

## ABSTRACT

Title of Thesis: MATERNAL ADHD AND PARENTING: THE  
MODERATING ROLE OF MATERNAL  
EMOTION REGULATION

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2018

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Separate literatures have examined the associations between maternal attention-deficit/hyperactivity disorder (ADHD) symptoms and parenting and maternal emotion regulation (ER) and parenting. This study used a multi-method evaluation of parenting to examine the independent and interactive effects of maternal ADHD symptoms and ER on self-reported and observed parenting among families of school-aged children. We hypothesized that maternal ADHD symptoms and ER difficulties would be positively associated with negative parenting and negatively associated with positive parenting. We also hypothesized that maternal ADHD symptoms and ER difficulties would interact to predict the strongest association with negative parenting behavior. There were significant main effects of maternal ER difficulties on self-reported negative parenting and maternal ADHD symptoms on self-reported harsh responses to children's negative emotions. Maternal ADHD symptoms and ER were not significantly associated with positive parenting or observations of parenting.

MATERNAL ADHD AND PARENTING: THE MODERATING ROLE OF  
MATERNAL EMOTION REGULATION

by

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Thesis submitted to the Faculty of the Graduate School of the  
University of Maryland, College Park, in partial fulfillment  
of the requirements for the degree of  
Master of Science  
2018

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## Acknowledgements

I would like to express my gratitude to my advisor, Dr. Andrea Chronis-Tuscano, for her support on this project and in my research training. I would also like to thank my Master's Thesis Committee: Dr. Chronis-Tuscano, Dr. Dougherty, and Dr. De Los Reyes. Your feedback has been invaluable throughout this project, and it has been my privilege to work with each of you. I am also extremely grateful to Dr. Sharon R. Thomas, Heather Mazursky-Horowitz, and the numerous research assistants at the Maryland ADHD Program for making this research possible.

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## Chapter 1: Introduction

Atypically high levels of inattention, hyperactivity, and/or impulsivity characterize attention-deficit/hyperactivity disorder (ADHD; American Psychiatric Association, 2013). Once understood as a disorder of childhood, ADHD is now conceptualized as a chronic disorder that frequently persists into adulthood (Faraone, Biederman, & Mick, 2006). Based on DSM-IV criteria, 10.5% of preschool-aged children and 11.4% of school-aged children meet diagnostic criteria for ADHD (Willcutt, 2012). An estimated 8.1% of adults in the US report a lifetime history of the disorder, and approximately 4.4% of US adults meet Diagnostic and Statistical Manual of Mental Disorders, 4<sup>th</sup> Edition (DSM-IV) criteria for current ADHD (Kessler et al., 2006). The majority of adults with ADHD present with primarily inattentive symptoms or a combination of inattentive and hyperactive/impulsive symptoms (Barkley, Murphy, & Fischer, 2008). Whereas in childhood males demonstrate higher prevalence rates of ADHD, the rates of ADHD are similar across adult males and females (Faraone & Biederman, 2005; Kessler et al., 2006). ADHD is also associated with high rates of comorbid mood, anxiety, and substance use disorders (Kessler et al., 2006).

Excessive inattention and hyperactivity/impulsivity provide a two-factor model of ADHD from which current diagnostic criteria emerged. Although this conceptualization is still used in the determination of diagnostic symptomatology, the conceptualization does little to address difficulties with emotion regulation (ER) that are often present among those with ADHD (Barkley & Fischer, 2010; Corbisiero et al., 2012; Shaw et al., 2014). Broadly, ER refers to the use of internal and external

processes to control one's emotional experience in order to achieve a goal or adapt to the environment (Eisenberg & Spinrad, 2004; Gross, 2014; Morris et al., 2007).

Barkley and Fischer (2010) argue that emotional impulsiveness, characterized by emotional lability, irritability, impatience, and low frustration tolerance, is inherent to ADHD and may better account for impairments that inattention and/or hyperactivity/impulsivity do not explain well, such as interpersonal stress and conflict. In a study comparing adults with persistent and non-persistent ADHD to a community control group, Barkley and Fischer (2010) found that adults with persistent ADHD had higher emotional impulsiveness scores than the community control group. Similarly, compared to other clinic-referred adults without ADHD and comparison adults, adults with ADHD reported higher levels of emotional impulsivity (Barkley & Murphy, 2010). In both samples, emotional impulsivity was also associated with increased impairment in several life domains, including home and social functioning, above and beyond impairment related to core ADHD (i.e., inattentive and hyperactive/impulsive) symptoms. Skirrow and Asherson (2013) similarly found that difficulties with ER among adults with ADHD contributed to impairment, including social and family life impairment, independent of ADHD symptom severity and comorbidity. Importantly, although difficulties with ER are now considered by many to be a core feature of ADHD, not all individuals with ADHD or elevated levels of ADHD symptoms exhibit these difficulties (Barkley & Fischer, 2010; Barkley & Murphy, 2010).

For many individuals, one marker of adulthood is the transition to the role of parent (Settersten, Ottusch, & Schneider, 2015), yet many adults have difficulty



engaging in adaptive parenting practices (Crandall, Deater-Deckard, & Riley, 2015). Although parent-related factors are associated with maladaptive parenting practices, it is imperative to also consider child characteristics and behaviors given the bidirectional and reciprocally influential nature of the parent-child relationship. The developmental-transactional model of ADHD and family functioning provides a useful framework from which to understand the parent-child relationship (Johnston & Chronis-Tuscano, 2014). According to this model, parent and child characteristics, such as psychopathology and behavior, influence each other as well as the relationship. Given that heritability estimates for ADHD exceed .76 (Faraone et al., 2005), there is a high likelihood that adults with ADHD or ADHD symptoms will have offspring with symptoms as well (Biederman et al., 1995; Chronis et al., 2003; Kessler et al., 2006). Indeed, 25%-50% of parents of children with ADHD have the disorder themselves and over half of parents with ADHD have at least one child with ADHD (Biederman et al., 1995; Chronis et al., 2003; Kessler et al., 2006). Interacting with a challenging child may negatively affect parent cognitive, emotional, and behavioral (e.g., parenting behavior) functioning. That is, challenging child behavior may evoke negative responses from caregivers. At the same time, positive parenting behavior and responses to children's difficult behavior and emotions is critically important for promoting healthy, adaptive child development. For example, parenting that is characterized as harsh, inconsistent, and lacking warmth or involvement is predictive of the development of child conduct problems (e.g., Caspi et al., 2004; Frick et al., 1992; Shaw, Gilliom, Ingoldsby, & Nagin, 2003). Furthermore, harsh or dismissive parental responses to children's negative emotions are associated with

poor child ER and increased child behavioral difficulties (Lunkenheimer, Shields, & Cortina, 2007). Among young children with ADHD, maternal overreactive parenting has been associated with the development of oppositional defiant disorder (ODD; Harvey, Metcalfe, Herbert, & Fanton, 2011). Conversely, positive parenting has been shown to predict the development of fewer child conduct problems among families of young children with ADHD (e.g., Chronis et al., 2007). Collectively, these studies demonstrate the importance of parenting behavior in predicting developmental outcomes for children and highlight the importance of understanding what characteristics of parents are associated with the ability to parent in adaptive ways despite difficult child behavior.

Several factors within the parent have been identified that may contribute to poor parenting practices, including maternal ADHD symptoms (Park et al., 2017) and maternal ER (Crandall et al., 2015). Compared to mothers without ADHD, those with the disorder report more inconsistent discipline, poor monitoring, and the establishment of fewer family routines (Murray & Johnston, 2006). Mothers with elevated levels of ADHD symptoms self-report less involvement, less positive parenting, and more inconsistent discipline, and exhibit less observed positive parenting and more observed negative parenting and ineffective use of commands during laboratory tasks (Chronis-Tuscano et al., 2008). Maternal ADHD symptoms have also been consistently associated with harsh, lax, and over-reactive parenting (Banks et al., 2008; Chen & Johnston, 2007; Mazursky-Horowitz et al., 2015; Mokrova, O'Brien, Calkins, & Keane, 2010). Recently, Park, Hudec, and Johnston (2017) conducted a meta-analysis on parental ADHD and parenting behavior. Results

of this meta-analysis suggested that total ADHD symptoms were significantly and positively related to harsh and lax parenting, and significantly and negatively related to positive parenting. Importantly, although emotion dysregulation is considered a core feature of ADHD, previous research on the effects of maternal ADHD on parenting have not considered or controlled for the effects of emotion dysregulation on parenting.

Indeed, maternal ER is also thought to affect parenting quality (Deater-Deckard, Wang, Chen, & Bell, 2012). Parents who have the ability to regulate their emotions tend to exhibit better abilities to cope with stress, more flexibility and adaptability, and better ability to shift affect in accordance to the situation (Crandall et al., 2015). High maternal emotional control is positively associated with increased sensitivity, warmth, supportive responses in the face of negative child emotional expressions, parental affective expressions, time spent caregiving, and parenting confidence (Crandall et al., 2015). Low maternal emotional control, on the other hand, is associated with ineffective discipline, increased parental over-control, increased rejection and negative reactions to child emotional expressions, negative parenting, and decreased parental monitoring, parenting satisfaction, and involvement (Crandall et al., 2015). Despite the fact that both maternal ADHD and ER have established relations with parenting, these relations have been established in separate literatures. Thus, it is not yet understood what effect maternal ADHD and ER have on parenting when they are both considered.

