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Emotion socialization and families of children with and without ADHD.

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ABSTRACT

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Emotional competence (EC) represents several distinct emotional skills found to be strongly associated with children's socioemotional outcomes. EC is thought to develop through a process known as emotion socialization (ES), whereby children's emotions and emotion-based behaviors are socialized through interactions with parents and/or other primary figures. The present study examined ES across families of children with and without ADHD in order to clarify the role ES plays in the development of EC in typically developing (TD) children versus children more prone to EC impairments due to intrapersonal characteristics (e.g., inattention, disinhibition, etc.). Forty-eight children 5 to 8-years-old (23 with ADHD, 25 without ADHD) and their mothers completed measures/tasks assessing children's EC, mothers' emotion regulation, and mothers' direct ES behaviors (e.g., mothers' reactions to children's negative emotions; quality of mother-child emotion discussions). Bivariate analyses were examined to determine which covariates to include in primary analyses. Hierarchical regression analyses suggested mothers' personal emotion suppression contributed to usage of less supportive direct ES behaviors across children with and without ADHD and less discriminate usage of

nonsupportive direct ES behaviors based on children's ADHD diagnostic status. Additionally, findings indicated the quality of mother-child emotion discussions was differentially associated with children's adaptive emotion regulation based on child ADHD diagnostic status. . Overall, the current study represents an important initial step towards understanding how ES functions and contributes to the EC of early elementary-aged children with and without ADHD.

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CHAPTER I

INTRODUCTION

Emotional competence (EC), or the ability to experience, express, understand, and regulate emotions, plays an important role in children's social, behavioral, and mental health outcomes (e.g., Eisenberg, Losoya, Fabes, et al., 2001; Jones, Eisenberg, Fabes, & MacKinnon, 2002; Newland & Crnic, 2011). Research and theory suggest that EC develops in part from a process known as emotion socialization (ES). ES refers to the ways in which children's emotions and emotion-based behaviors are shaped by interactions with parents and/or other primary figures (Eisenberg, Cumberland, & Spinrad, 1998a). Due to the home environment being the first context in which children learn about social exchanges and emotions, the parent-child relationship is said to serve as a "rehearsal stage" for the development of socioemotional skills (Denham, Mitchell-Copeland, Stranberg, Auerbach, & Blair, 1997; Mirabile, 2014). Researchers have been studying various components of parental ES and child outcomes for several decades (e.g., Gottman, Katz, & Hooven, 1996; Kopp, 1989; Morris, Silk, Steinberg, Myers, & Robinson, 2007). The first and still most prominent model of parental ES was proposed by Eisenberg, Cumberland, and Spinrad (1998a). This model provided a framework for investigating the intra- and interpersonal factors thought to directly and/or indirectly impact children's development of EC (see also Eisenberg, Spinrad, & Cumberland, 1998b). The intrapersonal factors in the model included parent and child characteristics,

such as age, sex, temperament, personality, and parenting style/beliefs. These intrapersonal factors have been shown to impact interpersonal factors, that is, the various intended and unintended messages parents' actions relay to their children about emotions. In turn, interpersonal factors have been found to influence children's emotional arousal in the moment, and critically, the long-term development of EC. To date, much of the research on parental ES has focused on the links between interpersonal factors and socioemotional outcomes in typically developing (TD) children. More work is needed to understand the ways in which parental ES functions and influences the EC outcomes of children with more severe emotional and behavioral difficulties (e.g., clinical populations).

One population in which ES has yet to be examined is families of children with attention-deficit/hyperactivity disorder (ADHD). Although ADHD is a neurologically-based, behavioral disorder by definition, research indicates that children with ADHD demonstrate greater emotion-related difficulties than their TD peers (Wehmeier, Schacht, & Barkley, 2010). Variability in EC is also observed among children with ADHD, as research suggests a subset of children with ADHD experience more severe emotion-related impairments than others (Anastopoulos et al., 2011; Rosen & Factor, 2012; Shaw, Stingaris, Nigg, & Leibenluft, 2014; Sobanski et al., 2010; Walcott & Landau, 2004). Given that parental ES accounts for some of the variance in TD children's EC (Eisenberg et al., 1998a; Fabes, Poulin, Eisenberg, & Madden-Derdich, 2002; Perry, Calkins, Nelson, Leerkes, & Marcovitch, 2011), it is reasonable to assume ES may likewise account for some of the variance in EC demonstrated by children with ADHD. Examining parental ES across families of children with and without ADHD may

therefore provide valuable insight regarding how this process similarly and/or differentially impacts EC across these two populations.

Emotional Competence

EC is a multifaceted construct that involves (a) displaying context-appropriate emotions, (b) understanding one's own and others' emotions, and (c) regulating one's emotional expressions/behaviors to achieve objectives in a socially appropriate manner (Eisenberg et al., 1998a). Based on this definition, EC has been divided into three distinct, yet interrelated abilities: emotional expression/experience, emotion regulation, and emotional understanding (Denham, 2007; Denham, Bassett, & Wyatt, 2007; Eisenberg et al., 1998a). Emotional expressivity is defined as the rate, range, and intensity of children's emotional states (Denham et al., 2007). Competent emotional expression requires understanding which emotions facilitate specific goals, selecting the appropriate emotional message based on the social context, and conveying the intended message accurately (Denham, 2007). In order to express emotions and adjust to social demands effectively, children must be able to regulate their physiological, behavioral, and emotional reactions (Cole, Martin, & Dennis, 2004; Gross, 2007; Thompson, 1994). Children utilize a multitude of strategies to regulate their emotional experience and expression, including both adaptive (e.g., engaging in self-soothing behaviors, modifying the expressed emotion toward a more prosocial emotion, cognitive restructuring, etc.) and maladaptive (e.g., avoiding the situation, venting, hyper-focusing on their distress, etc.) strategies (Denham, 2007; Eisenberg, Fabes, Nyman, Bernzweig, & Pinuelas, 1994). Emotional understanding is also an essential component of EC, as it provides children important information regarding their internal emotional experience and the external

socioemotional context. Emotional understanding includes children's ability to understand the expression, context, causes, and potential consequences of basic (e.g., happiness, sadness, and anger) and more complex (e.g., guilt, shame, embarrassment) emotions (Denham et al., 2007). Due to EC development relying heavily on individuals' abilities to attend to internal and external stimuli and inhibit/regulate reactions to stimuli, certain populations who demonstrate deficits in these skills, such as individuals with ADHD, may be more prone to developing poorer EC.

Intrapersonal Factor (Child ADHD) Associated with EC

ADHD is a neurological disorder characterized by pervasive patterns of inattention, hyperactivity, and impulsivity (American Psychiatric Association, 2013). The symptoms range in severity and children with ADHD often demonstrate various associated difficulties, such as poorer inhibition, working memory, generativity, and self-regulation (Barkley, 1997; Barkley, 2006). These deficits, along with the core symptoms of the disorder, impact the development of EC. Indeed, within the United States, more than one-third of children with ADHD were reported to have significant emotional difficulties (Strine, Lesesne, Okoro, et al., 2006). Barkley (2006) theorized that the reason children with ADHD demonstrate poorer EC is due to their difficulty synthesizing input from the environment and their own emotional and physiological responses. This reduces awareness of their own and others' emotional states, which may interfere with appropriate emotional expressivity. Reduced emotional awareness may then result in less effective planning of responses to emotional stimuli, more maladaptive responses to emotional stimuli, and in general, poorer emotion regulation (Barkley, 2006).

The impulsivity of children with ADHD likely plays an important role in their EC deficits as well. Individuals with poorer inhibition, such as children with ADHD, are more prone to having excessively reactive responses to negative emotional stimuli (Gross, 2007; Larsen, 2000; Rosen, Milich, & Harris, 2012; Rosen, Epstein, & Van Orden, 2013). This reactive response style can contribute to emotional difficulties both in the moment and over time. In the moment, it may manifest through rapid and intense shifts in emotional experience/expressivity. The rapidity and intensity of such emotional shifts may hinder one's ability to attend to relevant emotional cues that might otherwise deepen emotional understanding (Rapport, Friedman, Tzelepis, & Van Voorhis, 2002). Additionally, the speed of emotional shifts combined with the difficulty in inhibiting behavioral reactivity to emotional arousal may limit use of effective regulatory strategies in the moment (Marmorstein, 2013; Sheppes & Gross, 2011). Over time, this pattern of impulsive emotional responding and deficient emotion regulation may lead to less stable and/or predictable emotional states, greater deviation from an emotional baseline, and poorer overall emotional understanding (Larsen, 2000).

The functional impairment experienced by children with ADHD may also impact their development of EC. Children with ADHD experience significant impairment as a result of their core symptoms and associated difficulties. Indeed, previous research suggests that children with ADHD are approximately 10 times more likely than TD peers to demonstrate significant impairment that interferes with their home life, peer relationships, and academic performance (Strine et al., 2006). Thus, children with ADHD may encounter negative emotion-evoking situations more frequently than TD peers. As previously indicated, children with ADHD tend to be less equipped to manage these

situations due to their attentional deficits and inhibitory difficulties (Barkley, 2006; Gross, 2007; Larsen, 2000; Rosen et al., 2012; Rosen et al., 2013). Therefore, children with ADHD are likely to respond poorly to these frequent negative emotional events, and, consequently, are more prone to receiving persistently negative feedback regarding their emotional reactions. Over time, these children may come to anticipate these negative outcomes, increasing their emotional reactivity to future negative emotion-evoking situations, and exacerbating deficits in EC.

Due to the range of difficulties children with ADHD demonstrate, it is perhaps not surprising that these children often display deficits across all three domains of EC (Wehmeier et al., 2010). For instance, children with ADHD tend to express their emotions in ways that are disproportionately intense and/or inappropriate for the situation (Barkley, 2010; Jensen & Rosen, 2004; Maedgen & Carlson, 2000; Norvilitis, Casey, Brooklier, & Bonello, 2000) and appear as if they are experiencing more extreme emotional highs and lows than other children (Anastopoulos et al., 2011). Thus, children with ADHD often have more difficulty maintaining a consistent emotional state over time (i.e., affective balance; Gross, 2007; Larsen, 2000; Rosen, Epstein, & Van Orden, 2013; Rosen, Milich, & Harris, 2012). Not surprisingly, compared to TD children, children with ADHD demonstrate greater emotion dysregulation, characterized by poorer ability to regulate various emotional states (see Shaw et al., 2014, for review) and inhibit emotional reactions (Crundwell, 2005; Walcott & Landau, 2004). Children with ADHD also demonstrate poorer emotional understanding. For example, children with ADHD have difficulty recognizing emotions in their own facial expressions (Casey, 1996) and those of others (Kats-Gold, Besser, & Priel, 2007; Sinzig, Morsch, & Lehmkuhl, 2008). They

also experience greater difficulty identifying specific emotions (Da Fonseca, Seguier, Santos, & Poinso, & Deruelle, 2009) and the overall affect of others (Rapport et al., 2002) based on contextual information. Overall, this research indicates that children with ADHD collectively experience more significant EC impairments than TD children.

Contrary to research and theory suggesting that children with ADHD universally demonstrate poor EC, some research indicates that there is a subset of children with ADHD whose EC difficulties are more severe and impairing (Anastopoulos et al., 2011; Rosen & Factor, 2012). Several studies have indicated this subset of children with greater EC impairments have higher rates of functional impairment (Anastopoulos et al., 2011; Walerius, Reyes, Rosen, & Factor, 2014), internalizing and externalizing symptoms (Rosen, Walerius, Fogleman, & Factor, 2015), comorbid diagnoses (Anastopoulos et al., 2011; Factor, Reyes, & Rosen, 2014; Sobanski et al., 2010), treatment service utilization (Anastopoulos et al., 2011), and familial conflict (Barkley, 2010) than TD children and other children with ADHD. Indeed, research suggests that between 30% and 50% of children with ADHD experience concurrent emotional and/or behavioral difficulties (Shaw et al., 2014; Strine et al., 2006). Researchers are currently debating as to why this subset of children with ADHD are significantly more emotionally/behaviorally impaired than others with ADHD (Shaw et al., 2014; Strine et al., 2006). Given that research and theory with families of TD children suggest that parental ES contributes to EC differences (Eisenberg et al., 1998a), examination of ES across families of children with and without ADHD may clarify the role ES plays in the development of EC in TD children versus children more prone to EC impairments.

Interpersonal Factors Associated with EC

ES is a process through which the behaviors enacted by a socializer (i.e., parent, caregiver, teacher, peer, etc.) influence a child's development of EC (Eisenberg et al., 1998a). Eisenberg and colleagues (1998b) differentiated between direct and indirect forms of ES, noting that direct ES comprises behaviors that reflect the emotion-based beliefs and goals of the socializer, whereas indirect ES encompasses all other emotionally-valenced interactions the child participates in or observes. Research has previously established a link between children's ADHD diagnostic status and indirect ES. Specifically, compared to families of TD children, families of children with ADHD demonstrate greater family chaos and conflict (DuPaul, McGoey, Eckert, & Vanbrakle, 2001; Gadow, Nolan, Litcher, et al., 2000; Scahill, Schwabb-Stone, Merikangas, Leckman, Zhang, & Kasl, 1999), less secure parent-child attachment (Clarke, Ungerer, Chahoud, Johnson, & Stiefel, 2002), and higher rates of maternal symptoms of depression and anxiety (Perrin & Last, 1996; West, Houghton, Douglas, Wall, & Whiting, 1999). In contrast, the role of direct ES in families of children with ADHD has not been examined. Direct ES includes how parents respond to children's emotions in the moment and discuss emotionally evocative events with their children. Research with TD populations suggests that these direct ES behaviors are associated with children's EC outcomes. It is important to consider the research on direct ES in TD populations when attempting to determine how such processes may function within an ADHD population.

Contingent Reactions to Children's Emotions in TD Populations. Parents' contingent reactions reflect the range of supportive and nonsupportive responses parents can have to their children's emotional displays in the moment. How parents respond to their children's emotional displays, particularly negative emotional displays (i.e., sadness,

anger, fear, distress), contributes to children's EC development (Eisenberg et al., 1998a). When a child displays negative emotions, parents may respond supportively by validating and encouraging the expression, comforting the child, or teaching the child how to manage the emotion or situation that elicited it through emotion- or problem-focused problem-solving, respectively (Eisenberg et al., 1998a). Alternatively, parents may instead respond to negative emotional displays in nonsupportive ways. For example, they may avoid contact with the child during the emotional episode, ignore, punish, or minimize the legitimacy of the child's emotions, or respond reactively by heightening their own distress (Eisenberg et al., 1998a). Parents' responses to their children's negative emotions are thought to communicate which emotions are appropriate or inappropriate in different contexts, impacting children's future emotional expressivity (Eisenberg et al., 1998a). When parents use supportive contingent reactions, they often explicitly discuss adaptive emotional coping strategies, which are thought to improve children's understanding and utilization of emotion regulation skills. In contrast, parents' nonsupportive contingent reactions indirectly support the utilization of poorer emotion regulation, as parents are modeling maladaptive coping in response to an emotionally evocative situation (e.g., their children's emotional distress; Eisenberg et al., 1998a).

Not surprisingly, research and theory indicate that parents' supportive reactions to their children's negative emotions are related to TD children's more adaptive emotional expressivity, understanding, and regulatory skills (e.g., Denham, Zoller, & Couchoud, 1994b; Fabes et al., 2002; Perry et al., 2011), whereas nonsupportive reactions are related to poorer EC abilities (e.g., Denham, Mitchell-Copeland, Stranberg, Auerbach, & Blair, 1997; Fabes et al., 2002; Perry et al., 2011). Specifically, parents' supportive contingent

reactions are associated with greater observed spontaneous expression of a range of emotions (Fabes et al., 2002), less intense observed negative affect during emotionally arousing events (e.g., being separated from their mothers; Denham, 1993), and higher parent-ratings of emotion regulation skills in preschoolers (Perry et al., 2011). These findings suggest that parents' supportive contingent reactions are associated with TD preschoolers' more effective emotion regulation during distressing events and greater comfort exploring and expressing a broader range of positive and negative emotions. Eisenberg, Fabes, and Murphy (1996) proposed that greater exploration of emotional states increases children's opportunities to examine their emotions and understand them on a deeper level. Consistent with this notion, parents' supportive contingent reactions have also been associated with preschooler's greater overall emotional knowledge/understanding (Denham et al., 1994b). Currently, it is unclear how parents' positive contingent reactions influence the emotional expressivity and emotional understanding of early and late elementary-aged children, as few studies have examined these processes in this age-range. However, some evidence suggests that parents' supportive contingent reactions continue to be positively associated with parents' ratings of late elementary-aged children's emotion regulation and coping skills (Gentzler, Contreras-Grau, & Kerns, 2005; Shaffer, Suveg, Thomassin, & Bradbury, 2012).

