2013

Is Experiential Avoidance A Factor In Maternal Overprotection?

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IS EXPERIENTIAL AVOIDANCE A FACTOR IN MATERNAL OVERPROTECTION?

by

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B.S. Florida International University, 2008

A thesis submitted in partial fulfillment of the requirements
for the degree of Master of Science in Clinical Psychology
in the Department of Psychology
in the College of Sciences
at the University of Central Florida
Orlando, Florida

Summer Term
2013

ABSTRACT

The current study examined *experiential avoidance* (EA) as an explanation for parental overprotectiveness, a behavior often found among parents of anxious children. EA parenting theory posits that parents engage in overprotective behaviors in order to reduce their own anxiety. In order to test the theory, mothers' electrodermal activity (EDA) and blindly-coded overprotective behaviors were examined when a child with SAD was engaged in a reading performance task. In line with EA theory, it was hypothesized that EDA levels would increase before an overprotective behavior (OB) occurred and decrease afterwards as a result of decrease in anxiety. The sample consisted of mothers with a child diagnosed with SAD (n=5) and mothers with a child with no diagnoses (n=5). Each mother-child dyad participated in an ABAB design protocol consisting of a baseline period, two 10-minute reading tasks, and a recovery period between the two tasks. Although mothers of both groups displayed OBs, mothers of children with SAD displayed OBs more often. In addition, mothers of children with SAD displayed more promotion of avoidance while mothers of normal control children displayed higher frequencies of control over the reading task. The EDA activity that surrounded the first occurrence of any coded OB was examined. Contrary to the hypothesis, all mothers (regardless of child's anxiety status) displayed similar trends in their EDA data, with levels increasing but then decreasing shortly *before* an OB behavior occurred, rather than afterwards. However, one mother with an elevated social anxiety score revealed an EDA pattern similar to what was hypothesized. Possible explanations for these alternate findings are discussed and include a multidisciplinary conceptualization. The study's findings hold theoretical and practical implications, particularly for parent training in the treatment of childhood anxiety disorders. Limitations such as small sample size and directions for future research are discussed.

I would like to dedicate this work “Abuelita” Dulce who was a grandmother, a doctor, lived a passionate life, and passed on her love of science to me vicariously.

ACKNOWLEDGMENTS

Thank you mom, dad, and Aly for your never-ending support while I was in grad school. I would also like to thank my mentor Dr. Beidel and my committee for their time and scientific input. In addition, a thank you to my close friends who gave me a shoulder to lean on, and most importantly, thank you Jake for always reminding me how strong I can be.

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CHAPTER ONE: INTRODUCTION

Anxiety disorders are among the most common psychiatric disorders in youth, with estimates ranging from 6% to 18% of the general population (Costello, Egger, & Angold, 2004). One anxiety disorder, social anxiety disorder (SAD) is defined as a fear of saying or doing something that will result in humiliation or embarrassment (American Psychological Association [APA], 2013). Although the clinical presentation of SAD may vary in form and severity, severe symptoms may lead to avoidance of most personal encounters, thereby impairing academic, occupational, and social functioning. The National Comorbidity Survey-Replication database provides estimates of 12-month and lifetime prevalence of DSM-IV SAD in adults of 7.1% and 12.1%, with higher prevalence in females respectively, relative to males (Kessler, Chiu, Demler, & Walters, 2005; Ruscio et al., 2008). The prevalence of SAD in youth (6.8 % in one study) is similar to that reported in adults (Chavira, Stein, Bailey, & Stein, 2005). SAD is a common reason for school refusal in young children, and it is the only mood or anxiety disorder that has been associated consistently with dropping out of school early (Stein & Kean, 2000). Typically beginning early in life, SAD frequently persists into adulthood and even old age (Cairney et al., 2007).

With respect to the etiology of SAD, much research has focused on a heritable temperamental trait known as behavioral inhibition (BI). BI is identified commonly as an antecedent to the development of SAD (Hayward, Killen, Kraemer, & Taylor, 1998; Hirshfeld-Becker, Biederman, & Henin, 2007; Kagan et al., 1988) and is characterized by a constellation of behaviors including withdrawal, shyness, avoidance, and fear of unfamiliar people and objects. Many of the behaviors that define BI also characterize SAD. For example, descriptions of both concepts include fearfulness and avoidance of interactions with unfamiliar people. No other

anxiety disorder has been linked directly to high levels of BI (Hirshfeld-Becker et al., 2007). This suggests consistent heritability of a temperament trait which can predispose a child to developing SAD.

Data from longitudinal studies suggest that BI's stability can be influenced by parenting behaviors that accommodate the child's anxiety (i.e., reinforcing or allowing avoidant behaviors to occur), highlighting the role of environmental factors (Arcus et al., 1992; Park, Belsky, Putnam, & Crnic, 1997). Specifically, mothers display an increase in critical behavior (Hirshfled, Biederman, Brody, Faraone, & Rosenbaum, 1997) and less promotion of autonomy (Murray et al., 2008). These findings lend evidence to the influential role parents may play in the maintenance of BI in their children and the role their children may play in influencing parental behavior. Implications of findings can also extend to theoretically related constructs such as shyness, social isolation, specific phobias, and separation anxiety (Schmidt & Schulkin, 1999).

Consistent with the BI literature, certain family interactions may contribute to the maintenance of anxiety disorders in youth (Ginsburg, Siqueland, Masia-Warner, & Hedtke, 2004; Wood, McLeod, Sigman, Hwang, & Chu, 2003). Parental factors have received particular attention in the literature, perhaps because parents are a primary influence on the child's behavior. Specific parenting characterized by low warmth (Craske, 1999; Kohlmann, Schumacher, & Streit, 1988; Krohne & Hock, 1991; Siqueland, Kendall, & Steinberg, 1996), discouragement of social interaction (Rapee & Melville, 1997), modeling of fearful or cautious responses (Chorpita, Albano, & Barlow, 1996; Gerull & Rapee, 2002; Moore, Whaley, & Sigman, 2004; Whaley, Pinto, & Sigman, 1999), increased emotional involvement (Hirshfeld et al., 1997; Hudson & Rapee, 2001a), and less autonomy granting (Siqueland et al., 1996) have been evaluated.

Across the literature, there is consistent support for three specific parenting styles displayed frequently in parents of anxious children. Relative to parents of non-anxious children, both mothers and fathers of anxious children are more likely to engage in (a) less autonomy granting and more intrusion (e.g., interfering while a child is already interacting with potentially feared stimuli), (b) overprotectiveness (e.g., reinforcing or allowing avoidance), and (c) overcontrolling behavior (e.g., the use of many unnecessary directives, high-power remarks, or physical control) (Chorpita & Barlow, 1998; Dumas, LaFreniere, & Serketich, 1995; Fox, Henderson, Marshall, Nichols, & Ghera, 2005; Greco & Morris, 2002; Hudson, Comer, & Kendall, 2008; Hudson & Rapee, 2001b; Rubin, Burgess, & Hastings, 2002; Wood, 2006; Wood et al., 2003). In addition, parental reinforcement of avoidant/anxious behavior may play a role in the development of anxious avoidance in the child (Beidel & Turner, 1998; Rapee, 2002). How these behaviors may influence a child's anxious emotional state are reviewed below.

First, parents may reinforce or shape avoidant responding (Barrett, Rapee, Dadds, & Ryan, 1996). Anxious children were asked to interpret ambiguous situations related to physical threat (i.e., feeling "funny in the tummy") and social threat (i.e., child approaches a group of students laughing) alone (without parental input). Afterwards, parents were instructed to help their child decide how to deal with these situations in a 5-minute family discussion format. After the family discussion and consistent with parental expectations, children with SAD gave more avoidant responses in social situations relative to physical threat situations. Results also indicated that the family discussion produced a large *increase* in the child's selection of an avoidant response (67.8%) in comparison to before the family discussion (29.7%). In contrast, children in a nonclinical control group had a *decrease* in avoidant responses following the family discussion. The investigators concluded that the children's avoidant response patterns may be maintained by

parents modeling anxious behaviors and reinforcing negative expectations in their children through reassurance and overprotectiveness (Barrett et al., 1996). This investigation highlights the importance of considering parental influence in the child's avoidance of social situations. These findings also have potential clinical implications for treating children with SAD, since the disorder is associated with a pattern of avoidant behavior that can contribute to deficits in social and occupational functioning in the adolescent and adult years (Culpepper, 2006).

More recent investigations support the findings that a child's emotional state may affect parenting behavior (Hudson, Comer, & Kendall, 2008). Relative to mothers of non-anxious children, mothers of anxious children were more likely to display overcontrol (e.g., intrusive involvement such as taking over a difficult task) when the child displayed negative emotion such as anxiety or anger, but not when the child displayed positive emotion. Thus, this study implies that the more anxious a child appears, the more likely a parent may intrude excessively in the child's activities. Because this task used a difficult puzzle task and not a social interaction task, the relevance of the findings to the behaviors of children with SAD and their mothers remains unclear. A recent investigation attempted to address this issue using social performance tasks.

An investigation by Edison and colleagues (2011) examined parent-child interactions across three groups: children diagnosed with selective mutism (SM), children with other anxiety disorders, and non-anxious children in an unstructured play and a speech task. The relation between parental overcontrol (as defined by less autonomy granting and high power remarks), child factors (e.g., anxiety and verbal participation), and parent anxiety was investigated. Anxiety and parental control was coded through blinded observer ratings. The results indicated that increased child and parent anxiety predicted more parental control. The results also indicated that parents of children with SM displayed more overcontrolling behavior relative to all other

groups. Specifically, these parents were rated as granting less autonomy than parents of anxious and non-anxious children. Parents of children with SM also made a higher proportion of verbal control statements (i.e., directives) and a smaller proportion of low power remarks (i.e., personal comments) than the parents of the other two groups. Fifty percent of the remarks made by parents of children with SM were high powered compared to only 30% of those made by parents of non-anxious controls. The authors' results were interpreted as support for previous theories that parents may "take over" (e.g., speak for their child) when their children do not meet performance or interpersonal interaction demands.

It is important to note that although the results shed some light on factors that predict parental overcontrol, limitations are noted such as utilizing only subjective ratings of anxiety and examining only one of the maladaptive parenting factors implicated in the literature. Examining a multidimensional definition of maladaptive parental behaviors to include overcontrol as well as promotion of avoidance/accommodation can provide rich information on the parent-child dynamic when social demands are placed on a child who is socially anxious.

In the area of social psychology, this maternal intrusion is often conceptualized as over-reactions in maternal sensitivity or empathy (Atzil, Hendler, & Feldman, 2011; Mussera, Kaiser-Laurent, Ablow, 2012). Many studies which investigate parental overcontrol and overprotection differ in their definition of the constructs and in turn, this influences which parental behaviors are examined. Although this may represent as a limitation in the literature, the constructs are similar with respect to their emphasis that these parental behaviors ultimately serve the purpose to reduce their child's suffering. Therefore, in line with this commonality and the use of maternal empathy in a closely related field, maternal *overprotective behaviors* (OBs) will be used as an overarching term for all target behaviors observed in this study.

Experiential avoidance (EA), a construct developed out of Acceptance and Commitment Therapy (ACT; Hayes, Strosahl, & Wilson, 1999), recently has been proposed as an explanation for parental overcontrol/overprotectiveness with anxious children. EA refers to the unwillingness or inability to tolerate one's own private experiences (e.g., emotions, thoughts, memories, images, bodily sensations) and the steps taken to alter the form or frequency of these experiences or the contexts that elicit them (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996). When used in the context of parental overprotectiveness, the construct suggests that a parent may avoid their own internal distress by intervening for their child in an anxiety-provoking situation. For instance, if an unfamiliar person speaks to their child and the child does not answer, the parent may experience internal distress, become anxious, and respond for the child as a result of being uncomfortable with their own anxiety response. Thus, according to parenting EA theory, the parent intervenes because of his/her own discomfort with high levels of anxiety, negatively reinforcing their own overprotective behavior as well as the child's avoidance. In turn, this simultaneously reduces the opportunities for the child to engage in these interactions (for a review of parenting and EA, see Tiwari et al., 2008). Since parents who experience high levels of EA hold negative views about anxiety they experience (e.g., 'It is bad if I feel anxious'), they may also hold negative views about their child experiencing negative emotions as well (e.g., 'It is bad if my child experiences anxiety'). Therefore, upon observing their child's anxiety, parents with high levels of EA may attempt to reduce their child's anxiety by engaging in protective parental responses.

To date, assessment of EA as an explanation for overprotective parenting is limited to self-report. The Acceptance and Action Questionnaire (AAQ; Hayes et al., 2004) is a 9-item measure of EA that assesses avoidant coping and self-deceptive positivity. The Parental

Acceptance and Action Questionnaire (PAAQ; Cheron, Ehrenreich, & Pincus, 2008) is a 15-item adapted measure of the AAQ in which items are worded in a parenting context (e.g. "I'm not afraid of *my child's* feelings"). However, research using the PAAQ to examine differences between parents of anxious and non-anxious children is lacking. There are no data explaining its discriminant validity from similar constructs (e.g., anxiety sensitivity, avoidance coping; Berman, Wheaton, McGrath, & Abramowitz, 2010).