Mothers with poor ER or elevated ADHD symptoms may be especially prone to exhibiting negative parenting behavior and harsh responses in the face of difficult

child behavior (Crandall et al., 2015; Johnston & Chronis-Tuscano, 2014). To our knowledge, only one study has empirically evaluated both maternal ER and maternal ADHD in relation to parenting. Mazursky-Horowitz et al. (2015) examined maternal ER as a mediator of the association between maternal ADHD symptoms and self-reported responses to adolescents' expression of negative emotions. This study found that maternal ER mediated the association between maternal ADHD and harsh parenting responses, but not positive or distressed parenting responses. Still, to date, no research has examined the independent and interactive effects of maternal ER, maternal ADHD, and parenting behavior among families of elementary school-aged children and no research has examined these associations using observational measures of parenting behavior, which is the gold-standard methodology for measuring parenting behavior.

Previous research provides ample evidence for the presence of maladaptive parenting behavior among mothers with ADHD or elevated ADHD symptoms. Current conceptualizations of ADHD place difficulties with ER as a core feature of the disorder, yet little is known about the role of ER in parenting behavior among mothers with ADHD symptoms. It could be that mothers with ADHD symptoms only exhibit negative parenting when they also have difficulties with ER. The current study aims to extend the literature on maternal ADHD, maternal ER, and parenting among families of school-aged children, and will improve on previous research by using a multi-method evaluation of parenting (including both self-report and observation). This research holds potential to refine our understanding of the link between maternal ADHD symptoms and parenting and to inform interventions for

families in which both a mother and child experience ADHD symptoms (e.g., Chronis-Tuscano et al., 2017).

Specifically, this research has the following aims:

***Aim I:*** To examine the independent associations between maternal ADHD symptoms, maternal ER, and parenting.

***Hypothesis Ia:*** Based on prior literature examining maternal ADHD and parenting behavior (Chronis-Tuscano et al., 2008; Mazursky-Horowitz et al., 2015; Murray & Johnston, 2006; Park, Hudec, & Johnston, 2017), we predict that continuously-measured, self-reported total maternal ADHD symptoms will be independently and negatively related to observed and self-reported positive parenting and positively related to observed and self-reported negative/harsh parenting, when controlling for maternal ER.

***Hypothesis Ib:*** Previously, deficits in ER abilities have been associated with poor parenting practices but good ER has been associated with warm, sensitive, and supportive parenting (Crandall et al., 2015). Thus, we predict that self-reported difficulties with ER will be positively associated with observed and reported negative/harsh parenting and negatively associated with observed and reported positive parenting when controlling for maternal ADHD symptoms.

***Aim II:*** To examine the moderating role of maternal ER on the association between maternal ADHD symptoms and parenting.

***Hypothesis II:*** Previous studies suggest that adults with ADHD and ER difficulties experience more impairments at home (Barkley & Murphy, 2010)

and that ER mediates the association between maternal ADHD symptoms and harsh parenting behavior (Mazursky-Horowitz et al., 2015). Thus, we hypothesize that maternal ER and total maternal ADHD symptoms will interact to predict the strongest positive association between maternal ADHD and observed and reported negative/harsh parenting. In other words, the association between maternal ADHD symptoms and negative/harsh parenting is hypothesized to be stronger when the mother also has difficulties with ER.

## Chapter 2: Method

### Participants

The current study utilized data from three overlapping samples of children and their mothers (Mazursky-Horowitz et al., 2017; Thomas, 2015). Participants included 79 5-10 year-old children with and without ADHD and their biological mothers recruited from the Washington, D.C. metropolitan area. See Table 1 for demographic information. To be included in any sample, children had to have an estimated IQ of at least 70. Children were excluded if they had been diagnosed with an autism spectrum or pervasive developmental disorder per the mother's report.

Children taking stimulant medication were included and, when possible, completed laboratory procedures while off medication in order to increase variability in child behavior during parent-child interaction tasks (e.g., Cunningham & Barkley, 1979). Children who were prescribed non-stimulant medication for ADHD were not asked to suspend treatment for the purpose of study participation for ethical reasons. Data regarding child medication status at the time of the parent-child interaction (PCI) task was available for 97% (N = 77) of participants. Of those, three children were on a stimulant medication during the interaction and one child was on a non-stimulant ADHD medication during the interaction. All four children who were on an ADHD medication during the PCI were included in analyses. Including children on and off medication was intended to increase the generalizability of study findings.

For participation in one study, mothers were excluded if they were taking thyroid medications; for participation in another study, mothers were excluded if they were taking any psychoactive medication, due to the aims of the larger study.

### Procedure

Families interested in participating in any of the three research studies completed a brief telephone screen to determine eligibility. Eligible dyads were invited to the University of Maryland ADHD Program laboratory to complete their respective research study. Participants in any study attended one or two 2-hour research visits, depending on the aims of the larger study.

In all studies, mothers first provided informed consent and children provided assent to voluntary participation. Mothers then were administered the ADHD module of the Kiddie Schedule for Affective Disorders and Schizophrenia (KSADS; Kaufman et al., 1997) about the participating child with a trained post-baccalaureate research assistant or doctoral student in clinical psychology. Diagnostic interviews were conducted under the close supervision of a licensed clinical psychologist. While mothers completed the interview, highly trained and supervised research assistants completed IQ screening tasks with the children to determine study eligibility. Each mother-child dyad participated in a standardized 20-minute parent-child interaction. Mothers also completed a demographics questionnaire in person, and completed several questionnaires outside of the laboratory using Qualtrics, a secure web-based survey program.

### Measures

*Child psychopathology.* The KSADS is a semi-structured diagnostic interview that assesses current and lifetime diagnoses of many psychiatric conditions (Kaufman et al., 1997). Reported inter-rater reliability estimates are high and ranged from .93-



.98 (Kaufman et al., 1997). The test-retest reliability estimates for ADHD were good ( $k = .63-.67$ ) (Kaufman et al., 1997). Further, the KSADS has demonstrated concurrent validity. Children who met criteria for ADHD on the KSADS also scored significantly higher than children without the disorder on the Conners' Parent Rating Scale (Kaufman et al., 1997).

Mothers also completed the Disruptive Behavior Disorders Rating Scale (DBD). The DBD is a 45-item measure of DSM-IV ADHD, ODD, and CD symptoms (Pelham et al., 1992). Mothers were asked to choose on a 4-point scale the statement that best described the target child for a given symptom from "Not at All" to "Very Much." Ratings of "Pretty Much" and "Very Much" were considered clinically significant. The DBD demonstrates good internal consistency (greater than .70), and can discriminate between children with and without ADHD in a community sample (Gerdes & Hoza, 2006; Owens & Hoza, 2003). Internal consistency for the DBD total score in this sample was  $\alpha = .96$ .

To be eligible for research participation, all children were required to have an estimated IQ of at least 70. To determine eligibility, children completed the Block Design and Vocabulary subtests of either the Wechsler Intelligence Scale for Children-IV (WISC-IV) or Wechsler Preschool and Primary Scale of Intelligence-III (WPPSI-III) as an index of estimated child IQ. The WPPSI-III and WISC-IV are intelligence tests for children aged 2:6-7:3 and 6-16 years, respectively (Wechsler, 2002, 2003). Trained research assistants administered the Block Design and Vocabulary subtests from the WPPSI-III to child participants under the age of 6 and

from the WISC-IV to children 6 years and older. No participants were excluded based on estimated IQ.

*Maternal psychopathology and emotion regulation.* To assess ADHD symptoms, mothers completed the Conners' Adult ADHD Rating Scale- Self-Report: Long Version (CAARS). The CAARS is a 66-item self-report questionnaire that assesses for the presence and severity of ADHD symptoms in adults (Conners et al., 1999). Mothers rated each item on a 4-point scale from 0 (*not at all, never*) to 3 (*very much, very frequently*). Higher scores indicate more experience of ADHD symptoms. The CAARS has demonstrated excellent test-retest reliability, moderate convergent validity, and adequate discriminate validity (Erhardt, Epstein, Conners, Parker, & Sitarenios, 1999; Steer et al., 2003). Internal consistency in this sample was  $\alpha = .88$  for total symptoms. The CAARS Total Symptom score range for this sample was 0-33.

Measuring maternal ADHD symptoms continuously was chosen over a categorical approach due to research suggesting that subthreshold levels of ADHD lead to impairment and maladaptive outcomes (Kooji et al., 2005). Further, a dimensional assessment of ADHD may be superior to a categorical approach given strong, consistent evidence suggesting a dimensional latent structure to ADHD symptoms (Marcus & Barry, 2011). Maternal ADHD was assessed via a self-report measure. Self-reported ADHD symptoms show high convergence with collateral-report of adult ADHD symptoms (Barkley, Knouse, & Murphy, 2011) and are highly correlated with diagnostic interviews (Belendiuk, Clarke, Chronis, & Raggi, 2007).

Finally, to assess maternal ER, mothers completed the Difficulties in Emotion Regulation Scale (DERS). The DERS is a 41-item self-report measure of emotion regulation for adults (Gratz & Roemer, 2004). The DERS measures six factors of ER deficits including nonacceptance of emotional responses, difficulties engaging in goal-directed behavior, difficulties controlling impulses, lack of emotional awareness, limited access to ER strategies, and lack of emotional clarity. An overall score on the DERS is a summation of all difficulties across the six factors. The DERS has high internal consistency (.93) and test-retest reliability (.88) and adequate construct and predictive validity (Gratz & Roemer, 2004). Internal consistency for the DERS total score in this sample was  $\alpha = .87$ .

