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Examining the Role of Behavioral Inhibition in Harsh Parenting Preferences: An Analog Study

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EXAMINING THE ROLE OF BEHAVIORAL INHIBITION IN HARSH PARENTING

PREFERENCES: AN ANALOG STUDY

by

Kelsey T. Ellis

B.S. May 2016, Old Dominion University

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ABSTRACT

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PREFERENCES: AN ANALOG STUDY

Kelsey T. Ellis
Old Dominion University, 2018
Director: Dr. James F. Paulson

Understanding the cognitive processes involved in harsh parenting behavior would have broad implications for parenting interventions and training programs. Few studies have addressed how parental stressors, specifically infant crying, can influence individuals' self-regulatory cognitive capacities and ultimately their preference for harsh parenting strategies. Furthermore, little research has explored the link between these cognitive processes and harsh parenting preferences; thus, little work has been done to establish a true causal relationship. This study examined the role of behavioral inhibition in harsh parenting preferences when individuals were exposed to an infant crying noise.

Participants ($n = 129$) were undergraduate students ($M_{age} = 19.97$ years; 79.8% female; 47.3% African American, 39.5% Caucasian) who were randomly assigned to one of two conditions: (1) white noise and (2) infant crying noise. During the experiment they completed a cognitive task to capture their behavioral inhibition as well as measures of emotion regulation, parenting attitudes/beliefs, and other predictors of harsh parenting. Hierarchical multiple regression analyses indicated that infant crying noise did not moderate the relationship between behavioral inhibition and harsh parenting preferences. However, as hypothesized, the analyses indicated that lower behavioral inhibition predicted harsher physical parenting preferences. In addition, gender differences in harsh parenting preferences were explored using analysis of covariance analyses, which indicated that males and females did not differ in harsh parenting

preferences. However, the current study did not collect enough males to meet power criteria, which may explain this non-significant effect. Methodological implications and recommendations for future research are discussed.

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This thesis is dedicated to my mother, Taeko Westfall, without whom I would not be who I am today. Thank you for your love and support.

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NOMENCLATURE

NCANDS	National Child Abuse and Neglect Data System
ADHD	Attention-Deficit/Hyperactivity Disorder
Hz	Frequency (Hertz)
RT	Reaction time

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CHAPTER I

INTRODUCTION

In January 2017, the Children’s Bureau of the U.S. Department of Health and Human Services published the National Child Abuse and Neglect Data System (NCANDS) for the federal fiscal year of 2015. The NCANDS reported that the number and rate of child abuse victims increased 3.8 percent from 2011 (658,000) to 2015 (683,000). In addition, their report indicated that the national estimate of children who were investigated by child protective services “increased 9.0 percent from 2011 (3,081,000) to 2015 (3,358,000)” (U.S. Department of Health & Human Services, 2017, p. 17). These findings highlight the importance of expanding our understanding of determinants of child abuse, specifically harsh parenting.

Despite the vast research on the distal factors (i.e., developmental histories and predisposed vulnerabilities) of harsh parenting, there is limited research that addresses the proximal factors (i.e., psychological resources in the immediate context) involved in harsh parenting preferences and behaviors. Understanding the proximal factors involved in parental decision-making in new parents would have broad implications for prevention interventions for harsh parenting. To date, there is limited research that approaches harsh parenting experimentally; thus, few studies have been able to present a true causal relationship between cognitive processes and the likelihood of harsh parenting behavior. To capture the processes involved in novice parent decision-making, this study focused on individuals who have no parenting experience. The purpose of this study was to understand the proximal factor, specifically individuals’ behavioral inhibition (i.e., the ability to inhibit or regulate immediate responses), involved in harsh parenting decisions while being exposed to an infant crying noise, which is a typical stressor associated with parenting.

Harsh Parenting Behavior

Harsh parenting is defined as psychological (verbal) and/or physical (nonverbal) parenting practices that are carried out to inflict pain or discomfort for the purposes of correcting a child's behavior (Maduro, 2016; Pakalniskiene, 2008; Straus & Field, 2003; Straus & Paschall, 2009). Psychological harsh parenting involves shouting, using threats, swearing, calling the child names, rejection, and depreciation (Maduro, 2016; Straus & Field, 2003). Physical harsh parenting involves spanking, slapping, kicking, and beating (Maduro, 2016; Straus & Paschall, 2009; Pakalniskiene, 2008).

The negative effects of harsh parenting have been well-documented in the parenting literature. Physical harsh parenting can lead to child abuse and injury (Azar & Weinzierl, 2005). In addition, harsh parenting practices have been associated with negative psychological outcomes in children. These negative outcomes include emotion dysregulation (Chang, Schwartz, Dodge, & McBride-Chang, 2003; Eisenberg et al., 1996), lower emotional security (Davies & Cummings, 1994), aggression (Xu, Farver, & Zhang, 2009), externalizing problems (Criss, Pettit, Bates, Dodge, & Lapp, 2002; Kim et al. 2003; Strassberg, Dodge, Pettit, & Bates, 1994; Weiss, Dodge, Bates, & Pettit, 1992), and lower child cognitive abilities such as global cognitive ability and IQ scores (Maduro, Oettinger, & Paulson, 2014). These negative outcomes highlight the importance of understanding harsh parenting and the underlying mechanisms through which these parenting practices occur.

