another subsystem and contribute to the overall climate within the home (Cox & Paley, 2003; Nelson et al., 2009).

The Mediating Role of Negative Parenting

The second goal was to examine if negative parenting, specifically a composite of poor parental monitoring and inconsistent discipline, would mediate the association between family stress and externalizing behavior. Family stress may drain parents of physical, emotional, and cognitive resources and impair a caregiver's ability to effectively and consistently parent. Previous research illustrates a link between increases in family stress and increases in negative parenting (Anthony et al., 2005; Deater-Deckard, 2009; Nelson et al., 2009; Webster Stratton, 1990). Inconsistent discipline can inadvertently reinforce maladaptive child behaviors via coercive processes, while poor parental monitoring can lead to greater opportunities for children to engage in delinquent behavior (Dishion & Patterson, 2006; Patterson, 1982; Shelton, Frick, & Wootton, 1996).

Although there is some research that suggests negative parenting is the mechanism driving the link between family stress and externalizing behavior problems (Kaczynski et al. 2006), other research suggests that while negative parenting may play a role, family stress still has independent effects (Crnic, Gaze, & Hoffman, 2005; Deater-Deckard, 2009). Therefore, it was expected mother-reported negative parenting would partially mediate the relation. The results differed depending on the reporter of externalizing behavior. Findings indicated negative parenting partially, but not fully, mediated the relation between family stress and mother-reported externalizing behavior, which is consistent with some previous literature and the study's hypotheses. This suggests the positive association between family stress and mother-reported externalizing behavior was, in part, due to how family stress impacts mother-reported negative parenting. As family stress increased within the household, poor parental monitoring and inconsistent discipline also increased, which predicted higher levels of externalizing behavior. However, as there was no evidence for full mediation, findings suggest family stress has a unique, direct effect on mother-reported externalizing behavior, above and beyond the effects of negative parenting or that other unidentified mediators are at work. This independent effect may be because parenting stress, partner stress, and chaos within the home contributes to the overall climate within the home.

Contrary to the hypotheses and some previous literature, mother-reported negative parenting did not fully or partially mediate the link between family stress and teacher-reported externalizing behavior problems. There may have been a lack of power to detect the mediating effects of negative parenting on family stress and teacher-reported

externalizing behavior. There were 154 participants with complete teacher-reported data versus the 223 participants with complete parent-reported data. Hoeve et al. (2009) conducted a meta-analysis of over 160 studies examining the association between types of parenting, including poor parental monitoring and inconsistent discipline, and externalizing behavior problems. Even the strongest associations had only small-to-modest effect sizes (Hoeve et al., 2009). The same small or modest effect found with parent-reported data may not have been detectable with fewer participants. Each of the conditions for Baron and Kenny's (1986) guidelines for mediation were met in the current study, except for the final condition of the mediator significantly predicting the outcome variable while the independent variable was also included in the model. Though not significant, there was a trend association between negative parenting and teacher-reported externalizing behavior, while family stress was included in the model, suggesting power may have been an issue.

Alternatively, differences in environmental context and reporter may be why there were mediating effects for mother-reported but not teacher-reported externalizing behavior. Displays of externalizing behavior may be context dependent. Some children and preadolescents may only act out in certain environmental contexts such as home. Although some researchers, such as Keiley et al. (2000), argue children that display behavior problems at home are also more likely to display externalizing behaviors at school and that behavior is more similar than not across environmental contexts, other researchers have argued children that act out at home may not be the same ones acting out in school (Miner and Clarke-Stewart, 2008).

A setting such as a classroom may not adequately capture the negative effects of poor parental monitoring and inconsistent discipline because a mother's parenting may not truly affect measurable change in behavior in another context in which they are not a part of as much as other potentially more salient factors, such as peer relationships or influences of the teacher. For example, there is ample research that illustrates the importance of the student-teacher relationship and how it can affect problem behavior above and beyond the influence of the parent-child relationship (Silver et al., 2005). The same problem behavior exhibited at home may be absent in the classroom because the teacher does effectively monitor students, provide consistent discipline, and clear boundaries. There may be fewer opportunities for externalizing behavior problems that may result from negative parenting in a classroom that is highly structured. This may be evidenced by some previous research suggesting teachers, on average, report lower levels of externalizing behavior problems than mothers, non-parental caregivers, and the children themselves (Keiley et al., 2000; Miner & Clarke-Stewart, 2008; Youngstrom, Loeber, & Stouthamer-Loeber, 2000). The overall climate engendered in the classroom may be a more salient influence on classroom behavior than the climate engendered in the home by family stress and negative parenting (Anthony et al., 2005).