*Parenting.* Maternal parenting behavior was assessed using a multimodal approach. Mothers completed the Alabama Parenting Questionnaire (APQ). The APQ is a 42-item self-report measure of parenting practices (Shelton, Frick, & Wooton, 1996). Items were rated on a 5-point scale (1 = *Never*, 5 = *Always*). In line with Hinshaw et al. (2000), positive and negative parenting factors were derived from the APQ. Hinshaw et al. (2000) reported high internal consistency for positive parenting ( $\alpha = .85$ ) and adequate internal consistency for negative parenting ( $\alpha = .72$ ). In the current study, internal consistencies were .83 for Positive Parenting and .71 for Negative Parenting.

To measure mothers' self-reported reactions to their children's negative affect in distressing situations, mothers were administered the Coping With Children's Negative Emotions Scale (CCNES; Fabes, Eisenberg, & Bernzweig, 1990). The CCNES consists of 12 hypothetical scenarios. For each scenario, mothers used a 7-

point scale (1 = *Very Unlikely*, 7 = *Very Likely*) to rate how likely they were to use problem-focused, emotion-focused, expressive encouragement, distress, punitive, or minimization responses. For this study, parenting responses were grouped into two categories: Positive Parenting Responses (problem-focused, emotion-focused, and expressive encouragement responses) and Harsh Responses (punitive and minimizing responses; Fabes et al., 2002). Following previous research (e.g., Mazursky-Horowitz et al., 2015), Positive Parenting Responses and Harsh Parenting Responses summary scores were calculated as the average of the z-scores of the subscales that define each composite. Internal consistencies for the current study were .95 for Positive Parenting Responses and .85 for Harsh Parenting Responses.

The Dyadic Parent-Child Interaction Coding System, Fourth Edition (DPICS-IV; Eyberg, Nelson, Ginn, Bhuiyan, & Boggs, 2013) is a behavioral observation coding system designed to measure the frequencies at which parents and children display specific and well-defined positive, negative, and neutral behaviors during an interaction. Among mother-child dyads with children with ADHD, kappa reliabilities are adequate. Kappa reliabilities for child categories range from .50-.80, and for parent categories range from .59-.85 (Eyberg et al., 2013).

PCIs were audio and video recorded from behind a one-way mirror for later coding and analyses. Each PCI consisted of three situations that were presented in the same order for each dyad. The first situation was a 5-minute cleanup task. This task required mothers to instruct their child to clean up a room and put items away according to a list. Mothers were not permitted to help clean. Following the cleanup task, mothers and children engaged in 5 minutes of free play. During free play,

children picked an activity from a small assortment of games and toys and mothers followed along in the play. Lastly, mothers and children were observed during a 10-minute homework situation. Children were provided with age- and grade-appropriate math worksheets and mothers were instructed to provide as much help as they thought was needed, but not to allow the child to skip any problems. PCIs were video and audio recorded from behind a one-way mirror for later coding and analysis.

Consistent with other studies that have used this PCI paradigm (e.g., Chronis-Tuscano et al., 2008, 2011), discrete codes were summed to make composite categories. Positive Parenting includes labeled and unlabeled praise, reflections, and behavioral descriptions; and Child Deviance includes child negative talk and noncompliance. Negative Parenting was indexed using parent negative talk.

Research assistants were trained to code the PCIs for the current study. Coders were required to meet 80% reliability on criterion videos before they were permitted to code study videos. Approximately 25% of parent-child interactions were double-coded. Intra-class correlation coefficients (ICCs) were calculated to measure inter-rater reliability. ICCs were .99 for Positive Parenting, .82 for Negative Parenting, and .96 for Child Deviance in this sample. Composite ranges in this sample were 1-117 for Positive Parenting ( $M = 23.8$ ,  $SD = 24.5$ ), 0-31 for Negative Parenting ( $M = 9.83$ ,  $SD = 6.93$ ), and 0-46 for Child Deviance ( $M = 8.56$ ,  $SD = 8.41$ ).

#### Data Analytic Plan

In line with Schafer and Graham (2002), multiple imputations (MI) were used to limit the effect of missing data. MI was conducted using SPSS. Specifically, MI

was used to account for missing CCNES (N = 32, 40.5%) and missing CAARS (N = 8, 10.1%) data. All other measures were missing between 1.3-3.8% of responses. All analyses were conducted following imputation.

Prior to analyses, data were examined for adherence to the regression assumption of normality. In order to ease interpretation, independent variables were z-scored.

Preliminary analyses were conducted to determine the selection of covariates. Variables that were significantly associated with parenting variables were included as covariates in the main analyses. Specifically, maternal race/ethnicity was evaluated as a covariate as cultural differences may influence parenting behavior (Harkness & Super, 2002). Child age and gender were explored as covariates, as parenting behavior changes as children age (Talley & Montgomery, 2013) and parenting behavior may vary as a function of child gender (Leaper & Farkas, 2015). Child disruptive behavior (including ADHD, oppositional defiant disorder, and conduct disorder symptoms), as measured by the DBD, was also explored as a covariate in analyses examining self-report parenting questionnaire outcomes due to the established effects of child misbehavior on parenting (e.g., Johnston & Chronis-Tuscano, 2014). Likewise, child disruptive behavior (as measured by the DPICS Child Deviance composite) during the PCI was explored as a covariate of observed parenting behavior.

A series of hierarchical linear regressions were conducted in SPSS to examine the independent and interactive effects of maternal ADHD symptoms and maternal ER on each measure of self-reported and observed parenting. If significant, covariates

were entered into the first step of the model. To examine the independent associations between maternal total ADHD symptoms and maternal ER with positive and negative parenting (Aim 1), maternal ADHD symptoms and maternal ER were entered together into the subsequent step of the model. To examine the moderating role of maternal ER on the association between maternal ADHD symptoms and parenting, the interaction (i.e., product of z-scores) of maternal ADHD symptoms and maternal ER were added to the model in the final step of the regression model.

## Chapter 3: Results

Descriptive data and comparisons between the ADHD and non-ADHD groups are presented in Table 1. Groups were equivalent on all demographic characteristics with the exception of child gender such that there were significantly more males in the ADHD group. Additionally, as expected, mothers reported significantly more child disruptive behavior symptoms in the ADHD group. Mothers of children with or without ADHD did not differ on any characteristic, thus all mothers were combined into one sample for analysis (see Table 1).

There were several significant associations with respect to demographic and parenting measures (see Table 2). APQ Positive Parenting was negatively associated with child gender such that mothers of female children reported less positive parenting than mothers of male children; APQ Negative Parenting was positively associated with parent-reported child disruptive behavior disorder symptoms; DPICS Positive Parenting was negatively associated with child age; DPICS Negative Parenting was positively associated with child age, positively associated with maternal race (African American mothers exhibited more negative parenting), negatively associated with maternal race (Caucasian mothers exhibited less negative parenting), and positively associated with DPICS Child Deviance. Thus, these variables were included as controls in subsequent models.

APQ Negative Parenting and APQ Positive Parenting were significantly negatively correlated with one another. No other parenting measures were significantly correlated.



Results from each step of the hierarchical regressions are presented in Tables 3 and 4.

#### APQ Negative Parenting

Aim 1: In step one of the model, DBD Total was entered as a covariate. This first step of the model predicted 8.7% of variance in self-reported negative parenting. DBD Total significantly predicted self-reported negative parenting such that mothers reported more negative parenting when children had more disruptive behavior symptoms.

CAARS Total and DERS Total were added in the second step of the model. The second step of the model accounted for 19.5% of variance in self-reported negative parenting. Controlling for DERS Total, CAARS Total did not emerge as a significant predictor of self-reported negative parenting. However, controlling for CAARS Total, DERS Total was a significant predictor of APQ Negative Parenting, such that mothers reporting greater emotion dysregulation also reported more negative parenting.

Aim 2: The CAARS Total x DERS Total interaction term was entered into the third step of the model predicting APQ Negative Parenting. This step accounted for 20.6% of the variance in self-reported negative parenting. The interaction was not a significant predictor of APQ Negative Parenting.

#### CCNES Harsh Responses

Aim 1: CAARS Total and DERS Total were entered into the first step of the model. This step accounted for 5.4% of the variance in self-reported harsh responses.

Controlling for DERS Total, there was a significant main effect of CAARS Total on mothers' harsh responses to children's negative expressions of emotions, such that higher maternal ADHD symptoms predicted more harsh responses to children's expressions of negative emotions. Controlling for CAARS Total, DERS Total was not a significant predictor of CCNES Harsh Responses.

Aim 2: The CAARS Total x DERS Total interaction term was entered into the second step of the model. The second step accounted for 8.6% of the variance in CCNES Harsh Responses. The interaction was not a significant predictor of self-reported harsh responses to children's negative expressions of emotions.

#### DPICS Negative Parenting

Aim 1: Child age, maternal race (Caucasian), and DPICS Child Deviance (observed) were entered into the model in step one. The first step of the model accounted for 36.4% of variance in observed negative parenting. Observed child deviance significantly predicted observed negative parenting in each subsequent step of the model such that there was more negative parenting during laboratory interactions in which children exhibited more child deviance.