Predictors of Harsh Parenting

There are multiple predictors of harsh parenting behavior, which can be divided into distal and proximal categories. Distal factors refer to predictors such as socio-demographics, history of harsh parenting, and other variables that represent predispositions for a particular

condition or event. In contrast, proximal factors refer to immediate vulnerabilities that pertain to current social, emotional, and cognitive functioning (Meyers & Battistoni, 2003; Rogosch, Mowbray, & Bogat, 1992). These distal and proximal predictors may increase the risk of psychological and physical harsh parenting. Although the purpose of this study was to address the proximal factors involved in harsh parenting, it is also important to identify distal factors that often influence these behaviors.

Distal factors.

Socio-demographic predictors. Several socio-demographic factors have been associated with the use of harsh parenting. Cross-sectional and longitudinal research suggests that non-Caucasians, particularly African Americans (Deater-Deckard, Dodge, Bates, & Pettit, 1996), and single parents with lower income tend to practice harsh parenting more often (Hill, Bush, & Roosa, 2003; Lee, Brooks-Gunn, McLanahan, Notterman, & Garfinkel, 2013; McGroder, 2000). However, the literature also suggests that financial pressures and persistent employment status may account for ethnic differences in harsh parenting (Hill et al., 2003). Stress due to financial pressures such as single earner households and households with multiple children are other socio-demographic factors that negatively influence harsh parenting behavior (Whitbeck et al., 1997). In addition, parents' employment status (i.e., unemployed, part-time employee, or full-time employee) along with employment opportunities have been linked to harsh parenting behaviors, in that unemployment has been associated with reports of harsher parenting behaviors (Whitbeck et al., 1997).

Gender differences. Gender is another demographic characteristic that is investigated in parenting research. The literature on gender differences in harsh parenting is mixed. Men without children tend to report more accepting attitudes towards corporal punishment than

women without children (Budd et al., 2011; Flynn, 1998). However, literature comparing mothers' and fathers' harsh parenting behavior suggests that mothers use corporal punishment more frequently than fathers (Lansford et al., 2010). Further, studies that have assessed mothers' and fathers' parenting practices have reported a significant relationship between emotional and cognitive capacities and parenting decisions (Harvey, Danforth, McKee, Ulaszek, & Friedman, 2003; Hughes & Gullone, 2010; Mokrova, O'Brien, Calkins, & Keane, 2010; Psychogiou, Daley, Thompson, & Sonuga-Barke, 2007). Specifically, fathers with issues of inattention and impulsivity report practicing more lax and unsupportive parenting practices (Harvey et al., 2003; Mokrova et al., 2010), while mothers with deficits in inattention and impulsivity practice more corporal punishment and inconsistent discipline (Chronis-Tuscano et al., 2008a; Chronis-Tuscano et al., 2008b; Psychogiou et al., 2007). These findings are inconsistent with the literature that found more accepting attitudes towards harsh parenting in men compared to women (Budd et al., 2011; Flynn, 1998). These inconsistencies in the literature highlight the importance of further investigating gender differences in harsh parenting.

Beliefs towards parenting. Individuals' values and beliefs are also predictors of harsh parenting. More specifically, traditional authoritarian beliefs often support harsher parenting practices more than progressive democratic beliefs (Jocson, Rosanne, Alampay, & Lansford, 2012). Traditional authoritarian beliefs, which have been found to be associated with lower income and lower levels of parent education, involve intrusiveness and breaking the child's will in order to ensure the child follows all directives at all times (Schaefer, 1991; Schaefer & Edgerton, 1985). Progressive democratic beliefs, which have been found to be associated with higher family income and higher levels of parent education, involve encouraging the child to

vocalize their ideas and other methods to facilitate self-directed child behavior (Schaefer, 1991; Schaefer & Edgerton, 1985).

History of harsh parenting. Early exposure to harsh parenting beliefs and practices in childhood have been linked later harsh parenting. This phenomenon is known as intergenerational transmission, which posits that parenting is transmitted across generations (Simons, Whitbeck, Conger, & Wu, 1991; Conger, Belsky, & Capaldi, 2009). Several early longitudinal studies have found a relationship between abusive and/or neglectful parents and their child's later parenting attitudes and behavior (Dowdney, Skuse, Rutter, Quinton, & Mrazek, 1985; Quinton & Rutter, 1984; Quinton, Rutter, & Liddle, 1984). More recent longitudinal studies have reported similar findings. Capaldi, Pears, Patterson, and Owen (2003) studied boys growing up in impoverished and high crime-rate cities. The study followed up with these boys twelve years later, at which time some of them had children. The researchers reported that the more early experiences with poor parental supervision and harsh discipline, the more these fathers practiced similar harsh parenting behaviors with their toddlers. In addition, Conger, Nellpl, Kim, and Scaramella (2003) reported similar results of aggressive parenting practices in their longitudinal study with rural Iowan adolescents.

Early parenthood. Becoming a parent is a major transition and can create substantial strain for many adults. The transition requires the individual to learn how to cope with the demands of parenting such as the physical burden (i.e., sleep deprivation and fatigue) of caring for a child, spending more time taking care of the child rather than on leisurely activities, sleep disturbance, chores such as cleaning, laundry, and cooking that the child necessitates, economic hardship, and work-family conflict (Bower, 2012; Peterson & Hawley, 1998). For new parents, demands of parenthood can result in more strain in marital relationships, increased distress, and

lower levels of mental health compared to individuals who are married and do not have children (Bower, 2012; Cowan & Cowan, 1988). Parenting insecurity may have a stronger impact on harsh parenting decisions for parents in adolescence or early adulthood. These younger parents often fit distal characteristics such as less education and lower income-to-needs ratio that are associated with harsh parenting behavior (Bugental et al., 2010; Maduro, 2016). Within these distal factors, many parenting challenges that new parents face involve faster decision-making and in-the-moment processing, which I will collectively address as *proximal factors*.