Collectively, the explanation of high EA as a mechanism by which parents intrude upon children's behavior in an attempt to lessen their own anxiety is intriguing but requires a controlled behavioral investigation. In particular, examining parents' psychophysiological arousal can provide a direct assessment of the physiology associated with EA. No study to date has examined parental psychophysiological arousal in the context of EA theory when a child with an anxiety disorder engages in a fear-producing situation.

The current study examined the validity of the EA construct as an explanation for parental overprotectiveness by examining a mother's physiology and parenting behaviors when their child with SAD is engaged in a reading performance task. For this study, EA was assessed by examining the interplay between psychophysiological arousal and parental behaviors including: 1) Control Over Child (COC); 2) Control Over Task (COT) and 3) Promotion of Avoidance (POA; e.g., accommodation/negative reinforcement) (see Table 2 and APPENDIX C for operational definitions). In line with EA theory, it was hypothesized that mothers would display increased psychophysiological arousal *before* they engage in overprotective behaviors, which would be followed by a decrease *after* the behavior occurred. We also hypothesized that mothers of children with SAD would display this pattern more often relative to mothers of normal control (NC) children. Additionally, it was hypothesized that mothers of children with

SAD will display significantly more anxiety in the form of objectively measured spontaneous skin conductance fluctuations (SCFs) during baseline and skin conductance responses (SCRs) during the reading task than mothers of NC children.

CHAPTER TWO: METHODOLOGY

Participants

The sample consisted of 10 mothers and their children representing two groups: five mothers with a child diagnosed with SAD (two males, three females) and five mothers with a child with no diagnoses (two males, three females; See Table 1). Children ranged in age from six to 10 years (M=7.80, SD= 1.14). Self-reported ethnicity of the mothers varied within groups and included five Caucasians, four Hispanics, and one Middle Eastern. One mother did not report her age. Seven of the 10 children attended public school and three were in private school. Significant differences between groups were observed for age of mothers, with mothers of children with SAD being significantly younger than mothers of NC children $U(8) = .000$, $Z= -2.47$, $p=.016$.

Table 1. Participant Demographics

Participant	Group	Child Sex	Child Age	Mother Ethnicity	Child Ethnicity	School	Mother Age
01	SAD	F	8	Hispanic	Hispanic	Public	44
02	NC	F	8	Caucasian	Mixed	Public	43
03	SAD	F	8	Caucasian	Caucasian	Public	32
04	SAD	F	6	Hispanic	Hispanic	Private	33
05	SAD	M	7	Hispanic	Hispanic	Private	-
06	SAD	F	8	Hispanic	Hispanic	Public	27
07	NC	F	10	Caucasian	Caucasian	Public	44
08	SAD	M	6	Middle Eastern	Middle Eastern	Public	32
09	NC	M	8	Caucasian	Caucasian	Public	36
10	NC	M	7	Caucasian	Mixed	Private	47

Inclusion and Exclusion Criteria

To be included in the study, children must have met DSM-IV-TR diagnostic criteria for a) SAD or b) no current psychiatric diagnosis. Children with SAD and a comorbid Axis I disorders were included in the study if the comorbid diagnoses were secondary to their SAD. All children with SAD also met criteria for Selective Mutism (SM) at the time of interview. Exclusion criteria for the study included comorbid attention-deficit/hyperactivity disorder, autism spectrum disorders, oppositional defiant disorder, conduct disorder, bipolar diagnoses, psychosis, suicidal ideation, or intellectual disability.

Telephone Screening

Prior to participation in the study, parents who contacted the Anxiety Disorders Clinic (ADC) were interviewed over the phone to determine symptoms of anxiety and other disorders. Children who appeared to meet diagnostic criteria for primary SAD (or who did not appear to meet criteria for any psychiatric disorder) and their mother were scheduled for an in-person diagnostic assessment. Children who did not meet diagnostic criteria for any DSM-IV disorder constituted the NC group. Children who were not eligible to participate due to diagnostic exclusion were given appropriate treatment referrals. Only mothers were recruited as participants in order to maintain consistency due to mixed findings of differences in parenting behaviors between mothers and fathers (Barrett, Fox, & Farrell, 2005; Eisenberg, Cumberland, & Spinard, 1998; Hudson & Rapee 2002; Van der Bruggen, Bögels, & van Zeilst, 2010) and due to the small sample size of this study.

Following the consent and assent process, all parents and children were interviewed by a doctoral student in clinical psychology to determine diagnostic group status. Parents completed

questionnaires about their child's social anxiety symptoms and overall behavioral/emotional functioning as well as parental self-report measures of social anxiety and parenting behaviors. Children also completed a self-report measure of social anxiety. Afterwards, the social interaction session assessed maternal physiological arousal and maternal behaviors during two read aloud tasks in which the child read from children's books.

Diagnostic Measures

Anxiety Disorders Interview Schedule for the Diagnostic and Statistical Manual-Fourth Edition (DSM-IV:P/C) Parent & Child Version (Silverman and Albano, 1996) is a semistructured interview designed specifically for the diagnosis of anxiety and other related disorders in children and adolescents. The ADIS-C/P interviews (Silverman & Nelles, 1988) have excellent inter-rater reliability. Kappa coefficients obtained for SAD, SOP, SP, and GAD are in the good to excellent range ($\kappa = 0.65– 0.88$) for the ADIS-P. For younger children, κ coefficients for SAD, SOP, SP, and GAD indicate good to excellent reliability, ranging from 0.73 to 0.92 (Silverman, Saavedra, & Pina, 2001).

Parent Measures

The Social Phobia and Anxiety Inventory (SPAI)

To assess social fears in various contexts, all mothers completed the Social Phobia and Anxiety Inventory (SPAI; Turner, Beidel, Dancu, & Stanley, 1989). The SPAI is a 45-item self-report questionnaire measuring the range and severity of somatic, cognitive, and behavioral aspects of social phobia. The SPAI has high test-retest reliability of .86 and differentiates patients with SAD from normal controls or from patients with other anxiety disorders (Turner et

al., 1989). In addition, the SPAI has established concurrent and external validity (Beidel, Borden, Turner, & Jacob, 1989; Turner et al., 1989).

The Parental Acceptance and Action Questionnaire (PAAQ)

The PAAQ (APPENDIX B; Cheron, Ehrenreich, & Pincus, 2009) is a 15-item adapted measure of the Acceptance and Action Questionnaire (AAQ; Hayes et al., 2004). It is comprised of two subscales which measure a parent's unwillingness to witness their child experience negative emotion (Unwillingness Subscale; six items) as well as a parent's inability or avoidance to taking action in the context of the emotional experiences of their child (Inaction Subscale; nine items). The Total Score can range from 15 to 105 and was derived from summing all items in both subscales, with higher scores indicating a higher degree of parental experiential avoidance. Current investigations of the psychometric properties of the PAAQ reveal moderate temporal stability and internal consistency of both subscales and entire measure (r = .68-.72 and α = .64-.65, respectively). PAAQ Inaction and Unwillingness Subscales also demonstrated significant correlations with AAQ Total Scale scores. Test-retest reliability ranges from .68 for the Inaction Subscale, .74 for the Unwillingness Subscale, and .72 for the entire measure. The PAAQ shows convergent validity of r = .64, p < .01 when compared to the original AAQ.

Self-Report Fear Ratings

As a measure of self-reported anxiety, mothers rated their level of distress on a 9-point Likert scale ranging from 0 (no anxiety) to 8 (extreme anxiety). To aid mothers in providing accurate ratings, the Feelings Thermometer used to rate anxiety in the ADIS-C/P was used. Following each component of the interaction sequence, mothers provided a rating (from 0-8) for their level of anxiety during the interaction sequence.

Child Measures

Self Assessment Manikin

Children rated their level of distress during the read aloud session using a pictorially adapted version of the *Self Assessment Manikin* (SAM; Bradley & Lang, 1994, APPENDIX O). This version uses five pictures illustrating distress that corresponds with a numerical rating of anxiety on a 5-point Likert scale, ranging from 1 (little or no anxiety) to 5 (extreme anxiety). Children provided a SAM rating after each component of the interaction sequence.

The Social Phobia and Anxiety Inventory for Children (SPAI-C)

The SPAI-C is a 26-item instrument that assesses a range of fear-producing situations typical of SAD, such as reading aloud in front of the class, eating in the cafeteria, joining a group of children, and being assertive (Beidel, Turner, & Morris, 1995). In addition, items also assess behavioral avoidance, and the cognitive and physiological components of SAD. All items are rated on a 3-point Likert scale that assesses how often the child feels anxious in each situation described (*0 = never or hardly ever, 1 = sometimes*, and 2 = *most of the time or always).* Scores on the SPAI-C range from 0-52. The alpha coefficient for internal consistency is .95. Using a Pearson product-moment correlation, the 2-week and 10-month test-retest reliability coefficients were $r = .86$, $p < .001$ and $r = .63$, $p < .01$, respectively.

Procedure

Each mother and her child participated in the two social tasks with baselines before each one, comprising the ABAB design where A=baseline, B= reading task 1, A=recovery 1, B= reading task 2. The assessment was digitally recorded for the purpose of obtaining behavioral ratings and its procedures are described below.

Table 2. A-B-A-B Procedure

Baseline 1 (A)	Reading Task 1 (B)	Recovery 1 (A)	Reading Task 2 (B)	Recovery 2
10 minutes (Mother and Child alone)	10 minutes (Mother, child, and small audience)	3 minutes (Mother and Child alone)	10 minutes (Mother, child, and small audience)	As needed (Mother, Child, and experimenter)

Baseline 1

Initially, the child and parent went to an observation room where the assessment procedures were explained. Then, electrodes were placed on the mother with the child present (see *Physiological Assessment* below). The child and the mother were in the same room for 10 minutes (to provide at least three minutes of steady baseline data) and were asked to sit side-by-side for the entire duration of the study. SUDS and SAM ratings were collected at the end of the baseline.

Read-Aloud Performance Task 1

The experimenter introduced the task to the child and mother, explaining that the child was to read aloud in front of four unfamiliar adults who acted as audience members. A nondirective approach was taken with the mothers' involvement and they were told they could interact with the child in any way they felt comfortable. No specific instructions were given to the mother in regards to expectations in order to avoid biasing her behavior. After the task introduction, four audience members entered the room. Audience members consisted of volunteer undergraduate research assistants who did not interact with the child or mother during the task. Mothers were seated closest to the child relative to other audience members. Children

were to read aloud for 10 minutes from one of several books provided on a nearby table. After 10 minutes, the audience members were dismissed from the room by the experimenter. Following this, mother and child rated their anxiety during the reading task.

Recovery 1

Next, there was a three minute recovery period to allow any increase in autonomic arousal return to baseline. Following this, the experimenter collected another SUDS rating and audience members returned inside the room after direction from the experimenter.

Read-Aloud Performance Task 2

A second reading task took place identical to the first in its procedure.

Recovery 2

After the second reading task, another physiological recovery period took place before the participants left the clinic. The experimenter was present for part of the recovery period collecting SUDS ratings from the mother and child.

Physiological Assessment During the Reading Tasks

Physiological markers of anxiety used in the emotion regulation literature include electrodermal activity (EDA), HR, indices of heart rate variability (HRV), blood pressure (BP), respiration, and muscle tension (Bernardi, et al. 1996; Lundberg, et al.1994; Vrijkotte, et al. 2000). Among these markers, EDA is considered one of the most robust physiological indices of anxiety (Picard & Healey, 1997) and also has the shortest latency to respond following a stimulus. A quick physiological response is important in this study in order to determine

relationships between behavior and any physiological response that precedes or follows it. Therefore, EDA was used to examine changes in arousal, consistent with EA theory in the context of parenting.

Skin conductance was continuously recorded using the wireless MindWare Ambulatory system. The MindWare wireless system consists of a small device that resembles a common PDA. Electrodes are connected to the PDA and signals are sent wirelessly to the Noldus Behavioral Observation System in an adjacent room, and continuously recorded on digital files. Data were analyzed using MindWare analysis software. To measure electrodermal activity (EDA), two electrodes were placed on the palms of the mother's non-dominant hand. Electrodes were connected to the portable ambulatory recording device and placed in a backpack which the mother wore during the assessment.

Behavioral Assessment and Coding

The Noldus Behavioral Observation System digitally recorded the baseline and read-aloud tasks. Behaviors were rated using the Observer XT event logging software. Frequency of parental overcontrol and promotion of avoidance were coded by undergraduate research assistants who were naïve to group membership and trained using a coding scheme detailed below. Duration of behaviors were recorded when behaviors not of interest as dependent variables occurred that could largely affect physiological responses (e.g., tapping of electrodes, laughing, standing, physically moving child).