CAARS Total and DERS Total were added in the second step of the model. The second step of the model accounted for 39.6% of the variance in DPICS Negative Parenting. Controlling for DERS Total, CAARS Total did not significantly predict observed negative parenting. Likewise, controlling for CAARS Total, DERS Total did not significantly predict observed negative parenting.

Aim 2: The CAARS Total x DERS Total interaction term was entered into the third step of the model. This step accounted for 42.8% of the variance in observed

negative parenting. The interaction was not a significant predictor of DPICS Negative Parenting.

#### APQ Positive Parenting

Aim 1: Child gender was included in the first step of the model. This step accounted for 6% of the variance in self-reported positive parenting. Child gender significantly predicted APQ Positive Parenting such that mothers of female children reported less positive parenting than mothers of male children.

CAARS Total and DERS Total were added to the second step of the model. The second step of the model accounted for 9.5% of the variance in APQ Positive Parenting. Neither CAARS Total nor DERS Total, controlling for the other, significantly predicted self-reported positive parenting.

Aim 2: The CAARS Total x DERS Total interaction term was entered into the third step of the model. This step accounted for 12.4% of the variance in self-reported positive parenting. The interaction term was not a significant predictor of APQ Positive Parenting.

#### CCNES Positive Responses

Aim 1: CAARS Total and DERS Total were entered into the first step of the model. This step accounted for 3.7% of the variance in CCNES Positive Responses. Controlling for DERS Total, CAARS Total was not a significant predictor of CCNES Positive Responses. Likewise, controlling for CAARS Total, there was no main effect of DERS Total on positive responses to children's negative expression of emotions.

Aim 2: The CAARS Total x DERS Total interaction term was entered into the second step of the model. This step of the model accounted for 8% of the variance in CCNES Positive Responses. The interaction was not a significant predictor of CCNES Positive Responses.

### *DPICS Positive Parenting*

Aim 1: Child age was entered into the first step of the model. This step accounted for 6.0% of the variance in observed positive parenting. Child age significantly predicted observed positive parenting such that mothers of younger children exhibited more positive parenting.

CAARS Total and DERS Total were entered in the second step of the model. The second step of the model accounted for 7.9% of the variance in DPICS Positive Parenting. Controlling for DERS Total, CAARS Total did not significantly predict observed positive parenting. Controlling for CAARS Total, DERS Total was also not a significant predictor of DPICS Positive Parenting.

Aim 2: The CAARS Total x DERS Total interaction term was entered into the third step of the model. This step accounted for 8.1% of the variance in observed positive parenting, thus adding no further explanatory power over the second step of the model. The interaction was not a significant predictor of DPICS Positive Parenting.

## Chapter 4: Discussion

Unlike previous research, the current study examined the independent associations between maternal ADHD symptoms and maternal emotion dysregulation with parenting, while controlling for the effects of the other. Previous research on maternal ADHD symptoms and parenting has largely ignored the role of maternal emotion dysregulation, although recent research suggests that emotion dysregulation is prominent in many individuals with ADHD symptoms, and that emotion dysregulation contributes to social and home impairment independent of ADHD symptom severity (Barkley & Murphy, 2010; Skirrow & Asherson, 2013). The current study used a multi-method assessment of parenting to examine the independent and interactive effects of maternal ADHD symptoms and maternal emotion dysregulation on parenting behavior among families of 5-10 year-old children. The current study helps to clarify which domains of parenting behavior may be specifically associated with maternal impulsivity, hyperactivity, and inattention versus those associated with maternal emotion dysregulation.

There is a large literature demonstrating the maladaptive effects of maternal ADHD symptoms on parenting behavior (see Park et al., 2017 for a meta-analytic review). Findings from the current study provide further evidence that maternal ADHD symptoms are associated with negative parenting, even after controlling for maternal emotion dysregulation. Maternal ADHD symptoms were significantly positively associated with mothers' self-reported harsh responses to children's negative emotional expressions, controlling for maternal emotion dysregulation. This finding is consistent with previous work that has demonstrated a positive association

between maternal ADHD symptoms and harsh parenting on the CCNES, which characterizes harsh responses as punitive or minimizing in nature (Mazursky-Horowitz et al., 2015). This finding is also consistent with existing research that demonstrates difficulties with the recognition and interpretation of emotional faces and with empathetic responding among children and adults with ADHD (Braaten & Rosen, 2000; Kats-Gold, Besser, & Priel, 2007; Kis et al., 2017; Pelc et al., 2006). Furthermore, because mothers in the current study, on average, reported normative levels of ADHD symptoms, our finding suggests that even relatively low levels of adult ADHD symptoms can have deleterious effects on maternal responses to child emotions. Parental responses to children's emotions contribute to children's development of emotional competence (Chaplin, Cole, & Zahn-Waxler, 2005; Mullin & Hinshaw, 2007). When parents acknowledge and validate children's emotions, and when parents aid children in using problem-solving strategies, children develop adaptive ER strategies that they are able to employ on their own (Gottman, Katz, & Hooven, 1996). As such, it will be important for intervention programs to provide mothers with education about the manner in which their symptoms of ADHD may contribute to harsh responding and to teach mothers strategies for reducing the negative effects of ADHD symptoms on their responses to children's emotions. This may be particularly important for families of children who are at risk for ADHD given that emotion dysregulation among children with ADHD is associated with the later development of comorbid psychopathology (i.e., Seymour et al., 2012, 2014).

One would expect given the extant literature that maternal ADHD symptoms would be associated with negative parenting on the APQ (e.g., Chronis-Tuscano et

al., 2008, 2010); however the extant literature has not considered maternal ADHD and ER in the same models. In this study, maternal ADHD symptoms were not significantly associated with self-reported negative parenting on the APQ, but maternal emotion dysregulation did emerge as positively associated with self-reported negative parenting on the APQ after controlling for maternal ADHD symptoms. APQ Negative Parenting is characterized by inconsistent discipline and corporal punishment, both of which are also conceptually related to poor emotion regulation. For example, mothers who are unable to tolerate their own distressing emotions may be more prone to prematurely terminate a timeout or punishment in the face of child distress. It could also be the case that mothers who have difficulty down-regulating strong negative emotions, like anger, are more likely to engage in the use of corporal punishment. These results suggest that the negative or maladaptive reactions mothers with ADHD symptoms often report regarding child discipline may in fact stem from deficient maternal ER capabilities rather than from core ADHD symptoms. This may have implications for parent training programs, which could benefit from addressing parent emotion dysregulation in the service of improving parent adherence to evidence-based discipline strategies. Indeed, some novel parent training programs for child ADHD include modules to address parent ER (i.e., Chronis-Tuscano et al., 2013, 2014).

Interestingly, we did not find main effects of either maternal ADHD symptoms or emotion dysregulation on *observed* negative parenting while also controlling for child deviance during the PCI. This is particularly surprising for the association between maternal ADHD symptoms and observed negative parenting

given a large literature that has demonstrated this link (e.g., Chronis-Tuscano et al., 2008, 2011; Harvey et al., 2003). However, unlike the current study, previous studies of maternal ADHD symptoms and observed parenting have not also considered the effect of maternal ER. DPICS Negative Parenting is characterized by parent verbalizations that are critical of a child's choices, activities, products, or attributes or that are sassy, sarcastic, rude, or impudent.

It could also be that the PCI paradigm used in the current study did not create an environment that accurately mimicked parenting challenges. The paradigm, detailed earlier, did not require mothers to balance multiple demands although parents are often required to multitask while caregiving outside of the laboratory. Parenting while attending to additional responsibilities or tasks (i.e., assisting with homework while preparing dinner and entertaining a younger child after a full day of work) may place a heavier cognitive and emotional load on mothers, under which mothers who struggle with ADHD symptoms and/or emotion dysregulation may falter. Future studies might employ a PCI paradigm that requires parental multitasking while attending to a child. For example, instructing mothers to complete the Hotel Test (Manly, Hawkins, Evans, Woldt, & Robertson, 2002), a task that requires participants to attempt a number of individual tasks in a limited amount of time, while also tasking mothers with directing their child to clean up a room or helping with a homework assignment.

No significant interactions emerged on our measures of negative parenting, thus we did not find support for our hypothesis that maternal emotion regulation would moderate the association between maternal ADHD symptoms and



negative/harsh parenting. Given prior research that has suggested emotion dysregulation difficulties among some individuals with symptoms of ADHD and prior, separate bodies of work that have demonstrated the deleterious effects of maternal emotion dysregulation and ADHD on parenting, one would expect that mothers who have difficulties with both emotion dysregulation and ADHD would report or exhibit the greatest levels of negative/harsh parenting. Given the small sample size and the addition of covariates, we may have lacked sufficient power to detect significant interactions.

Although we predicted that maternal emotion dysregulation would be negatively associated with positive parenting, we did not find any significant associations between maternal emotion dysregulation and measures of positive parenting. Crandall et al. (2015) provide a brief review of literature that suggests maternal emotion regulation would be associated with positive parenting; however, their review also includes studies of cognitive control and suggests that executive functioning may also be associated with positive parenting. Positive parenting is characterized as warm, sensitive, supportive, involved, and consistent. It could be the case that various facets of positive parenting are differentially associated with maternal emotion regulation and executive functioning. For example, parental involvement on the APQ (e.g., attending school meetings or volunteering in child activities) may require mothers to exhibit the ability to plan and organize. Future studies should attempt to identify which parenting behaviors are associated with “cool” executive functions and which are associated with “hot” executive functions and emotion regulation.