In contrast, nonsupportive contingent reactions intensify or prolong children's negative emotional arousal and are thought to undermine emotional learning and management (Hoffman, 1983). Buck (1984) theorized this is due to children attempting to hide their overt emotional expression when they are regularly punished for expressing negative emotions. Consistent with Buck (1984), research with TD preschoolers indicates

that parents' nonsupportive contingent reactions are associated with children's less frequently observed spontaneous emotional expression at recess (Fabes et al., 2002). This avoidance or suppression of negative affect results in missed opportunities to explore and develop an understanding of emotional content (Eisenberg et al., 1996). Indeed, research has suggested that nonsupportive contingent reactions are associated with lower overall emotional knowledge in three to six-year-olds (Denham et al., 1997; Denham et al., 1994b). The long-term impact of contingent reactions on children's emotional knowledge is less clear. A longitudinal study found parents' observed contingent reactions during structured and unstructured playtime at age four was not associated with children's emotional understanding one-year later (Denham, Casey, Grout, & Alban, 1991). Thus, discrete incidents of early exposure to contingent reactions may not influence children's future emotional understanding. Instead, it is likely that more global and chronic exposure to positive or negative contingent reactions impact children's emotional understanding abilities. Unfortunately, minimal research has examined how ongoing exposure to nonsupportive contingent reactions influence children's development of emotional understanding skills; thus, it is unclear how nonsupportive contingent reactions influence the emotional understanding of early and late elementary-aged children.

Although children of parents who utilize nonsupportive contingent reactions tend to demonstrate less emotional expressivity, these children are thought to experience greater physiological reactivity to emotionally evocative events due to their pre-established association between emotional expressivity and punishment (Buck, 1984; Eisenberg, Fabes, Schaller, & Carlo, 1991). Several studies have found an association between parents' nonsupportive contingent reactions and TD preschool (Fabes, Leonard,

Kupanoff, & Martin, 2001; Mirabile, 2014) and late elementary-aged (Eisenberg et al., 1996) children's more intense observed and parent-reported negative expressivity, suggesting that this pattern of negative emotional responding continues throughout development (see also Eisenberg et al., 1999). The association between nonsupportive contingent reactions and children's' more intense negative emotional expressivity is likely driven by their poorer regulatory skills. Indeed, several studies have found a negative association between nonsupportive contingent reactions and parent-ratings of preschool (Perry et al., 2011) and late elementary-aged (Gentzler et al., 2005; Shaffer et al., 2012; Suveg, Shaffer, Morelen, & Thomassin, 2011) children's emotional coping and regulation. However, all of these studies have been primarily based on parent-report of contingent reactions and children's emotion regulation; thus, it is possible that this link is a reflection of parents' general negative perspective of the child's behavior. Of note, the relationship between nonsupportive contingent reactions and poor EC outcomes has only been found when nonsupportive contingent reactions were aggregated, or examined as a whole as opposed to examining each individual nonsupportive response (Meyer, Raikes, Virmani, Waters, & Thompson, 2014). This suggests that the frequency with which parents' employ a multitude of nonsupportive contingent reactions, as opposed to a single type of nonsupportive contingent reaction, is associated with children's poorer EC.

Overall, studies examining the effects of parents' contingent reactions on TD children suggest that parents' supportive contingent reactions encourage children to explore their emotional experiences while receiving guidance from a supportive adult. This allows children to learn about their emotions and discover different regulatory strategies, which results in more affectively balanced emotional expressivity. In contrast,

parents' usage of nonsupportive contingent reactions increases children's arousal and encourages them to suppress or avoid negative emotionality in the future. This deprives children of opportunities to learn about their negative emotions and develop regulatory strategies, resulting in these children displaying more negative emotional expressivity when confronted with negative emotion-arousing events. Notably, most of the research on the role contingent reactions play in children's development of EC has been conducted with preschoolers. There is some evidence that the impact of supportive and nonsupportive contingent reactions function similarly across development, yet more research is needed with early and late elementary-aged children to confirm this pattern.

Emotion Discussions and TD Children. Parents' discuss emotions with their children across a variety of settings and contexts, including when they are initially responding to their children's emotions. Emotion discussions help children separate their emotional impulses from their behavior, which affords them reflective distance from their emotional states and opportunities to interpret their feelings and consider their causes and consequences (Eisenberg et al., 1998a). The scaffolded context of talking with an adult enables children to form a logical body of knowledge regarding emotional expressions, contexts, causes, and future solutions (e.g., Denham, Renwick-DeBardi, & Hewes, 1994a; Dunn, Brown, & Beardsall, 1991; Dunn, Slomkowski, Donelan, & Herrera, 1995). It is thought that children reared by parents who engage in rich, elaborative conversations about emotions are better able to communicate, express, understand, and regulate their emotional states (Eisenberg et al., 1998a). In contrast, children raised by parents who do not discuss emotions freely receive less information about different emotions and potential regulatory action plans, resulting in a disadvantage in terms of

their developing EC (Eisenberg et al., 1998a). In sum, parent-child emotion discussions help children understand their past emotional experiences and provide a framework for managing future affective states.

Research on TD children has examined parent-child emotion discussions across several different contexts and topics. In general, findings suggest that the quality of parent-child emotion discussions about topics not personally related to the child (e.g., picture books, positive and negative images) is inconsistently associated with TD children's EC (e.g., Denham et al., 1994a, Garner, 1999; Garner, Dunsmore, & Southam-Gerrow, 2008; Laible, 2004). Studies in which parents and children discuss emotional events personally relevant to the child have found more consistent links between the quality of emotion discussions and children's EC outcomes. For instance, studies in which parents and children are asked to jointly reminisce about children's previous emotional experiences have found the quality of the discussion is associated with greater emotional knowledge among three to six-year-olds (Laible, 2004; 2011; Raikes & Thompson, 2006). Additionally, when emotion reminiscing discussions culminated in a resolution to the recalled emotional event (i.e., children noted a reduction in the experience or intensity of their emotion through the use of coping strategies), preschoolers tended to receive lower parent- and teacher-ratings of maladaptive coping and higher ratings of adaptive coping (Goodvin & Romdall, 2013). Furthermore, late elementary-aged children of parents who offered more verbal support during an emotion reminiscing discussion (e.g., helping the child understand his/her emotions, validating the emotions, promoting adaptive emotion regulation, or discussing their own emotions) demonstrated more adaptive emotion regulation skills (Morelen & Suveg, 2012).

However, some studies with late elementary-aged children suggest that children's emotional openness during the emotion reminiscing task is more strongly associated with children's emotion regulation and coping than parents' behavior during the discussion (Gentzler et al., 2005). Based on these findings, it appears there is an association between parents engaging their children in discussions of past emotional events and the strength of children's emotional understanding and regulatory skills.

Notably, several naturalistic studies have found that parents who criticize or correct their preschoolers' current emotional reactions in order to change their children's future emotional reactions tend to have children who demonstrate lower levels of positive reactions to peers and greater internalizing emotions, emotional reactivity, and fearfulness (Denham & Auerbach, 1995; Denham et al., 1997). There are two potential explanations for these findings: (1) parents who use emotion discussions to modify their children's negative behaviors in fact decrease their children's emotional functioning, or (2) children who have greater emotional difficulties are criticized or corrected more frequently during emotion discussion. More research is needed to determine the direction of this effect and to establish whether the amount of criticism parents communicate during emotion discussions is distinct from other more general classifications regarding the quality of emotion discussions. Furthermore, most of the research on how emotion discussions impact children's developing EC has been conducted with preschoolers; thus, it is unclear how emotion discussions may continue to influence different aspects of EC for early and late elementary-aged children. However, there is some evidence indicating that as children age, their willingness to openly engage in emotion discussions with their parents may become a more relevant factor to consider when examining the association

between the quality of parent-child emotion discussions and children's EC outcomes (Gentzler et al., 2005).

Intrapersonal Factors Associated with Interpersonal Factors

Child ADHD and Direct ES. Currently, no research has directly examined how direct ES functions in families of children with ADHD; however, there is reason to suspect that characteristics of children with ADHD may make it more challenging for parents to manage their children's emotions supportively and create a warm environment in which emotions can be discussed freely. For instance, a study by Brophy and Dunn (2002) indicated that mothers' of "difficult" (>90th percentile for hyperactivity and conduct problems) 4-year-olds utilized negative control (demanding compliance, threatening aversive consequences if refusing to comply, being sarcastic or humiliating the child) significantly more than parents of TD children when interacting at home. Additionally, mothers' of "difficult" children engaged in less connected communication with their children, indicating that these mothers' were not as focused or responsive to what their preschoolers were saying compared to mothers of TD preschoolers. Furthermore, results from an 18-month follow-up continued to suggest that mothers of "difficult" children used less positive control (praise, explanation, and open-ended questions) and more negative control when engaging in joint activities with their children. It is possible these findings could extend to an ADHD population, suggesting that mothers of hyperactive and behaviorally challenging young children would possibly utilize more nonsupportive contingent reactions and engage their children in less rich, elaborative emotion discussions. Additionally, this study tentatively suggests that this negative pattern of parent-child interaction persists over time.

The temperamental characteristics of children with ADHD may also contribute to these children experiencing less supportive direct ES than TD children. A retrospective study of children with ADHD found that infants who later developed ADHD had more difficult temperaments characterized by greater restlessness, irritability, nervousness, and poorer delay of gratification (Gurevitz, Geva, Varon, & Leitner, 2014). Many of these characteristics continue to depict the temperaments of older children with ADHD (De Pauw & Mervielde, 2011). More specifically, research indicates that hyperactive/impulsive symptoms are associated with children's lower regulation of affectively-driven reflexes (i.e., reactive control) and more extreme positive and negative affect. In contrast, inattentive symptoms are associated with lower effortful control (Martel, Gremillion, & Roberts, 2012; Martel & Nigg, 2006; Parker, Majeski, & Collin, 2004), which refers to self-regulatory processes that allow individuals to inhibit a dominant response in order to perform a subdominant response (Muris & Ollendick, 2005). A reactive and/or poorly regulated temperament may lead children with ADHD to display more inappropriate behavior during emotionally salient events, which may in turn make it more challenging for parents to validate or support these children's emotional experiences.

Indeed, Katz, Gottman, and Hooven (1996) hypothesized that children's temperament would impact parents' selection of parenting styles and practices. A study conducted by Eisenberg and Fabes (1994) examined how the temperament and effortful control abilities of 79 primarily Caucasian, four to six-year-old children influenced their mothers' contingent reactions to their children's negative emotions. Results indicated that young children who were rated by parents and teachers as demonstrating more difficult

temperament (e.g., high negative affect, emotional intensity) and poorer effortful control tended to have mothers who minimized, punished, or expressed distress in response to their children's negative emotions (Eisenberg & Fabes, 1994). A similar study was also conducted with children between the ages of 8 to 12, and also found that parents' perceptions of children's temperament (e.g., dispositional negative affect) was associated with parents' higher usage of nonsupportive contingent reactions and lower usage of supportive contingent reactions (Eisenberg et al., 1996), suggesting that parents' continue to respond nonsupportively to the emotions of older children who they perceive as being temperamentally difficult. As children with ADHD tend to demonstrate more "difficult" temperaments characterized by greater emotional lability and greater reactive control and lower effortful control (Martel, Gremillion, & Roberts, 2012; Martel & Nigg, 2006; Parker, Majeski, & Collin, 2004), it is likely they would receive greater nonsupportive contingent reactions to their negative emotions across development.

Several studies have also examined the extent to which children's temperament and effortful control abilities impact the nature of mother-child discourse. As Laible (2004) notes, "mothers might have a harder time talking about emotions in general with children who are low in effortful control… mostly because they are unable to sustain lengthy conversations with these children" (p. 980). Indeed, children's effortful control appears to impact parental conversation patterns as early as infancy. Smolak (1986) conducted a longitudinal study of 8 infants and found that mothers tended to be less directive and repetitive when talking with children who were able to maintain longer episodes of sustained play, suggesting that children higher in effortful control and sustained attention provoked more elaborative speech from their mothers. Research on

older children indicates that both children's temperament and effortful control can influence the quality of parent-child emotion discussions. Specifically, Laible (2004) examined how mothers' perception of their preschooler's temperament and effortful control influence the quality of mother-child emotion reminiscing discussions. Results indicated that mothers who perceived their preschoolers as high in negative reactivity and/or effortful control elaborated more during the reminiscing task (Laible, 2004). Thus, mothers of preschoolers continued to elaborate more during emotion discussions when their children appeared more capable of attending to the conversation, yet mothers also provided more support during the conversation when they perceived their children as having greater emotional difficulties. Currently, minimal research has explicitly examined how parent-child emotion discussions transpire when a child is high in negative reactivity *and* low in effortful control.

Due to the symptoms and temperamental profile of children with ADHD, it is likely that parents would perceive their children as being incapable of attending to the discussion, but also more in need of emotional guidance. Thus, it is unclear whether or not parents of children with ADHD would be more elaborative/supportive during emotion discussions. It is possible that parents who perceive their children as being more in need of emotional guidance use emotion discussions as a way to correct, criticize, or improve their children's emotional reactions. As previously noted, research with TD children suggests that using emotion discussions for this purpose may negatively impact children's EC development (Denham & Auerbach, 1995; Denham et al., 1997). Further research is needed to determine whether parents' increased elaborations for children with

difficult temperament, such as children with ADHD, is due to them attempting to use the discussion as a means of improving children's future emotional reactions.

Parent Emotion Regulation and Direct ES. A small body of research has focused on the role parents' emotion regulation plays in influencing direct ES. Many nonsupportive contingent reactions appear to stem from parents' inability to manage their own emotional reactions to their child's negative emotions (Eisenberg et al., 1998a). For example, parents who feel as if they cannot manage their emotional response to a distressing stimulus (e.g., a child's negative emotional outburst) may avoid or ignore the stimulus so as not to have to directly confront what is distressing them. Alternatively, parents who are poorly regulated may instead try to immediately put an end to what is distressing them or release the emotional tension they feel. If what is distressing them is an emotionally distressed child, the parent may punish or minimize the child's emotions or demonstrate their own emotional distress through yelling, crying, etc. Meyer et al. (2014) examined the extent to which parents' beliefs regarding their own emotion regulation was related to their contingent reactions to their children's negative emotions. Results indicated parents who valued emotion self-regulation were more likely to engage children in emotion-related problem-solving and encourage their emotional expression, and were less likely to respond to children's negative emotions with equal negative reactivity. In contrast, parents' who highly endorsed emotion suppression or inhibition of their own emotions were less likely to encourage their children to express emotions (Meyer et al., 2014). Unfortunately, this study did not examine how indicators of parents' emotional reactivity are related to parents' contingent reactions.

Parents' maladaptive emotion regulation may also influence how parents' discuss emotional experiences with children. Indeed, Gratz and Roemer (2004) found that adults' maladaptive emotion regulation was associated with greater experiential avoidance, or the tendency to avoid unwanted internal experiences, such as certain emotions or thoughts. Thus, parents who are more emotionally dysregulated may be less likely to discuss negative emotions with their children, as they have a tendency to avoid such emotions. It is also possible that parents who are more emotionally reactive may become upset when discussing their children's current or past negative emotions, which may minimize the potential benefits of the emotion discussion.

Intrapersonal Factors Interacting: Parents' Emotion Regulation and Children's ADHD.

Compared to parents of TD children, parents of children with ADHD may be more likely to demonstrate poorer emotion regulation in response to their children's emotional outbursts due to the greater overall stress they experience within their parenting role and the greater immediate stress they experience when confronted with their children's more frequent and intense negative emotions. Many studies have demonstrated that parents of children with ADHD experience elevated levels of parenting stress (Anastopoulos, Guevremont, Shelton, & DuPaul, 1992; Johnson & Reader, 2002; Mash & Johnston, 1990). As stress accumulates, people's abilities to cope can become overburdened, leading to psychological distress (see Thoits, 1995 for review). This psychological distress can be exacerbated when a challenging event or situation arises within a role that is already strained (Brown, Bifulco, & Harris, 1987). In such situations, people's emotions often become more difficult to regulate. Thus, parents of children with

ADHD, who tend to experience more global parenting stress than parents of TD children, may have more difficulty regulating their emotional reactions to a single, immediate stressor. As children with ADHD tend to experience intense emotional outbursts frequently due to their disinhibition (Gross, 2007; Larsen, 2000; Rosen et al., 2012; Rosen et al., 2013) and functional impairment (Strine et al., 2006), these outbursts may serve as repetitive immediate stressors for parents of children with ADHD. Therefore, parents of children with ADHD may find their children's emotions especially stressful, and may be less capable of effectively regulating their own emotional responses to their children's outbursts due to their chronically heightened parental stress.

Furthermore, parents of children with ADHD are more likely to meet criteria for ADHD than are parents of TD children due to the high heritability of the disorder (Swanson, Flodman, Kennedy, et al., 2000). Adults with ADHD tend to demonstrate symptoms and impairment similar to their children. For example, adults with ADHD tend to have higher rates of functional impairment (occupational, social, etc.), comorbid diagnoses, and emotional difficulties than adults without ADHD (Able, Johnston, Adler, & Swindle, 2007). In regards to emotional functioning, adults with ADHD are more likely to demonstrate patterns of emotional reactivity than people without ADHD (Reimherr, Marchant, Strong, Hedges, et al., 2005). Additionally, parents with ADHD may have more difficulty managing the parental demands of raising a child with ADHD due to their own symptoms interfering with proper planning and organization. Thus, "ADHD in parents and children can lead to a cycle of difficulties" (Harpin, 2005, p. i4). Specifically, the poorer emotional skills of parents with ADHD may make it more difficult for parents to inhibit their personal emotional reactions to a situation. Thus,

parents with ADHD may respond less supportively to their child's negative emotional states and model more negative emotions and less effective emotional coping. Additionally, studies have found that adults with ADHD tend to avoid affect-laden stimuli (Cotugno, 1995); thus, they may be less inclined to discuss negative emotional states with their child. As children with ADHD are at a greater risk of developing EC deficits, exposure to parents' maladaptive emotion regulation and direct ES behaviors may jeopardize their EC more so than it would jeopardize the EC of TD children.