The approach for coding maternal behaviors was adapted from two established coding schemes. Code definitions were taken from The Laboratory Parenting Assessment Battery (Lab-PAB; Wilson & Durbin, 2012) and another derived from Murray and colleagues that addressed problematic and overarching definitions of control and drew from the wider literature (Murray,

Cooper, Creswell, Schofield & Sack, 2007; Murray, DeRosnay, Pearson, Bergeron, Schofield, Royal-Lawson, & Cooper, 2008; Murray et al., 2012). Murray and colleagues categorized several groups of behaviors and the Promotion of Avoidance category was used and consisted of behaviors which reinforced a child's anxious response or avoidance). The following codes were drawn from the Lab-PAB manual: Control Over Child and Control Over Task. Trained undergraduates coded for these behaviors and behaviors were then examined with corresponding physiological data. See Table 2 for more detailed definitions used in coding and examples of behaviors, which were coded in each of these three categories. Inter-rater reliability (IRR) for behavioral coding was calculated using 20% of the sample that were randomly selected. Cohen's kappa coefficient ranged from 0.77-0.94. For a complete list of behaviors coded under each category see APPENDIX C for the coding manual used in this study.

Table 3. Definitions of Behavioral Codes for Maternal Behaviors

Specific Behavioral Category	**Control Over Child (COC)**	**Control Over Task (COT)**	**Promotion of Avoidance (POA)**
Brief Definition	Exert control over, restrict, or prohibit child when not warranted	Limits child's contribution or autonomy in task; intrudes verbally or physically during task	Allowing child to escape or avoid task; Initiating emotional support or practical help that is not warranted; Comforting child
Examples of Behaviors Coded	"Sit here. Don't do that. Get up." Grabbing child's arm to sit them down	"Read this book." Turns page for child Picks out book for child	"OK, you don't have to read then" "Are you anxious? It's OK." Whispering with child Hugging child Kissing child

CHAPTER THREE: FINDINGS

Social Anxiety

There was a significant difference between groups for SPAI-C Total Score, with children diagnosed with SAD having significantly higher scores (M = 25.3, SD = 5.33; $U(9) = .000$, p = .008 than NC children (M = 6.71, SD = 6.38). Similarly, mothers of children with SAD rated their child as having significantly more social anxiety as measured by the SPAI-C-PV (M = 33.13, SD = 5.78) than mothers of NC children (M = 4.35, SD = 6.21; $U(8) = .000$, p = .016). These results confirm the diagnostic interview data, indicating that the two groups of children were significantly different with respect to social anxiety

During preliminary analyses, it was noted that the SPAI score of one mother of a child with SAD (#005) was elevated (Total Score= 70) relative to other mothers of both groups. This score is indicative of possible social anxiety disorder in the mother. Therefore, given the nature of the performance task and her high level of social anxiety relative to other mothers of children with SAD, this mother's data were removed from the analyses and reported separately. Once her score was removed, SPAI scores did not differ significantly between mothers of children with SAD (M = 20.25, SD = 12.50) and mothers of NC children (M = 34.6, SD = 18.15; $U(8) = 4.0$, p = .190).

Parental Self-Report of Experiential Avoidance

PAAQ Total Scores did not differ significantly between mothers of children with SAD (M = 58.50, SD = 14.10) and mothers of NC children (M = 45.4, SD = 8.91; $U(8) = 3.0$, p = .111). Additionally, subscale scores (Unwillingness p = .286; Inaction p = .730) were not

significantly different between groups. Reanalysis excluding the mother with probably SAD did not change the outcome.

Behavioral Assessment

Overprotective Behaviors

Across both reading tasks, mothers of NC children displayed 41 instances of overprotective behavior (OB) (See Table 3). Control Over Task (COT) behaviors accounted for 80.5% of all coded OBs for mothers of NC children. Control Over Child (COC) accounted for 17% of coded OBs and Promotion of Avoidance (POA) accounted for 2.5%. Two of the five mothers (40%) did not display any target behaviors for the entire duration of both reading tasks.

In contrast, all mothers of children with SAD displayed overprotective behaviors, with the lowest recorded frequency for any mother being nine behaviors for both reading tasks. Across both reading tasks, mothers of children with SAD (not including the socially anxious mother) displayed 65 instances of overprotective behavior. In stark difference to NC children, all children with SAD spent the majority of the time not participating in the reading task and their mothers may have displayed a wider array of overprotective behaviors as a result. Whereas POA behaviors accounted for only 2.5% of all coded behaviors for mothers of NC, POA behaviors accounted for 40% of all coded overprotective behaviors for mothers of children with SAD. For mothers of children with SAD, COC behaviors accounted for 33.8% of all coded behaviors and COT accounted for 26.2%. There were no differences between groups in the percentage of mothers who engaged in OBs (Fisher's Exact Test, p=.45).

While the mother with an elevated SPAI score displayed overprotective behavior 24 times, a mother without social anxiety emitted 27 target behaviors. Therefore, her own social

anxiety status may not be the only explanation for her high frequency of overprotective behaviors. For this mother, POA accounted for 66.7% of all coded overprotective behaviors, while COC accounted for 8.3% and COT accounted for 25%.

Table 4. Behavior Frequencies by Group

	Control Over Child (COC)	Control Over Task (COT)	Promotion of Avoidance (POA)	Cumulative Totals
NC				
#001	0	18	0	18
#002	7	14	1	22
#007	0	0	0	0
#009	0	0	0	0
#010	0	1	0	1
Total # (%)	7 (17%)	33 (80.5%)	1 (2.5%)	41
SAD				
#003	0	4	13	17
#004	0	4	8	12
#005	2	6	16	24
#006	1	8	0	9
#008	21	1	5	27
Total # (%)[1]	22 (33.8%)	17 (26.2%)	26 (40%)	65
Total # (%)[2]	24 (27%)	23 (26%)	42 (47%)	89

[1] Not including mother with probable SAD
[2] Including mother with probable SAD

Table 5. Detailed Demographics and Self-Report Data

	NC (N=5)	SAD[3] (N=4)	SAD[4] (N=1)		
Variable	*M* *SD*	*M* *SD*		*U* Test[5] statistic	*p*
SPAI-C Total score*	6.71±6.38	25.3±5.33		.000	**.008**
SPAI-C-PV Total score*	4.35±6.21	33.13±5.78		.000	**.016**
SPAI Total score	34.60±18.15	20.25±12.5	70	4.0	ns
PAAQ Total score	45.40±8.91	58.50±14.1	71	3.0	ns
PAAQ Inaction scale	21.40±6.50	23.75±2.22	38	8.0	ns
PAAQ Unwilling scale	24±5.20	34.75±12.2	33	5.0	ns
SUDS Parent Baseline 1	.40±0.55	.25±0.5	2.0	8.5	ns
SUDS Parent Reading Task 1	1.40±0.89	1.75±1.71	7.0	9.5	ns
SUDS Child Baseline 1	1.0±.0	1.4±.89		10.0	ns
SUDS Child Reading Task 1	2.20±1.30	2.75±1.71		8.5	ns

*Significant differences between groups

ns= not significant

[3] Mother with probable SAD removed
[4] Mother with probable SAD
[5] N=10 for SPAI-C, SPAI-C-PV, and child SUDS ratings; n=9 for all other measures

Subjective Units of Distress (SUDS)

Based on Mann-Whitney U tests, SUDS ratings during baseline did not differ significantly between NC children (M = 1.0, SD = .00) and children with SAD (M = 1.4, SD = .89, $U(9)$= 10.0, Z= -1.0, p= .690) at baseline or during the reading task NC children (M = 2.2, SD = 1.3) and children with SAD (M = 3.0, SD = 1.58; $U(9)$= 8.5, Z= -.854, p= .421).

When the socially anxious mother was not included in the data analysis, Mann-Whitney U tests indicated that SUDS ratings during baseline were not different for mothers of children with SAD (M = .25, SD = .50) or mothers of NC children (M = .40, SD = .548; p = .685, $U(8)$= 8.5, Z= -.447, p= .730). Similarly, there was no group difference on SUDS ratings during the first reading task for mothers of children with SAD (M = 1.75, SD = 1.71) relative to mothers of NC children (M = 1.4, SD = .89, $U(8)$= 9.5, Z= -.129, p= .905). Reanalysis including the mother with social anxiety in the sample did not change the outcome.

Although SUDS ratings did not differ across groups at baseline or during the reading task, a significant change from baseline to reading task was observed, with SUDS ratings for all mothers reported higher for the reading task than baseline (Z= -2.32, p= .026) after running a Wilcoxon signed-rank test.

Physiological Data

The original intent was to examine EDA using an A-B-A-B design methodology. However, preliminary analyses indicated that more than 80% of all target behaviors occurred during Reading Task 1. Furthermore, after running a Wilcoxon signed-rank test there was an overall significant decrease in physiological arousal for most mothers in Reading Task 2 (Z= -

2.12 , p= .034). Therefore, EDA data and behavioral data were used from the first reading task only.

A spontaneous skin conductance fluctuation (SCF) was defined as a .05 microsemens change in SCL. Excluding the mother with social anxiety, SCFs in mothers of children with SAD (M = 4.0, SD = 2.16) were not significantly greater during the last minute of baseline relative to mothers of NC children (M = 4.6, SD = 2.51, U(8)= 7.5, Z= -.618, p= .556). Results were unchanged if the mother with social anxiety was included in the analysis.

There were no group differences in the frequency of skin conductance responses (SCRs) between mothers of NC children (M = 54.4, SD = 34.75) and mothers of children with SAD (M = 64.75, SD = 22.46; U(8)= 9.0, Z= -2.45, p= .905). The results were not different when the mother with social anxiety was included in the sample.

To examine the interplay of physiological arousal and behavior, a target behavior was first identified and coded. From that point, 30 seconds of physiological data immediately prior to and immediately after the behavior was graphed in 2 second intervals. If a full 30 seconds of EDA data could not be graphed because the onset of a behavior occurred in the first 30 seconds of the overall task, all available data were graphed. Scaling of y-axes on the graphs varied based on participant differences and ease of visual inspection. Figure 1 illustrates the a priori hypothesis related to EDA response for an overprotective behavior. We hypothesized that an increase in a mother's distress/anxiety before an OB would be reflected as an increase in EDA level. Specifically, there would be an increase in physiological arousal, leading to the engagement of a behavior to lessen their child's anxiety (e.g., reads book for child), which would be followed by a decrease in emotional arousal, consistent with emotion regulation theory.

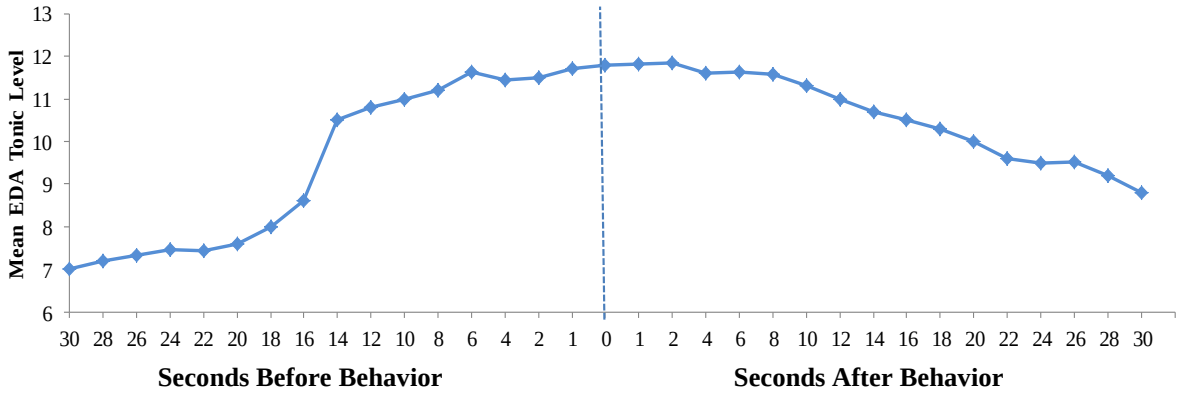


Figure 1. Sample Hypothesized EDA Response Before and After Target Behavior Occurs

Results for individual participants as well as composites for the two groups were graphed to identify EDA patterns consistent with EA theory. Initially, the first behavior that fell in any category of target behaviors (Control Over Child, Control Over Task, or Promotion of Avoidance) was examined regardless of type. The first behavior was selected as it was closest to task initiation and therefore most likely to elicit concern in parents as the child attempted to initiate the task. Although the first attempt for each participant is examined here, all attempts for each behavior category were also graphed and are depicted in Appendices D-L. Brief descriptions of the OB exhibited are provided close to the phase lines. Possible movement artifact, arousal to stimuli, or subsequent OBs are denoted on the graphs with squares. For instance, for one of the graphs, a square is located surrounding the increase in EDA when a child whispered to the mother.