Additionally, all students were not taught by the same teacher, and differences in teaching style may obscure potential associations among constructs. Anthony et al. (2005) found no mediating effects of parenting behavior on the relation between parenting stress and teacher-reported externalizing behavior problems. Researchers argued the stark differences among teachers' teaching style and overall ability to

effectively control and monitor classroom behavior, differences that have been illustrated in previous literature, may have eclipsed the potential mediating role of negative parenting (Anthony et al., 2005).

Conversely, the differences in the mediating effects of negative parenting may be because of each reporter's perceptions and biases and how these perceptions affect relations among externalizing behavior, family stress and negative parenting.

Externalizing behavior is a multidimensional construct encompassing many types of behaviors, including defiance, rule-breaking, proactive and reactive aggression, bullying, cheating, and disruptive, distracting behavior; and certain behaviors may be especially salient and more easily recalled by different reporters. While there were significant differences between reporters in level of externalizing behavior, Youngstrom, Loeber, and Stouthamer-Loeber (2000) found larger differences in the type and compilation of externalizing behavior as reported by mothers and teachers than the overall level of externalizing behavior. For example, although teachers may be more knowledgeable about what is developmentally appropriate or problematic behavior in comparison to mothers, teachers still may be especially sensitive to particular subtypes of externalizing, such as behaviors that result in classroom disruptions, and these specific behaviors may be less likely to be mediated by negative parenting (Keiley et al., 2000; Miner & Clarke-Stewart, 2008).

Previous research has found stronger links between family stress and mother-reported, rather than teacher-reported, externalizing behavior; as well as illustrated a negative association between family stress and concordance among raters of behavior

problems, meaning as family stress increased, concordance rates among reporters decreased (Youngstrom, Loeber, & Stouthamer-Loeber, 2000). This may be due to mothers being able to view their children in varying contexts, not just at home, and true differences in displays of externalizing behavior (Miner & Clarke-Stewart, 2008). However, it may also be because of inflated correlations among variables due to shared-method variance, as mother-reports were utilized for all constructs (Miner & Clarke-Stewart, 2008; Youngstrom, Loeber, & Stouthamer-Loeber, 2000). High levels of family stress may color a mother's perception of the efficacy of her own parenting and her child's display of externalizing behavior, and lower the threshold for what she considers "problematic." For example, there is ample research supporting the depression distortion hypothesis, which posits that depression may increase the likelihood of mothers reporting overly negative assessments of themselves, their environments, and their children in comparison to other raters of the same information (Youngstrom, Loeber, & Stouthamer-Loeber, 2000).

The differential mediating effect of negative parenting on family stress and externalizing behavior highlight the importance of context. Achenbach, McConaughy, and Howell (1987) argue that no single reporter is more valid than another at capturing externalizing behavior, and there may be "situational specificity" in the display of behavior problems (p. 227). Therefore it is essential to not only obtain assessments of externalizing behavior from multiple reporters, but to examine data from these reporters separately and with the knowledge they are tapping into valid, yet slightly different constructs.

Strengths and Limitations

There are several strengths of the current study. Examining multiple stressors that capture the home environment and that are theoretically and empirically linked, instead of examining a singular index or an unrealistically large number of indices of family stress, is a strength of this study. Psychosocial risk factors for externalizing behavior problems tend to co-occur (Appleyard et al., 2005), and examining strain from parenting, romantic partners, and chaos within the home may better capture the home environment than any one of these factors alone and is more aligned with the principles of family systems theory. Intervention and prevention efforts may be better assisted and informed by research examining fewer more interrelated sources of stress rather than a multitude of factors that may not be as closely related.