Current Study

Research has indicated that EC is an important predictor of children's social, behavioral, and mental health outcomes (e.g., Eisenberg et al., 2001; Jones et al., 2002; Newland & Crnic, 2011). ES, a process whereby children's emotions and emotion-based behaviors are socialized through interactions with parents and/or other primary figures (Eisenberg et al., 1998a), is thought to play a significant role in the development of EC. Although research over the past few decades has advanced our understanding of ES, the impact of this process on children's EC across development, particularly in the early and late elementary stages, is less established. Furthermore, most of the research on ES has been conducted with TD populations; few attempts have been made to apply these processes to populations that typically demonstrate poorer EC (e.g., children with ADHD). Such studies are needed to determine if ES similarly or differentially impacts the EC of children predisposed to EC deficits due to intrapersonal factors.

The current study examined how ES functions in families of early elementary-aged children with and without ADHD. ADHD is often first diagnosed in early elementary-aged children (Zuvekas, Vitiello, & Norquist, 2006); thus, examining ES in

families of children at this stage of development allowed for more reliable comparisons between ADHD and TD children than would have been possible with a younger sample. Furthermore, a large body of research (e.g., Eisenberg et al., 1998a; Fabes et al., 2002; Perry et al., 2011) has established that ES influences the development of EC in preschoolers, yet minimal research has examined ES in early elementary-aged children. The social environments of preschool and elementary-aged children are significantly different (Denham, 1998; Eisenberg et al., 1998a; Hyson, 1994). As children get older, they tend to spend more time at school and less at home, increasing the importance of teachers and peers as influencers of EC development and possibly decreasing the role of parents (Denham, 1998; Eisenberg et al., 1998a; Hyson, 1994). At this stage in development, the home environment is still important; thus, it stands to reason that parental ES will continue to be associated with EC, yet effects may not be as strong as those found with preschool samples.

Previous research has also demonstrated that the characteristics of children with ADHD *increase* the risk of EC deficits (Barkley, 2006; Wehmeier et al., 2010) and the likelihood of receiving nonsupportive contingent reactions (Brophy & Dunn, 2002; Eisenberg & Fabes, 1994; Eisenberg et al., 1996), and *decrease* the likelihood of receiving supportive contingent reactions (Brophy & Dunn, 2002; Eisenberg et al., 1996) and being exposed to supportive emotion discussions (Laible, 2004; Smolak, 1986). Thus, it is likely that children with ADHD will demonstrate poorer EC and will be exposed to less supportive and more nonsupportive direct ES than children without ADHD. Furthermore, among children with ADHD, parents' personal emotion regulation may be especially important, as these children demand more attention and present more

challenging behaviors than their TD peers (Gross, 2007; Larsen, 2000; Rosen et al., 2012; Rosen et al., 2013; Strine et al., 2006). Therefore, a moderation model was examined to determine whether it is the main effects of children's ADHD status and mothers' emotion regulation or the interaction of children's ADHD status and mothers' emotion regulation that drive the association between ADHD and direct ES behaviors. Finally, research indicates that only a subset of children with ADHD demonstrates severe EC deficits (Anastopoulos et al., 2011; Rosen & Factor, 2012). Thus, an additional moderation model was examined to determine whether it is the main effects of children's ADHD diagnostic status and exposure to direct ES or the interaction of children's ADHD status and exposure to direct ES that drive the association between ADHD and EC. The following hypotheses were proposed.

1. Intrapersonal factors of interest (child ADHD diagnostic status and maternal emotion regulation) will each be independently associated with interpersonal factors (direct ES variables). Specifically:
    a. Children with ADHD will receive less supportive and more nonsupportive direct ES than TD children.
    b. Mothers with poorer emotion regulation will provide less supportive and more nonsupportive direct ES to their children than mothers with more prosocial emotion regulation.
    c. An exploratory interaction effect will also be examined to determine if maternal emotion regulation is differentially associated with supportive or nonsupportive direct ES for children with and without ADHD.

2. Both intrapersonal (child ADHD diagnostic status) and interpersonal (direct ES) factors will be independently associated with children's EC. Specifically:
    a. (a1) Exposure to maternal nonsupportive direct ES behaviors will be associated with children's poorer EC.

       (a2) Exposure to maternal supportive direct ES behaviors will be associated with children's greater EC.
    b. Children with ADHD will demonstrate poorer EC than children without ADHD.
    c. Exploratory interaction effects will also be examined to determine if measures of direct ES (maternal supportive and nonsupportive contingent reactions, quality of mother-child emotion discussions) are differentially associated with measures of children's EC (emotion regulation, emotional expressivity and understanding) for children with and without ADHD.

CHAPTER II

METHOD

Recruitment

Participants were recruited through sign-ups on the University of Louisville child development studies' website or at community events throughout Louisville, community advertisements in the U of L today email notification, and distribution of study flyers at family events throughout Louisville. Study advertisements provided a brief description of the study and information for interested participants to contact study personnel. Jefferson County Public Schools (JCPS) Department of Accountability, Research and Planning granted approval for flyers describing the study to be provided to JCPS personnel to distribute to parents of children within the study's targeted age range. Flyers given to school personnel to distribute to parents contained contact information for study personnel. Study personnel did not have any direct contact with teachers or students during the flyer distribution process.

Children who had been diagnosed with ADHD or were showing symptoms of ADHD were also recruited through sign-ups on the University of Louisville child development studies' website, sign-ups at family events around the community, and advertisements in the U of L today email notification. Flyers describing the study were also distributed to mental health service providers and organizations (i.e., child evaluation clinics, child and family mental health clinics, etc.), child and family community-based

organizations/events, and school counselors. Flyers were sent directly to providers/organization for distribution to parents of children within the study's targeted age range and range of clinical difficulty. Flyers were distributed by the organization/provider to the parents, and referred parents to contact study staff directly to receive additional information regarding the study. Although study procedures were identical for children with and without ADHD, flyers used to recruit children with ADHD had modified wording designed to specifically recruit children with diagnosed or suspected ADHD.

Participants

Fifty-four children (27 males, 27 females) ages 5 to 8 years-old (*M* age=6.48; *SD* age=0.93) participated in the current study. Six participants were excluded from final analyses due to failure to complete key components of the study (e.g., not completing entire measures assessing key variables, having to end session prematurely, etc.). The remaining 48 children (23 males, 25 females; *M* age=6.48; *SD* age=0.97) included 23 children with ADHD (14 males, 9 females, *M* age = 6.48, *SD* age = 0.95) and 25 children without ADHD (9 males, 16 females; *M* age = 6.48, *SD* age = 1.00). Inclusion criteria for the study included the following: children were required to be between the ages of 5 to 8 and within the range of kindergarten through second grade; and mothers/primary female caregivers had to reside with the child at least 50 percent of the time and bring the child to the laboratory session. Exclusion criteria for the study included the following: children being outside of the age or grade range; mothers/female caregivers not residing with the child at least fifty percent of the time; and mothers/female caregivers being unable or unwilling to attend the laboratory session with their child. Father-child pairs were not

eligible to participate, as some studies suggest mothers and fathers differ in their usage of direct ES (Eisenberg et al., 1996; Lunkenheimer, Shields, & Cortina, 2007; McElwain, Halberstadt, & Volling, 2007).

Diagnosis of ADHD was determined using the Diagnostic Interview Schedule for Children (DISC-P; Shaffer, Fisher, Lucas, Dulcan, & Schwab Stone, 2000), a highly structured computer-based interview that consists primarily of 'yes' or 'no' forced choice questions. The DISC-P produces valid and reliable diagnoses according to an algorithm. The DISC-P may be administered by clinicians or non-clinicians and studies have indicated that DISC-P diagnoses of ADHD have very high reliability across interviewers (kappa = .079; Shaffer et al., 2000). Diagnoses of ADHD on the DISC-P require parent report of symptoms and impairment in multiple settings. Given that the DISC-P has consistently demonstrated excellent inter-rater reliability for the assessment of ADHD across raters in a large sample (Shaffer et al., 2000), inter-rater reliability of diagnoses was not assessed in this study. Additionally, given that the DISC-P requires report of symptoms and impairment in multiple settings (i.e., home, school, and/or other settings), teacher-report of symptoms was not collected in this study.

A child met criteria on the DISC-P for ADHD-Predominantly Inattentive Type when his or her mother endorsed at least 6 of 9 inattentive symptoms. A child met criteria for ADHD-Combined Type when his or her mother endorsed at least 6 of 9 inattentive and 6 of 9 hyperactive/impulsive symptoms. Within the ADHD group, 17 children met full diagnostic criteria for combined type and 6 children met full diagnostic criteria for inattentive type on the DISC-P (Shaffer et al., 2000). Of the 23 children with ADHD, 5 were receiving pharmaceutical treatment for ADHD. Thus, fewer than 20% of children in

the ADHD group were receiving medication for ADHD, which was consistent with the young age of the participants. It is unclear if children on medication would be expected to have less impairment than children with ADHD who were not taking medication (due to the effect of the medication) or more impairment than children with ADHD who were not taking medication (as children with greater severity of impairment would be more likely to have an earlier initiation of medication treatment; see Zuvekas, Vitiello, & Norquist, 2006). Due to the small number of children in the sample who were receiving medication and the uncertainty regarding how medication may be associated with children's degree of impairment, medication treatment was not included in any analyses.

Participants without ADHD represented a community sample as opposed to a healthy control sample. As such, these children were not excluded from the study if they demonstrated some symptoms of ADHD but did not meet full diagnostic criteria.

Of the participants involved in the study, 64.6% identified as Caucasian/White, 25.0% identified as African-American/Black, 6.3% identified as biracial, and 4.2% did not indicate their racial background (see Appendix B, Table 1). This ethnic composition is fairly representative of the area from which the population was sampled (United States Census Bureau, 2016). The socioeconomic and mean maternal age of the ADHD and non-ADHD groups can also be found in Table 1.

Procedures

During the session, mothers were provided consent prior to the initiation of study procedures. Mothers were administered the Diagnostic Interview Schedule for Children Parent-Report (DISC-P; Shaffer, Fisher, Lucas, Dulcan, & Schwab-Stone, 2000) to determine if their child met criteria for ADHD. During this time, children were

administered the Assessment of Children's Emotional Skills (ACES; Schultz & Izard, 1998). After mothers completed the DISC-P, they completed measures assessing their child's ADHD symptoms and EC, their own emotion regulation abilities, and their contingent reactions to their children's negative emotions. Finally, mothers and children reconvened and participated in an emotion reminiscing conversation task together. Participating mothers received a $5 prepaid card, and children were provided a small prize as a reward for participation.

Measures

Diagnostic Measures.

Diagnostic Interview Schedule for Children-Version IV, Parent Report (DISC-P). Mothers were administered the DISC-P (Shaffer et al., 2000), a diagnostic structured interview that assesses child diagnoses using parent responses to determine whether the child meets DSM-IV criteria for a number of psychological disorders. It contains algorithms to generate diagnoses, based on rules similar to those published in the American Psychiatric Association's Diagnostic and Statistical Manual, Fourth Edition (American Psychiatric Association, 1994). The ADHD module of the DISC-P was used to determine children's diagnostic status for ADHD by assessing for the presence of inattentive, hyperactive, and impulsive symptoms and the degree of impairment caused by symptoms. The DISC-P was administered by clinical psychology graduate students trained in proper administration of the interview. Research indicates that the DISC-P produces reliable and valid diagnostic decisions across numerous settings (Shaffer et al, 2000). As previously indicated, the DISC-P has demonstrated consistently high inter-rater

reliability for the assessment of ADHD across raters in a large sample (Shaffer et al., 2000); thus inter-rater reliability of diagnoses was not assessed in this study.

Parent Emotion Regulation.

Parents' emotion regulation abilities were measured by the Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004) and the Emotion Regulation Questionnaire (ERQ; Gross & John, 2003). The DERS is an adult self-report scale designed to assess clinically relevant difficulties in emotion regulation. The measure consists of 36 items (e.g., "I experience my emotions as overwhelming and out of control"), each rated on a 5-point Likert scale (1= "almost never"; 5 = "almost always"). The items can form an aggregate measure of emotion regulation or be divided into six subscales: Nonacceptance of Emotional Responses, Difficulty Engaging in Goal-Directed Behavior, Impulse Control Difficulties, Lack of Emotional Awareness, Limited Access to Emotion Regulation Strategies, and Lack of Emotional Clarity. The aggregate mean DERS Total scale was used in the current study to capture overall emotion dysregulation ($\alpha = .87$). The DERS has evidence of good internal consistency, test-retest reliability, and construct validity across typical and psychiatric adult populations (e.g., Gratz & Gunderson, 2006; Gratz & Roemer, 2004).

The ERQ (Gross & John, 2003) is a self-report questionnaire designed to measure adults' emotion regulation style. This questionnaire consists of 10 items, each rated on a 7-point Likert scale (1 = strongly disagree; 7 = strongly agree), that reflect two emotion regulation styles. The reappraisal style describes people who attempt to control their emotions by utilizing cognitive strategies (e.g., "When I want to feel more positive emotions, I change the way I'm thinking about the situation."). The reappraisal scale

consisted of the sum of 6 items. The suppression style describes people who try to control emotions by inhibiting emotionally expressive behavior (e.g., "When I am feeling negative emotions, I make sure not to express them."). The emotion suppression scale consisted of the sum of 4 items. There was no missing data on this particular measure. Research that has used this measure has found that the two regulation styles are significantly correlated with adults' interpersonal functioning and adjustment (John & Gross, 2004, 2007). Furthermore, the two regulation styles have been found to be significantly associated with parents' usage of supportive and nonsupportive contingent reactions (Meyer et al., 2014). The measure has demonstrated good internal reliability, test-retest reliability, and measurement equivalence across gender and ethnicity (Gross & John, 2003; Melka, Lancaster, Bryant, & Rodriguez, 2011). Within the current study, both the Emotion suppression ($\alpha = .71$) and the Cognitive Reappraisal ($\alpha = .83$) scales demonstrated appropriate internal consistency.

Direct ES Measures and Tasks.

Parents Contingent Reactions. The Coping with Children's Negative Emotions Scale (CCNES; Fabes, Eisenberg, & Bernzweig, 1990) was used to measure mothers' contingent reactions to their children's emotions. The CCNES is a parent-report questionnaire that includes 11 scenarios that describe common situations in which children experience negative emotion (e.g., sadness, anger, fear, embarrassment, disappointment, and anxiety). Of note, the original questionnaire included 12 scenarios; however, one of these scenarios involved the child experiencing positive emotions. This item was therefore excluded from the present study. For each hypothetical scenario, parents rate how likely they would be to respond to their child's negative emotions in six

possible ways. Three of these parental responses are positive and include: helping the child engage in *problem-focused* solutions (e.g., "help my child think of ways he/she can still be with friends."), providing the child with *emotion-focused* interventions (e.g., "soothe my child and do something fun to make him/her feel better"), and *encouraging* the child to express his or her negative emotion or validating the child's emotional expression (e.g., "encourage my child to express his/her feelings of frustration"). The other three parental responses are negative and include: expressing *punitive* reactions (e.g., "send my child to his room to cool off"), *minimizing* the situation or the child's emotional response (e.g., "tell my child to not make a big deal out of it."), and matching the *distress* of the child (e.g., "get angry with my child."). The authors' of the questionnaire (Fabes et al., 2002) recommend combining the problem-focused and emotion-focused subscales to create a *problem and emotion-focused reactions scale* and combining the punitive and minimization subscales to create an *unsupportive reactions scale*. The *expressive encouragement* and *distress reaction* subscales serve as their own independent scales. However, prior studies have found that the three nonsupportive (punitive, minimizing, and distress reaction) and the three supportive (problem-focused, emotion-focused, and expressive encouragement) scales are highly correlated (Perry et al., 2011). Thus, creating both a nonsupportive ($\alpha = .82$) and a supportive ($\alpha = .90$) composite based on average ratings for these items was justified and chosen for this study to reduce variables. The CCNES has demonstrated adequate internal reliability, test-retest reliability, and construct/predictive validity (Fabes et al., 2002).

Mother-Child Emotion Discussions. An Emotion Reminiscing Task (ERT) was used to assess the quality of mother-child discussions about emotions. After a five-minute

warm-up period in which mothers and their children were encouraged to interact and play without the experimenter present, the experimenter would return, set up the video camera, and instruct the mother-child pairs to have a five-minute conversation regarding a past negative emotional event that involved both the mother and the child. The following instructions were given to the mother-child dyads:

> *I would like the both of you to discuss a time when [child] was upset or experiencing a negative emotion. You [the mother] need to make sure you were present during the situation you discuss. It is best if you can choose a time that happened recently—within the past week or so—as it will be easier to remember. You will talk for five minutes. I will start the recording and head out of the room and then you two can decide what event you want to talk about and start discussing the event. I will return after 5 minutes are up. Please discuss the event the entire 5 minutes.*

The experimenter then set a timer and exited the room. No further instructions were given regarding a specific event to discuss or how to choose the topic. At the end of the five minutes, the researcher returned and ended the discussion.

The entire five minutes of the negative ERT videos were used to code the quality of the discussion. Previous research has utilized a similar coding strategy with two research assistants (Gentzler et al., 2005).

Coding. The entire five minutes of the negative ERT videos were used to code the quality of the discussion and aspects of mothers' and children's behavior during the task. Two graduate research assistants were trained to code the videos based on the coding scheme in Appendix A. Of note, one of the coders was entirely blind to participants'

diagnostic status, whereas the other coder had assisted in administering the study to approximately 20% of the participants at least five to six months prior to coding the videos. Thus, it is possible that this coder was aware of the diagnostic status of a small subset of the sample.