Consistent with the meta-analysis conducted by Park et al. (2017), we hypothesized that maternal ADHD symptoms would be negatively associated with positive parenting. However, across all measures of positive parenting, we failed to replicate previous research that has found negative associations between maternal ADHD and positive parenting behavior. Park et al. (2017) reported that the effect of total maternal ADHD symptoms on positive parenting in their meta-analysis qualified as a “less than small” effect. Given that the effect is likely very small and our sample size was relatively small, it may be the case that we were simply underpowered to detect the association. Park et al. (2017) noted that not all studies reported significant associations between maternal ADHD symptoms and positive parenting, and only about 60% of the associations were in the expected direction. Thus, further research is needed to better understand *under what conditions* maternal ADHD symptoms are related to positive parenting behavior and under what conditions the association is detrimental. Although maternal ADHD symptoms were not predictive of positive parenting in our sample, child gender (male) predicted more self-reported positive parenting on the APQ and child age (younger) predicted more observed positive parenting during the PCI.

The framework provided by the developmental-transactional model of ADHD and family functioning helps us to better understand “child effects.” This model suggests that child characteristics and behaviors exert influence on the parent-child relationship and parenting behavior, perhaps by evoking negative responses in at-risk mothers (Johnston & Chronis-Tuscano, 2014). As in the current study, characteristics of children such as age (Talley & Montgomery, 2013) and gender (Leaper & Farkas,

2015) have been previously found to influence parenting behaviors. Similarly, child behaviors, such as those stemming from child disruptive behavior disorder symptoms, are well known to influence parenting (e.g., Burke, Pardini, & Loeber, 2008; Theule et al., 2010). Consistent with previous research, child disruptive/deviant behaviors exerted significant effects on self-reported and observed negative parenting in the current study. When children exhibited more deviant behavior during the PCI, mothers exhibited more negative parenting. Indeed, child deviance emerged as the largest predictor of observed negative parenting in each step of the model and accounted for considerable variance. Similarly, when children were reported to have higher levels of disruptive behavior disorder symptoms, mothers self-reported engaging in more negative parenting behavior on the APQ. These findings highlight the continued utility of the developmental-transactional model and provide further evidence for the need to examine parenting behavior within larger familial and environmental contexts.

This study has several strengths. First, to our knowledge, this is the first study to examine the unique contributions of both maternal ADHD symptoms and maternal emotion dysregulation to parenting behavior. This study also used a multi-method assessment of parenting behavior. In particular, our use of observational data in conjunction with self-reported maternal ADHD symptoms and emotion dysregulation reduces common method variance that may have occurred in our analyses that used self-reported parenting.

However, this study also had limitations. First, mothers in this study were not recruited on the basis of elevated adult ADHD symptoms or emotion dysregulation.

Our sample consisted of 79 mother-child dyads recruited from the community; forty-two children in this study met criteria for ADHD and the remainder did not. Based on the strong heritability of ADHD (Faraone et al., 2005), we expected mothers in this sample to exhibit a broad range of ADHD symptoms. The average CAARS Total score in the current sample is similar to CAARS Total scores reported in other studies of maternal ADHD symptoms and parenting (e.g., Chronis-Tuscano et al., 2008). Consistent with prevalence rate estimates of adult ADHD in the US (e.g., Kessler et al., 2006), 6% of mothers in the current study met the clinical symptom cutoff for ADHD on the CAARS. It is possible that we did not have enough variability in maternal ADHD symptoms, especially at the higher range of symptom severity, to detect the associations with parenting that have been previously found in the literature, such as positive associations between maternal ADHD symptoms and observed negative parenting (e.g., Chronis-Tuscano et al., 2008, 2011). Because only five mothers reported a clinically significant CAARS Total ADHD T-score, it is possible that the results of this study may not be reflective of mothers who meet diagnostic criteria for ADHD or who struggle with greater ADHD symptom severity. Moreover, very few participants fell into the high ( $> 1$  SD from the mean) and low extremes ( $< 1$  SD from the mean) on the DERS and CAARS, and our relatively modest sample size may have been underpowered to detect significant effects. In order to maximize power, we used multiple imputations to limit the effects of missing data. Still, future studies should strive to increase sample size, and future studies should consider selecting clinical instead of community samples of mothers.

Conceptually, ADHD and emotion dysregulation are linked, and indeed our measures of maternal ADHD symptoms and emotion dysregulation were significantly correlated, although there was no item overlap between the CAARS and DERS. Because of this correlation and shared variance, it became difficult to examine the unique contributions that maternal ADHD symptoms and emotion dysregulation may make to parenting. Future studies should attempt to disentangle the ADHD and emotion dysregulation overlap, perhaps by employing multiple methods of assessing each construct. For example, a modified Mirror Tracing Persistence Task can be used to elicit frustration; thus performance on the task could be used as a behavioral index of emotion dysregulation (Seymour et al., 2017).

Another limitation of the current study is that maternal ADHD was assessed using only maternal self-report of current symptoms. Although current diagnostic criteria require the onset of ADHD symptoms by the age of twelve, we did not ask mothers to report on childhood symptoms. Further, experts in the assessment of adult ADHD recommend the use of collateral reports to further verify self-reports of current and past symptoms (McGough & Barkley, 2004); however, previous research suggests that maternal self-report and collateral reports are highly correlated, as are diagnostic interviews and self-report questionnaires (Belendiuk et al., 2007).

Lastly, the current study focused only on mothers, despite fathers increasingly assuming child caregiving roles (Cabrera et al., 2000; Parke, 2000) and the unique contributions that paternal parenting makes to children's developmental outcomes (Cabrera, Shannon, & Tamis-LeMonda, 2007; Jeynes, 2016). Recent work by Williamson et al. (2017) suggests that paternal ADHD symptoms uniquely contribute

to parenting difficulties, highlighting the importance of understanding associations between paternal ADHD symptoms and parenting. It will also be important for future studies to consider paternal emotion dysregulation, as prior work in the developmental literature suggests that fathers uniquely contribute to their children's emotional development (e.g., McDowell & Parke, 2000; Shewark & Blandon, 2015; Zeman, Perry-Parish, & Cassano, 2010). Future studies can improve upon these limitations by attempting to recruit large samples of mothers and fathers, selecting participants on the basis of parental ADHD and parental emotion dysregulation, and including multi-method assessments of adult ADHD, emotion dysregulation, and parenting. Future studies should also consider the possible moderating role of "child effects," especially those of child disruptive behavior, on the associations between parental ADHD symptoms, parental emotion dysregulation, and parenting behavior.

Adaptive maternal parenting behavior is critically important for optimal child development, however maternal ADHD symptoms and maternal emotion dysregulation are associated with maladaptive parenting practices. In line with previous work, the findings of this study also suggest that maternal ADHD symptoms and emotion dysregulation are both specifically associated with maladaptive parenting practices. This study also suggests that maternal ADHD symptoms and maternal emotion dysregulation may uniquely contribute to parenting difficulties whereby maternal ADHD symptoms predict difficulties with adaptive responses to child negative emotion and maternal emotion dysregulation predicts difficulties related to disciplining children. These findings may have implications for parent training programs. For example, providing mothers with strategies to manage their

own emotions may help mothers consistently implement evidence-based discipline strategies taught in parent training (e.g., Chronis-Tuscano et al., 2014). Likewise, providing mothers with psychoeducation and skills to manage their ADHD symptoms may help mothers notice and appropriately respond when children display negative emotions.

## Tables

Table 1

<i>Participant Demographic Characteristics</i>					
	ADHD (n = 42)	Comparison (n = 37)	Total (n = 79)	Test Statistic	p-value
<u>Child Characteristics</u>					
Mean Age (SD)	7.67 (1.66)	7.0 (1.84)	7.35 (1.77)	1.691	.095
Child Sex				5.355	.021
Male	78.6 (33)	54.1 (20)	67.1 (53)		
Female	21.4 (9)	45.9 (17)	32.9 (26)		
Ethnicity	11.9 (5)	16.2 (6)	13.9 (11)	.221	.638
Hispanic/Latino					
Race				.693	.875
Caucasian	52.3 (22)	43.2 (16)	48.1 (38)		
African American	23.8 (10)	27.0 (10)	25.3 (20)		
Multiracial	19.0 (8)	24.3 (9)	21.5 (17)		
Other	4.8 (2)	5.4 (2)	5.1 (4)		
Child Disruptive Behavior					
DBD Total	15.4 (6.84)	3.38 (4.35)	9.68 (8.33)	-9.32	< .001
DPICS Child Deviance	10.0 (8.32)	6.87 (8.31)	8.56 (8.41)	-1.63	.107
<u>Mother Characteristics</u>					
Mean Age (SD)	42.17 (5.56)	39.64 (6.26)	41.0 (5.99)	-1.889	.063
Education				10.192	.117
High school	9.5 (4)	0	5.1 (4)		
Some College	21.4 (9)	5.4 (2)	13.9 (11)		
Bachelor's degree	26.2 (11)	32.4 (12)	29.1 (23)		
Master's degree	33.3 (14)	51.4 (19)	41.8 (33)		
Doctoral degree	9.5 (4)	10.8 (4)	10.1 (8)		
Ethnicity	9.5 (4)	10.8 (4)	10.1 (8)	.028	.867
Hispanic/Latino					
Race				1.76	.780
Caucasian	57.1 (24)	54.5 (20)	56.3 (45)		
African American	23.8 (10)	29.7 (11)	26.6 (21)		
Asian	7.1 (3)	8.1 (3)	7.6 (6)		
Multiracial	9.5 (4)	2.7 (1)	6.3 (5)		
Other	2.3 (1)	(1)	2.5 (2)		
Marital Status				1.356	.716
Never married	19.0 (8)	10.8 (4)	15.2 (12)		
Married	73.8 (31)	83.8 (31)	78.5 (62)		
Separated	2.4 (1)	2.7 (1)	2.5 (2)		
Divorced	4.8 (2)	2.7 (1)	3.8 (3)		