Proximal factors.

Negative affect. Researchers have stressed the role of parental affect (i.e., momentary mood state; Dix, 1991) in parenting behavior. A study by Dix, Gershoff, Meunier, and Miller (2004) examined emotions and concerns of mothers with varying degrees of depressive symptoms during interactions with their child. They reported that supportive parenting behavior (e.g., low restrictiveness and asynchrony) decreased as negative emotions such as anger and sadness increased. In contrast, positive emotions such as joy were related to increases in supportive parenting behavior. Further, a study by Ateah and Durrant (2005), which examined the effect of anger on physical harsh parenting by mothers, reported that mothers who felt angry due to a perceived intentional child transgression practiced more physical discipline than mothers who perceived the child's behavior was unintentional. Rueger and colleagues (2011) reported that negative affect (e.g., anger, irritation, or anxiety) activated responses that involved psychological or physical punishment of the child. In addition, there was a significant relationship between positive affect (e.g., joy, excitement, or interest) and positive parenting strategies such as accepting the child through affection, activities, and emotional support.

Similarly, Le and colleagues (2017) found parental negative affect resulted in harsher parenting behaviors through parental stress for mothers and fathers.

Emotion regulation. Emotion regulation refers to the individual process of experiencing, controlling, and expressing emotions (Gross, 1998). Problems in emotion regulation have been linked to the etiology of internalizing symptomatology such as anxiety and depression (Aldao, Nolen-Hoeksema, & Schweizer, 2010). Further, research has linked emotion dysregulation to substance use and eating disorders (Aldao, Nolen-Hoeksema, & Schweizer, 2010; Carvery, Johnson, & Joormann, 2008). Emotion regulation has also been associated with abusive and/or neglectful parenting behavior. Skowron, Kozlowski, and Pincus (2010) studied mothers with children ages five to fourteen. They found that mothers with poor emotion regulation were at higher risk for using harsh parenting and maltreatment. Furthermore, they found that mothers with better emotion regulation scored lower for risk of child maltreatment. In addition, Crandall, Deater-Deckard, and Riley (2015) also reported that mothers with better emotion regulation were more likely to practice positive parenting behaviors and less likely to engage harsh parenting behaviors compared to mothers with poor emotion regulation.

Infant Crying as a Parental Stressor

Crying is the infant's primary method of communication. The acoustics of crying (i.e., duration, pitch, and rising/falling of volume) allow the infant to communicate their needs to their parents (Bakermans-Kranenburg, van IJzendoorn, Riem, Tops, & Alink, 2011; Out, Pieper, Bakermans-Kranenburg, Zeskind, & van IJzendoorn, 2010; Soltis, 2004). The literature suggests that excessive infant crying impacts an adult's emotional well-being. Specifically, infant crying has been found to elicit anger (Berkowitz, 1974; Hechler, Biegers, & de Weerth, 2014), anxiety (Leerkes, Parade, & Gudmundson, 2011), and hostility (Maduro, 2016).

In addition, studies have found deleterious effects of infant crying on adults' cognitive ability. A study by Hechler, Beijers, and Weerth (2015) found that infant crying negatively affected young adults' working memory. This study asked participants to complete the N Back task, which measures individual's working memory, while listening to one of the following: infant crying, dinner/conversation, road traffic, an excavator, or silence. Participants that were assigned to the infant crying condition had the lowest number of correct trials in the N Back task compared to all other conditions. A related study by Morsbach, McCulloch, and Clark (1986) examined mothers' concentration ability while being exposed to one of three noise conditions: a healthy infant crying, a brain-damaged infant crying, and a machine noise. Morsbach and colleagues (1986) found that mothers with infants one year of age or younger were easily distracted on the arithmetic tasks while listening to both recordings of a crying infant, as opposed to the machine noise.

Crying that is excessive or inconsolable has also been associated with unfavorable parent-child relationships (Barr et al., 2014; Wurmser, Laubereau, Hermann, Papoušek, & Kris, 2001). More specifically, excessive and prolonged infant crying has been found to increase parent frustration and urges from parents to "flee" (Barr et al., 2014). Despite these negative effects of infant crying noise, the literature presents mixed findings on the impact of infant crying on harsh parenting. While some studies found that high-risk infant crying, which is characterized as having high and variable pitch, elicits harsher parenting behaviors (Frodi, 1981; Frodi & Senchak, 1990; Zeskind & Shingler 1991), others have found that cries of high-risk infants and abnormal cries leads to more positive responses (Gustafson et al., 2000; Wood & Gustafson, 2001; Zeskind, 1980). Thus, it is important to continue to explore the influence of infant cries on harsh parenting decisions.