A coding scheme was developed for the ERT by Gentzler and colleagues (2005) to assess emotion socialization in a study of late elementary school (i.e., 5th grade) aged children. However, given concerns regarding developmental differences in child communication patterns and parent-child relations between the present sample and the children in Gentzler et al.'s (2005) study, it was determined that the coding scheme needed to be adapted to be more developmentally sensitive to an early elementary-aged sample of children. Additionally, Gentzler et al.'s (2005) coding scheme did not account for factors previously found to be related to children's EC, such as maternal elaborations (Eisenberg et al., 1998a; Laible, 2004; Laible, 2011; Raikes & Thompson, 2006) and discussion of coping (Goodvin & Romdall, 2013). Accordingly, the coding scheme in the present study represents an adaptation of the Gentzler et al (2005) coding scheme.

The developed coding scheme included five items rating mother's support/encouragement or critique of the child's emotional expression within the narrative, warmth towards the child, and response to child noncompliance during the reminiscing task. Three items were used to rate children's openness to participating in the discussion, misbehavior, and warmth towards their mother during the reminiscing task. Lastly, two items were used to rate the degree to which mother-child dyads discussed emotion-based coping or problem-based coping during the discussion. All items were rated on a five-point Likert scale (1=not at all, 5=a lot), with the exception of items

assessing mothers' and children's warmth during the discussion, which used a seven-point Likert scale (1=very distant/cold, 7=very warm). Previous research has utilized a similar coding strategy with two research assistants (Gentzler et al., 2005).

Reliability. Inter-rater reliability was assessed using a two-way mixed, absolute agreement, single-measures ICC (McGraw & Wong, 1996) to assess the degree that coders provided consistency in a subset (20% of subjects) of ratings of ERT quality across subjects. Eight of the ten resulting ICCs ranged from fair to excellent (ICCs ranged from .65 to .92; Cicchetti, 1994), indicating that coders had an adequate to high degree of agreement on these items of the coding scheme. Two of the items on the ERT coding schemes had ICCs below .60, suggesting inadequate agreement between raters. One of these items focused on mothers' elaborations during the ERT (see Appendix A, Mother's Behavior item 1). Historically, maternal elaborations have been examined through analysis of full transcripts of mother-child statements during an ERT (Laible, 2004; Laible, 2011; Morelen & Suveg, 2012; Raikes & Thompson, 2006). Thus, the poor ICC for this item may suggest that the extent to which mothers elaborate during ERTs is difficult to reliably capture through a global rating. The second item with a low ICC assessed children's reluctance to engage in the ERT (see Appendix A, Child's Behavior item 1). Although Gentzler and colleagues (2005) found this factor to be reliably assessable through a global rating, the current study rated this factor on a younger sample. It is possible the low agreement between raters was due to younger children expressing their reluctance to engage in the ERT in a less explicit or clear way than older children. Indeed, this factor has only been examined with late elementary-aged children (Gentzler et al., 2005). Due to the low ICCs for these two items, it was determined that

retaining them in subsequent analyses would introduce unnecessary measurement error that may reduce statistical power; thus, they were removed from subsequent analyses. The remaining eight items demonstrated overall adequate ICCs, suggesting that a minimal amount of measurement error was introduced by the independent coders. Therefore, these eight items were deemed suitable for use in the hypothesis tests of the present study. Of note, when there was disagreement between raters on the 20% of videos coded by both raters, an average rating between the two codes was calculated for that item.

Factor Analysis. Exploratory factor analysis was used to assess the factor structure and correlations of the ERT codes. Initially, the factorability of the 8 items was examined. Several well-recognized criteria for the factorability of a correlation were used. First, it was found that all 8 of the items correlated at least .3 with at least one other item, suggesting reasonable factorability between the items. Second, the Kaiser-Meyer-Olkin measure of sampling adequacy was .64, above the recommended value of .6, and Bartlett's test of sphericity was significant ($\chi 2$ (28) = 161.95, $p < .001$). The diagonals of the antiimage correlation matrix were all above .5. Additionally, the communalities were all above .3. Given these indicators, factor analysis was deemed appropriate for all 8 items.

Principal factor analysis was used, as the primary purpose of the analysis was to identify and compute composite score(s) for the factor(s) underlying the coding scheme. Initial eigen values indicated that the first three factors explained 39%, 21%, and 14% of the variance respectively. Beyond the third factor, all of the eigen values were below 1 and each explained less than 9% of the variance. A two factor solution was examined due

to the drastic decrease of eigen values on the scree plot after two factors, and the inadequate number of primary loadings for examining a three factor solution. The two factor solution was examined using promax rotations of the factor loading matrix, as it was expected that factors would be correlated above .20 and would therefore not be orthogonal (Yong & Pearce, 2013).

The two factor solution explained 53% of the variance. One items was eliminated because it did not contribute to a simple factor structure and failed to meet a minimum criteria of having a primary factor loading of .4 or above, and no cross-loading of .3 or above on the pattern matrix (see Appendix B, Table 2). The first factor consisted of items that appeared to capture the support, encouragement, and warmth between mother and child during the ERT discussion. Thus, this factor was labeled ERT Quality. The second factor contained two items capturing mothers' and children's negative behavior during the ERT (e.g., "How much did the child misbehave during the discussion?" and "How much does the mother scold, threaten, etc. the child in order to get the child to engage in the task?"). Only the ERT Quality variable was examined within the current study, as prior research did not suggest that child behavior during the task/parental response to the child's behavior would be directly associated with EC outcomes.

EC Measures.

Child Emotion Regulation. The Emotion Regulation Checklist (ERC; Shields & Cicchetti, 1997) and the Emotion Regulation Skills Questionnaire (ERSQ; Mirabile, 2014) were used to assess parents' perceptions of children's emotion regulation/coping. The ERC is a 24 item questionnaire in which parents are asked to rate on a four point Likert scale (1 = never, 4 = almost always) their child's emotional responses (e.g., "My

child can recover from episodes of being upset or distressed without pouting or remaining upset."). Responses yield two subscales (Negativity/Lability and Emotion Regulation Difficulties) and a Total Emotion Regulation scale. The Emotion Regulation Difficulties subscale assesses children's regulatory capabilities and various factors that are correlated with regulation. The Negativity/Lability scale of the ERC assesses children's dysregulated, disruptive, and negative emotionality. The ERC has been used to assess the emotion regulation of children ranging from ages three to twelve across numerous ES studies (Mirabile, 2014; Perry et al., 2011; Shaffer et al., 2012). The measure has demonstrated substantial reliability and validity in previous studies (Shields & Cicchetti, 1997). For the purpose of this study, the ERC Emotion Regulation Difficulties scale was initially going to be used to capture children's emotion dysregulation, as it more explicitly targets this construct than the Total Emotion Regulation scale; however, the internal consistency for the ERC Emotion Regulation Difficulties ($\alpha = .41$) and the ERC Total ($\alpha = .10$) were both poor. Thus, neither scale were examined within the current study.

The ERSQ (Mirabile, 2014) is a parent-report measure used to assess children's adaptive and maladaptive regulatory strategies. Parents report the frequency with which their children utilize 13 regulatory strategies in response to each of the child's four primary emotions—happy, sad, angry, and afraid—using a five-point Liker scale (0 = never, 4 = almost always), resulting in 52 total items (e.g., "S/he expresses his/her anger by crying, yelling, or screaming." "S/he is able to calm him/herself by talking through the problem."). Responses yield two subscales. The adaptive emotion regulation scale consists of children's self-directed speech, instrumental coping, information gathering,

social distraction, object distraction, self-soothing, comfort seeking, and support-seeking (α = .79). The maladaptive emotion regulation scale consists of children's focusing on the distressing object, venting, demonstrating aggression, avoiding the source of the emotion, and suppressing the emotion (α = .73). Each scale was calculated based on the mean ratings for items within that particular scale. The ERSQ has demonstrated moderate internal consistency and has previously been used in ES studies of children ages four to five (Mirabile, 2014).

Child Emotional Expressivity. The Child Emotional Expressivity Questionnaire (CEEQ; Mirabile, 2014) was used to provide further information regarding children's emotional expressivity. This measure was adapted by Mirabile (2014) from a teacher-report measure described by Halberstadt, Fox, and Jones (1993). The CEEQ assesses children's frequency, duration, intensity, and latency to express positive (happiness) and negative (sadness, anger, and fear) emotions. The 16 items (four for each emotion) of the questionnaire require parents to rate on a seven-point Likert scale (1 = never, 7 = always) the frequency (e.g., "My child is frequently sad or 'blue.'"), duration (e.g., "When my child is sad, s/he stays sad for a long time."), intensity (e.g., "When my child is sad, s/he gets very, very sad."), and quickness with which their child expresses different emotions (e.g., "When something bad happens, my child gets sad very quickly."). The mean frequency, duration, intensity, and latency scores for each emotion were used to create composite indicators of children's expression of sadness, anger, fear, and happiness. Research has found that these scales demonstrate acceptable internal consistency (Mirabile, 2014). Previous studies have taken the average of the anger, fear, and sadness

scores to create a single negative expressivity indicator (Mirabile, 2014). A composite was used within the current study to minimize the number of variables ($\alpha = .79$).

Child Emotional Understanding. The Assessment of Children's Emotion Skills (ACES; Schultz & Izard, 1998) was used to measure children's emotional understanding by assessing their emotional attribution accuracy. The ACES contains three subtests (facial expressions, behavioral descriptions, and situational vignettes) that examine children's ability to recognize emotions in others based on facial, behavioral, or contextual cues. There are 15 behavioral (e.g., "Jack doesn't feel like playing ball at recess. Instead, he just sits alone. Do you think Jack feels happy, sad, mad, scared, or no feeling?") and 15 social situation items (e.g., "Jasmine took care of her kitten, which she loved very much. One day the kitten disappeared and never came back. Do you think Jasmine feels happy, sad, mad, scared, or no feeling?"). Children respond to these items by labeling the protagonist's feeling as happy, sad, mad, scared, or no feeling. There are three items that correspond to each emotion based on the protagonist's behavior or the social context. Additionally, there are three additional items for both the behavioral descriptions and situational vignettes that describe behaviors or social situations not associated exclusively with one discrete emotion. These items are intended to elicit children's attribution biases.

The facial expression section of the ACES includes 26 photographs of elementary-aged children displaying various facial expressions. Four photographs each contain happy, sad, mad, and afraid faces. Additionally, 10 photographs contain a mixture of emotion signals and are intended to elicit children's emotion attribution biases.

All items in each subtest of the ACES are randomized within blocks containing happy, sad, angry, afraid, and ambiguous items. The emotion knowledge accuracy score is calculated by taking the sum of the number of correct responses to the 40 non-ambiguous items. There was no missing data to account for when creating this composite. The ACES has previously been used with kindergarten, first, and second grade children (Schultz, Izard, & Bear, 2004; Trentacosta & Izard, 2007). It has demonstrated moderate internal reliability (Trentacosta & Izard, 2007) and has been associated with measures of children's attention regulation and social functioning (Mostow et al., 2002; Trentacosta et al., 2006). Internal consistency for the ACES within the current study was adequate (α = .71).

Post Hoc Power Analyses

Post hoc power analyses were conducted using G*Power (Faul, Erdfelder, Lang, & Buchner, 2007) to determine the effect size detectable based upon the sample size of the study and primary analyses conducted, with α = .05 and power set at .80 (Cohen, 1988). The regression analyses for hypotheses 1 and 2 included three to four parameters, and the effect size detectable by the overall models were medium and ranged from f^2 = .25 to .28 (Cohen, 1988). For hypothesis one, the models with three parameters had two main effects in the first step (child ADHD diagnostic status and maternal emotion suppression) and one interaction effect (child ADHD x maternal emotion suppression) in the second step. The effect size detectable at step 1 (f^2 = .22) and step 2 (f^2 = .17) were both moderate. The models with four parameters in hypothesis 1 had one covariate in the first step, two main effects in the second step, and one interaction effect in the third step. The effect size detectable at steps 1 (f^2 = .17), 2 (f^2 = .22), and 3 (f^2 = .17) were all

moderate. For hypothesis 2, the models with three and four parameters all had one variable included at each step, in which the effect size detectable for each step was moderate ($f^2 = .17$).

CHAPTER III

RESULTS

Data Reduction and Analysis Approach

All questionnaire data were manually entered, cleaned, and examined for abnormal responses. In order to minimize the number of potential variables included within analyses, summary composite scales of each measure tended to be examined as opposed to more specific subscales. Given the paucity of research examining differences in the relation of emotion socialization and emotional competence in children with and without ADHD in an early elementary-aged population, data were analyzed using an exploratory approach. Bivariate correlations were examined to determine which covariates to include in primary analyses. This approach ensured that only essential variables were included in regression analyses, which increased the power of the analyses to detect significant effects. Although exploratory analyses are useful for examining relationships that are not yet fully understood based on prior research, there, are drawbacks to exploratory research, including that a large number of analyses are likely to yield several false significant relations. Of note, all hypotheses were exploratory and dependent on significant correlations emerging between proposed predictors and dependent variables. Thus, analyses were not corrected for Type I error due to concerns about limiting Type II error. Of note, both effect size and significance testing were used to assess the results. Effects were only interpreted as improving estimation of dependent

variables if they had both a small-moderate or larger effect size and were significant at the $p<.05$ level. However, given the small sample size and exploratory nature of the analyses, non-significant results were presented as marginal results if they had a small-moderate or larger effect size and significance testing indicated $.05 < p < .06$. While these marginal results cannot and were not interpreted as meaningful effects in the estimation of dependent variables, they suggested potential relationships that need to be studied using larger and more powerful sample sizes.

Preliminary Analytical Procedures

The assumption of normal distribution of variables were evaluated by examining boxplots, histograms, and the skewness and kurtosis statistics. Variables that were non-normally distributed were square-root-transformed. This was only necessary for the DERS Total variable.

Hypothesis 1

Three multivariate hierarchical linear regressions were conducted to examine the effect of child ADHD diagnostic status and maternal emotion regulation (as measured by DERS Total and ERQ Emotion Suppression) on direct ES (e.g., maternal self-report of supportive or nonsupportive contingent reactions, coded quality of ERT). Following exploration of bivariate analyses (see Appendix B, Table 3), it was determined that the ERQ Emotion Suppression scale was more strongly associated with direct ES variables than the DERS Total scale; thus, ERQ Emotion Suppression was used as the primary measure of maternal emotion regulation. Age (in years) and gender (0 = male, 1 = female) were considered potential covariates and, when warranted by bivariate analyses, were entered into the first step of the regression analyses to control for factors known or

thought to be associated with direct ES (Casey & Fuller, 1994; Eisenberg et al., 1998a; Eisenberg et al., 1996; Fabes et al., 1994; Jones et al., 2002). Maternal ERQ Emotion Suppression and children's ADHD diagnostic status were entered into the second step to assess whether there was a main effect of maternal emotion regulation or children's ADHD diagnostic status on direct ES when controlling for significant covariates. These two variables were entered into the same step as there was no research or theoretical basis for assuming either effect would be contingent upon the other. A child ADHD x maternal ERQ Emotion Suppression interaction term was entered into the third step to assess for the differential impact of maternal emotion regulation on direct ES for mothers of children with ADHD versus mothers of children without ADHD. A gender x ADHD interaction term was tested for all dependent variables and found to be non-significant; thus, this interaction was not included in any of the presented final analyses. All continuous variables were centered prior to conducting the analyses. Akaike Information Criteria (AIC) was used to assess model fit, with ΔAIC signifying the difference between the AIC with the inclusion of child ADHD, maternal emotion regulation, and the child ADHD x maternal emotion regulation interaction term and the next best fitting model. Negative ΔAIC scores indicated lower AIC and thus improved fit for the inclusion of the main effects and/or the interaction term in the overall model. When significant interactions were found, follow-up simple effect testing was conducted to examine the nature of the interaction (Cohen, Cohen, West, & Aiken, 2003).

Intrapersonal factors associated with ERT quality. Bivariate analyses (see Appendix B, Table 3) did not support the inclusion of either of the proposed covariates; thus, child gender and age were not included in the analysis. Results indicated a

significant contribution of the main effect of maternal ERQ Emotion Suppression and child ADHD diagnostic status on ERT Quality, $\Delta R^2 = .14$, $p = .037$, AIC = 144.97. This effect appeared to be driven by the maternal ERQ Emotion Suppression variable. Specifically, mother-child dyads in which the mother reported having a more suppressive emotion regulation style were rated as having significantly poorer quality discussions during the ERT ($\beta = -0.37$, $t = -2.63$, $p = .012$). Child ADHD status was not significantly associated with ERT quality ($\beta = -0.13$, $t = -0.92$, $p = .361$). The results also did not support the inclusion of a maternal ERQ Emotion Suppression x child ADHD interaction term in the estimation of ERT Quality, $\Delta R^2 = .02$, $p = .258$, AIC = 145.56, ΔAIC = -0.59. Overall, results suggested that maternal emotion suppression, and not child ADHD diagnostic status, significantly improved the estimation of ERT quality (see Appendix B, Table 4).