Mean Household	\$99,732	\$117,706	\$108,219 (59,147)	1.293	.200
Annual Income (SD)	(59,677)	(57,949)			
Maternal Total					
ADHD					
CAARS T-score	46.34 (12.3)	44.51 (10.1)	45.49 (11.3)	-.678	.500
CAARS Total	12.75 (7.57)	11.66 (6.36)	12.24 (7.01)	.683	.497
DERS	69.65 (22.4)	64.7 (18.8)	67.27 (20.7)	1.05	.298

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*Note.* SD = Standard Deviation; ADHD = Attention-Deficit/Hyperactivity Disorder; DBD = Disruptive Behavior Disorders Rating Scale; DPICS = Dyadic Parent Child Interaction Coding System; CAARS = Conners' Adult ADHD Rating Scale; DERS = Difficulties in Emotion Regulation Scale

Table 2

<i>Correlations</i>	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Child Gender	1													
2. Child Age	.150	1												
3. Maternal Race: White	.047	-.107	1											
4. Maternal Race: African-American	-.013	.157	-.693**	1										
5. DBD Total	-.196	.076	.150	-.078	1									
6. DPICS Child Deviance	-.046	.100	-.202	-.017	.144	1								
7. DERS Total Score	-.180	-.319**	.142	-.172	.354**	-.007	1							
8. CAARS Total Score	.067	-.005	-.113	-.052	.121	.087	.317**	1						
9. APQ Positive Parenting	-.225*	-.017	-.075	.079	-.087	.057	-.031	-.201	1					
10. APQ Negative Parenting	.002	-.059	-.066	.111	.298**	.074	.395**	.225*	-.206*	1				
11. CCNES Positive Responses	-.019	.068	.122	-.021	-.140	-.058	-.181	.001	.116	-.123	1			
12. CCNES Harsh Responses	.119	-.044	-.089	.081	-.070	-.171	.003	.221	-.052	.236	-.126	1		
13. DPICS Positive Parenting	.138	-.254*	.205	-.143	-.243*	-.067	-.039	.000	.084	-.046	.105	.185	1	
14. DPICS Negative Parenting	-.023	.239*	-.300**	.317**	.242*	.552**	-.081	-.104	-.068	.168	-.052	-.199	-.160	1

\*  $p < .05$  \*\*  $p < .01$

*Note.* DBD = Disruptive Behavior Disorders Rating Scale; DPICS = Dyadic Parent Child Interaction Coding System; DERS = Difficulties in Emotion Regulation Scale; CAARS = Conners' Adult ADHD Rating Scale; APQ = Alabama Parenting Questionnaire; CCNES = Coping with Children's Negative Emotions Scale

Table 3

*Hierarchical Regression Analyses for the Prediction of Negative Parenting*

Step and variable	d.f.	F	R <sup>2</sup>	ΔR <sup>2</sup>	B	SE	β	pr
<b>DPICS NP</b>								
Step 1:	3, 70	13.4	.364	.364**				
Child Deviance					.411	.080	.504**	.525
Child Age					.631	.372	.163	.199
Mother: Caucasian					-2.36	1.37	-.169	-.203
Step 2:	5, 68	8.93	.396	.032				
CAARS Total					-1.30	.685	-.192	-.225
DERS Total					.547	.747	.079	.088
Step 3:	6, 67	8.36	.428	.032				
CAARS Total x DERS Total					-1.21	.628	-.186	-.230
<b>APQ NP</b>								
Step 1:	1, 75	7.18	.087	.087**				
DBD Total					1.37	.511	.296**	.296
Step 2:	3, 73	5.89	.195	.107**				
CAARS Total					.499	.505	.109	.115
DERS Total					1.38	.543	.298*	.285
Step 3:	4, 72	4.66	.206	.011				
CAARS Total x DERS Total					-.486	.488	-.110	-.117
<b>CCNES Harsh Responses</b>								
Step 1:	2, 74	2.11	.054	.054				
CAARS Total					.250	.122	.245*	.232
DERS Total					-.077	.123	-.074	-.072
Step 2:	3, 73	2.28	.086	.032				
CAARS Total x DERS Total					-.180	.113	-.183	-.184

\* $p < .05$ . \*\* $p < .01$ .

Note. DPICS PP = Dyadic Parent Child Interaction Coding System Positive Parenting; APQ PP = Alabama Parenting Questionnaire Positive Parenting; CCNES = Coping with Children's Negative Emotions Scale; CAARS = Conners' Adult ADHD Rating Scale; DERS = Difficulties in Emotion Regulation Scale

Table 4

*Hierarchical Regression Analyses for the Prediction of Positive Parenting*

Step and variable	d.f.	F	R <sup>2</sup>	ΔR <sup>2</sup>	B	SE	β	pr
<b>DPICS PP</b>								
Step 1:	1, 72	4.57	.06	.06*				
Child Age					-3.34	1.57	-.244*	-.244
Step 2:	3, 70	1.99	.079	.019				
CAARS Total					1.03	2.91	.042	.042
DERS Total					-3.79	3.16	-.155	-.142
Step 3:	4, 69	1.53	.081	.003				
CAARS Total x DERS Total					1.22	2.74	.053	.053
<b>APQ PP</b>								
Step 1:	1, 75	4.80	.06	.06*				
Child Gender					-3.39	1.52	-.245*	-.245
Step 2:	3, 73	2.56	.095	.035				
CAARS Total					-1.16	.760	-.181	-.176
DERS Total					-.107	.781	-.016	-.016
Step 3:	4, 72	2.55	.124	.029				
CAARS Total x DERS Total					1.09	.711	.177	.179
<b>CCNES Positive Response</b>								
Step 1:	2, 74	1.41	.037	.037				
CAARS Total					.135	.249	.065	.063
DERS Total					-.423	.252	-.202	-.192
Step 2:	3, 73	2.11	.080	.043				
CAARS Total x DERS Total					.423	.229	.212	.212

\* $p < .05$ . \*\* $p < .01$ .

Note. DPICS PP = Dyadic Parent Child Interaction Coding System Positive Parenting; APQ PP = Alabama Parenting Questionnaire Positive Parenting; CCNES = Coping with Children's Negative Emotions Scale; CAARS = Conners' Adult ADHD Rating Scale; DERS = Difficulties in Emotion Regulation Scale

# Appendices

## Appendix A

### Alabama Parenting Questionnaire

#### The University of New Orleans Alabama Parenting Questionnaire (APQ) (Parent Form)

Child's Name: \_\_\_\_\_ ID#: \_\_\_\_\_

Parent Completing Form(Circle one):    Mother    Father    Other: \_\_\_\_\_

**Instructions:** The following are a number of statements about your family. Please rate each item as to how often it TYPICALLY occurs in your home. The possible answers are Never (1), Almost Never (2), Sometimes (3), Often (4), Always (5). PLEASE ANSWER ALL ITEMS.

	Never	Almost Never	Sometimes	Often	Always
1. You have a friendly talk with your child.	1	2	3	4	5
2. You let your child know when he/she is doing a good job with something.	1	2	3	4	5
3. You threaten to punish your child and then do not actually punish him/her.	1	2	3	4	5
4. You volunteer to help with special activities that your child is involved in (such as sports, boy/girl scouts, church youth groups).	1	2	3	4	5
5. You reward or give something extra to your child for obeying you or behaving well.	1	2	3	4	5
6. Your child fails to leave a note or to let you know where he/she is going.	1	2	3	4	5
7. You play games or do other fun things with your child.	1	2	3	4	5
8. Your child talks you out of being punished after he/she has done something wrong.	1	2	3	4	5

	Never	Almost Never	Sometimes	Often	Always
9. You ask your child about his/her day in school.	1	2	3	4	5
10. Your child stays out in the evening past the time he/she is supposed to be home.	1	2	3	4	5
11. You help your child with his/her homework.	1	2	3	4	5
12. You feel that getting your child to obey you is more trouble than it's worth.	1	2	3	4	5
13. You compliment your child when he/she does something well.	1	2	3	4	5
14. You ask your child what his/her plans are for the coming day.	1	2	3	4	5
15. You drive your child to a special activity.	1	2	3	4	5
16. You praise your child if he/she behaves well.	1	2	3	4	5
17. Your child is out with friends you don't know.	1	2	3	4	5
18. You hug or kiss your child when he/she has done something well.	1	2	3	4	5
19. Your child goes out without a set time to be home.	1	2	3	4	5
20. You talk to your child about his/her friends.	1	2	3	4	5
21. Your child is out after dark without an adult with him/her.	1	2	3	4	5