A strength of the study is that the statistical tests were quite conservative and several variables, including previous externalizing behavior and socioeconomic status, were taken into consideration. Family stress still predicted level of externalizing behavior as rated by multiple reporters, and these effects were not due to previous trajectory of externalizing behavior alone or the stress engendered by socioeconomic difficulties. This study had a large sample size that was racially diverse, females comprised approximately half of the sample, and participants came from families of varied socioeconomic and educational backgrounds. Also, the current study's sample came from a larger longitudinal study in which children at-risk for developing externalizing behavior problems were over-sampled for, which ensured there was variability and presence of a phenomenon that normatively declines with age (Tremblay, 2000).

Another strength is the utilization of multiple reporters of externalizing behavior. Both parents and teachers have different opportunities and contexts to observe how preadolescents behave. For example, parents interact with and can observe their children in many different environmental contexts, such as at home, doctor appointments, or the grocery store, and with many different types of people, including family, friends, and strangers. Teachers have developmentally appropriate behavioral expectations and observe children with peers and interact in structured settings with clear goals, such as working on assignments independently or in groups, as well as being able to compare multiple children of the same age. Both mother and teacher-reports of externalizing behavior are valid, however these assessments must be examined separately because of the “situational specificity in the display of externalizing behavior problems (Achenbach, McConaughy, & Howell, 1987).

Despite its strengths and potential implications, this study is not without limitations. Although mothers may be more honest in reporting less stigmatizing types of negative parenting, such as inconsistent discipline rather than corporal punishment, and observational methods may be particularly limited in assessing the parenting constructs of interest in this study, utilizing maternal reports of family stress, negative parenting, and externalizing behavior is a limitation because correlations among these variables may be artificially inflated. Future research examine the relations among family stress, negative parenting, and externalizing behavior, but also take into account potential psychopathology, such as depression, than can skew a reporter’s perceptions. Further, maternal report of family stress may be qualitatively different than what a child is

actually exposed to. Future research should incorporate multiple assessments of family stress from other family members in the home such as fathers and the children themselves. Not only would another perspective on the household be beneficial, there is a growing body of research that suggests the processes and relations among psychosocial risk factors for externalizing behaviors in children may be different for fathers and mothers (Nelson et al., 2009; Cummings, Keller, & Davies, 2005; Buist et al., 2004; Connell & Goodman, 2002). Also, child reports may more accurately measure levels of family stress to which children are actually exposed (Krishnakumar, Buehler, & Barber, 2003; Benson, Buehler, & Gerard, 2008).

The lack of examination of sibling relationships, an important subsystem within the family and contributor to the overall climate in the home, is another limitation in this study. Sibling relationships play an important role in children's processing of and coping with family stress (Fosco et al., 2012). Siblings may be protective, helping buffer strain between a mother and child or between romantic partners. They may be able to shield their brothers and sisters from conflict or be able to explain the conflict or home chaos in such a way that it is less stressful for the child. Alternatively, siblings may exacerbate the deleterious effects of family stress via deviancy training, by modeling deviant behavior or providing the preadolescent with opportunities to engage in risky behavior (Dishion & Patterson, 2006; Fosco et al., 2012).

Additionally, this study did not examine how positive parenting may play a role in the relation between family stress and externalizing behavior. Previous research has shown the presence of positive parenting may buffer the harmful effects of family stress

or negative parenting behaviors (McKee et al., 2007). Future research should explore how sibling relationships and positive parenting can affect the relations among family stress, negative parenting, and externalizing behavior.

Another limitation was that the current study had different samples for each set of analyses. Although levels of externalizing behavior, as reported by mothers and teachers, were similar in the current study, the samples in each set of regressions were not directly comparable as they were not exactly the same sample of participants. This is because list-wise deletion was utilized for missing data, which removes participants from a set of analyses, such as hierarchical regression, if they do not have complete data (Barlandi & Enders, 2010). List-wise deletion allows researchers to compare across steps within the hierarchical regression and provides unbiased beta estimates, and therefore is preferred over pair-wise deletion (Barlandi & Enders, 2010). If pair-wise deletion had been utilized, the sample size would have been higher, but only very limited conclusions could be drawn about relations within the same analyses because each regression in the hierarchical regression would have contained a different sample (Barlandi & Enders, 2010). Although preferred, list-wise deletion has its drawbacks, including how it can adversely affect sample size and thus power, which may have occurred with this study (Barlandi & Enders, 2010).