Intrapersonal factors associated with supportive contingent reactions. Bivariate analyses (see Appendix B, Table 3) did not support the inclusion of either of the proposed covariates; thus, child gender and age were not included in the analysis. Results indicated a significant contribution of the main effects of maternal ERQ Emotion Suppression and child ADHD diagnostic status on maternal supportive contingent reactions, $R^2 = .18$, $p = .011$, AIC = -48.60. Specifically, greater maternal emotion suppression was significantly associated with lower rates of maternal self-reported use of supportive contingent reactions ($\beta = -0.28$, $t = -2.03$, $p = .048$). Additionally, while there was a marginal result of mothers of children with ADHD using more supportive contingent reactions than mothers of children without ADHD ($\beta = 0.27$, $t = 1.98$, $p = .054$), the effect was not significant. Results did not support the inclusion of a maternal emotion regulation x child

ADHD interaction term in the estimation of maternal supportive contingent reactions, $\Delta R^2 = .01$, $p = .601$, AIC = -46.90, ΔAIC = 1.70. In sum, results indicated that maternal ERQ Emotion Suppression significantly improved the estimation of maternal supportive contingent reactions. Furthermore, there was a marginal, albeit non-significant, result in which child ADHD diagnostic status was associated with more supportive contingent reactions (see Appendix B, Table 5).

Intrapersonal factors associated with nonsupportive contingent reactions.

Bivariate analyses (see Appendix B, Table 3) supported inclusion of child age ($r = .38$) as a covariate. Examination of the covariate entered into the first step suggested that it contributed significantly to model fit, $R^2 = .14$, $p = .009$, AIC = -50.96. Specifically, child age was significantly positively associated with maternal nonsupportive contingent reactions, such that mothers of older children tended to use more nonsupportive contingent reactions than mothers of younger children ($\beta = 0.38$, $t = 2.75$, $p = .009$). Results did not indicate a significant contribution of the main effects of maternal ERQ Emotion Suppression or ADHD on maternal nonsupportive contingent reactions, $\Delta R^2 = .06$, $p = .193$, AIC = -50.55, ΔAIC = 0.41. However, the results suggested the inclusion of a maternal ERQ Emotion Suppression x child ADHD interaction term marginally improved the estimation of maternal nonsupportive contingent reactions, $\Delta R^2 = .06$, $p = .052$, AIC = -55.77, ΔAIC = -4.81. Although this interaction effect was not significant, given the moderate effect size ($\beta = .39$) and marginal p-value, follow-up simple-effect testing was conducted to explore the nature of this marginal effect. Initial examination of the simple effects indicated that maternal ERQ Emotion Suppression was not significantly associated with maternal nonsupportive contingent reactions for children

with (β = 0.18, t = 1.13, p = .196) or without ADHD (β = -0.21, t = -1.55, p = .127). Maternal nonsupportive contingent reactions were then compared between children with and without ADHD separately, based on whether their mothers rated themselves higher or lower on the ERQ Emotion Suppression scale. This test was conducted by re-centering the ERQ Emotion Suppression ratings at 1SD above and below the mean, respectively, as recommended by Cohen et. al (2003). For mothers with lower ERQ Emotion Suppression, child ADHD diagnostic status was significantly negatively associated with maternal nonsupportive contingent reactions (β = -0.53, t = -2.76, p = .009). This finding suggests that, among children with mothers who were less inclined to suppress their own emotions, children with ADHD received fewer nonsupportive contingent reactions than those without ADHD. For mothers with higher reported ERQ Emotion Suppression, the frequency of nonsupportive contingent reactions did not significantly differ based on whether or not their child had ADHD or not (β = 0.02, t = 0.13, p = .894; see Appendix C, Figure 1). Thus, marginal results presented the possibility that child ADHD diagnostic status may moderate the association between maternal emotion suppression and nonsupportive contingent reactions; however, this effect was not significant (see Appendix B, Table 6).

Hypothesis 2

When warranted by bivariate analyses, multivariate hierarchical linear regressions were conducted to examine the effect of child ADHD diagnostic status and direct ES measures (e.g., maternal self-report of supportive or nonsupportive contingent reactions, coded quality of ERT) on children's EC (e.g., children's performance on the ACES, maternal-report of children's emotion regulation and emotional expressivity). This

strategy was utilized in an attempt to minimize the number of potential variables included within each analysis. Age and gender were considered potential covariates and, when warranted by bivariate analyses, were entered into the first step of the regression analyses to control for factors known or thought to be associated with children's EC (Eisenberg et al., 1996; Jones et al., 2002). Children's ADHD diagnostic status was entered into the next step to assess whether there was a main effect of children's ADHD diagnostic status when controlling for predetermined covariates. Supportive contingent reactions, nonsupportive contingent reactions, and/or ERT quality were entered into the following step to assess whether there was a main effect of forms of direct ES on children's EC when controlling for covariates and child ADHD diagnostic status. ADHD diagnostic status was entered prior to direct ES variables as theory suggests children's ADHD symptoms may impact parents' direct ES behaviors. Child ADHD x direct ES interaction terms were entered into the final step to assess for the differential impact of direct ES variables on the EC of children with ADHD versus children without ADHD. When significant interactions were found, follow-up simple effect and simple-simple effect testing were conducted to examine the nature of the interaction (Cohen, Cohen, West, & Aiken, 2003). A Gender x ADHD interaction term was tested for all dependent variables and found to be non-significant; thus, it was not included in any of the presented final analyses. Akaike Information Criteria (AIC) was used to assess model fit, with ΔAIC signifying the difference between the AIC with the inclusion of child ADHD, direct ES variables, and the child ADHD x direct ES interaction term(s) and the next best fitting model. Negative ΔAIC scores indicated lower AIC *and* thus improved fit for the inclusion of the main effects and/or the interaction term in the overall model.

Intra- and interpersonal factors associated with children's emotion regulation. Following exploration of bivariate analyses (see Appendix B, Table 3), two multivariate hierarchical linear regressions were conducted to examine the effect of child ADHD diagnostic status and ERT quality on children's maladaptive coping with emotions (ERSQ Maladaptive Emotion Regulation) and adaptive coping with emotions (ERSQ Adaptive Emotion Regulation).

Maladaptive Emotion Regulation. Bivariate analyses (see Appendix B, Table 3) did not support the inclusion of either of the proposed covariates; thus, child gender and age were not included in the analysis. Results indicated a significant contribution of the main effect of child ADHD diagnostic status on ERSQ Maladaptive Emotion Regulation, $R^2 = .15$, $p = .008$, AIC = -70.74, such that children with ADHD were rated as demonstrating more maladaptive emotional coping strategies than children without ADHD ($\beta = 0.38$, $t = 2.79$, $p = .008$). Results did not support the contribution of the main effect of ERT quality on ERSQ Maladaptive Emotion Regulation, $R^2 = .06$, $p = .080$, AIC = -72.05, ΔAIC = -1.31. Furthermore, results did not support the inclusion of an ERT quality x child ADHD interaction term in the estimation of ERSQ Maladaptive Emotion Regulation, $\Delta R^2 = .04$, $p = .152$, AIC = -72.31, ΔAIC = 0.26. In sum, results indicated that child ADHD diagnostic status significantly improved the estimation of children's usage of maladaptive emotion regulation strategies. Furthermore, there was no impact of ERT quality on the estimation of children's maladaptive emotion regulation after controlling for child ADHD diagnostic status (see Appendix B, Table 7).

Adaptive Emotion Regulation. Bivariate analyses (see Appendix B, Table 3) did not support the inclusion of either of the proposed covariates; thus, child gender and age

were not included in the analysis. Results did not support the inclusion of the main effects of child ADHD diagnostic status (R^2 = .02, p = .312, AIC = -82.53) or ERT Quality (ΔR^2 = .01, p = .581, AIC = -80.86, ΔAIC = 1.67) in the estimation of ERSQ Adaptive Emotion Regulation. However, the results indicated a significant interaction of ERT Quality x child ADHD in the estimation of ERSQ Adaptive Emotion Regulation, ΔR^2 = .09, p = .045, AIC = -83.29, ΔAIC = -0.76). Simple effects tests were examined to explore the nature of this interaction. Initial examination of the simple effects indicated that the quality of ERT discussions was not significantly associated with the ERSQ Adaptive Emotion Regulation ratings for children without ADHD (β = -0.13, t = -0.88, p = .385), yet was marginally positively associated with ERSQ Adaptive Emotion Regulation ratings for children with ADHD (β = 0.28, t = 1.96, p = .057). ERSQ Adaptive Emotion Regulation was also compared between children with and without ADHD separately, based on whether their mother-child dyad was rated as demonstrating higher or lower ERT Quality. This test was conducted by recentering ERT Quality ratings at 1SD above and below the mean, respectively (Cohen et. al, 2003). For mother-child dyads with lower ERT Quality, child ADHD diagnostic status was not significantly associated with child ERSQ Adaptive Emotion Regulation (β = -0.16, t = -0.88, p = .385). In contrast, for mother-child dyads with higher ERT Quality, child ADHD diagnostic status was significantly positively associated with child ERSQ Adaptive Emotion Regulation (β = 0.47, t = 2.06, p = .045). Thus, among children rated as having higher quality emotion discussions with their mothers during the ERT, those with ADHD were rated as demonstrating more adaptive emotion regulation strategies during their daily lives than those without ADHD (see Appendix C, Figure 2). This finding suggests that

child ADHD diagnostic status significantly moderates the impact of ERT quality when estimating usage of adaptive emotion regulation strategies (see Appendix B, Table 8).

Intra- and interpersonal factors associated with children's emotional expressivity. Bivariate analyses indicated that child ADHD diagnostic status and measures of direct ES (maternal self-report of supportive and nonsupportive contingent reactions, coded quality of mother-child emotion discussions during the ERT) were not significantly associated with children's positive or negative emotional expressivity; thus, additional analyses were not pursued.

Intra- and interpersonal factors associated with children's emotional understanding. Following exploration of bivariate analyses (see Appendix B, Table 3), one multivariate hierarchical linear regressions was conducted to examine the effect of child ADHD diagnostic status and maternal nonsupportive contingent reactions in the estimation of children's emotional understanding, as measured by the ACES total score. Bivariate analyses (see Appendix B, Table 3) supported inclusion of child age (r = .51) as a covariate. Examination of the covariate entered into the first step suggested that it contributed significantly to model fit for ACES Total Score, R^2 = .26, p < .001, AIC = 134.15. Specifically, child age was significantly positively associated with children's ACES Total Score (β = 0.51, t = 4.01, p < .001), suggesting that older children demonstrated greater understanding of emotions. Results indicated a significant contribution of the main effect of child ADHD diagnostic status on ACES Total Score, ΔR^2 = .07, p = .035, AIC = 131.37, ΔAIC = -3.13. Specifically, children with ADHD demonstrated lower ACES Total Scores than children without ADHD (β = -0.27, t = -2.17, p = .035). Results did not support the inclusion of the main effect of maternal

nonsupportive contingent reactions (ΔR^2 = .00, p = .886, AIC = 133.35, ΔAIC = 1.99) or a maternal nonsupportive contingent reaction x child ADHD interaction term (ΔR^2 = .01, p = .509, AIC = 134.86, ΔAIC = 1.51) in the estimation of ACES Total Score. Overall, results suggested that only child age and ADHD diagnostic status, and not any of the measures of direct ES, significantly improved the estimation of children's emotional understanding (see Appendix B, Table 9).

CHAPTER IV

DISCUSSION

The current study represents an important initial step towards understanding how ES functions across families of early elementary-aged children with and without ADHD. Specifically, of the intrapersonal factors examined (child ADHD diagnostic status, maternal emotion suppression), only maternal emotion suppression was significantly associated with maternal direct ES behaviors. Furthermore, none of the maternal direct ES behaviors were uniquely associated with children's EC above and beyond the contributions of child ADHD diagnostic status; however, the association between one direct ES behavior (mother-child emotion discussion quality) and children's adaptive emotion regulation skills was moderated by children's ADHD diagnostic status. A more in-depth discussion of these findings, as well as their implications, is provided below.

Intrapersonal Factors Associated with Interpersonal Factors

Significant Effects. Hypothesis 1 proposed that intrapersonal factors associated with families of children with ADHD (e.g., child ADHD diagnostic status, maternal emotion regulation) would each be independently associated with direct ES variables (supportive contingent reactions, nonsupportive contingent reactions, ERT quality). As hypothesized, maternal emotion regulation, characterized by mothers' self-report of emotion suppression, was significantly negatively associated with their usage of supportive contingent reactions and the rated quality of ERT discussions. These findings

are consistent with previous research demonstrating that mothers who suppress their own emotions utilize less supportive contingent reactions and engage in less supportive and solution-focused emotion discussions with their preschoolers (Meyer et al., 2014). The current study extends this work by demonstrating the same pattern in mothers of early elementary-aged children with and without ADHD, suggesting that maternal emotion regulation is associated with maternal direct ES behaviors across preschool and early elementary stages of child development, regardless of children's ADHD diagnostic status.

Contrary to hypothesis 1, child ADHD diagnostic status was not significantly associated with any measure of maternal direct ES behavior. Marginal and nonsignificant findings regarding children's ADHD diagnostic status are discussed below.

Marginal and Nonsignificant Effects. Child ADHD diagnostic status was marginally positively associated with mothers' usage of supportive contingent reactions. Although this finding was not significant, it is notable that the marginal relation trended in the opposite direction than hypothesized. While child ADHD diagnostic status was not uniquely related to maternal supportive contingent reactions above and beyond the effect of maternal emotion regulation, the small sample size limits the ability to determine if a small but meaningful effect is present. Thus, the possibility that child ADHD diagnostic status is related to maternal supportive contingent reactions should be considered in future studies. More work is needed to determine the strength and direction of this potential relation.

It was also hypothesized that child ADHD diagnostic status would be independently associated with maternal nonsupportive contingent reactions. No main

effect of child ADHD diagnostic status on maternal nonsupportive contingent reactions was found; however, a marginal interaction between child ADHD diagnostic status and maternal emotion suppression was found. Given that the hierarchical regression analysis was sensitive to detect effects sizes of f^2 =.17 or larger at this step in the analysis, it is possible that a smaller effect such as this (f^2 = .10) may have been detectable with a larger sample size. Thus, although this interaction was not significant in the current sample, exploratory follow-up tests were conducted with the aim of informing future research. The results of these tests suggest that, for mothers lower in emotion suppression, those of children with ADHD may use less nonsupportive contingent reactions than those of children without ADHD, whereas mothers higher in emotion suppression may use similar levels of nonsupportive contingent reactions regardless of child ADHD diagnostic status. A possible explanation for this pattern of results follows from research indicating that nonsupportive contingent reactions escalate children's negative emotionality (Eisenberg et al., 1998a; Hoffman, 1983) and that children with ADHD are more emotionally reactive than TD peers (Gross, 2007; Larsen, 2000; Rosen, Epstein, &Van Orden, 2013; Rosen, Milich, & Harris, 2012). Specifically, lower emotion suppression may enable mothers of children with ADHD to adjust their responses to their children's emotional arousal in ways that avoid escalation based on the emotional/behavioral skillsets of their children. Further research regarding the effects of parent and child intrapersonal factors on direct ES is needed to better understand how ES differs as a function of family characteristics.

Lastly, contrary to expectations, an association between child ADHD diagnostic status and the rated quality of mother-child emotion discussions was not observed in the

current study. This may be due to children's negative reactivity and effortful control impacting the quality of parent-child emotion discussions in opposing directions (Laible, 2004; Smolak, 1986). Research suggests that mothers of children high in negative emotionality are more supportive/elaborative during parent-child emotion discussions (Laible, 2004; Smolak, 1986), whereas mothers of children low in effortful control are less supportive/elaborative (Laible, 2004). As children with ADHD are often high in negative reactivity and low in effortful control, mothers of these children may have vacillated between attempting to provide more support/elaboration during the discussion due to the children's greater temperamental/reactivity difficulties and attempting to provide less support/elaboration due to the children's poorer attention spans. Of note, although child ADHD diagnostic status was not uniquely related to the quality of mother child emotion discussions above and beyond the effect of maternal emotion regulation, the small sample size limits the ability to determine if a small but meaningful effect is present. Thus, the relation between child ADHD diagnostic status and the quality of mother-child emotion discussions should be further examined in future studies with larger samples.

Theoretical implications. Findings in regards to hypothesis 1 support theory and previous research indicating that intrapersonal factors contribute to mothers' direct ES behaviors (Eisenberg et al., 1998a; Eisenberg & Fabes, 1994; Laible, 2004; Meyer et al., 2014). Specifically, the current study appears to support an assertion within the ES literature that mothers' personal beliefs regarding their own emotions directly impact their parenting strategies (Gottman, Katz, & Hooven, 1996). Indeed, mothers who are more emotionally suppressive may find negative emotional expressivity so aversive

and/or unimportant that it is difficult for them to comfortably discuss emotionally evocative events or to support the negative emotions of their child (Katz, Maliken, & Stettler, 2012). The current study addressed a gap within prior research by examining how direct ES is impacted when mothers' beliefs regarding emotions (e.g., maternal emotion suppression) do not align with the characteristics of their children (e.g., children with ADHD). A marginal interaction found within the current study may tentatively suggest that when mothers' emotion-based beliefs and children's characteristics/skills do not coincide, mothers use nonsupportive direct ES behaviors indiscriminately, without adjusting this approach to meet the unique emotional skills/needs of their children. In contrast, when there is a better match between mothers' emotion-based beliefs and the characteristics of children, mothers may respond more sensitively to their children's unique needs (e.g., use less nonsupportive contingent reactions with children who are more emotionally reactive).