Theoretical Perspectives on Behavioral Inhibition and Harsh Parenting

Behavioral inhibition is generally described as a combination of three interrelated processes: (1) inhibiting an initial dominant response to an event; (2) interrupting an ongoing response and thereby causing a delay; and (3) protecting this delay period from disruption caused by competing events and responses (Barkley, 1997). Poor behavioral inhibition has been associated with a wide range of negative outcomes such as aggression (Raaijmakers et al., 2008; Rothbart & Bates, 1998; Ruff & Rothbart, 1996), criminality and delinquency (Morgan & Lilienfeld, 2000), and drug use and abuse (Berkman, Falk, & Lieberman, 2011; Nigg et al., 2006). These associations are thought to be due to the inability to inhibit, or regulate, immediate prepotent responses (Berkman et al., 2011; Raaijmakers et al., 2008). Deficient behavioral inhibition presents as “impulsive behaviors such as responding before a task is understood, answering before sufficient information is available, allowing attention to be captured by irrelevant stimuli (i.e., distractibility), or failing to correct obviously inappropriate responses” (Schachar & Logan, 1990, p. 710). Many researchers theorize that behavioral inhibition is the central impairment of Attention-Deficit/Hyperactivity Disorder (ADHD), since many of these presentations have been associated with ADHD (Barkley, 1990; Barkley, 1997; Quay, 1988; Schachar, Tannock, Marriott, & Logan, 1995). Furthermore, many argue that behavioral inhibition is a central piece to ADHD symptomatology due to its supportive and protective role in other cognitive processes such as working memory and self-regulatory processes, which are often compromised in cases of ADHD (Barkley, 1990; Barkley, 1997; Schachar et al., 1995). Barkley (1997) provides a comprehensive review and explanation of the role of behavioral inhibition in other cognitive processes as well as outward behaviors in his *hybrid model of executive functions*.

The hybrid model of executive functions. Executive function refers to higher order cognitive processes that are involved in the self-regulation of behavior (Raaijmakers et al., 2008; Séguin and Zelazo, 2005). Barkley's (1997) hybrid model of executive functions proposes that behavioral inhibition is a separate fundamental process that plays a supportive and protective role for higher order cognitive processes involved in executive function (Barkley 1997). Barkley (1997) describes executive function as being composed of: (1) *working memory* (nonverbal); (2) *internalization of speech* (verbal working memory); (3) *self-regulation of affect/motivation/arousal*; and (4) *reconstitution*. *Working memory* refers to processes that involve holding events in mind to control a response. *Internalization of speech* involves private speech such as description and reflection, self-questioning, problem-solving, generating rules, reading comprehension, and moral reasoning. These forms of private speech inform, influence, and control one's own behavior. *Self-regulation of affect/motivational/arousal* refers to the self-regulation of the drive and motivation, which all facilitate goal-directed actions. Finally, *reconstitution* refers to the capacity to analyze and synthesize behavioral sequences.

The model suggests that behavioral inhibition, along with the four domains of executive function, produces "observable effects on behavioral responding and motor control" such as executing a goal-directed response, practicing behavioral flexibility, re-engaging in tasks, executing novel/complex motor sequences, being sensitive to response feedback, inhibiting task-irrelevant responses, and controlling behavior by internally represented information, behaviors that Barkley describes as the motor control/fluency/syntax system (Barkley, 1997, p. 192).

Figure 1 presents a visual summary of Barkley's hybrid model of executive functions.

Unlike the four domains of executive function, the model suggests that behavioral inhibition plays a supportive and protective role in addition to its direct influence on the motor

control system. Although behavioral inhibition does not cause the four executive functions, the processes involved in behavioral inhibition provide a delay in response, during which these executive functions can occur. In addition, behavioral inhibition protects these executive functions from interference. According to the model, deficient behavioral inhibition delays the internalization of behavior that is required for higher order cognitive processes, which ultimately results in the disruption of goal-directed motor behaviors (Barkley, 1997). Thus, behavioral inhibition plays a pivotal role in executive function and, as a result, the self-regulation of behavior.