Due to the differences between the samples across the hierarchical regression analyses, there are implications for the conclusions that can be drawn from the current study. There may have been differential findings about the mediating effects of negative parenting across mother and teacher-reported externalizing behavior simply because they

were different samples. For example, as teachers are reporting on all students within their classroom, they may be consciously or unconsciously comparing students to their peers, and possibly best remember those students at the extremes. Single imputation techniques were utilized in the study to reduce the number of participants that would be excluded due to incomplete data.

Additionally, socioeconomic status was the only variable of interest in which those in the sample with complete data and those with at least some missing data significantly differed, providing evidence the samples may be more similar than different. Participants with complete data on all study variables had slightly higher Hollingshead scores, indicating higher a socioeconomic status. Although providing evidence of the similarity of those with complete and incomplete data, there still was a significant difference and this may potentially reduce the generalizability of findings. However socioeconomic status was controlled for in all analyses and the scores for those with complete data and those without fell within the same classification bracket of the Hollingshead, the “medium business, minor professional, technical” group. Therefore the difference was statistically significant, but mostly likely the groups were not qualitatively different from each other. Despite this, findings from the current study must be interpreted with caution as the samples differed across statistical analyses and therefore are not directly comparable.

Lastly, the cross sectional nature of this study limits conclusions that can be drawn from its findings. While the current study adopted a developmental psychopathology perspective, it could not truly examine developmental processes, as that

would require multiple time points for all constructs. Longitudinal studies examining the long-term associations among family stress, specifically the cumulative effects of parenting stress, romantic partner stress, and chaos within the home, negative parenting, and externalizing behavior, are needed. Future research should incorporate more sophisticated models and person-oriented, rather than variable-oriented statistical analyses.

Implications

Notwithstanding its limitations, there are several potential implications of the current study. First, even though preadolescence is a time marked by the increased salience of peers and the scholastic environment, this study illustrates family and the home environment are significantly associated with and predict not only problem behaviors observed in the home, but also behavior problems at school. The current study's findings suggest the home environment is still an important influence on children's behavioral outcomes, even during the preadolescent time period. Secondly, this study's findings suggest environmental influences can impact behavioral outcomes, which is consistent with previous literature and theory. Lastly, this study has implications for prevention and intervention efforts. Although cumulative risk models powerfully illustrate that as the number of risks increase so do deleterious outcomes, these models may be far removed from prevention and intervention efforts. It is not feasible for an intervention to target 10 risk factors that are often in interconnected but markedly different domains, such as neighborhood quality, work stress, and maternal psychopathology. It is feasible, however, to specifically target relationships within the

home and the routines, organization, and structure of the home. Regardless of actual exposure, the presence of mother-reported family stress was associated with higher levels of both mother-reported and teacher-reported externalizing behavior problems. While this was due in part to how family stress potentially increases the likelihood of mothers engaging in negative parenting for mother-reported externalizing problems, family stress still had a direct, unique effect on externalizing behavior.

Externalizing behavior is extremely problematic and often results in negative consequences for the children that engage in these behaviors, and can alter the quality of environments in which they occur. For example, externalizing behavior of one student can detract from the learning experience of others in the classroom. Engaging in externalizing behavior may alienate children from their peers, constrain important opportunities to learn new skills or prosocial behaviors, and place children on a potentially dangerous developmental trajectory that increases the likelihood of psychosocial difficulties in adulthood. Therefore, it is crucial to further examine and elucidate the complex relations among family stress, parenting, and externalizing behavior problems.