Clinical implications. Understanding how intrapersonal factors impact mothers' direct ES behaviors has significant implications for the treatment of families of children with ADHD and/or behavioral difficulties. As indicated above, the current study supports the contention that mothers' personal beliefs regarding their emotions are associated with maternal direct ES behaviors (Gottman et al., 1996). This may present a potential benefit or barrier for engaging mothers in therapeutic services aimed at modifying parenting behaviors. For instance, the primary behavioral health treatment for children with ADHD and/or disruptive behavior is parent-behavior management (Pelham, Wheeler, & Chronis, 1998). This treatment often includes strategies intended to support children's emotional development, such as developing skills for coaching children through negative emotions

and learning to ignore and/or more effectively manage negative behaviors associated with emotional outbursts (e.g., Kazdin, 1997; Webster-Stratton, 2011). Mothers who support personal emotional expressivity are likely to be receptive to these strategies, as they align with their personal beliefs regarding healthy expression of negative emotions. In contrast, mothers who tend to suppress emotions may find such strategies in opposition to their beliefs, as they are more likely to avoid discussing negative emotions and to punish, minimize, and/or demonstrate distress in response to children's negative emotional displays (Cleary & Katz, 2008; Gottman et al., 1996). Studies on ES interventions suggest that parents engage in more positive parenting strategies (e.g., emotion coaching, supportive contingent reactions, etc.) and less negative parenting strategies (e.g., nonsupportive contingent reactions, avoiding emotion-based discussions, etc.) when beliefs regarding their emotions and their expectations for their child's emotions are addressed within treatment (Dunsmore, Booker, Ollendick, & Greene, 2016; Havighurst, Harley, & Prior, 2004; Havighurst et al., 2009). The current study suggests it may be beneficial for therapists to directly address mothers' emotional beliefs prior to beginning parent-based interventions. Doing so may assist mothers in setting reasonable expectations for their children's emotional skills, which may in turn facilitate usage of more positive parenting strategies.

Intra- and Interpersonal Factors Associated with EC

Significant Effects. Hypothesis 2 proposed that both intrapersonal (child ADHD diagnostic status) and interpersonal (maternal supportive contingent reactions, maternal nonsupportive contingent reactions, and ERT Quality) factors would be independently associated with children's EC (child emotion regulation, expression, and understanding).

This hypothesis was partially supported. As hypothesized, child ADHD diagnostic status was significantly positively associated with children's maladaptive emotion regulation and negatively associated with their emotional understanding. These findings are consistent with previous research indicating that children with ADHD demonstrate greater emotion regulation difficulties (Crundwell, 2005; Shaw et al., 2014; Walcott & Landau, 2004) and poorer understanding of emotions (Da Fonseca et al., 2009; Kats-Gold et al., 2007; Rapport et al., 2002; Sinzig et al., 2008). Contrary to hypothesis 2, child ADHD diagnostic status was not significantly associated with child emotional expressivity. This may be due to the CEEQ capturing more typical, healthy emotional expressivity as opposed to the disproportionately intense and/or situationally inappropriate emotional expressivity associated with children with ADHD (Barkley, 2010; Jensen & Rosen, 2004; Maedgen & Carlson, 2000; Norvilitis, Casey, Brooklier, & Bonello, 2000).

Furthermore, none of the direct ES behaviors (maternal supportive and nonsupportive contingent reactions, quality of mother-child emotion discussions) were significantly independently associated with the measures of child EC (emotion regulation, emotional expressivity, emotional understanding). Marginal and nonsignificant findings in regards to the independent contributions of maternal direct ES behaviors in the estimation of children's EC are discussed below.

Although none of the maternal direct ES behaviors were independently associated with children's EC, a significant interaction between the quality of mother-child emotion discussions during the ERT and child ADHD diagnostic status in the estimation of child adaptive emotion regulation was found. This interaction indicated that, at lower levels of

emotion-discussion quality, children with and without ADHD did not differ in maternal-reported usage of adaptive emotion regulation strategies. However, at higher levels of emotion-discussion quality, children with ADHD were reported by mothers as demonstrating more adaptive emotion regulation strategies than children without ADHD. Previous research has established a positive association between the quality of parent-child emotion discussions and preschool/late elementary-aged children's adaptive emotion regulation (Goodvin & Romdall, 2013; Morelen & Suveg, 2012), yet there have been no prior studies in which parent-child emotion discussions uniquely benefited the adaptive emotion regulation of a more "difficult" child population. These findings may be related to different EC expectations between mothers of children with versus without ADHD. For example, mothers of children with ADHD who facilitate quality parent-child emotion discussions *and* have lower expectations for their child's EC may be more inclined to notice and subsequently endorse their child as demonstrating greater adaptive emotional coping, compared to mothers of children with ADHD who do not facilitate quality emotion discussions and mothers of TD children in general.

Marginal and Nonsignificant Effects. Contrary to expectations, neither supportive nor nonsupportive contingent reactions were significantly associated with any of the measures of children's EC after accounting for child ADHD diagnostic status. Notably, most studies in which a link was established between parent contingent reactions and child EC sampled children between the ages of 4 to 6 (Denham et al., 1997; Denham et al., 1994b; Fabes et al., 2002; Perry et al., 2011). Studies conducted with families of early elementary-aged children have generally found less consistent effects. For example, a study by Jones and colleagues (2002) found that only one specific type of

maternal supportive contingent reaction (maternal problem-focused response) was positively associated with 6- to 10-year-old children's emotional expressivity. Studies that have found associations between aggregated supportive or nonsupportive contingent reactions and children's EC have tended to have larger sample sizes and included families of slightly older children (e.g. ages 7 to 12; Shaffer et al., 2012; Suveg et al., 2011). Thus, it is possible that the current sample and analytic plan was not conducive to finding a link between parent contingent reactions and early elementary-aged children's EC. Alternatively, it is also possible that maternal contingent reactions are less relevant to the EC development of elementary-aged children than they are to preschoolers, as elementary-aged children encounter many more potential emotional socializers (e.g., teachers, coaches, peers, etc.) than preschoolers (Denham, 1998; Eisenberg et al., 1998a; Hyson, 1994). Furthermore, the EC of early elementary-aged children may be more stable than that of preschoolers, and therefore not as easily impacted by the contingent reactions of one socializer.

The quality of mother-child emotion discussions during the ERT was also not uniquely associated with child EC; however, the relation between emotion-discussion quality and child adaptive emotion regulation was qualified by an interaction with child ADHD diagnostic status. The absence of significant associations between mother-child emotion discussions and the other measures of children's EC (maladaptive emotion regulation, emotional understanding, emotional expressivity) is difficult to interpret, as previous research on these factors is scattered across different age-ranges and child characteristics. The quality of parent-child emotion discussions and child adaptive/maladaptive emotion regulation and emotional understanding in preschoolers

(e.g., Goodvin & Romdall, 2013; Laible, 2004; 2011; Raikes & Thompson, 2006); however, no studies have examined these factors in early-elementary aged children, and studies with older children have primarily focused on the extent to which parent-child emotion discussions are associated with children's adaptive coping/regulation (Gentzler et al., 2005; Morelen & Suveg, 2012). A possible explanation for this pattern of results is that as children enter the early elementary stage of development, mother-child emotion discussions become less strongly associated with maladaptive emotion regulation and emotion understanding. This may be due to older children having more foundational emotional knowledge and recognition of what constitutes emotion regulation than preschoolers. Furthermore, it is important to note that prior studies with preschoolers did not control for child ADHD diagnostic status. Thus, an alternative explanation is that the strong relations between child ADHD diagnostic status and child EC abilities (e.g., Casey, 1996; Crundwell, 2005; Kats-Gold et al., 2007; Sinzig et al., 2008; Shaw et al., 2014; Walcott & Landau, 2004) limited the ability to detect associations between direct ES and child EC measures after controlling for ADHD. Future research would benefit from examining the strength of maternal direct ES effects on children's EC across development when controlling/accounting for intrapersonal factors.

Theoretical implications. Unlike research with families of preschoolers (e.g., Fabes et al., 2002; Goodvin & Romdall, 2013; Laible, 2004; Laible, 2011; Perry et al., 2011), findings for hypothesis 2 suggest that maternal direct ES behaviors may not play as significant of a role in the EC of early elementary-aged children when controlling for intrapersonal factors relevant to the child (e.g., child ADHD diagnostic status). Specifically, neither contingent reactions were significantly associated with children's EC

when controlling for child ADHD diagnostic status. As previously noted, this may suggest that the impact of mothers' reactions to children's negative emotions play less of a role at this developmental stage during which children receive emotion-based information from a variety of potential socializers (e.g., teachers, peers, etc.; Denham, 1998; Eisenberg et al., 1998a; Hyson, 1994). Furthermore, by the time children reach this stage in development, they have had significantly more emotional encounters than preschoolers, and therefore may have a more established framework for interpreting mothers' contingent reactions. This may limit the extent to which mothers' contingent reactions influence their children's EC. Indeed, the findings of this study coincide with longitudinal studies that have found contingent reactions and mother-child discussions are less impactful as children enter the early or late elementary stages (Denham et al., 1991; Gentzler et al., 2005). Interestingly, cross-sectional research with late elementary-aged children continues to support the association between parents' contingent reactions and children's EC (Gentzler et al., 2005; Shaffer et al., 2012; Suveg et al., 2011); however, these prior studies were conducted with families of TD children, whereas the current study had a sample in which half of the children met criteria for ADHD. Therefore, it is possible that contingent reactions are simply not associated with EC outcomes when controlling for child ADHD diagnostic status, a factor that has been strongly linked to children's EC. More research is needed to determine the impact of parents' direct ES behaviors on children's EC throughout development and within families of children with ADHD.

Interestingly, the current study did yield a finding unexamined in prior research in which high quality mother-child emotion discussions appeared to exclusively benefit the

adaptive emotion regulation of children with ADHD. This finding may be related to different EC expectations between mothers of children with versus without ADHD. For example, due to children with ADHD demonstrating poorer emotion regulation skills than their TD peers (see Shaw et al., 2014 for review), mothers of children with ADHD should have lower expectations than mother of TD children in regards to their children's ability to utilize adaptive regulatory skills. Thus, mothers of children with ADHD who facilitate quality parent-child emotion discussions *and* have lower expectations for their child's emotion regulation skills may be more inclined to notice and subsequently endorse their child as demonstrating greater adaptive emotional coping than mothers of children with ADHD who do not facilitate quality emotion discussions and mothers of TD children in general.

Clinical implications. The findings in regards to hypothesis 2 also have implications as to which direct ES behaviors may be most beneficial to target in therapeutic interventions for parents of early elementary-aged children. Prior research has found that among preschoolers both parent contingent reactions and the quality of parent-child emotion discussions are associated with EC (e.g., Fabes et al., 2002; Goodvin & Romdall, 2013; Laible, 2004; Laible, 2011; Perry et al., 2011), which supports the development of interventions for preschoolers that explicitly target both parent contingent reactions and emotion-discussion skills. In contrast, among early elementary-aged children, treatment may be more beneficial if it focuses primarily on how parents can guide a warm, supportive conversation regarding negative emotional events. Interventions focused on discussing past emotional events more effectively may be especially relevant to families of children with ADHD. Due to children with ADHD

demonstrating more intense and dysregulated negative emotions than TD children (Shaw et al., 2014; Walcott & Landau, 2004), parents may have more difficulty responding supportively in the moment to their negative emotions. Encouraging families of children with ADHD to discuss negative emotional events after all parties have deescalated could improve children's ability to reflect upon their emotional experiences and utilize more adaptive regulatory strategies in the future (Eisenberg et al., 1998a).

Furthermore, the current findings may lend support for treatments more explicitly targeting the intrapersonal factors that appear to directly contribute to EC deficits, or perhaps, EC deficits directly. In regards to ADHD, research has supported the effectiveness of both stimulant medications and behavioral parent training for improving/managing the inattention, hyperactivity, and impulsivity at the core of the disorder (Pelham et al., 1998). Notably, these treatment approaches do not directly address the EC deficits of this population (Waxmonsky, Wymbs, Pariseau, et al., 2013). It is likely that all children with ADHD would benefit from interventions that address both the intra- and interpersonal factors that impact EC development. Additionally, among older children with ADHD who have established a pattern of EC deficits, interventions that more directly target each component of EC could be beneficial. Indeed, studies have found that children with ADHD who demonstrate improved emotional and behavioral functioning in response to psychosocial treatment also demonstrate related changes in neurological regions associated with emotion regulation (Lewis, Granic, Lamm, et al., 2008). Currently there are no treatments for children with ADHD that specifically target the emotional difficulties of this population (Waxmonsky et al., 2013).

Limitations.

This study provided initial support for ES processes playing a role in the development of EC in early elementary-children with and without ADHD. However, several limitations must be taken into account. The small sample in the study may have reduced the power of the analyses to detect small but meaningful effects and examine within group differences in the ADHD sample. Additionally, a larger sample would have allowed for examination of mediation between intrapersonal, interpersonal, and EC variables, which has not yet been directly examined within the EC literature. Regardless of the small sample size, the analyses were able to reveal several substantial relations between intrapersonal and interpersonal factors and their associations with children's EC and provided a foundation for further examination of ES processes in families of children with ADHD. An additional concern regarding the sample was the opposing gender proportions within the ADHD and non-ADHD groups. Having a majority of females in the non-ADHD group and a majority of males in the ADHD group may be significantly contributing to group differences, as opposed to group differences being exclusively related to children's ADHD diagnostic status. Notably, gender was a potential covariate in every analysis and therefore was controlled for prior to insertion of an ADHD main effect. Additionally, a gender x ADHD interaction term was examined across all analyses, and was determined to be unassociated with all dependent variables of interest. Furthermore, the measure used to assess the ADHD status of children in this sample was not evaluated in regards to diagnostic reliability across raters. This was deemed unnecessary, as the interview does not require administrators to make diagnostic decisions regarding the presence of a symptoms and prior studies have indicated the interview has high diagnostic reliability.

An additional limitation within the current study involves the development, evaluation, and utilization of the ERT coding scheme. Ideally, this coding scheme would have been developed and validated on a separate, larger sample prior to usage as a primary independent/dependent variable within the current study. Additionally, one of the coders for the coding scheme was not blind to participant diagnostic status, which may have impacted her coding of certain videos. Of note, with the exception of two items, the blind and non-blind coders demonstrated good inter-rater reliability, suggesting that the one coder's possible knowledge regarding some participants' diagnostic status did not drastically affect her coding. Furthermore, exploratory factor analysis, which was used to develop a composite based on the ERT coding scheme, is generally not recommended with sample sizes below 50; however, some research indicates this analysis may be appropriate for small sample sizes if the data are well-conditioned (see de Winter, Dodou, and Wieringa, 2009). Despite the limitations regarding the ERT coding scheme, several significant effects were found in regards to this variable. Such findings add support to the usage of a global coding scheme in the evaluation of parent-child emotion discussions. However, if this coding scheme is to be used in future research, it would likely require further refinement and assessment of its utility.

Although this study demonstrated several notable associations between intra- and interpersonal factors and children's EC, all data in this study were obtained simultaneously. It is therefore not possible to determine the direction of the effects found in this study. Longitudinal studies are especially relevant for ES research, as parent-child effects are likely bidirectional (Eisenberg et al., 1998a). Further studies are needed to illustrate the longitudinal direction of the relations between intrapersonal, interpersonal,

and EC factors. The current study provides guidance regarding which relations should be targeted when examining ES processes longitudinally with an ADHD population. Additionally, with the exception of the ACES and ERT, all variables of interest within the study were based on mothers' report/ratings. Thus, it is possible that reports regarding maternal emotion regulation, contingent reactions, and child emotion regulation and expression were skewed according to mothers' characteristics and perceptions. This could have influenced the strength of effects solely reliant on mother-report measures. Future studies should utilize cross-report measures or observational procedures to assess parents' direct ES behaviors and children's EC.

Future Directions

Although research over the past few decades has advanced our understanding of parental ES, few attempts have been made to apply ES to populations that typically demonstrate poorer EC. The current study provides preliminary information regarding how ES functions similarly and distinctly across families of early elementary-aged children with and without ADHD. One of the primary flaws within the ES literature that also plagues the current study is the difficulty in determining the directionality of findings. Thus, the primary direction for future research should be clarifying the likely bidirectional relations between characteristics of parents/children, direct ES, and children's EC. This goal can only be accomplished through the development of longitudinal studies. Indeed, this approach may be especially relevant when attempting to understand the complex interplay of factors involved in predicting EC outcomes in children with ADHD.

Another factor that should be considered in future research is the heterogeneity of ADHD. Children with ADHD often demonstrate different patterns of symptoms, comorbidities and impairments that range in severity. The current study examined children with ADHD as a homogeneous group due to the limited sample size. Before examining within ADHD variability, research will likely need to further establish patterns of ES effects between families of children with versus without ADHD. The current study provides direction as to what effects may be worthwhile to reexamine with larger samples and/or with families of children at different developmental stages. Once the distinct ES patterns between TD and ADHD groups are better understood across development, future studies should then examine how different forms of ADHD (e.g., ADHD with comorbid ODD; Sluggish Cognitive Tempo, etc.) impact the ES process.

Conclusions

The current study represents an important initial step towards understanding how ES functions across early elementary-aged children with and without ADHD. Parents' direct ES behaviors have been found to play a pivotal role in children's development of EC, which in turn has been associated with children's social, emotional, behavioral, and broader mental health outcomes. Findings from this study suggest that intrapersonal factors relevant to families of children with ADHD contribute to parents' direct ES behaviors. Findings also indicate that maternal direct ES behaviors may not play as significant of a role as intrapersonal factors in the estimation of children's EC at this developmental stage. By improving our understanding of how ES processes differentially function and impact the EC of early elementary-aged children with and without ADHD,

we can more effectively conceptualize and treat the emotional difficulties of various child populations across development.