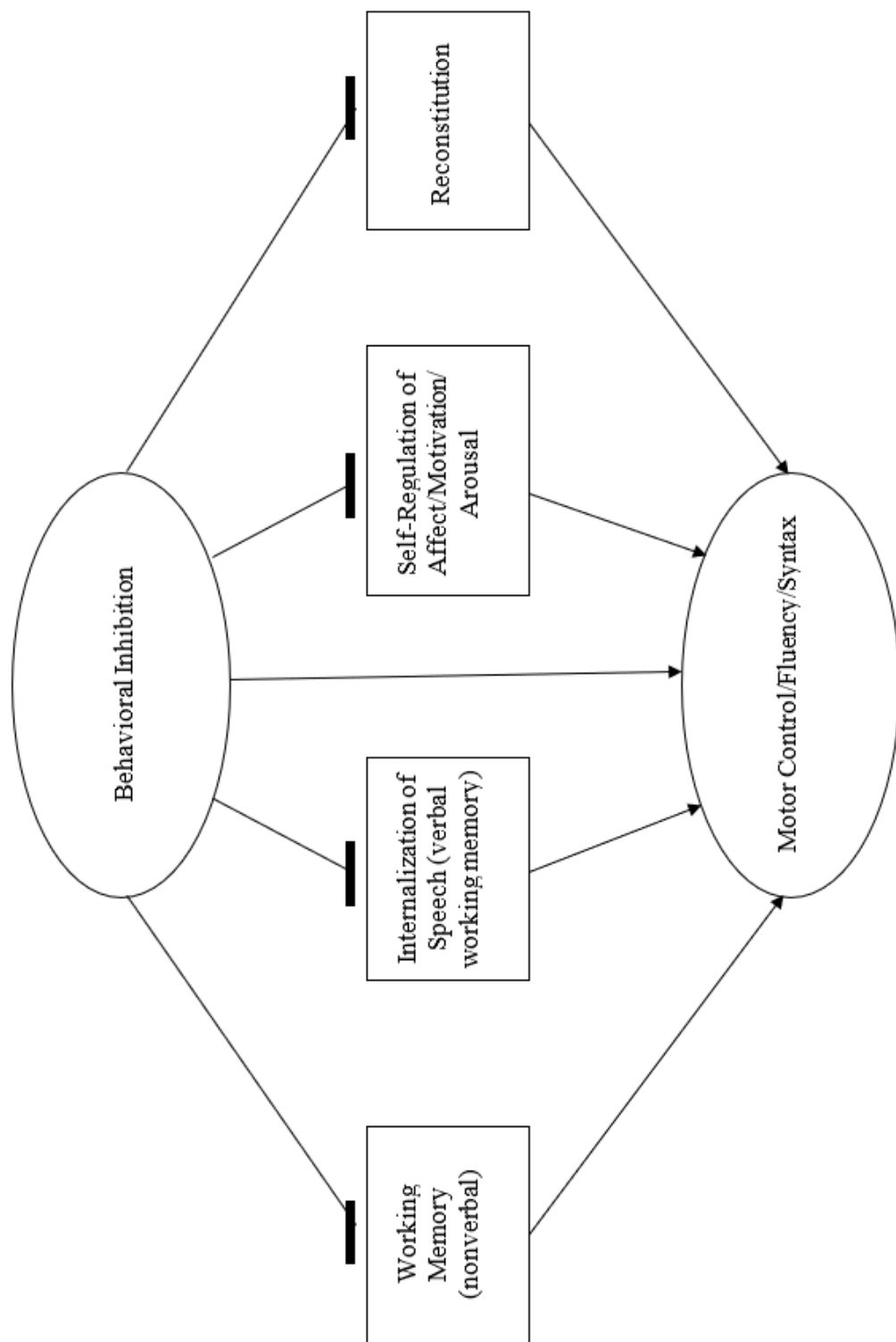


Figure 1. The complete hybrid model of executive functions (boxes) and the relationship of these four functions to the behavioral inhibition and motor control systems

Linking behavioral inhibition to harsh parenting. The literature suggests that lower cognitive control, such as behavioral inhibition, is associated with harsher parenting and other ineffective discipline strategies (Babinski et al., 2012; Banks, Ninowski, Mash & Semple, 2008; Chen & Johnston, 2007; Deater-Deckard, Chen, Wang, & Bell, 2012; Mokrova et al., 2010). Specifically, lower behavioral inhibition has been associated with harsher parenting practices. A correlational study conducted by Deater-Deckard, Wang, Chen, and Bell (2012) examined the role of home chaos on maternal executive function, measured as attention, behavioral inhibition, and working memory. The researchers defined home chaos as noise, crowding, and a lack of routine. Their results indicated that the negative relationship between maternal executive function and harsh parenting was stronger in calmer households. This moderating effect suggests that mothers with stronger executive function practice less harsh parenting strategies, especially in calmer households. Their findings suggest that regulating harsh parenting through executive functions may not function well in chaotic environments. This result is consistent with the central argument of Barkley's model, which posits behavioral inhibition as the central piece that sets the occasion for other executive functions to self-regulate behaviors. More specifically, individuals with poor behavioral inhibition may not provide a long enough delay for the executive functions to occur, which may lower self-regulation in environments with too much stimulation. Although some studies have addressed other areas of executive functioning that are associated with attention deficits, such as working memory (Deater-Deckard et al., 2012; Hechler, Beijers, & Weerth, 2012), there are no studies to the researcher's knowledge that experimentally address the role of behavioral inhibition in harsh parenting behavior while being exposed to stimuli that are similar to home chaos.

The Present Study

Correlational research suggests that distal factors such as sociodemographic characteristics (i.e., age, race, and income), attitudes towards parenting, and history of harsh parenting are predispositions for the use of harsh parenting strategies. Proximal processes such as emotion regulation and negative affect have been associated with harsh parenting behavior, but there is limited research that explores the cognitive and emotional processes that are proximal to harsh parenting behavior. Little of this work has been experimental, which is a reasonable framework for studying more malleable proximal processes and offers multiple advantages such as establishing a causal connection between independent and dependent variables and capturing proximal processes (i.e., behavioral inhibition) in a controlled environment. Such methodology can examine the impact of situational parental stressors such as infant crying on individuals' preferences for harsh parenting strategies.

The literature on how infant crying influences harsh parenting preferences and behaviors is mixed. While some studies report that excessive high-pitched crying provokes more harsh parenting practices (Frodi, 1981; Frodi & Senchak, 1990; Zeskind & Shingler 1991), others have found that this excessive crying results in the use of more positive practices (Gustafson et al., 2000; Wood & Gustafson, 2001; Zeskind, 1980). In addition, infant crying has been associated with poor concentration and other cognitive processes in parents (Hechler et al., 2015; Morsbach et al., 1986). To further explore how infant crying may interfere and thus provoke harsher parenting preferences, the present study examined whether infant crying had a moderating impact on behavioral inhibition and harsh parenting preferences. More specifically, the present study examined how individuals inhibit and respond when exposed to an infant crying noise.