	Never	Almost Never	Sometimes	Often	Always
22. You let your child out of a punishment early (like lift restrictions earlier than you originally said).	1	2	3	4	5
23. Your child helps plan family activities.	1	2	3	4	5
24. You get so busy that you forget where your child is and what he/she is doing.	1	2	3	4	5
25. Your child is not punished when he/she has done something wrong.	1	2	3	4	5
26. You attend PTA meetings, parent/teacher conferences, or other meetings at your child's school.	1	2	3	4	5
27. You tell your child that you like it when he/she helps out around the house.	1	2	3	4	5
28. You don't check that your child comes home at the time she/he was supposed to.	1	2	3	4	5
29. You don't tell your child where you are going.	1	2	3	4	5
30. Your child comes home from school more than an hour past the time you expect him/her.	1	2	3	4	5
31. The punishment you give your child depends on your mood.	1	2	3	4	5
32. Your child is at home without adult supervision.	1	2	3	4	5

## Appendix B Conners' Adult ADHD Rating Scale

### CAARS Self-Report: Long Version (CAARS-S:L)

Study ID: \_\_\_\_\_ Gender: M F Age: \_\_\_\_\_ Today's Date: \_\_\_\_/\_\_\_\_/\_\_\_\_  
(circle one) (month/ day/ year)

Instructions: Listed below are items concerning behaviors or problems sometimes experienced by adults. Read each item carefully and decide how much or how frequently each item describes you recently. Indicate your response for each item by checking the box that corresponds to your choice.

	Not at All, Never	Just a Little, Once in a while	Pretty Much, Often	Very Much, Very Frequently
1. I like to be doing active things.				
2. I lose things necessary for tasks or activities. (e.g. to-do lists, pencils, book, or tools)				
3. I don't plan ahead.				
4. I blurt out things.				
5. I am a risk taker or a daredevil.				
6. I get down on myself.				
7. I don't finish things I start.				
8. I am easily frustrated.				
9. I talk too much.				
10. I am always on the go, as if driven by a motor.				
11. I'm disorganized.				
12. I say things without thinking.				
13. It's hard for me to stay in one place very long.				
14. I have trouble doing leisure activities quietly.				
15. I'm not sure of myself.				
16. It's hard for me to keep track of several things at once.				
17. I'm always moving even when I should be still.				
18. I forget to remember things.				
19. I have a short fuse/hot temper.				
20. I'm bored easily.				
21. I leave my seat when I am not supposed to.				
22. I have trouble waiting in line or taking turns with others.				



	<b>Not at All, Never</b>	<b>Just a Little, Once in a while</b>	<b>Pretty Much, Often</b>	<b>Very Much, Very Frequently</b>
23. I still throw tantrums.				
24. I have trouble keeping my attention focused when working.				
25. I seek out fast paced, exciting activities.				
26. I avoid new challenges because I lack faith in my abilities.				
27. I feel restless inside even if I am sitting still.				
28. Things I hear or see distract me from what I'm doing.				
29. I am forgetful in my daily activities.				
30. Many things set me off easily.				
31. I dislike quiet, introspective activities.				
32. I lose things that I need.				
33. I have trouble listening to what other people are saying.				
34. I am an underachiever.				
35. I interrupt others when talking.				
36. I change plans/jobs in midstream.				
37. I act okay on the outside, but inside I'm unsure of myself.				
38. I am always on the go.				
39. I make comments/remarks that I wish I could take back.				
40. I can't get things done unless there's an absolute deadline.				
41. I fidget (with my hands or feet) or squirm in my seat.				
42. I make careless mistakes or have trouble paying close attention to detail.				
43. I step on people's toes without meaning to.				
44. I have trouble getting started on a task.				
45. I intrude on others' activities.				
46. It takes a great deal of effort for me to sit still.				
47. My moods are unpredictable.				
48. I don't like homework or job activities where I have to think a lot.				

	<b>Not at All, Never</b>	<b>Just a Little, Once in a while</b>	<b>Pretty Much, Often</b>	<b>Very Much, Very Frequently</b>
49. I'm absent-minded in daily activities.				
50. I am restless or overactive.				
51. I depend on others to keep my life in order and attend to the details.				
52. I annoy other people without meaning to.				
53. Sometimes my attention narrows so much that I'm oblivious to everything else; other times it's so broad that everything distracts me.				
54. I tend to squirm or fidget.				
55. I can't keep my mind on something unless it's really interesting.				
56. I wish I had greater confidence in my abilities.				
57. I can't sit still for very long.				
58. I give answers to questions before the questions have been completed.				
59. I like to be up and on the go rather than being in one place.				
60. I have trouble finishing job tasks or schoolwork.				
61. I am irritable.				
62. I interrupt others when they are working or playing.				
63. My past failures make it hard for me to believe in myself.				
64. I am distracted when things are going on around me.				
65. I have problems organizing my tasks and activities.				
66. I misjudge how long it takes to do something or go somewhere.				

## Appendix C

### Coping With Children's Negative Emotions Scale

ID \_\_\_\_\_

#### Parent Attitude/Behavior Questionnaire

**Instructions:** In the following items, please indicate on a scale from 1 (very unlikely) to 7 (very likely) the likelihood that you would respond in the ways listed for each item. Please read each item carefully and respond as honestly and sincerely as you can. For each response, please circle a number from 1-7.

	1	2	3	4	5	6	7
Response Scale:	Very Unlikely			Medium		Very Likely	
<hr/>							
1. If my child becomes angry because he/she is sick or hurt and can't go to his/her friend's birthday party, I would:							
a. send my child to his/her room to cool off	1	2	3	4	5	6	7
b. get angry at my child	1	2	3	4	5	6	7
c. help my child think about ways that he/she can still be with friends (e.g., invite some friends over after the party)	1	2	3	4	5	6	7
d. tell my child not to make a big deal out of missing the party	1	2	3	4	5	6	7
e. encourage my child to express his/her feelings of anger and frustration	1	2	3	4	5	6	7
f. soothe my child and do something fun with him/her to make him/her feel better about missing the party	1	2	3	4	5	6	7
2. If my child falls off his/her bike and breaks it, and then gets upset and cries, I would:							
a. remain calm and not let myself get anxious	1	2	3	4	5	6	7
b. comfort my child and try to get him/her to forget about the accident	1	2	3	4	5	6	7
c. tell my child that he/she is over-reacting	1	2	3	4	5	6	7
d. help my child figure out how to get the bike fixed	1	2	3	4	5	6	7
e. tell my child it's OK to cry	1	2	3	4	5	6	7
f. tell my child to stop crying or he/she won't be allowed to ride his/her bike anytime soon	1	2	3	4	5	6	7
3. If my child loses some prized possession and reacts with tears, I would:							
a. get upset with him/her for being so careless and then crying about it	1	2	3	4	5	6	7
b. tell my child that he/she is over-reacting	1	2	3	4	5	6	7
c. help my child think of places he/she hasn't looked yet	1	2	3	4	5	6	7
d. distract my child by talking about happy things	1	2	3	4	5	6	7
e. tell him/her it's OK to cry when you feel unhappy	1	2	3	4	5	6	7
f. tell him/her that's what happens when you're not careful	1	2	3	4	5	6	7
4. If my child is afraid of injections and becomes quite shaky and teary while waiting for his/her turn to get a shot, I would:							
a. tell him/her to shape up or he/she won't be allowed to do something he/she likes to do (e.g., watch TV)	1	2	3	4	5	6	7
b. encourage my child to talk about his/her fears	1	2	3	4	5	6	7
c. tell my child not to make big deal of the shot	1	2	3	4	5	6	7
d. tell him/her not to embarrass us by crying	1	2	3	4	5	6	7
e. comfort him/her before and after the shot	1	2	3	4	5	6	7
f. talk to my child about ways to make it hurt less (such as relaxing so it won't hurt or taking deep breaths).	1	2	3	4	5	6	7

Response Scale:		1	2	3	4	5	6	7
		Very Unlikely			Medium			Very Likely

---

5. If my child is going over to spend the afternoon at a friend's house and becomes nervous and upset because I can't stay there with him/her, I would:

a. distract my child by talking about all the fun he/she will have with his/her friend	1 2 3 4 5 6 7
b. help my child think of things that he/she could do so that being at the friend's house without me wasn't scary (e.g., take a favorite book or toy with him/her)	1 2 3 4 5 6 7
c. tell my child to quit over-reacting and being a baby	1 2 3 4 5 6 7
d. tell the child that if he/she doesn't stop that he/she won't be allowed to go out anymore	1 2 3 4 5 6 7
e. feel upset and uncomfortable because of my child's reactions	1 2 3 4 5 6 7
f. encourage my child to talk about his/her nervous feelings	1 2 3 4 5 6 7

6. If my child is participating in some group activity with his/her friends and proceeds to make a mistake and then looks embarrassed and on the verge of tears, I would:

a. comfort my child and try to make him/her feel better	1 2 3 4 5 6 7
b. tell my child that he/she is over-reacting	1 2 3 4 5 6 7
c. feel uncomfortable and embarrassed myself	1 2 3 4 5 6 7
d. tell my child to straighten up or we'll go home right away	1 2 3 4 5 6 7
e. encourage my child to talk about his/her feelings of embarrassment	1 2 3 4 5 6 7
f. tell my child that I'll help him/her practice so that he/she can do better next time	1 2 3 4 5 6 7