Mothers of Normal Controls

EDA levels for mothers of NC children are detailed in Figure 2. Out of the five mothers in this group, only three mothers (60%) displayed a behavior that was coded as overprotective. In

these three mothers, an increase in EDA occurred prior to the target behavior (between 0.5-2 micromhos on average). However, a decrease in EDA also occurred, revealing a slight curvilinear pattern (between 0.5-1 micromhos change from peak of increase). The increase and decrease before the observed target behavior is identified on Figure 2 with a circle for visual inspection. It is important to note that the phase line is located at a time point when the behavior was coded to *first* appear, not mid-action. For instance, if a mother were reaching for the book, the behavior was coded to have occurred the moment a coder first observed her hand moving. Some increases in EDA following the phase line represent possible movement artifact but were also coded as subsequent OBs (e.g., reaching out to grab book or turn a page). Therefore, the hypothesis of increasing EDA before the first target behavior was supported; however, the hypothesis of decreasing EDA after the target behavior was not supported. However, as represented on the graphs with squares, subsequent OB did not show signs of decreasing EDA before behaviors occurred. It is unknown is possible movement artifact could account for much of the increase since most subsequent OBs consisted of physical movement (e.g., reaching out to pick a book for the child). However, movement artifact alone may not explain these findings since several initial OBs also consisted of physical movement but no increase in EDA levels occurred. Therefore, the pattern that was observed for the first OB does not necessarily represent EDA patterns that may occur afterwards. Trend lines for mothers in this group do not demonstrate a distinct slope that would indicate a consistent decrease of EDA following an OB.

Mothers of Children with SAD

EDA levels for mothers of children with SAD are detailed in Figure 3. The mother in the SAD group who presented with an elevated SPAI score (#005) was examined separately and will be detailed in Figure 4. All mothers in this group (100%) displayed a behavior that was coded as

overprotective. Similar to mothers of NC children, the mothers' EDA increases and decreases *before* the behavior occurs, indicating that a temporary emotion regulation strategy may have taken place *before* a mother ever intervenes for their child (see Figure 3).

Anxious Mother of Child with SAD

Since a mother with an elevated SPAI score may experience her child approaching an anxiety-provoking social situation differently than a mother without social anxiety, analyzing her physiological arousal independently of other mothers of children with SAD would be appropriate. Similar to mothers of NC children and other mothers of children with SAD, this anxious mother displayed an increase in EDA before she engaged in an OB (See Figure 4). However, this mother was the only mother who displayed a decrease in arousal after the OB occurred instead of beforehand. In addition, her EDA levels continued to decrease after the OB occurred. Out of all mothers, this mother with elevated social anxiety exhibited the clearest trend line of a consistently decreasing EDA levels after she engaged in an OB.

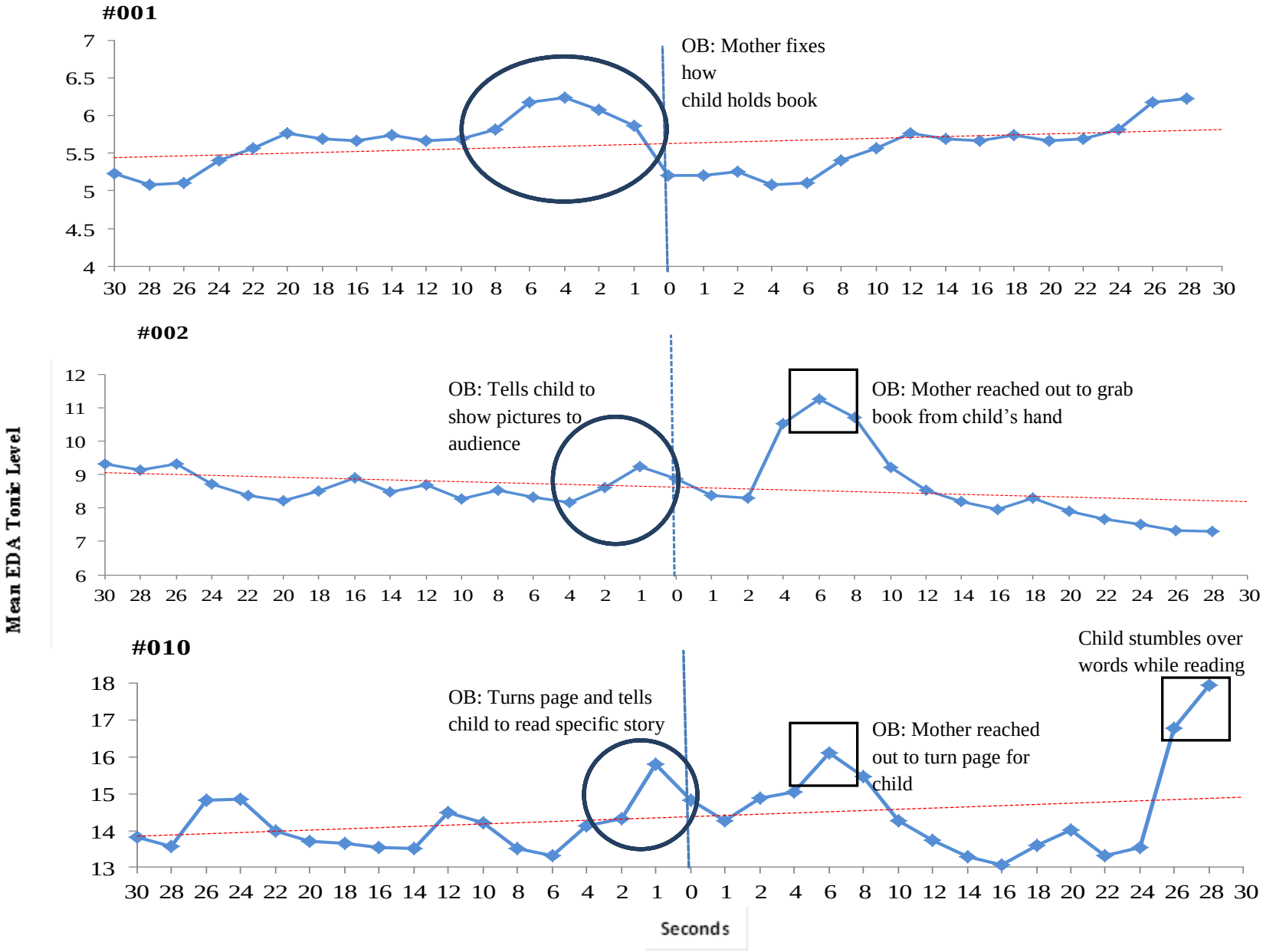


Figure 2. Mothers of Normal Controls: EDA Tonic Levels Related to 1st Maternal Overprotective Behavior

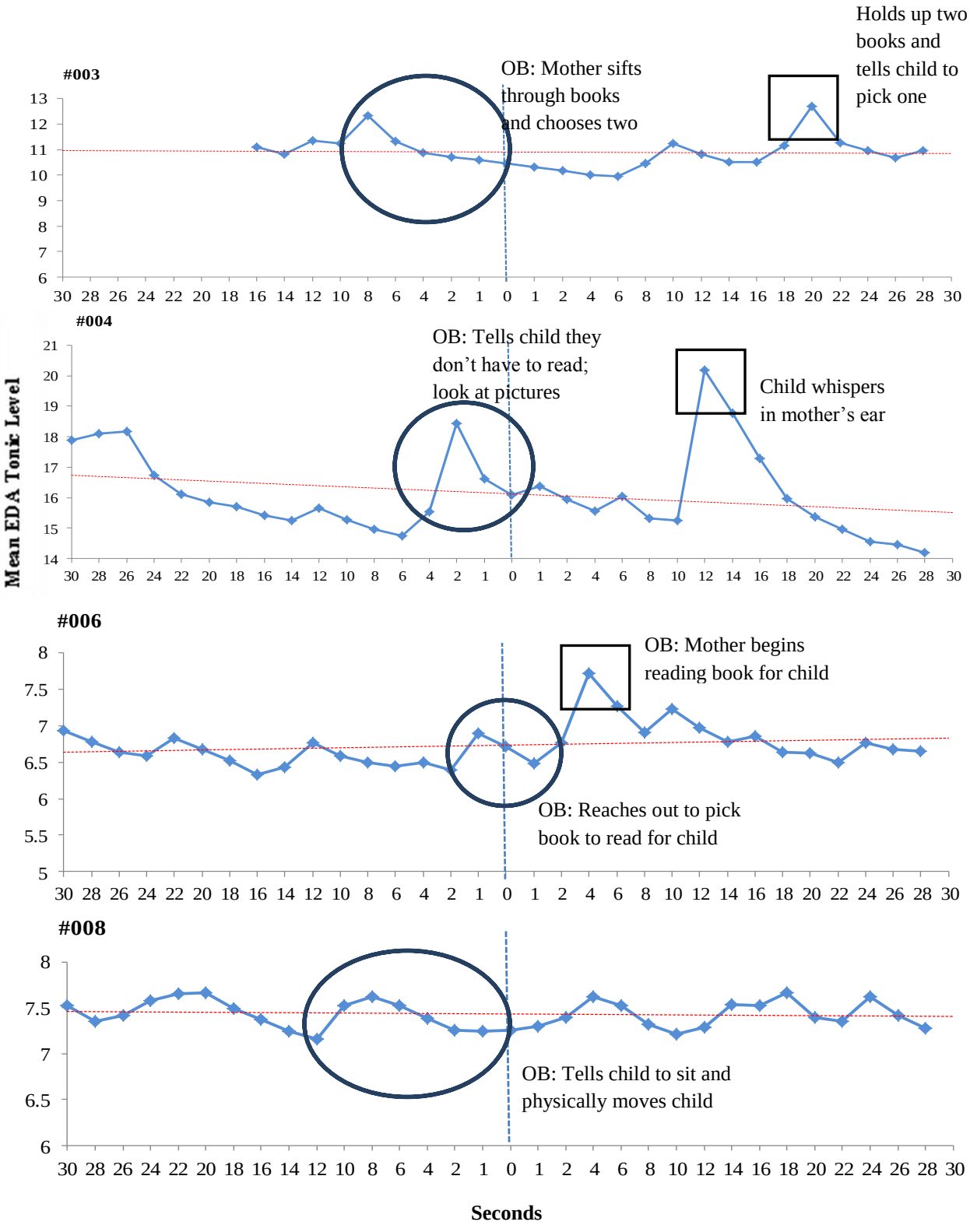


Figure 3. Mothers of Children with SAD: EDA Tonic Levels Related to 1st Maternal Control/Overprotective Behavior

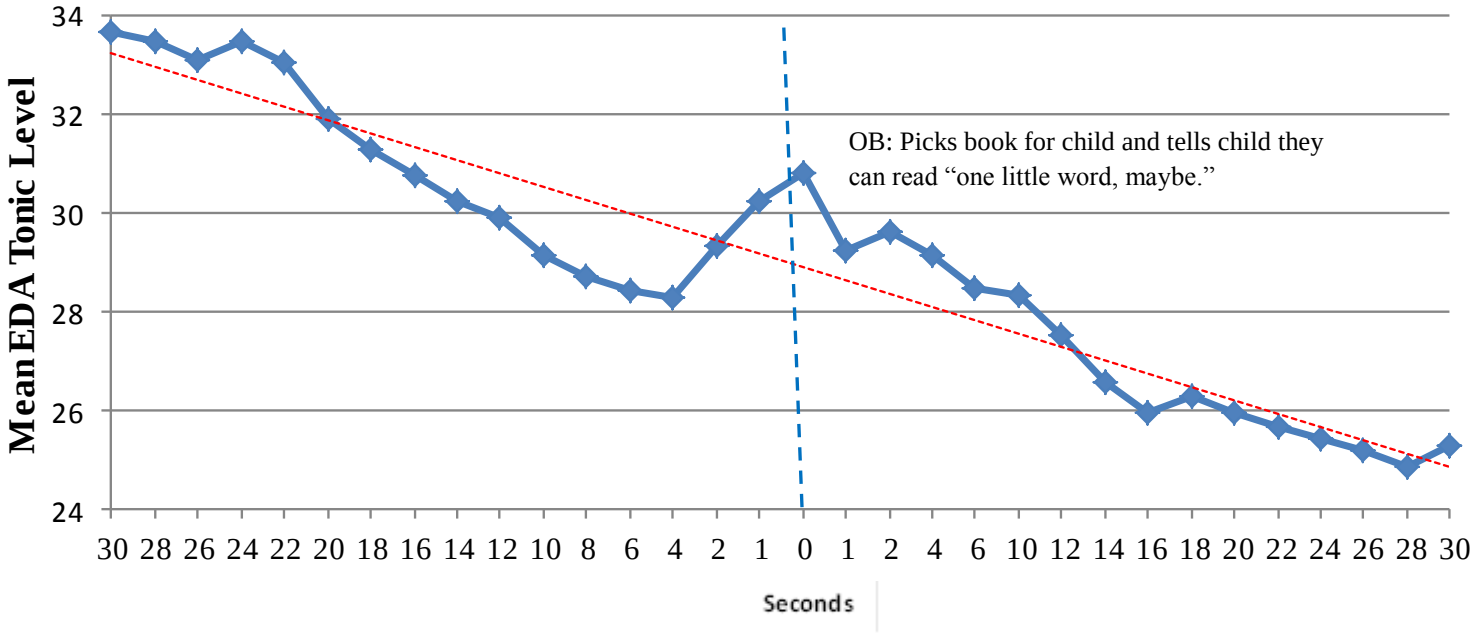


Figure 4. Anxious Mother of Child with SAD: EDA Tonic Levels Related to 1st Maternal Control/Overprotective Behavior

CHAPTER FOUR: CONCLUSION

This study examined the validity of the EA construct by examining the sequence of EDA and OBs in mothers of children with and without SAD. In line with EA theory (Hayes et al., 1996), it was hypothesized that during an anxiety-provoking task, mothers would demonstrate an increase in psychophysiological arousal before they engage in an OB and a decrease following an OB. Specifically, it was hypothesized that mothers of children with SAD would manifest this pattern more often relative to mothers of NC children, as the former group was expected to engage in more OBs. Additionally, it was hypothesized that mothers of children with SAD would display significantly more arousal in the form of objectively measured spontaneous SCFs during Baseline and SCRs during Reading Task 1 relative to mothers of NC children.