The complexity of parenting requires patience, attention, planning, and problem solving (Mokrova et al., 2010). Behavioral inhibition is an important influence on a parent's ability to meet these demands; thus, it is important to explore the role of behavioral inhibition in parenting behavior. The transition into parenthood is challenging and often requires parents to cope with physical and psychological demands. We know that new parents are typically younger and report lower education and income, which fits socio-demographic characteristics associated with harsh parenting behavior (Bugental et al., 2010; Maduro, 2016). In addition, the literature suggests that parenting insecurity is associated with harsh parenting behavior (Bugental et al., 2010). Few parenting studies have looked at populations with little to no experience with children; thus, it is important to explore the inception of harsh parenting preferences by examining how individuals with no prior experience with children inhibit their responses and make parenting decisions. In addition, the literature on gender differences in harsh parenting is mixed. Despite men reporting more positive attitudes toward corporal punishment over women (Budd et al., 2011; Flynn, 1998), parenting literature suggests mothers often play the primary disciplinary role and practice more harsh parenting strategies compared to fathers (Lansford et al., 2011). Furthermore, the literature suggests that issues with executive function, specifically inattention and impulsivity, result in more unsupportive parenting behavior in fathers (Harvey et al., 2003; Mokrova et al., 2010) and more harsh parenting practices from mothers (Chronis-Tuscano et al., 2008a; Chronis-Tuscano et al., 2008b; Psychogiou et al., 2007). These inconsistencies highlight the importance of investigating gender differences in harsh parenting behavior and the cognitive processes involved in parent decision-making (i.e., behavioral inhibition), especially in populations with little to no experience with children. By addressing these differences, prevention interventions can adapt parent training based on gender and address

a population that is more prone to harsh parenting behaviors. In summary, the current study examined the following hypothesis and research question:

Hypothesis 1: The relationship between behavioral inhibition and preferences for harsher parenting strategies would be moderated by infant crying noise, in that the inverse relationship between behavioral inhibition and harsh parenting behavior would be stronger in the presence of infant crying noise.

Hypothesis 1A: Behavioral inhibition would have a negative association with harsh parenting preferences, such that individuals with poorer inhibition would prefer harsher strategies.

Hypothesis 1B: Among individuals who are exposed to experimentally-controlled infant crying noise, there would be a stronger negative association between behavioral inhibition and harsh parenting preferences when compared to individuals who are exposed to the control noise condition (i.e., white noise), in which I predict this association will be weaker.

Research Question: Would males and females with no prior experience with children differ in preferences for harsher parenting strategies when exposed to infant crying noise?

CHAPTER II

PILOT STUDY

A pilot study was conducted to assess the following: (1) feasibility of collecting experimental data; (2) testing different levels of the noise conditions (i.e., no noise, low pitch baby crying, and high pitch baby crying); (3) understanding and identifying any issues with the cognitive task for behavioral inhibition; and (4) testing and assessing procedures to estimate time and resources needed.

Design

In this pilot study, 52 participants from Old Dominion University were recruited through the university's psychology research participation system. Participants were over the age of 18 and had no personal experience with parenting, which entailed the following: have never raised or babysat a child, have never worked at a daycare facility or other related fields, and have never had any formal parenting training. Participants were randomly assigned to one of three experimental noise conditions to test the effect of different levels of infant crying: (1) No noise condition ($n = 20$); (2) Lower pitched infant crying condition (500 hz; $n = 16$); and (3) Higher pitched infant crying condition (950 hz; $n = 16$). The sound level for each noise condition was set to a peak level of 82 dBA, which is within the noise exposure regulation set by the Occupational Safety and Health Administration (U.S. Department of Labor, 2008).

The pilot study used a cognitive task called the Flanker Task to capture participants' current inhibition level. The Flanker Task (Eriksen & Eriksen, 1974) asks the participant to indicate which direction the central stimulus, an arrow, is pointing. These central stimuli are presented one at a time and are surrounded by either distracting or facilitating items. Distracting items are incongruent to the central stimulus (i.e., <<>><<), while facilitating items are congruent

with the central stimulus (i.e., >>>>>). The Flanker effect reaction time (RT) is typically used as the main dependent measure. The Flanker effect is found by subtracting the mean incongruent RT from mean congruent RT. The study used the following questionnaires: (1) Demographics Questionnaire that was created to obtain background information such as age, gender, race/ethnicity, and family income; (2) Barkley Adult ADHD Rating Scale – IV (BAARS-IV), which was used to assess for presentation of ADHD symptoms (Barkley, 2011); (3) Parental Modernity Inventory (PMI; Schaefer & Edgerton, 1985), which assessed participants' attitudes towards childrearing; (4) Emotional Regulation Questionnaire (ERQ; Gross & John, 2003), which measured participants' overall capacity to self-regulate their emotions; (5) Multiple Affect Adjective Checklist-Revised (MAACL-R; Zuckerman & Lubin, 1999), which was used to collect participants' mood state; (6) Aggression Questionnaire (Buss & Perry, 1992), which was used to assess participants' trait aggression level; (7) Analog for Parental Decision-making (APD; Maduro, 2016), which assessed parenting preferences through a series of child behavioral vignettes that asked participants' to indicate how they would discipline the child, how important it was to address, and the extent to which they prefer each of the discipline choices; and (8) Exposure to Abusive and Supporting Environment-Parenting Inventory (EASE-PI; Nicholas & Bieber, 1997), which was used to assess participants' history of physical and/or emotional abuse from their caregiver.

Participants first completed a Demographics questionnaire. Next, participants completed the pre-Flanker Task to capture their baseline behavioral inhibition level. For participants in the baby crying conditions, recording began to play after everyone completed the Flanker Task and continued to play for approximately 30 minutes. After completing the Flanker task, participants completed a series of surveys and vignettes (described above) and completed the post-Flanker

Task again to capture their current behavioral inhibition after being exposed to the experimental manipulation. Following the completion of the experiment, all participants were debriefed by the researchers and were asked to share their thoughts about the experimental manipulation.