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Appendix A.

Emotion Reminiscing Task Coding Scheme

MOTHER'S BEHAVIOR

1. To what extent did the mother assist the child in elaborating details of the emotion narrative?

1	2	3	4	5
Not at all little or no background material discussed, maternal questions are not open-ended, and many ideas are repeated regardless of the child's response	*A little* some background material discussed, maternal questions are mostly yes-no, but some open-ended questions are included, and some ideas are repeated	*Some* moderate background information discussed, mother uses a mixture of open-ended and yes-no questions, and repetition is occasional	*Quite a bit* considerable amount of background material discussed, mother uses slightly more open-ended than yes-no questions, and repetition ranges from rare to occasional	*A lot* high levels of background material discussed, mothers ask predominantly open-ended questions, and repetition is minimal and *only* when the child ignores a question or does not respond.

2. How much does the mother appear to accept and encourage the child's expression of emotions during the discussion of the narrative? *Consider the extent to which the mother uses positive strategies such as validating the child's emotional experience (e.g., "I can see how that would be upsetting," "I understand," "It's ok to be sad," "I feel that way sometimes too," etc.), paraphrasing what the child says in a supportive way (e.g., Child says "I felt mad," and parent responds by saying "So, you felt mad when [the event] happened."), and/or asking the child to explain emotions in a non-accusatory manner (e.g., "How did you feel when that happened?").*

1	2	3	4	5
Not at all	A little	Some	Quite a bit	A lot

3. How often does the mother criticize or invalidate the child's emotional reaction within the narrative *(e.g., "It wasn't that bad," "It's already over," etc.)* **and/or how the child responded to the situation within the narrative** *(Can be both statements and accusatory questions: "Just because someone did something, doesn't mean you should have…" "This situation was your fault because you did/didn't do something," "Isn't it*

true that there are times you say things to get out of doing work?" "Do you think that hurt the other person's feeling?" etc.).

1	2	3	4	5
Not at all	A little	Some	Quite a bit	A lot

4. How often does the mother scold, threaten, etc. the child in order to get the child to engage in the task? *(e.g., "This is serious. we're not being silly for the camera," "That was inappropriate—we don't talk like that," "Stop it right now or you won't get a treat afterwards," etc.)*

1	2	3	4	5
Not at all	A little	Some	Quite a bit	A lot

5. How warm or distant/cold was the parent towards the child during the reminiscing task?

1	2	3	4	5	6	7
Very distant/cold	Distant/cold	A little distant/cold	Neither warm nor distant/cold	A little warm	Warm	Very warm

CHILD'S BEHAVIOR

1. How resistant was the child to discussing the negative emotional event? *Includes explicitly stating they don't want to talk about the event(s) and/or a general unwillingness/refusal to talk about the event. Consider the entire interaction.*

1	2	3	4	5
Not at all	A little	Somewhat	Considerably	Very

2. How much did the child misbehave during the discussion (does not include resistance towards discussing the event)? *(e.g., intentionally make inappropriate/rude comments, get out of their seat and crawl under table, behave in a silly/goofy way, not comply with mothers' requests, etc.)*

1	2	3	4	5
Not at all	A little	Some	Quite a bit	A lot

3. How warm or distant/cold was the child towards the parent during the reminiscing task?

1	2	3	4	5	6	7
Very distant/cold	Distant/cold	A little distant/cold	Neither warm nor distant/cold	A little warm	Warm	Very warm

DYADIC STRUCTURE

1. How much do the parent and child discuss ways to <u>regulate/cope with negative emotion</u> within the narrative? Includes how the child actually responded or could have responded. *Includes internal actions (i.e., using coping skills, taking deep breaths, trying to ignore the thing that was bothering them), external actions (ignoring the*

situation, distracting self with other activity), and cognitive actions (i.e., thinking about the situation differently, reassuring themselves, trying to find reasons not to be upset, 'talking themselves' through the situation). DOES NOT HAVE TO BE EFFECTIVE.

1	2	3	4	5
Not at all	A little	Somewhat	Quite a bit	A lot

2. How much do the mother and child discuss ways to potentially solve the situation that caused the negative emotion within the narrative? *(i.e., taking actions intended to directly solve the problem or improve the situation, getting help from others, changing other people's behavior, etc.). DOES NOT HAVE TO BE EFFECTIVE.*

1	2	3	4	5
Not at all	A little	Somewhat	Quite a bit	A lot

Appendix B

Table 1. *Demographic and racial/ethnic distribution for ADHD and non-ADHD diagnostic groups.*

	ADHD	*Non-ADHD*
Mean Age	6.48	6.48
Gender (males)	60.9%	36.8%
Race/Ethnicity		
Caucasian/White	13	18
African American/Black	6	6
Biracial	2	1
Unspecified	2	0
Estimated Household Income		
$10,001 - $25,000	1	1
$25,001 - $40,000	4	2
$40,001 - $75,000	5	3
Over $75,000	9	18
Unspecified	4	0
Mothers' Mean Age	35.84	40.04

Note: ADHD N=23; Non-ADHD N=25

Table 2. *Emotion Reminiscing Task (ERT) cross-factor loadings based on promax rotation.*

ERT Items	*Factor 1*	*Factor 2*
Mom 2	**.74**	-.09
Mom 3	**-.57**	-.06
Mom 4	.01	**.98**
Mom 5	**.75**	-.06
Child 2	.11	**.84**
Child 3	**.76**	-.02
Dyad 1	**.48**	.12
Dyad 2*	.15	-.33

Note. *indicates items extracted from both factors.

Table 3. *Correlations between independent and dependent variables.*

	Correlation (*r*)											
Measure	1	2	3	4	5	6	7	8	9	10	11	12
1. Gender (male = 0, female =1)	−											
2. Age	.09	−										
3. ADHD (no = 0, yes = 1)	−.25	−.00	−									
4. DERS Total (transformed)	−.00	.02	.12	−								
5. ERQ Emotion Suppression	−.08	.03	−.19	.20	−							
6. ERT Quality	.28	−.14	−.06	−.07	−.35*	−						
7. PABC Supportive	−.13	.06	.32*	−.01	−.33*	.06	−					
8. PABC Nonsupportive	−.00	.38**	−.25	.19	.04	−.22	−.17	−				
9. ERSQ Negative	−.18	−.05	.38**	.07	.02	−.26	.18	.04	−			
10. ERSQ Positive	.06	.27	.15	−.25	.00	.07	.25	−.03	.08	−		
11. CEEQ Negative	−.26	−.15	.11	.13	.23	−.13	−.02	−.01	.38**	−.15	−	
12. CEEQ Positive	.09	−.13	.10	.13	.24	−.04	.17	−.18	−.00	.29*	.07	−
13. ACES Total	−.02	.51**	−.27	.03	−.05	−.11	.03	.24	−.34*	.11	−.04	−.24

Note: $N = 48$. *$p < .05$, **$p < .01$, ***$p < .001$.

Table 4. *Hierarchical regression: Emotion Reminiscing Task Quality by child ADHD and maternal emotion regulation (maternal-reported ERQ Emotion Suppression).*

Step/variable	R^2	ΔR^2	ΔR^2 *p-value*	*AIC*	f^2	*B*	*SE B*	*β*	*t*	*p-value*
Step 1	.14	.14	.037	144.97	.16					
ADHD (no = 0, yes = 1)						-1.19	1.29	-.13	-0.92	.361
Maternal emotion regulation						-0.35	0.13	-.37	-2.63	.012
Step 2	.16	.02	.258	145.56	.02					
Maternal emotion regulation x ADHD						0.31	0.27	.23	1.15	.258

Note. $N = 48$.

Table 5. *Hierarchical regression: Maternal supportive contingent reactions by child ADHD and maternal emotion regulation (maternal-reported ERQ Emotion Suppression).*

Step/variable	R^2	ΔR^2	ΔR^2 *p-value*	*AIC*	f^2	*B*	*SE B*	β	*t*	*p-value*
Step 1	.18	.18	.011	-48.60	.22					
ADHD (no = 0, yes = 1)						0.34	0.17	.27	1.98	.054
Maternal emotion regulation						-0.04	0.02	-.28	-2.03	.048
Step 2	.19	.01	.601	-46.90	.01					
Maternal emotion regulation x ADHD						-0.02	0.04	-.10	-0.53	.601

Note. $N = 48$.

Table 6. *Hierarchical regression: Maternal nonsupportive contingent reactions by child ADHD and maternal emotion regulation (maternal-reported ERQ Emotion Suppression).*

Step/variable	R^2	ΔR^2	ΔR^2 *p-value*	*AIC*	f^2	*B*	*SE B*	*β*	*t*	*p-value*
Step 1	.14	.14	.009	-50.96	.16					
Age						0.24	0.09	0.38	2.75	.009
Step 2	.20	.06	.193	-50.55	.08					
ADHD (no = 0, yes = 1)						-0.31	0.17	-0.25	-1.84	.073
Maternal emotion regulation						-0.00	0.02	-0.02	-0.16	.877
Step 3	.27	.07	.052	-52.82	.10					
Maternal emotion regulation x ADHD						0.07	0.03	0.39	2.00	.052

Note. $N = 48$.

Table 7. *Hierarchical regression: ERSQ Maladaptive Emotion Regulation by child ADHD and Emotion Reminiscing Task Quality.*

Step/variable	R^2	ΔR^2	ΔR^2 *p-value*	*AIC*	f^2	*B*	*SE B*	*β*	*t*	*p-value*
Step 1	.15	.15	.008	-70.74	.18					
ADHD (no = 0, yes = 1)						0.38	0.14	0.38	2.75	.009
Step 2	.20	.06	.080	-72.05	.08					
ERT Quality						-0.03	0.01	-0.24	-1.79	.080
Step 3	.24	.04	.152	-72.31	.05					
ERT Quality x ADHD						0.42	0.03	0.25	1.46	.152

Note. $N = 48$.

Table 8. *Hierarchical regression: ERSQ Adaptive Emotion Regulation by child ADHD and Emotion Reminiscing Task Quality.*

Step/variable	R^2	ΔR^2	ΔR^2 *p-value*	*AIC*	f^2	*B*	*SE B*	β	*t*	*p-value*
Step 1	.02	.02	.312	-82.53	.02					
ADHD (no = 0, yes = 1)						0.12	0.12	0.15	1.02	.312
Step 2	.03	.01	.581	-80.86	.01					
ERT Quality						0.01	0.01	0.08	0.56	.581
Step 3	.12	.09	.045	-83.29	.10					
ERT Quality x ADHD						0.05	0.03	0.38	2.06	.045

Note. $N = 48$.

Table 9. *Hierarchical regression: ACES Total Score by child ADHD and maternal nonsupportive contingent reactions.*

Step/variable	R^2	ΔR^2	ΔR^2 *p-value*	*AIC*	f^2	*B*	*SE B*	β	*t*	*p-value*
Step 1	.26	.26	.000	134.15	.35					
Age						2.40	0.60	0.51	4.01	.000
Step 2	.33	.07	.035	131.37	.10					
ADHD (no = 0, yes = 1)						-2.39	1.10	-0.27	-2.17	.035
Step 3	.33	.00	.886	133.35	.00					
Maternal nonsupportive reactions						-0.15	1.02	-0.02	-0.14	.886
Step 4	.37	.01	.509	134.86	.06					
Maternal nonsupportive reactions x ADHD						-1.35	2.04	-0.10	-0.67	.509

Note. $N = 48$.

Appendix C

Figure 1. *Child ADHD x maternal emotion suppression in the estimation of nonsupportive contingent reactions.*

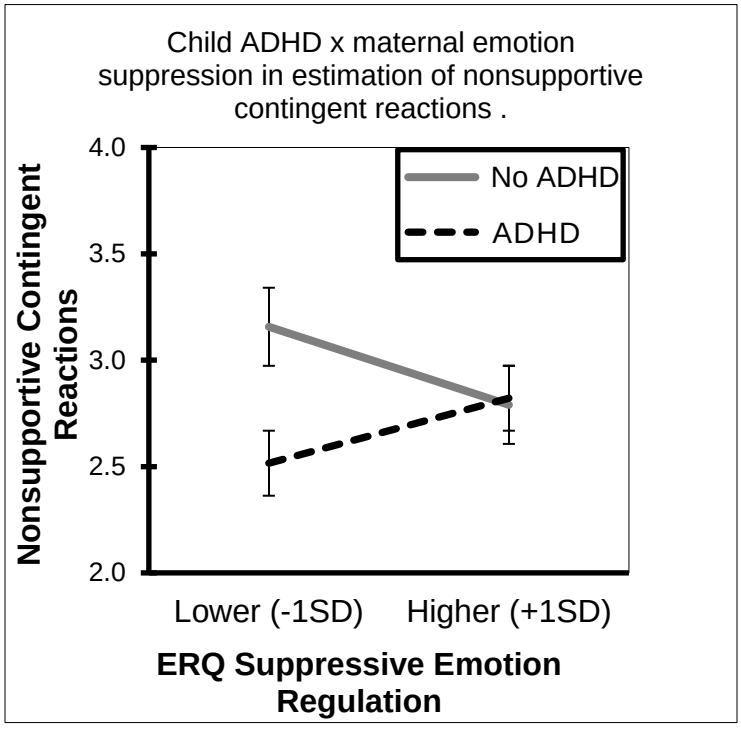
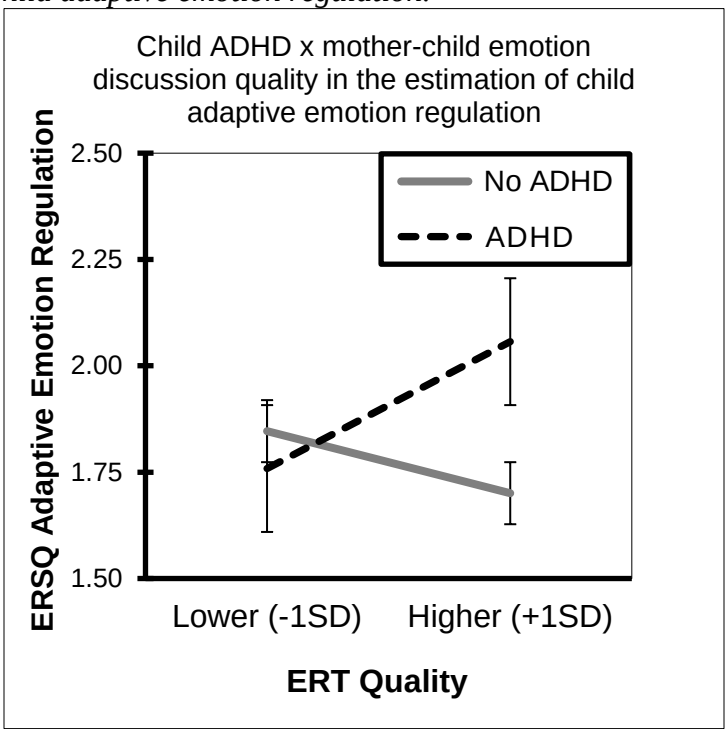


Figure 2. *Child ADHD x mother-child emotion discussion quality in the estimation of child adaptive emotion regulation.*



CURRICULUM VITAE

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EDUCATION

University of Louisville, Louisville, KY
- M.A. in clinical psychology, 2012-2014
- PhD in clinical psychology, 2017
  Dissertation: Emotion Socialization and Families of Children with and without ADHD, defended September 2017
- Mentor: Paul J. Rosen, PhD

Wittenberg University, Springfield, OH, graduated May 2012 *summa cum laude*
- BA, Psychology with minor in Statistics

AWARDS

University of Louisville, Louisville, KY
- Excellence in Clinical Work Award, received May 2015 and May 2016

Wittenberg University, Springfield, OH
- Bethlehem Steel Award, received April 2012
  - Honored one outstanding senior student in psychology for academic achievement and unique contributions to the psychology program
- John B. Helwig Presidential Scholarship, received April 2011
  - Honored twelve students in the junior class who have maintained the highest academic standing in the class.
- Virgil E Rahn Memorial Fund, received April 2011
  - Honored one outstanding junior student in psychology for superior work in the discipline and promise as a future psychologist.
- Charles J. Ping Community Service Award, received April 2011
  - Honored one Wittenberg University student for community service
- Phi Beta Kappa, 2011 – present

CLINICAL EXPERIENCE

Nationwide Children's Hospital, Columbus, OH, internship and postdoctoral fellowship
- **Dublin Close to Home Center,** 2016 – Present