Behavioral Findings and Implications

POA accounted for 40% of all coded behaviors for mothers of children with SAD, compared to 2.5% in mothers of NC children and may be accounted for by the fact that most children with SAD spent the majority of the time not engaged in reading. However, rather than encouraging "brave behavior," these mothers of children with SAD allowed their child to avoid the task (e.g., "OK, you don't have to read if you don't want to."), engaged in emotional checking (e.g., "Are you OK? Are you anxious?), and displayed unsolicited physical comforting (e.g., hugging or kissing child) more often relative to mothers of NC children. These data are consisted with previous data on mothers of children who are highly behaviorally inhibited, where the mothers are rated as intrusive, yet "suffocatingly warm" (Rubin, Hastings, Stewart, Henderson, & Chen, 1997). As reviewed earlier, BI's stability can be influenced by parenting

behaviors that accommodate the child's anxiety (i.e. reinforcing or allowing avoidant behaviors to occur), and highlights the role of environmental factors.

The disproportionate display of COT in mothers of NC children may be explained by a number of factors. These mothers may have displayed more COT due to all NC children actually participating in the reading task. COT behavior could occur less often if the child did not engage in the task. Although unknown in this study, other parental factors such as personality characteristics (e.g., degree of extraversion or neuroticism) may have played a role in the frequency of COT. Consistently, POA behaviors were conceptualized as promoting or allowing avoidance of the reading task, and such OBs did not occur among mothers of NCs. Since none of the NC children avoided the task. It is unknown if mothers in this study would have engaged in comparable amounts of POA if their child were exposed to a situation that could be particularly anxiety provoking for most children (e.g., giving an impromptu speech in a large auditorium).

While the literature on overprotective parenting appears inconsistent with operational definitions and "lumping" overcontrol and overprotection constructs, these findings highlight that there are differences in the frequency of these parenting behaviors and separation of the constructs may be warranted for more detailed information about the type of behaviors parents exhibit. Although the one socially anxious mother displayed unique physiological arousal relative to other mothers of children with SAD who themselves denied social anxiety, she did not reveal such stark differences in frequency of OBs compared to other mothers of children with SAD. Examining the data also revealed that each mother displayed more OBs of one category relative to the others. In other words, it appeared that all mothers displayed their own "style" of OB, with one behavior category being coded at least twice as often than the others. This

observation has potential implications for emphasizing tailored treatment approaches and conducting thorough assessment to determine which kinds of OBs a mother displays most often with their child.

Preliminary analyses demonstrated a lack of OBs during the second reading task in both groups of mothers, and may indicate that despite a child's anxiety status, most mothers will reduce their frequency of OBs overtime if they remained in an anxiety-provoking situation, perhaps as a result of natural laws of habituation. For mothers of anxious children, most had stopped engaging their child in the task if the child continued to avoid through the second task. For instance, one mother exhibited OBs in the first task as well as trying to encourage the child to read. By the second task, the mother had ceased any sort of intervention (whether negative or positive) and sat with her child as her child looked at the pictures of the book and turned the pages. Thus, parents appeared to be less concerned with their child's compliance with the investigator's direction in second task, which in turn resulted in less parental behaviors.

Physiological Findings and Implications

Contrary to hypotheses, between-group differences in spontaneous SCFs during baseline and SCRs during the reading task were not observed. Preliminary analyses revealed an outlier in the dataset (the socially anxious mother) and initially skewed findings to reveal a significant difference between groups. However, removing this mother demonstrated that all mothers without elevated social anxiety, regardless of their child's anxiety status, respond similarly in regards to SCFs and SCRs. Implications of these findings are tentative given the very small sample size in this study, however, directions for future research related to further examining maternal anxiety status are discussed in the sections to follow.

In addition, when EDA was graphed and inspected in ABAB format, all mothers displayed lower EDA levels on average in the second reading task relative to the first, with mothers of NC children displaying more physiological habituation. This interesting finding may demonstrate that although mothers become anxious and display OBs when their child is involved in a performance task, it decreases as time goes on regardless of their child's anxiety disorder status.

Results for the proposed physiological EA model demonstrate that all mothers experienced an increase in EDA before engaging in the first observed OB (not consistent with all other occurrences), supporting the first part of the original hypothesis. However, the second part of the hypothesis was not supported (a decrease in EDA *after* the occurrence of a target behavior), with all mothers exhibiting an observable decrease in EDA *before* engaging in the behavior instead of afterwards. EDA patterns for OBs which occurred after the first did not resemble EDA patterns recorded for the first OB as described above. More research would be needed to identify if EDA patterns differ between the first initiation of an OB and subsequent occurrences. Since EDA decreased before the behavior occurred for the first OB, it is possible that the aversive stimulus (anxiety) is modulated cognitively through the decision to intervene for the first time. Additional hypotheses for this phenomenon are provided below.

Overprotective Behaviors and Physiological Arousal: A Working Model

Based on the behavioral theory for negative reinforcement, where reinforcement occurs after the escape of an aversive stimulus, it was hypothesized that EDA would decrease following the occurrence of a behavior to escape an aversive stimulus (anxiety). This view is consistent with established two-factor theories of avoidance that propose threatening fear-conditioned cues motivate avoidance and removal of cues and fear-reduction serve to negatively reinforce

avoidance (Miller, 1948; Mowrer, 1947; Bolles, 1972; Herrnstein, 1969). Fear-conditioned cues can easily become avoidance cues for mothers who behaviorally (or mentally) avoid the fear-conditioned cue. In mothers who participated in this study, fear-conditioned cues could have been a number of factors including anxious behaviors of the child, negative internal thoughts/emotions, or environmental attributes. Many forms of human avoidance-escape coping involve EA, where the aversive stimulus is an unpleasant emotion such as anxiety (Hayes et al., 1996).

Avoidance learning in humans is associated with *declines* in skin conductance responses to fear-conditioned cues (Lovibond, Saunders, Weidmann, & Mitchell, 2008). In other words, the cues themselves, *not* the avoidance behavior, will prompt this response extremely quickly and automatically after it is processed by the brain. This results in declining skin conductance response *before* an avoidance behavior occurs, and then results in more activity in the striatum to allow for quick decision-making and movement. Other investigations have demonstrated that learned avoidance in animals is *not* dependent upon the amygdala (Andrzejewski, Spencer, Kelley, 2005; Lehmann, Treit, Parent, 2000; Poremba & Gabriel, 1997, 1999; Roozendaal, Koolhaas, & Bohus 1993). Since the amygdala is a brain structure which plays an essential role in fear conditioning, it may be assumed that it also has heavy involvement in the avoidance of fear-conditioned cues. Although this may seem intuitive, investigations demonstrate that avoidance cues fail to elicit amygdala activation in humans consistently, but reliably prompt activity in the striatum (Jensen et al, 2003; Kim, Shimojo, & O'Doherty, 2006).

Although the striatum is known for cognitive processes such as working memory, it is best known as the brain system which is responsible for planning and modulating movement. Specifically, the striatum and its networks are directly related to decision-making and selecting

and initiating an action (Balleine, Delgado, & Hikosaka, 2007), behaviors which can occur rather quickly in mothers who intervene for their children. Although emotions are not behaviors, they do influence physiological arousal and behavior that emerge when some kind of adaptive action is required (Ekman & Davidson, 1994; Lang, Bradley, & Cuthbert, 1997). This may help explain why EDA in all mothers decreased slightly before they engaged in a target behavior. However, the socially anxious mother in this study was the only mother who displayed a decrease in arousal after the behavior occurred instead of beforehand. According to this neurological theory of emotion and behavioral response, this socially anxious mother may be an individual who has more amygdala activation than striatum activation. Research with a larger sample size is needed in this area to determine if a mother's social anxiety status influences brain networks differently than non-anxious mothers when engaging in OBs.

Since avoidance-escape can also be socially mediated and acquired through vicarious conditioning, an evolutionary perspective posits that fear-conditioned cues may not differ drastically for situations which elicit anxiety in most mothers, such as having the perception that their child needs emotional or practical assistance (Dymond & Roche, 2009). This may account for why these physiological and behavior patterns did not differ significantly between the groups of mothers in this study, although more studies are needed with larger sample sizes to further support this working hypothesis. This highlights implications for mothers of anxious and non-anxious children alike, demonstrating a possible consistency in physiological response despite the anxiety status of their child.

Limitations and Directions For Future Research

Although a unique study and the first of its kind, several limitations are noted. The behaviors coded in this study were overt behaviors and it is unknown to what effect the mothers

also utilized some form of covert EA to decrease their own anxiety (e.g., mental distraction, dissociation). Since the results demonstrated that processes occurring before a behavior occurs are associated with decreases in EDA, tracking which thoughts or emotions a mother experienced during the task may shed light on this matter. It would also be of worth to determine if differences between mothers and fathers would occur with study replication.

It is stressed that due to the small sample size in this study, definite conclusions about physiological or behavioral patterns are discouraged. Instead, findings lend promising directions for future research. Future research in the area of understanding the mechanisms of parental EA and OBs would benefit from bridging disciplines and examining the interplay between psychophysiology, brain activity of specific structures discussed, maternal self-report of covert EA, blinded coding of OBs, and the incorporation of emotion regulation theory. Furthermore, Schupp and colleagues (2003a) propose that a key function of emotion is the preparation for actions. This highlights the importance of the relationship between the amygdala, striatum, and other brain structures involved in emotionally-mediated movement such as the basal ganglia (Nambu et al., 2002) and the anterior insula which is associated with empathic overarousal and intrusiveness in mothers of infants (Atzil et al., 2011; Musser et al., 2012).

Examining the EA construct to clarify overprotective parenting in anxious children holds implications for parent management training. In the area childhood anxiety disorders, the literature is mixed on whether or not including a parent(s) in the treatment sessions significantly influences treatment outcome for the child. Research is needed to identify which risk factors in parents predict whether or not treatment outcome for their child is affected and targeting parental EA may be a promising component in a childhood anxiety disorder treatment protocol. Additionally, mothers of NC children also exhibit these behaviors, suggesting that research in

preventative measures could be beneficial for parents of children who are currently non-anxious but genetically and environmentally at risk for developing an anxiety disorder. Further research in this area can result in promising strides for the fields of parenting and childhood anxiety disorders alike.

APPENDIX A: IRB APPROVAL LETTER

University of Central Florida Institutional Review Board
Office of Research & Commercialization
12201 Research Parkway, Suite 501
Orlando, Florida 32826-3246
Telephone: 407-823-2901 or 407-882-2276
www.research.ucf.edu/compliance/irb.html

Approval of Human Research

From: **UCF Institutional Review Board #1**
FWA00000351, IRB00001138

To: **Lindsay Scharfstein, Franklin Mesa, Melissa Nieves**

Date: **February 15, 2012**

Dear Researcher:

On February 13, 2012, the IRB approved the following modifications until 08/09/2012 inclusive:

Type of Review:	IRB Addendum and Modification Request Form
Modification Type:	Protocol revision to include 6 year old shy/worried children; Revision to brochure to include information regarding how to obtain services outside the research study.
Project Title:	Social Skills Study
Investigator:	Lindsay Scharfstein
IRB Number:	SBE-11-07711
Funding Agency:	None

The Continuing Review Application must be submitted 30days prior to the expiration date for studies that were previously expedited, and 60 days prior to the expiration date for research that was previously reviewed at a convened meeting. Do not make changes to the study (i.e., protocol, methodology, consent form, personnel, site, etc.) before obtaining IRB approval. A Modification Form **cannot** be used to extend the approval period of a study. All forms may be completed and submitted online at https://iris.research.ucf.edu .