Results

Feasibility. The pilot study supported the first question regarding feasibility of collecting experimental data. I was able to test the cognitive task, questionnaires, and noise manipulation. Each experimental session took approximately 60 minutes.

Testing noise conditions. Infant crying noise did not have a significant effect on the relationship between behavioral inhibition and harsh parenting. However, these results may be due to the nature of the Flanker Task (described below) and the study's small sample size, which did not meet a priori sample size calculated to reach power $<.80$ (i.e., 100 participants), which was determined by a fixed hierarchical multiple regression power analysis. However, qualitative feedback from participants suggested that the higher pitched infant crying noise had a greater negative impact on participants' experience. For example, one participant in the higher pitched infant crying condition reported that the crying noise was a "consistent annoyance" and that their level of annoyance "did not go up and down" as the session continued. Multiple participants reported feeling "anxious" and that it was "harder to concentrate" on the cognitive task and survey questions when the crying noise was playing. All participants in the higher pitched infant crying condition reported negative emotional and cognitive reactions to the noise itself and the duration of the noise. Although participants in the lower pitched crying condition reported the noise as a "distraction," two participants reported that they were able to "tune out" the lower pitched infant crying noise for a portion of the noise duration. These qualitative data suggest that

the higher pitched infant crying condition may have had a more negative impact on the participants' overall experience compared to the lower pitched infant crying condition.

Testing the cognitive task. The results indicated that noise condition did not have a significant effect on participants' post-Flanker effect RT. In addition, post-Flanker effect RT was not significantly related to physical and verbal harsh parenting preferences. However, these results may be due to the Flanker Task's inability to capture behavioral inhibition. Mean scores of correct trials for pre- and post-Flanker Tasks followed a negatively skewed distribution. In addition, mean scores of RT for congruent and incongruent trials were positively skewed. This skewness suggested that participants answered most trials correctly and that their reaction times did not change suggesting that the Flanker Task was too easy for participants. Because pilot results suggest that the Flanker may be relatively insensitive to the experimental procedures used in this study, I will be pursuing the use of an alternative measurement.

Testing procedure. Several limitations in the pilot study proved to be problematic. Playing the noise condition after participants completed the Demographics questionnaire and during the other questionnaires such as the BAARS-IV, PMI, ERQ, and the Aggression Questionnaire may have been too early and interfered with participants' responses since qualitative data suggests that the infant crying noise negatively impacted participants' mood. This interference may have lowered participants' motivation to answer survey questions thoughtfully and may have pushed them to move quickly through the questions. This made it difficult to determine if participants' scores were a reflection of their true cognitive and emotional capacities or if their scores were affected by the experimental manipulation. In addition, the pilot study did not include a pre-MAACL-R to capture the participant's mood

before the noise condition was introduced, which made it difficult to understand the emotional impact of the noise condition.

Conclusion

The results of the pilot study suggest that using an experimental is feasible in this novice non-parent population. Although neither infant crying noise condition had a significant effect on the relationship between behavioral inhibition and harsh parenting preferences, qualitative data suggests that the higher pitched infant crying noise provoked more negative reactions from participants. In addition, the Flanker Task was not sensitive enough to capture participants' behavioral inhibition. Furthermore, issues with the pilot study's procedure highlight the need to reexamine when instruments are introduced during the experimental session. The current study addressed these methodological issues.

CHAPTER III

METHOD

Participants

This study was approved by the Institutional Review Board at Old Dominion University before participants were recruited through the psychology research participation system.

Incentives for the study included 2.0 SONA credit hours and a raffle for a \$100 VISA gift card. To increase participants' motivation to actively try during the cognitive tasks such as the Stroop and Ishihara task, participants were informed that those "with the highest scores on all cognitive tasks [would] be entered into a raffle for a \$100 VISA gift card." However, all participants were included in the raffle. An a priori power analyses was calculated for the hierarchical multiple regression (i.e., hypothesis 1) using G*Power (Faul, Erfelder, Buchner, & Lang, 2009). This power analysis yielded a total required sample size of 114 based on a power level of .80, a medium effect size $f^2 = .25$, 3 tested predictors, and with a total of 6 predictors. A second power analysis for the ANCOVA (i.e., research question) yielded a total required sample size of 128 (32 per group) based on a power level of .80, a medium effect size $f^2 = .25$, 4 groups, and included 3 covariates.

In order to participate in this study, individuals had to be at least 18 years old and identify English as their first language. In addition, the study only included participants who reported not having any personal parenting experiences (i.e., were not parents themselves), experience working for babysitting agencies such as "Helping Hand" as well as daily and/or weekly babysitting for their families, and no experience with any formal parenting training classes as a course or employment requirement. Furthermore, participants were asked to identify how many siblings they had, if any, and indicate whether they played a significant role as a caregiver for

their siblings by answering how many times they babysat per week, the nature of their responsibilities (e.g., whether they only played with their siblings or took on more parental roles such as diaper changing and disciplining their brothers and/or sisters). In addition, participants who missed two or more items on the computerized Ishihara colorblind test (described below) and/or endorsed any hearing deficits were excluded from the study. Participants were pre-screened for age, their first language, and their status as a parent by the university research participation system SONA.