    - Lynda Wolfe, Ph.D. and Benjamin Fields, Ph.D., Supervisors during postdoctoral fellowship
    - Cami Winkelspecht, Ph.D. and Jennifer Munoz, Ph.D., Supervisors during internship
    - Provide individual and family-based therapy for children and adolescents in an outpatient setting.
    - Conduct diagnostic evaluations for children and adolescents to assess for ADHD, learning disorders, intellectual disability, and other forms of psychopathology.
    - Assist in leading parent behavior management group utilizing Incredible Years treatment.
    - Receive individual and group supervision from a licensed psychologist to continue developing therapeutic and assessment techniques for working with children and families.
    - Treatment modalities: Cognitive-Behavioral, Behavior Management, Incredible Years
- **Psychiatric Emergency Evaluation Center,** 2016
    - Glenn Thomas, Ph.D., Supervisor
    - Conducted emergency psychiatric evaluations in the Emergency Department for children and teenagers presenting with suicidal ideation, homicidal ideation, self-injurious behavior, psychosis, and/or aggression
    - Collaborated with multi-disciplinary team to make determination regarding whether patients required inpatient hospitalization
    - Assisted with triaging patients to appropriate level of care and coordinating with their current behavioral health providers
- **T5A Psychiatric Inpatient Unit,** 2016
    - Nicole Powell, Ph.D., Supervisor
    - Provided individual and family-based therapy to children and adolescents on the inpatient unit 2-3 times per day per client
    - Collaborated with multi-disciplinary team to make determinations regarding patients' progress on the unit, discharge dates, and appropriate follow-up care.
    - Facilitated care conferences between outpatient therapists, school personnel, parents, and social workers to assist them in developing a plan to best support the patient following discharge

University of Louisville, Noble H. Kelley Psychological Services Center, Louisville, KY

- **Cognitive Behavioral Treatment Team,** 2015-2016
    - Janet Woodruff-Borden, Ph.D., Supervisor
    - Provided individual therapy for children, adolescents, and adults with anxiety and related disorders.
    - Collaborated with clinical team to assess weekly client treatment progress and identify productive therapeutic techniques; review literature on the conceptualization process through the lens of cognitive-behavioral theories; review current research on internalizing disorders and cognitive-behavioral treatment approaches
    - Received individual and group supervision from a licensed psychologist to learn effective therapeutic techniques for assisting clients with internalizing symptoms
    - Provided peer supervision to first year therapist
    - Treatment modalities: Cognitive-Behavioral
- **Assessment Rotation,** 2013-2016
    - Bernadette Walter, Ph.D. and David Winsch, Ph.D., Supervisors

    - Conducted diagnostic evaluations for children, adolescents, and adults with a range of diagnoses.
    - Conducted advanced placement evaluations for children and adolescents.
- **CARDS (Children with ADHD and Related Disorders) Team,** 2012-2015
    - Paul J. Rosen, Ph.D., Supervisor
    - Administered individual treatment for children with ADHD and comorbid internalizing and externalizing disorders; conduct diagnostic evaluations for ADHD and comorbid disorders
    - Led Managing Frustration for Children group treatment designed to teach children between the ages of 8 and 12 effective methods for identifying and alleviating feelings of frustration
    - Collaborated with clinical team to assess weekly client treatment progress and identify productive therapeutic techniques; review current literature on ADHD and comorbid internalizing and externalizing disorders
    - Received individual and group supervision from a licensed psychologist to learn effective child and parent therapeutic and assessment techniques
    - Member of work group adapting Managing Frustration for Children treatment to early adolescent children
    - Treatment modalities: Cognitive-Behavioral, Behavior Management, Managing Frustration Group for Children, Parent Skills Training Group, Organizational Skills Training for Children

Marvin & McCrary Forensic Mental Health Services, Louisville, KY, 2014 – 2015
- Kelli Marvin, Ph.D. and Kristen McCrary, Ph.D., Supervisors
- Observed and assisted with conducing forensic mental health interviews
- Administered WAIS-IV
- Reviewed court, CPS, DHS, and mental/medical health records
- Assisted with writing narrative and conclusory reports integrating information from interview and records.

Rocking Horse Community Health Center, Springfield, OH, 2010-2012
- Assisted with therapeutic intervention groups for children and parents
- Observed therapists in individual therapy sessions for children
- Trained in Child Adult Relationship Enhancement

Stepping Stones Center, Indian Hills, OH, 2011
- One-on-one counselor for children with autism
- Trained in implementing various behavioral interventions

WORKSHOPS AND COMMUNITY EXPERIENCES

Grandparents Raising Grandchildren Conference, Louisville, KY, June 2014
- Presented to the lay community regarding cross-generational parenting and how to manage difficult child behaviors based on cognitive behavioral principals.

RESEARCH EXPERIENCE

University of Louisville, Louisville, KY
- **Research on ADHD and Children's Emotional Regulation Lab**, 2014 – Present (involved, not running participants)

- Paul J. Rosen, Ph.D., Principal investigator
- Coordinated research protocols investigating emotion regulation in children with and without ADHD; collected participant data using research measures, Ecological Momentary Assessment (EMA) and electrocardiography (ECG)
- Administered and scored Diagnostic Interview Schedule for Children (DISC), Wechsler Abbreviated Scale of Intelligence (WASI), Wide Range Achievement Test (WRAT) and Wechsler Intelligence Scale for Children (WISC)
- Wrote diagnostic evaluations for children based on data obtained from structured interviews, research measures and assessments; provided feedback to parents
- Designed IRB-approved research protocol assessing emotion socialization and child emotional outcomes in families of children with ADHD
- Coordinated and scheduled lab staff and participants
- Trained undergraduate research assistants on data entry, report writing, and video coding of anger and frustration narratives.

- **Neurodevelopmental Science Lab,** 2012 – 2014
  - Carolyn B. Mervis, Ph.D., Principal investigator
  - Administered and scored a range of cognitive (DAS-II, KBIT-2), achievement (WIAT-III), and language (PPVT-4, EVT-2, TROG-2) assessments for children with Williams syndrome and 7q11.23 Duplication syndrome
  - Trained in administering the Autism Diagnostic Interview-Revised and Autism Diagnostic Observation Schedule; supervised by Bonnie Klein-Tasman, Ph.D.
  - Managed a dataset for the Autism Diagnostic Interview-Revised and Autism Diagnostic Observation Schedule
  - Wrote assessment reports summarizing information from assessments and questionnaires

TEACHING EXPERIENCE

University of Louisville Teaching Assistant, Louisville, KY

- **Psych 301, Quantitative Methods in Psychology,** Fall 2015-Spring 2016
  - Christian Stilp, Ph.D., Professor
  - Led two lab sections per week
    - Created presentations to review homework, improve understanding of statistical concepts, and practice applying statistical formulas
  - Assisted with proctoring exams
  - Graded exams and reviewed graded exams with students
  - Graded homework
- **Psych 385, Abnormal Psychology,** Summer 2015
  - Jay Irby, Ph.D., Professor
  - Graded two assignments in which students were required to apply DSM-V diagnostic information and evidenced-based treatment strategies to fictional cases
  - Set up exam question banks on Blackboard
- **Psych 302, Experimental Psychology,** Spring 2015
  - Nicholas Noles, Ph.D., Professor
  - Led two lab sections per week
    - Created presentations regarding how to plan, design, and implement a study.
    - Assisted with students' data entry and data analysis
    - Provided guidance for writing research manuscripts

    - Graded research manuscripts
    - Graded exams
- **Psych 363, Life Span Development,** Fall 2014
    - Lora Haynes, Ph.D., Professor
    - Assisted students with selecting organizations to volunteer
    - Graded students' community service reflection papers and journal entries
- **Psych 201, Introduction to Psychology,** Spring 2014
    - Edna Ross, Ph.D., Professor
    - Proctor exams
    - Organize and store graded exams
    - Review graded exams with students

Wittenberg University, Springfield, OH

- **Writing Fellow for Personality Psychology course,** 2012
    - Worked with students to develop and edit drafts of papers for the Personality Psychology course
    - Held workshops and office hours for students
- **Faculty Aide for Dr. Clifford Brown,** 2011 - 2012
    - Assisted with grading Statistics projects
    - Held review sessions before tests and make-up tests
- **Writing Advisor at Wittenberg Writing Center,** 2009 – 2011
    - Took required course in peer editing to become an advisor
    - Assisted students in a collaborative conversation about writing assignments at any point in the writing process
    - Interviewed and selected potential applicants

SPECIALIZED SKILLS

- Psychological Assessments: WISC-V, WAIS-IV, DAS-2, WASI-IV, WRAT-IV, WPPSI-IV, WJ-III, WIAT-III, KBIT-2, PPVT-4, EVT-2, VMI, TROG-2
- Electrocardiogram
- Diagnostic Interviews: K-SADS-PL, Diagnostic Interview Schedule for Children (DISC), Children's Interview for Psychiatric Syndromes (ChIPS), Parent – Children's Interview for Psychiatric Syndromes-Parent Version (P-ChIPS), Autism Diagnostic Interview-Revised (ADI-R)
- Statistical Tools: SPSS, Minitab

PUBLISHED MANUSCRIPTS

Leaberry, K. D., Rosen, P. J., Fogleman, N. D., **Walerius, D. M.**, & Slaughter, K. E. (2017). Comorbid internalizing and externalizing disorders predict lability of negative emotions among children with ADHD. *Journal of Attention Disorders*, published online 1 October 2017, accessible at http://journals.sagepub.com/doi/abs/10.1177/1087054717734647?url_ver=Z39.88-2003&rfr_id=ori%3Arid%3Acrossref.org&rfr_dat=cr_pub%3Dpubmed&.

Walerius, D. M., Fogleman, N. D., & Rosen, P. J. (2016). The role of ADHD and negative emotional lability in predicting changes in parenting daily hassles. *Journal of Child and Family Studies, 25,* 2279-2291.

Fogleman, N. D., **Walerius, D. M.**, Rosen, P. J., & Leaberry, K. D. (2016). Peer victimization linked to negative affect in children with and without ADHD. *Journal of Applied Developmental Psychology, 46*, 1-10.

Rosen, P. J., **Walerius, D. M.**, Fogleman, N. D., & Factor, P. I. (2015) Association of emotional lability and emotional and behavioral difficulties among children with and without ADHD. *ADHD: Attention Deficit Hyperactivity Disorders*, published online 10 May 2015, DOI: 10.1007/s12402-015-0175-0.

Walerius, D. M., Reyes, R, A., Rosen, P., J., & Factor, P. I. (2014). Functional impairment variability in children with ADHD due to emotional impulsivity. *Journal of Attention Disorders,* published online 17 December 2014, accessible at http://jad.sagepub.com/content/early/2014/12/17/ 1087054714561859.abstract.

MANUSCRIPTS IN PRESS, UNDER REVIEW, AND IN PREPARATION

Walerius, D. M., Leaberry, K. D., Fogleman, N. D., & Rosen, P. J. (in preparation). The role of ADHD and emotional lability in predicting changes in parenting stress at six month follow-up.

Walerius, D. M., Fogleman, N. D.*, Leaberry, K. D.*, & Rosen, P. J.* (in preparation). Differences in emotional reactivity following a frustration narrative task are related to ADHD. *Secondary authors listed in alphabetical order; these authors contributed equally to this work.

Fogleman, N. D., Leaberry, K. L., Rosen, P. J., **Walerius, D. M.**, & Slaughter, K. E. (in preparation). Relation between internalizing behaviors and peer victimization in children with and without ADHD.

BOOK CHAPTERS

Leaberry, K., **Walerius, D. M.**, Rosen, P. J., & Fogleman, N. D. (2019). Emotional lability In V. Zeigler-Hill & T. M. Shackelford (Eds.) *Encyclopedia of Personality and Individual Differences* (pp. 1-10). Springer International Publishing

SYMPOSIUMS

Klein-Tasman, B. P., **Walerius, D. M.,** & Mervis, C. B. (2014, March). *Children with 7q11.23 duplication syndrome: Findings from gold-standard autism spectrum disorder assessment measures.* Gatlinburg Conference on Research and Theory in Intellectual and Developmental Disabilities, Chicago, IL.

POSTER PRESENTATIONS

Leaberry, K. D., Fogleman, N. D., Slaughter, K. E., **Walerius, D. M.**, & Rosen, P. J. (2017, November). *Comorbidity Predicts Anger Dysregulation Among Children With ADHD.* Association for Behavioral and Cognitive Therapies, San Diego, CA.

Fogleman, N. D., Leaberry, K. D., Slaughter, K. E., **Walerius, D. M.**, & Rosen, P. J. (2017,

November). *Emotion Dysregulation Linked to Peer Victimization Among Children With ADHD.* Association for Behavioral and Cognitive Therapies, San Diego, CA.

Slaughter, K. E., Fogleman, N. D., Leaberry, K. D., **Walerius, D. M.**, & Rosen, P. J. (2017, November). *Reactive and Proactive Aggression in Children With Emotional Lability and ADHD.* Association for Behavioral and Cognitive Therapies, San Diego, CA.

Fogleman, N. D., Slaughter, K. E., Leaberry, K. D., **Walerius, D. M.**, & Rosen, P. J. (2017, November). *Relation Between Emotion Recognition and Peer Victimization Among Children With ADHD.* Association for Behavioral and Cognitive Therapies, San Diego, CA.

Walerius, D. M., Fogleman, N. D., Leaberry, K. D., & Rosen, P. J. (2016, October). The role of ADHD and emotional lability in predicting changes in parenting stress at six month follow-up. Association for Behavioral and Cognitive Therapies, New York, NY.

Walerius, D. M., Leaberry, K. D., Fogleman, N. D., & Rosen, P. J. (2016, October). Functional impairment and dimensions of parenting stress among children with and without ADHD. Association for Behavioral and Cognitive Therapies, New York, NY.

Leaberry, K. D., **Walerius, D. M.**, Fogleman, N. D., & Rosen, P. J. (2016, October). *Comorbid Internalizing Disorders in Children with ADHD Predict Variability in Negative Affect.* Association for Behavioral and Cognitive Therapies, New York, New York.

Fogleman, N. D., **Walerius, D. M.**, Leaberry, K. D., & Rosen, P. J. (2016, October). Negative affect predicts aggression in children with and without ADHD. Association for Behavioral and Cognitive Therapies, New York, NY.

Fogleman, N. D., Purcell, L. A., Leaberry, K. D., **Walerius, D. M.**, & Rosen, P. J. (2016, October) The influence of internalizing and externalizing behaviors on peer difficulties in children with and without ADHD. Association for Behavioral and Cognitive Therapies, New York, NY.

Walerius, D. M., Fogleman, N. D., Leaberry, K. D., & Rosen, P. J. (2016, May). The role of ADHD and negative emotional lability in predicting changes in parenting daily hassles. Midwestern Psychological Association, Chicago, IL.

Fogleman, N. D., **Walerius, D. M.**, Leaberry, K. D., & Rosen, P. J. (2016, May). Internalizing behaviors predict peer-victimization in children with and without Attention-Deficit/Hyperactivity Disorder. Midwestern Psychological Association, Chicago, IL.

Purcell, L. A., Fogleman, N. D., **Walerius, D. M.**, Leaberry, K. D., & Rosen, P. J. (2016, April). Internalizing and externalizing behaviors are linked to parenting stress in children with and without Attention-Deficit/Hyperactivity Disorder. Kentucky Psychological Association, Georgetown, KY.

Koehl, S. M., Fogleman, N. D., Leaberry, K. D., **Walerius, D. M.**, & Rosen, P. J. (2016, April). Parent-perceived emotion recognition deficits in children with comorbid ADHD/ODD. Kentucky Psychological Association, Georgetown, KY.

Fogleman, N. D., **Walerius, D. M.**, Factor, P. I., & Rosen, P. J. (2015, November). Negative affect is linked to peer victimization in children with and without ADHD. Association for Behavioral and Cognitive Therapies, Chicago, IL.

Leaberry, K. D., **Walerius, D. M.**, Fogleman, N. D., & Rosen, P. J. (2015, November). Differences in levels of frustration following a narrative task are related to ADHD. Association for Behavioral and Cognitive Therapies, ADHD SIG Poster Exposition, Chicago, IL.

Walerius, D. M., Factor, P. I., & Rosen, P. J. (2014, November). *Emotional impulsivity and dimensions of parenting stress among children with and without ADHD: An ecological momentary assessment study*. Association for Behavioral and Cognitive Treatment Annual Convention, Philadelphia, PA.

Rosen, P. J., **Walerius, D. M.**, & Factor, P. I. (2014, November). *Managing frustration for children: One-year follow-up of a group treatment for emotion dysregulation in children with ADHD*. Association for Behavioral and Cognitive Treatment Annual Convention, Philadelphia, PA.

Factor, P. I., Rosen, P. J., & **Walerius, D. M.** (2014, November). *Temperamental correlates of perfectionism in children with and without ADHD*. Association for Behavioral and Cognitive Treatment Annual Convention, Philadelphia, PA.

Rosen, P. J., Factor, P. I., & **Walerius, D. M.** (2014, November). *Emotional impulsivity predicts externalizing behavior in children with ADHD but not children without ADHD: An ecological momentary assessment study*. Association for Behavioral and Cognitive Treatment Annual Convention, Philadelphia, PA.

Factor, P. I., **Walerius, D. M.**, & Rosen, P. J. (2014, September). *Evaluation of teacher-rated ecological momentary assessment ratings of emotion in children with ADHD*. Society for Research in Child Development (SRCD) Special Topic Meeting: Developmental Methodology, San Diego, CA.

Walerius, D. M., & Mervis, C. B. (2013, March). *Executive function and its relation to behavioral and emotional problems: Children with Williams syndrome*. Gatlinburg Conference on Research and Theory in Intellectual and Developmental Disabilities, San Antonio, TX.

Walerius, D. M., Crane, L., & Graham, M. (2012, May). *Degree of self-disclosure on Facebook profiles and its influence on peers' perceptions and "friending" patterns.* Annual meeting of the Association for Psychological Science, Chicago, IL.

Walerius, D. M., & Little, S. (2012, May). *Effects of aggressive humor on a primed state of depression*. Annual meeting of the Midwestern Psychological Association, Chicago, IL.