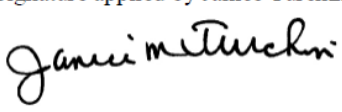
If continuing review approval is not granted before the expiration date of 08/09/2012, approval of this research expires on that date. When you have completed your research, please submit a Study Closure request in iRIS so that IRB records will be accurate.

Use of the approved, stamped consent document(s) is required. The new form supersedes all previous versions, which are now invalid for further use. Only approved investigators (or other approved key study personnel) may solicit consent for research participation. Participants or their representatives must receive a signed and dated copy of the consent form(s).

In the conduct of this research, you are responsible to follow the requirements of the Investigator Manual.

On behalf of Sophia Dziegielewski, Ph.D., L.C.S.W., CF IRB Chair, this letter is signed by:

Signature applied by Janice Turchin on 02/15/2012 04:43:18 PM EST



IRB Coordinator

APPENDIX B:
PARENTAL ACCEPTANCE AND ACTION QUESTIONNAIRE

PAAQ

Below you will find a list of statements. Please rate the truth of each statement as it applies to you. Use the following scale to make your choices.

1----------2----------3----------4----------5----------6----------7

Never True | Very Seldom True | Seldom True | Sometimes True | Frequently True | Almost Always True | Always True

_____ 1. I am able to take action about my child's fears, worries, and feelings even if I am uncertain what is the right thing to do.

_____ 2. When I feel depressed or anxious, I am unable to help my child manage their fears, worries, or feelings.

_____ 3. I try to suppress thoughts and feelings about my child that I don't like by just not thinking about them.

_____ 4. It's OK for my child to feel depressed or anxious.

_____ 5. I rarely worry about getting my child's anxieties, worries, and feelings under control.

_____ 6. In order for my child to do something important, I have to have all my doubts about it worked out.

_____ 7. I'm not afraid of my child's feelings.

_____ 8. I try hard to avoid having my child feel depressed or anxious.

_____ 9. It is bad if my child feels anxious.

_____ 10. Despite my doubts, I feel as though I can set a plan for managing my child's feelings.

_____ 11. If I could magically remove all the painful experiences my child has had in his or her life, I would do so.

_____ 12. If I get frustrated with my child, then I can still help him or her.

_____ 13. Worries can get in the way of my child's success.

_____ 14. I often catch myself daydreaming about things I've done with my child and what I would do differently next time.

_____ 15. When I compare myself to other parents, it seems that most of them are handling their lives better than I do.

APPENDIX C: CODING MANUAL

When coding ANY behavior, code the behavior as close to initiation as possible. For example, if a mother takes a book away from the child's hand, code the behavior when you first see her hand about to move. Slow down Noldus playback accordingly to get most accurate time point.

a. Control Over Child (COC)

Instances in which the parent attempts to ***exert control over, restrict, or prohibit the child or his or her activities when it is not necessary.*** Note that the parent may also exert an inordinate amount of control over the *task* (which should be rated in *Intrusion/Control Over Task*) or attempt to discipline the child *when it is necessary*, which should NOT be coded here. COC rating should reflect control over ***the child or what he or she does***, and includes commands that the child behave or do something in a particular way or stop doing something. Behaviors that exhibit control over child that are *non-task related* can be coded here. Excessive, unjustified, and unexplained commands are good examples of more obvious *Control Over Child.* Note that a parent may command a child to perform a behavior but only after child has refused to read and parent then "shapes" the child to make "baby steps" (e.g., "Here, now turn the page,"; "Great, now read this sentence"). Do NOT code this here, since it is more encouraging autonomy.

- Commanding child to do something
- Tells child to stop doing something (e.g., "Sit here," "Use this one," "Take your hand away from your face," "No, don't do that").
- Physically moving child in any way (e.g., moving child's hand away from face, picking up child, grabbing their arm to sit down)
- Indirect commands (e.g., repeating name of child after asking them to do something; Saying "Helloooo???" when child does not obey)

b. Control Over Task (COT)

Instances in which the parent ***intrudes upon the child's activities, interferes verbally or physically*** in a way that limits or restricts the child's independence/autonomy or cuts across child's behavior. Note that the parent may also exert *control over the child* (which should be rated in Control Over Child). Instances in which the parent ***verbally interrupts*** the child *while the child is talking* should be rated here. This rating should reflect overt instances in which the parent ***does things that the child can do for him or herself***, is ***pushy***, or ***interrupts*** the child's flow.

- Takes book away from child
- Physically corrects child's book-holding
- Any behavior, statement, or command that limits or prevents the child's contribution in the task
- Interrupts child when child is speaking

This Control Over Task rating should reflect control over the **task** that ***limits the child's contribution or autonomy***, and can include excessive, unnecessary, unexplained, and unjustified ***commands regarding the approach to the activity***.

- Chooses book for child
- Reading book for child
- Any command/statement limiting the child's contribution/autonomy in the task (e.g., "Let's do it this way" (after child suggests another way); "Let's read this book" (after child chooses another book)
- Displaying book pictures for child

c. Promotion of Avoidance (POA)

Anything a parent says verbally or does physically to ***allow the child to escape or avoid the task*** or ***actively encourages or supports the child avoiding the task*** should be coded here. Anything a parent does to ***reinforce or allow escaping or avoiding*** (such as physical or verbal comforting) should be coded here. Note that accommodation can occur when a parent requests Emotional checking is also coded here when the parent "checks in" to ***see how the child is feeling***. A mother modeling anxious behavior could be coded here if she **mimics the child's anxious behavior** (e.g., whispering a response to child).

- Tells child directly that they do not have to read (e.g., "OK, we won't do it then")
- Puts book down after showing them to child and child refuses to grab one/and or read
- Explains why child will not read or gestures to the audience that child will not read (e.g., mother looks to audience and shakes head)
- Statements implying accommodation (e.g., "Why don't you just read silently then"; "It's almost been 10 minutes, it'll end soon")

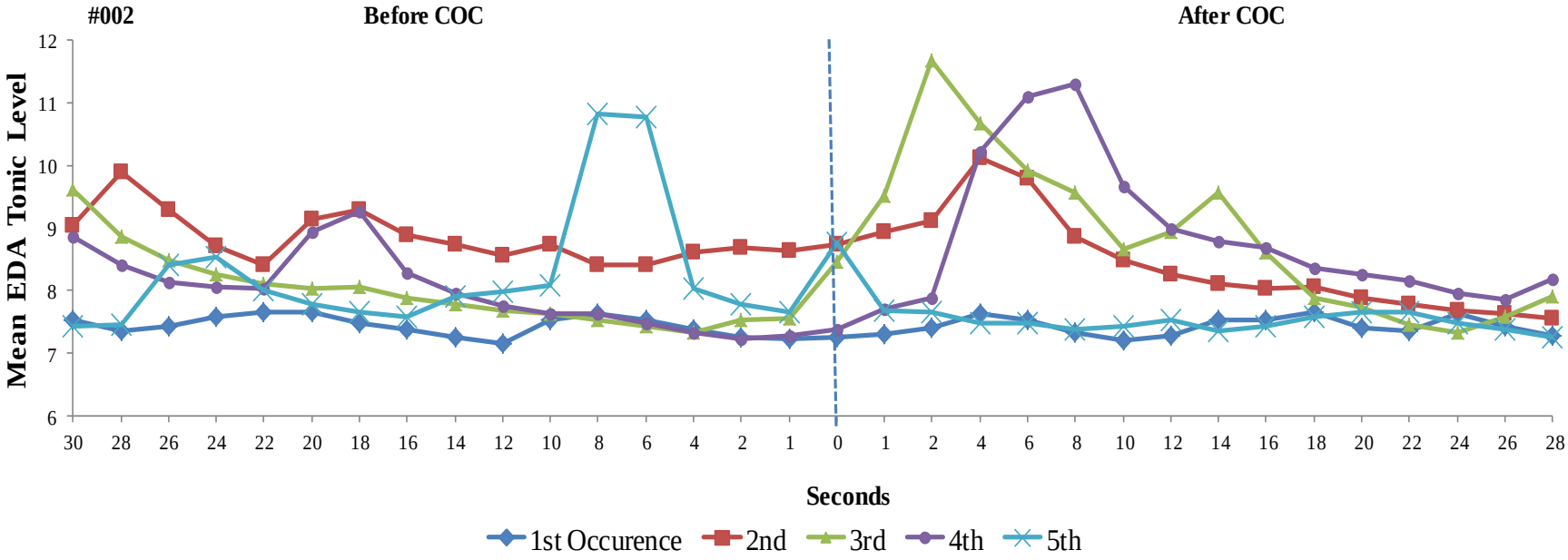
- Whispering with the child

When a parent ***initiates*** **emotional support that is not required.** Note that a parent must initiate. If the child initiates a hug for example, code POA ONLY if the mother hugs back for *more than 3 seconds*. Anything a parent says or does that **rewards the child for *avoidance or escape* behaviors that are *task-related*.** Note that these behaviors can also manifest as non-verbal expressions such as smiling or head nodding. **Offering unnecessary help when the child manages independently** can be coded here. Keep in mind that parents rarely knowingly reinforce their child for undesirable behaviors. Often, POA can manifest as **comforting or reassuring the child**. The child does NOT have to look upset or cry in order for POA to occur. **Emotional checking** is also coded here since this can reinforce ideas of anxiety in a child and consists of when a mother "checks in" to see how the child is feeling.

- Helps child turn page when child is holding book independently or turning pages independently
- Helps child hold book when child held book independently
- Begging child to read
- Physical touch to comfort child or after any avoidance or escape behavior the child does (e.g., Hug, Pat on head/back, Kiss)
- Emotional Checking/Reassuring Child (e.g., "It's OK"; "Are you OK?"; "Are you anxious?")

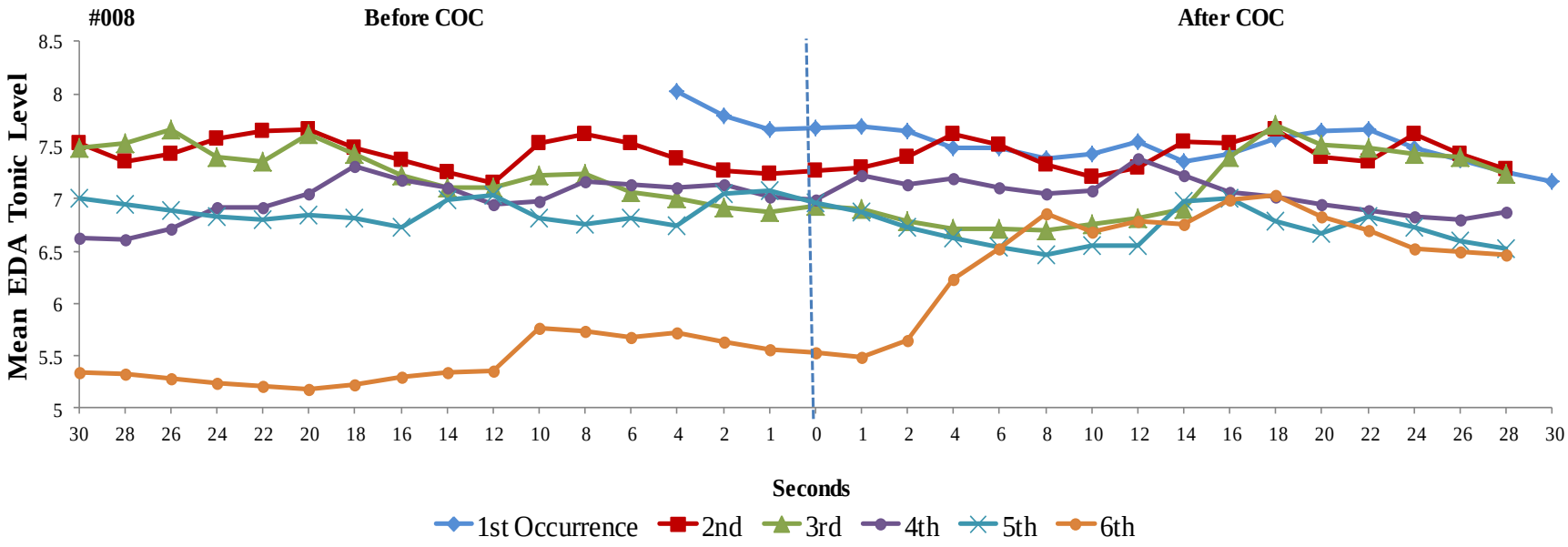
APPENDIX D:
ALL OCCURRENCES OF CONTROL OVER CHILD (COC): MOTHERS OF NORMAL CONTROL