7. If my child is about to appear in a recital or sports activity and becomes visibly nervous about people watching him/her, I would:

a. help my child think of things that he/she could do to get ready for his/her turn (e.g., to do some warm-ups and not to look at the audience)	1 2 3 4 5 6 7
b. suggest that my child think about something relaxing so that his/her nervousness will go away	1 2 3 4 5 6 7
c. remain calm and not get nervous myself	1 2 3 4 5 6 7
d. tell my child that he/she is being a baby about it	1 2 3 4 5 6 7
e. tell my child that if he/she doesn't calm down, we'll have to leave and go home right away	1 2 3 4 5 6 7
f. encourage my child to talk about his/her nervous feelings	1 2 3 4 5 6 7

8. If my child receives an undesirable birthday gift from a friend and looks obviously disappointed, even annoyed, after opening it in the presence of the friend, I would:

a. encourage my child to express his/her disappointed feelings	1 2 3 4 5 6 7
b. tell my child that the present can be exchanged for something the child wants	1 2 3 4 5 6 7
c. <u>NOT</u> be annoyed with my child for being rude	1 2 3 4 5 6 7
d. tell my child that he/she is over-reacting	1 2 3 4 5 6 7
e. scold my child for being insensitive to the friend's feelings	1 2 3 4 5 6 7
f. try to get my child to feel better by doing something fun	1 2 3 4 5 6 7



Response Scale:		1	2	3	4	5	6	7
		Very Unlikely			Medium			Very Likely
9.	If my child is panicky and can't go to sleep after watching a scary TV show, I would:							
a.	encourage my child to talk about what scared him/her	1	2	3	4	5	6	7
b.	get upset with him/her for being silly	1	2	3	4	5	6	7
c.	tell my child that he/she is over-reacting	1	2	3	4	5	6	7
d.	help my child think of something to do so that he/she can get to sleep (e.g., take a toy to bed, leave the lights on)	1	2	3	4	5	6	7
e.	tell him/her to go to bed or he/she won't be allowed to watch any more TV	1	2	3	4	5	6	7
f.	do something fun with my child to help him/her forget about what scared him/her	1	2	3	4	5	6	7
10.	If my child is at a park and appears on the verge of tears because the other children are mean to him/her and won't let him/her play with them, I would:							
a.	<u>NOT</u> get upset myself	1	2	3	4	5	6	7
b.	tell my child that if he/she starts crying then we'll have to go home right away	1	2	3	4	5	6	7
c.	tell my child it's OK to cry when he/she feels bad	1	2	3	4	5	6	7
d.	comfort my child and try to get him/her to think about something happy	1	2	3	4	5	6	7
e.	help my child think of something else to do	1	2	3	4	5	6	7
f.	tell my child that he/she will feel better soon	1	2	3	4	5	6	7
11.	If my child is playing with other children and one of them calls him/her names, and my child then begins to tremble and become tearful, I would:							
a.	tell my child not to make a big deal out of it	1	2	3	4	5	6	7
b.	feel upset myself	1	2	3	4	5	6	7
c.	tell my child to behave or we'll have to go home right away	1	2	3	4	5	6	7
d.	help my child think of constructive things to do when other children tease him/her (e.g., find other things to do)	1	2	3	4	5	6	7
e.	comfort him/her and play a game to take his/her mind off the upsetting event	1	2	3	4	5	6	7
f.	encourage him/her to talk about how it hurts to be teased	1	2	3	4	5	6	7
12.	If my child is shy and scared around strangers and consistently becomes teary and wants to stay in his/her bedroom whenever family friends come to visit, I would:							
a.	help my child think of things to do that would make meeting my friends less scary (e.g., to take a favorite toy with him/her when meeting my friends)	1	2	3	4	5	6	7
b.	tell my child that it is OK to feel nervous	1	2	3	4	5	6	7
c.	try to make my child happy by talking about the fun things we can do with our friends	1	2	3	4	5	6	7
d.	feel upset and uncomfortable because of my child's reactions	1	2	3	4	5	6	7
e.	tell my child that he/she must stay in the living room and visit with our friends	1	2	3	4	5	6	7
f.	tell my child that he/she is being a baby	1	2	3	4	5	6	7

## Appendix D

### Disruptive Behavior Disorders Rating Scale

#### Parent / Teacher DBD Rating Scale

Child's Name: \_\_\_\_\_ Form Completed by: \_\_\_\_\_

Grade: \_\_\_\_\_ Date of Birth: \_\_\_\_\_ Sex: \_\_\_\_\_ Date Completed: \_\_\_\_\_

Check the column that best describes your/this child. Please write DK next to any items for which you don't know the answer.

	Not at All	Just a Little	Pretty Much	Very Much
1. often interrupts or intrudes on others (e.g., butts into conversations or games)				
2. has run away from home overnight at least twice while living in parental or parental surrogate home (or once without returning for a lengthy period)				
3. often argues with adults				
4. often lies to obtain goods or favors or to avoid obligations (i.e., "cons" others)				
5. often initiates physical fights with other members of his or her household				
6. has been physically cruel to people				
7. often talks excessively				
8. has stolen items of nontrivial value without confronting a victim (e.g., shoplifting, but without breaking and entering; forgery)				
9. is often easily distracted by extraneous stimuli				
10. often engages in physically dangerous activities without considering possible consequences (not for the purpose of thrill-seeking), e.g., runs into street without looking				
11. often truant from school, beginning before age 13 years				
12. often fidgets with hands or feet or squirms in seat				
13. is often spiteful or vindictive				
14. often swears or uses obscene language				
15. often blames others for his or her mistakes or misbehavior				
16. has deliberately destroyed others' property (other than by fire setting)				
17. often actively defies or refuses to comply with adults' requests or rules				
18. often does not seem to listen when spoken to directly				
19. often blurts out answers before questions have been completed				
20. often initiates physical fights with others who do not live in his or her household (e.g., peers at school or in the neighborhood)				
21. often shifts from one uncompleted activity to another				
22. often has difficulty playing or engaging in leisure activities quietly				
23. often fails to give close attention to details or makes careless mistakes in schoolwork, work, or other activities				
24. is often angry and resentful				
25. often leaves seat in classroom or in other situations in which remaining seated is expected				
26. is often touchy or easily annoyed by others				
27. often does not follow through on instructions and fails to finish schoolwork, chores, or duties in the workplace (not due to oppositional behavior or failure to understand instructions)				
28. often loses temper				
29. often has difficulty sustaining attention in tasks or play activities				
30. often has difficulty awaiting turn				
31. has forced someone into sexual activity				

32. often bullies, threatens, or intimidates others				
33. is often "on the go" or often acts as if "driven by a motor"				
34. often loses things necessary for tasks or activities (e.g., toys, school assignments, pencils, books, or tools)				
35. often runs about or climbs excessively in situations in which it is inappropriate (in adolescents or adults, may be limited to subjective feelings of restlessness)				
36. has been physically cruel to animals				
37. often avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort (such as schoolwork or homework)				
38. often stays out at night despite parental prohibitions, beginning before age 13 years				
39. often deliberately annoys people				
40. has stolen while confronting a victim (e.g., mugging, purse snatching, extortion, armed robbery)				
41. has deliberately engaged in fire setting with the intention of causing serious damage				
42. often has difficulty organizing tasks and activities				
43. has broken into someone else's house, building, or car				
44. is often forgetful in daily activities				
45. has used a weapon that can cause serious physical harm to others (e.g., a bat, brick, broken bottle, knife, gun)				

## Appendix E

### Difficulties with Emotion Regulation Scale

#### DERS (Gratz & Roemer 2004)

Please indicate how often the following statements apply to you by writing the appropriate number from the scale below on the line beside each item:

	1	2	3	4	5
	Almost never (0-10%)	Sometimes (11-35%)	About half the time (36-65%)	Most of the time (66-90%)	Almost always (91-100%)
_____ 1) I am clear about my feelings.					
_____ 2) I pay attention to how I feel.					
_____ 3) I experience my emotions as overwhelming and out of control.					
_____ 4) I have no idea how I am feeling.					
_____ 5) I have difficulty making sense out of my feelings.					
_____ 6) I am attentive to my feelings.					
_____ 7) I know exactly how I am feeling.					
_____ 8) I care about what I am feeling.					
_____ 9) I am confused about how I feel.					
_____ 10) When I'm upset, I acknowledge my emotions.					
_____ 11) When I'm upset, I become angry with myself for feeling that way.					
_____ 12) When I'm upset, I become embarrassed for feeling that way.					
_____ 13) When I'm upset, I have difficulty getting work done.					
_____ 14) When I'm upset, I become out of control.					
_____ 15) When I'm upset, I believe that I will remain that way for a long time.					
_____ 16) When I'm upset, I believe that I'll end up feeling very depressed.					
_____ 17) When I'm upset, I believe that my feelings are valid and important.					
_____ 18) When I'm upset, I have difficulty focusing on other things.					
_____ 19) When I'm upset, I feel out of control.					
_____ 20) When I'm upset, I can still get things done.					
_____ 21) When I'm upset, I feel ashamed with myself for feeling that way.					
_____ 22) When I'm upset, I know that I can find a way to eventually feel better.					
_____ 23) When I'm upset, I feel like I am weak.					





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