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APPENDIX A

MEASURES

BASC –PRS and TRS (items are numbered differently for the PRS and TRS)

Aggression

Annoys others on purpose
Argues when denied own way
Argues with parents
Bullies others
Calls other children names
Defies teachers (or caregivers)
Hits other children
Is cruel to others
Loses temper too easily
Seeks revenge on others
Teases other
Threatens to hurt others

Hyperactivity

Acts out of control
Acts without thinking
Bothers other children when they are working
Cannot wait to take turn
Disrupts other children's activities
Disrupts the schoolwork of other children
Fiddles with things while at meals
Has poor self-control
Has trouble staying seated
Interrupts others when they are speaking
Interrupts parents when they are talking on the phone
Is overly active
Is unable to slow down
Seeks attention while doing schoolwork

Conduct Problems

Breaks the rules
Breaks the rules just to see what will happen
Cheats in school
Deceives others
Disobeys

Gets into trouble
Lies
Lies to get out of trouble
Sneaks around
Steals
Steals at school
Uses others' things without permission

PSI

1. Feel that I cannot handle things
2. Gave up my life for children's needs
3. Feel trapped by parenting responsibilities
4. Unable to do new and different things
5. Never able to do things that I like to do
6. Unhappy with last purchase of clothing for myself
7. Quite a few things bother me
8. Having a child caused problems with spouse
9. Feel alone and without friends
10. Expect not to enjoy myself at parties
11. Not as interested in people as I used to be
12. Don't enjoy things as I used to
13. Child rarely does things for me
14. Child does not like me or want to be close
15. Child smiles at me less than expected
16. My efforts for child aren't appreciated
17. My child doesn't giggle or laugh much when playing
18. Child doesn't learn as quickly as other children
19. Child doesn't smile as much as other children
20. Child isn't able to do as much as expected
21. Takes a long time for child to get used to new things
22. Parent's rating of competence
23. Expected to have closer feelings for my child
24. Child does things that bother me to be mean
25. Child cries or fusses more often than other children
26. Child wakes up in a bad mood
27. Child is moody and easily upset
28. Child does things that bother me a great deal
29. Child reacts strongly
30. Child gets upset easily
31. Child's sleeping or eating schedule hard to establish
32. Getting child to do something is hard
33. Parent report a number of bothersome things child does
34. Child does some things that bother me
35. Child is more of a problem than expected
36. Child makes demands of me

CHAOS

1. There is very little commotion in our home (R)
2. We can usually find things when we need them (R)
3. We almost always seem to be rushed
4. We are usually able to stay on top of things (R)
5. No matter how hard we try, we always seem to be running late
6. It's a real zoo in our home
7. At home we can talk to each other without being interrupted (R)
8. There is often a fuss going on at our home
9. No matter what our family plans, it usually doesn't seem to work out
10. You can't hear yourself in our home
11. I often get drawn into other people's arguments at home
12. Our home is a good place to relax (R)
13. The telephone takes up a lot of our time at home
14. The atmosphere in our home is calm (R)
15. First thing in the day, we have a regular routine at home (R)

RDAS

Always Agree (5) to Always disagree (0) (All items reverse coded)

1. Religious matters
2. Demonstrations of affection
3. Making major decisions
4. Sex relations
5. Conventuality (correct or proper behavior)
6. Career decisions

All the time (0) to Never (5)

7. How often do you discuss or have you considered divorce, separation, or terminating your relationship
8. How often do you and your partner quarrel
9. Do you ever regret that you married (or lived together)
10. How often do you and your mate "get on each other's nerves"

Every day (4) to Never (0) (Reverse coded)

11. Do you and your mate engage in outside interests together

Never (0) to more often (5) (All items reverse coded)

12. Have a stimulating exchange of ideas
13. Work together on a project
14. Calmly discuss something

APQ

Poor Monitoring/Supervision Never (1) to Always (5)

6. Your child fails to leave a note or to let you know where he/she is going
10. Your child stays out in the evening past the time he/she is supposed to be home
17. Your child is out with friends you do not know
19. Your child goes out without a set time to be home
21. Your child is out after dark without an adult with him/her
24. You get so busy that you forget where your child is and what he/she is doing
28. You don't check that your child comes home from school when he/she is supposed to
29. You don't tell your child where you are going
30. Your child comes home from school more than an hour past the time you expect him/her
32. Your child is at home without adult supervision

Inconsistent Discipline Never (1) to Always (5)

1. You threatened to punish your child and then do not actually punish him/her
8. Your child talks you out of being punished after he/she has done something wrong
12. You feel that getting your child to obey you is more trouble than it's worth
22. You let your child get out of a punishment early (e.g. – lift restriction earlier than you originally said)
25. Your child is not punished when he/she has done something wrong
31. The punishment you give your child depends on your mood