All Occurrences of Control Over Child (COC): Mothers of Normal Control



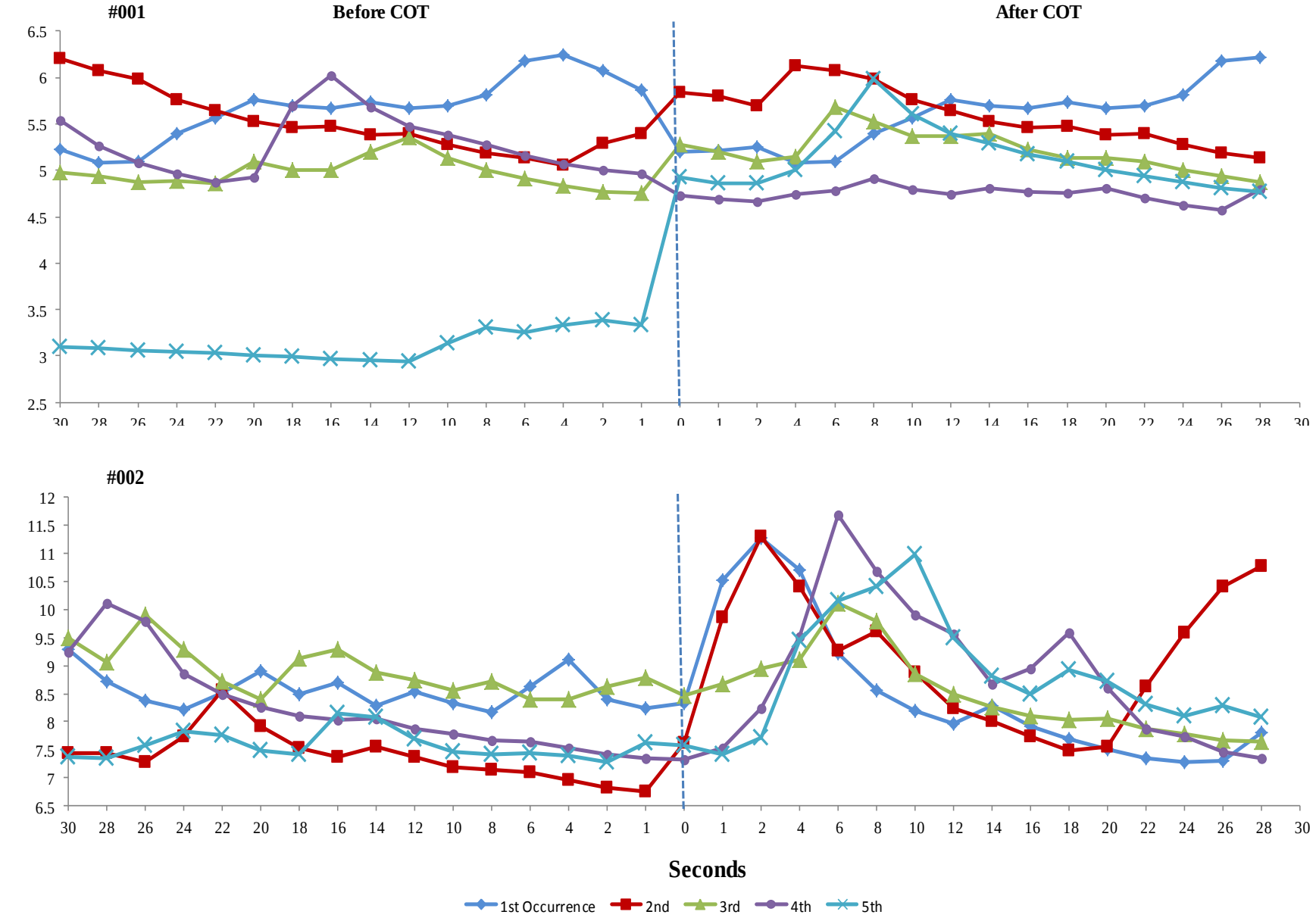
APPENDIX E:
ALL OCCURRENCES OF CONTROL OVER CHILD: MOTHERS OF CHILDREN WITH SAD

Control Over Child: Mothers of Children with SAD



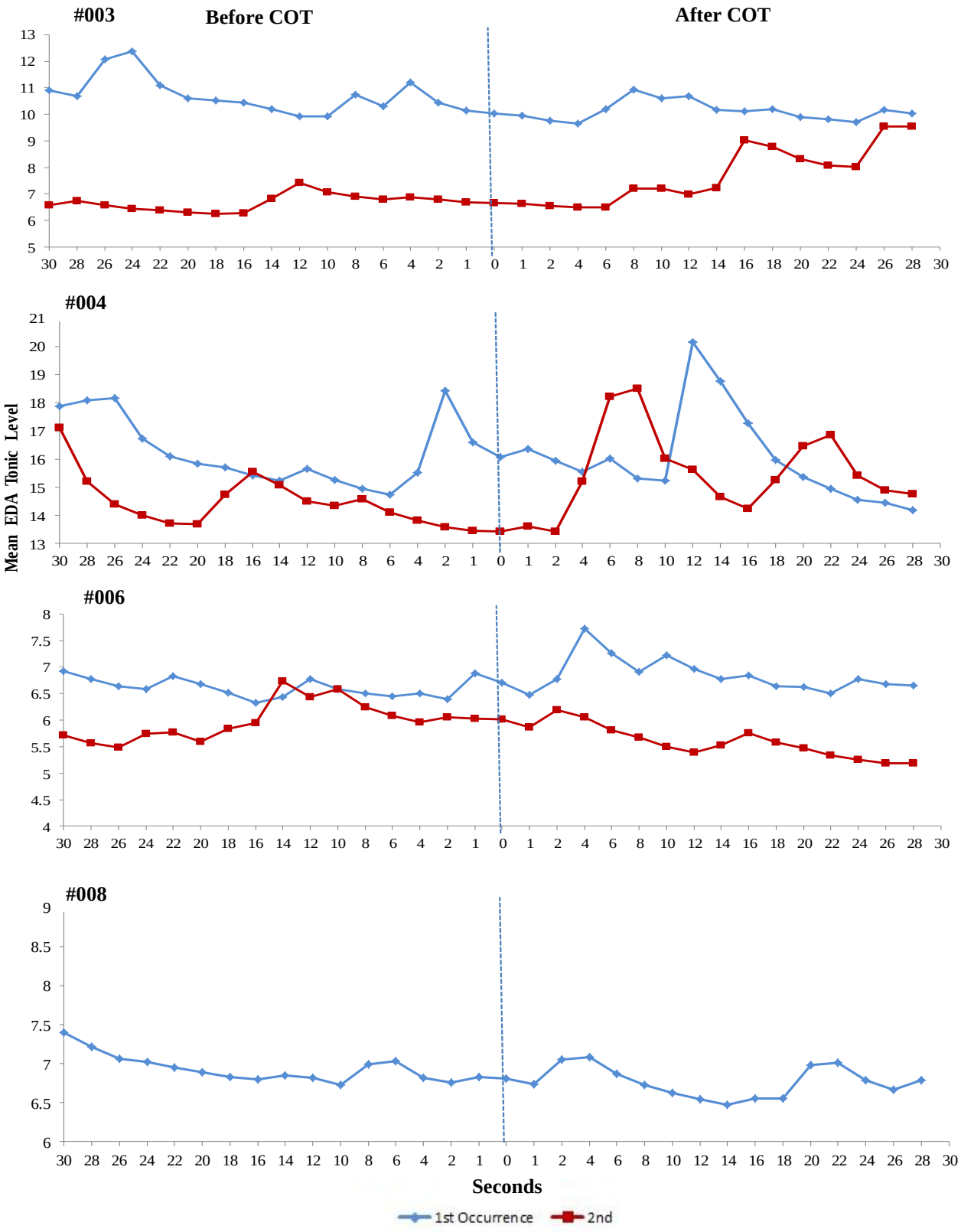
APPENDIX F:
ALL OCCURENCES OF CONTROL OVER TASK:
MOTHERS OF NORMAL CONTROLS

Control Over Task: Mothers of Normal Controls



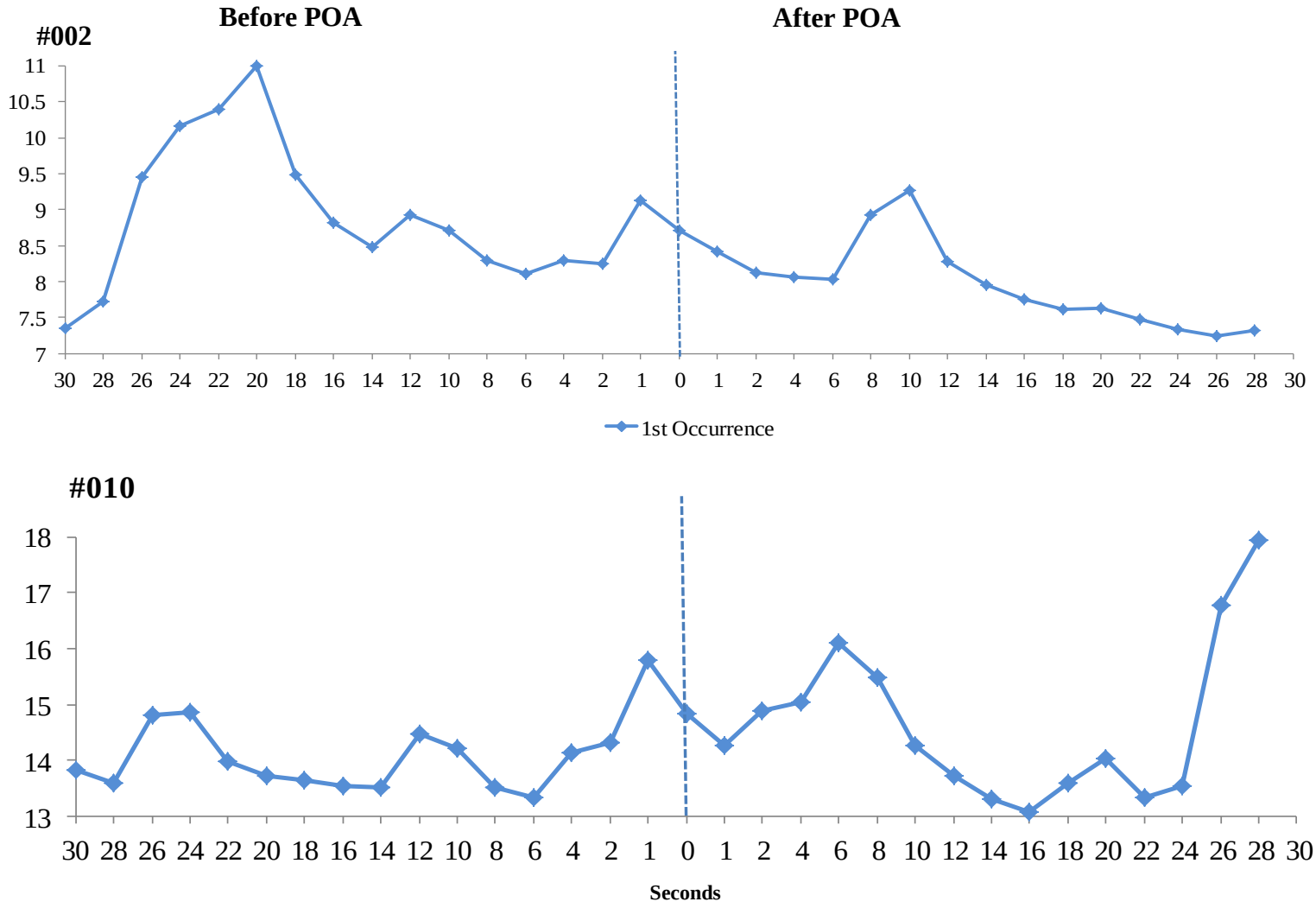
APPENDIX G:
ALL OCCURENCES OF CONTROL OVER TASK:
MOTHERS OF CHILDREN WITH SAD

Control Over Task-Mothers of Children with SAD



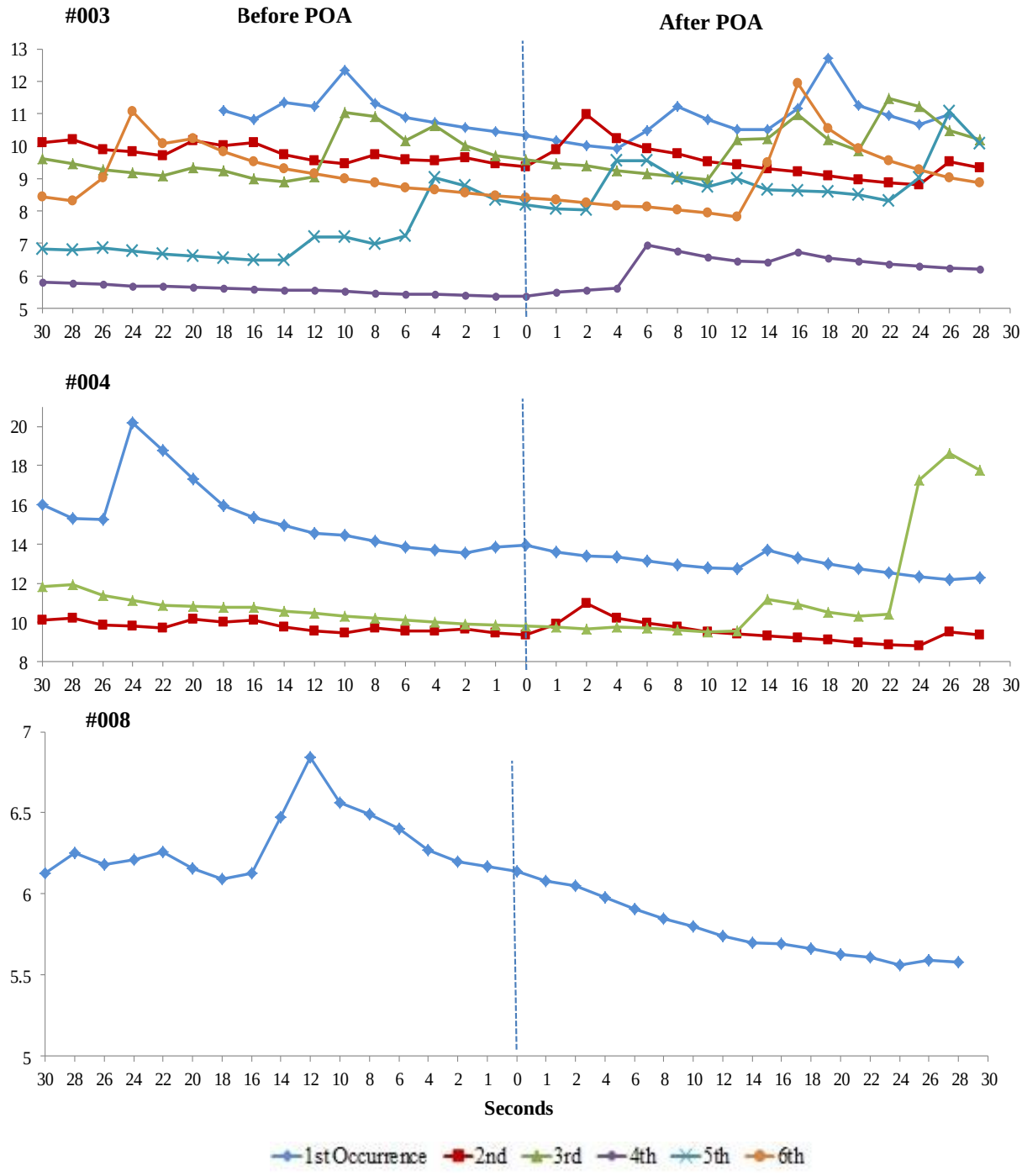
APPENDIX H:
ALL OCCURENCES OF PROMOTION OF AVOIDANCE:
MOTHERS OF NORMAL CONTROLS

Promotion of Avoidance (POA)-Mothers of Normal Control Children



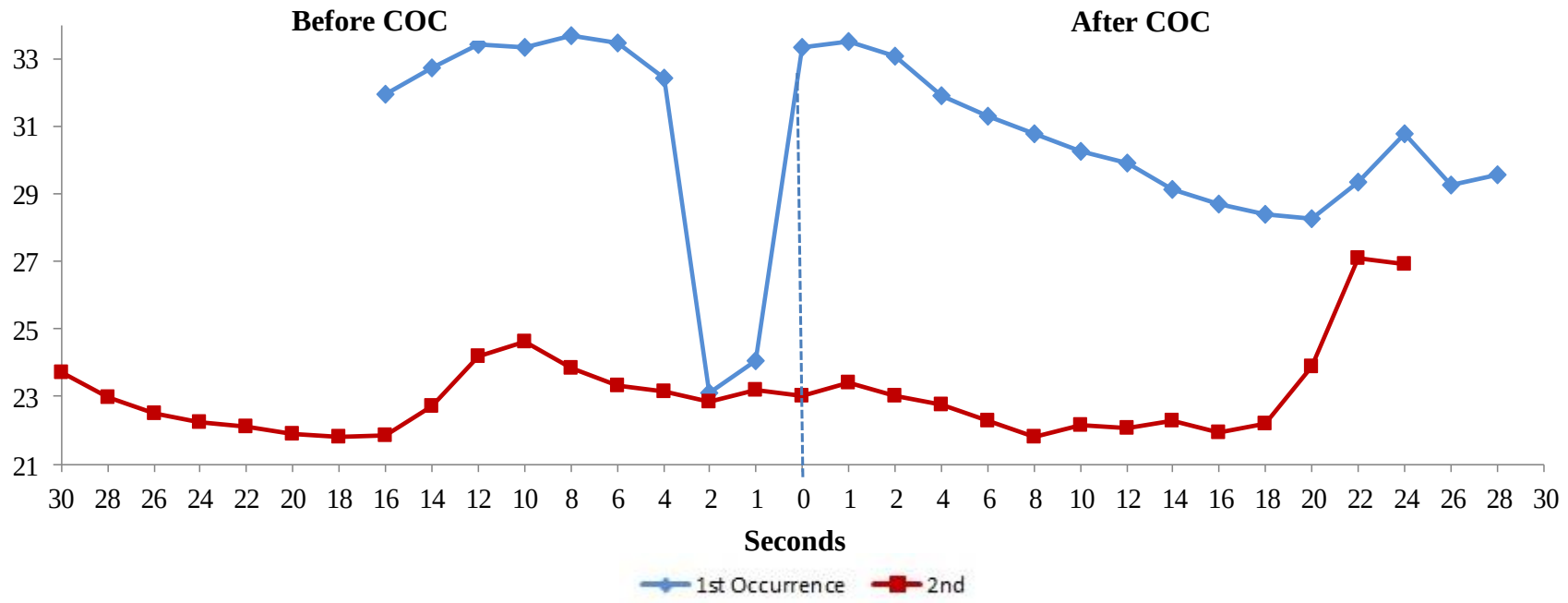
APPENDIX I:
ALL OCCURENCES OF PROMOTION OF AVOIDANCE: MOTHERS OF CHILDREN WITH SAD

Promotion of Avoidance (POA)-Mothers of Children with SAD



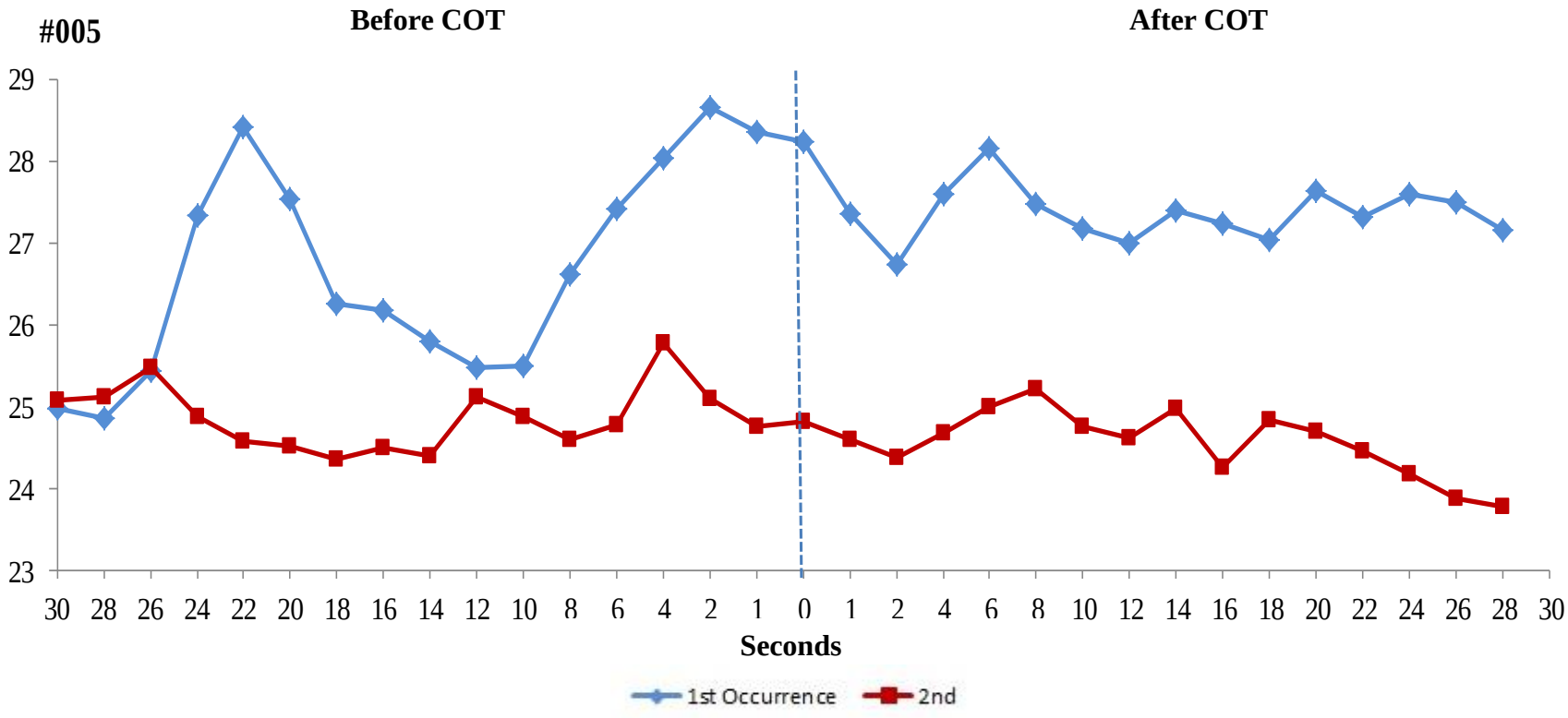
APPENDIX J:
ALL OCCURENCES OF CONTROL OVER CHILD: SOCIALLY ANXIOUS MOTHER OF CHILD WITH SAD

Control Over Child (COC)-Socially-Anxious Mother of Child with SAD



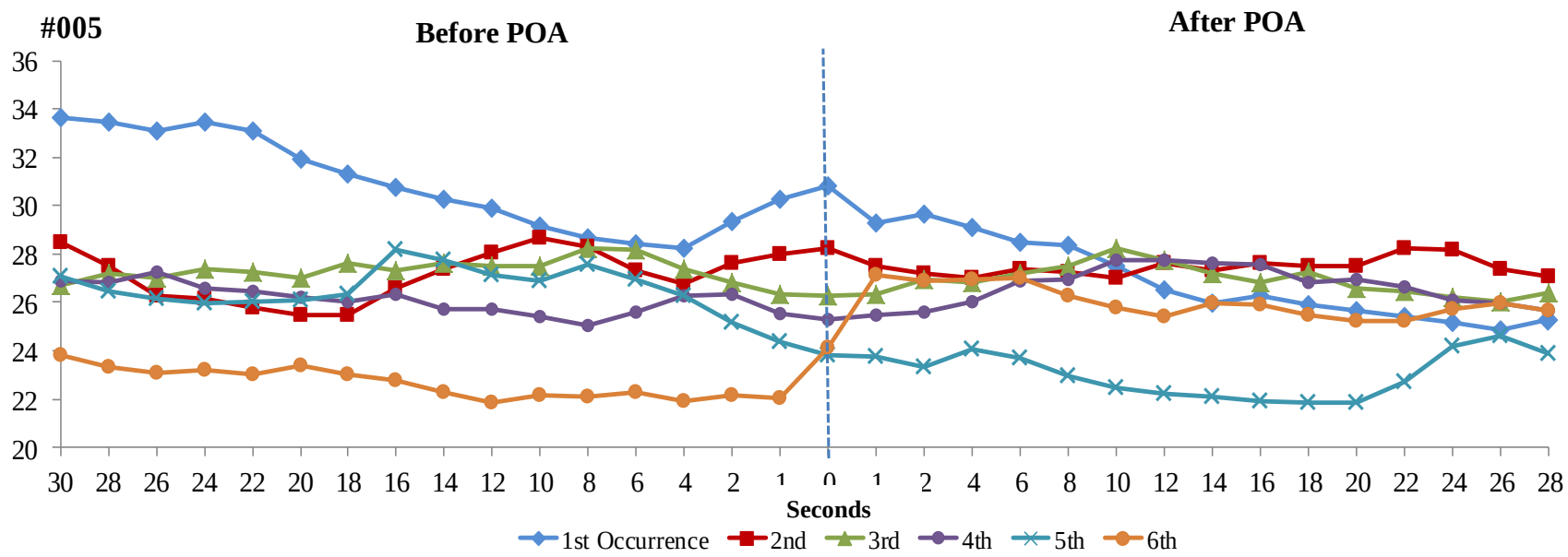
APPENDIX K:
ALL OCCURENCES OF CONTROL OVER TASK:
SOCIALLY ANXIOUS MOTHER OF CHILD WITH SAD

Control Over Task (COT)-Socially-Anxious Mother of Child with SAD



APPENDIX L:
ALL OCCURENCES OF PROMOTION OF AVOIDANCE: SOCIALLY ANXIOUS MOTHER OF CHILD WITH SAD

Promotion of Avoidance (POA)-Socially-Anxious Mother of Child with SAD



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