The final sample included a total of 129 participants. Of the 129 participants, 19.4% were men ($n = 25$) and 79.8% were women ($n = 103$) and the mean age of participants was 19.94 ($SD = 2.32$). Most participants reported household incomes of more than \$75,000 (38.8%; $n = 50$) and incomes between \$40,001 and \$50,000 (15.5%; $n = 20$). Sample ethnicity included Caucasian (39.5%; $n = 51$), African American (47.3%; $n = 61$), American Indian or Alaskan Native (0.8%; $n = 1$), Asian (2.3%; $n = 3$), Native Hawaiian or Pacific Islander (2.3%; $n = 3$), and “other” (4.7%; $n = 6$). Table 1 presents demographic characteristics.

Table 1

Demographic Characteristics of Final Sample (N =129)

Variable	N	%
<i>Gender</i>		
Male	25	19.4
Female	103	79.8
Missing	1	0.8
<i>Race</i>		
Latino or Hispanic	7	5.4
Not Latino or Hispanic	120	93.0
Missing	2	1.6
<i>Ethnicity</i>		
Caucasian	51	39.5
African-American	61	47.3
American Indian or Alaska Native	1	0.8
Asian	3	2.3
Native Hawaiian or Other Pacific Islander	3	2.3
Other	6	4.7
Missing	1	0.8
<i>Education</i>		
High School	58	45.0
Trade School	1	0.8
Some College	56	43.4
Bachelor Degree	6	4.7
Graduate School	3	2.3
Missing	3	2.3
<i>Household Income</i>		
Less than \$10,000	7	5.4
\$10,000 - \$20,000	7	5.4
\$20,001 - \$30,000	11	8.5
\$30,001 - \$40,000	16	12.4
\$40,001 - \$50,000	20	15.5
\$50,001 - \$75,000	18	14.0
More than \$75,000	50	38.8
Missing	0	0.0

Measures

Stroop Color-Word Task. The Stroop Color-Word Task is a cognitive task that captures participants' inhibition and was developed by J. Ridley Stroop (1935). The current study used the individual-item procedure of the Stroop Color-Word Task, where each stimulus was presented one at a time on a computer (MacLeod, 1991). Using cognitive tasks such as the Stroop Color-Word Task as a measure of inhibition allows researchers to collect data on individuals' inhibitory capacities, while also avoiding social desirability biases that are inherent in self-report measures (Cyders & Coskunipinar, 2011). During the Stroop Color-Word Task, the participant were asked to name the color of the ink of color words. The Stroop Color-Word Task involved congruent (e.g., "yellow" written in yellow ink) and incongruent (e.g., "yellow" written in red ink) color words, and "neutral" control trials (e.g., "XXXXX" written in yellow ink) which is used as a baseline (Dalrymple-Alford, 1972; Stroop, 1935). Participants completed three practice trials (i.e., one trial for the three different trial types) where they received feedback for accuracy before completing the actual task. The current study used a set of words with mixed congruent, incongruent, and control stimuli with a total of 60 trials.

Franzen, Tichelman, Sharp, and Frieman (1987) reported good reliability for Word score ($= .83$), Color score ($= .74$), and the Color-Word score ($= .67$). A study conducted by Miyake and colleagues (2000) reported a significant correlation of .18 between the computerized Stroop Color-Word Task and the Stop-Signal Task, another task of inhibition, which indicates concurrent validity. In addition, they reported a significant correlation of .20 between the Stroop and the Antisaccade Task, which is another cognitive task of inhibition.

The Stroop Color-Word task measures interference and facilitation effects. The interference effect refers to the phenomenon where the reaction time (RT) for incongruent trials

is longer than the RT for the control trials. The interference effect is found by subtracting the mean incongruent RT minus the mean control RT. In contrast, the facilitation effect is the phenomenon where the RT for congruent trials is faster than the RT for control trials. The facilitation effect has a smaller effect size than the interference effect and is sometimes referred to as a “fragile effect” due to the instability of the effect size. The facilitation effect is found by subtracting the mean congruent RT minus the mean control RT (Kalanthroff & Henik, 2013). Participants’ mean RTs for the incongruent and control trials will be calculated to obtain each effect. Results from the second pilot study supported that the Stroop task is sensitive enough to capture behavioral inhibition due to the significant difference in incongruent RT and control RT, which are required in calculating the interference effect. For the purposes of this study, we will use the interference effect as a measure of behavioral inhibition since this captures individuals ability to inhibit automatic responses to interfering stimuli (Friedman & Miyake, 2017; Kalanthroff & Henik, 2013; Miyake, Friedman, Emerson, Witzki, & Howerter, 2000).

Ishihara Colorblind Test. The Ishihara Colorblind Test (Ishihara, 1960) was used to assess red-green color-blindness. The Ishihara Colorblind Test, tenth edition consists of 24 plates. The first plate provides an example and is used demonstrate what is expected of the participants. Plates 2 to 15 consist of single- or double-digit numerals. Plates 16 and 17 can be used to for classification for proanopia/protanomalia and deuteranopia/deuteranomalia, which are two types of red-green deficiencies. Plates 18 to 24 consist of winding lines for individuals who are unable to read numerals such as children (Hoffmann & Menozzi, 1998; Pokorny, Collins, Howett, Lakowski, & Lewis, 1981). During the Ishihara Colorblind Test, subjects are asked to identify the number on the plate within three seconds of showing the plates 2 to 15. For plates 18 to 24, subjects are asked to identify the path depicted in the plate. Subjects are classified as

color deficient if they answer four or more of plates 2 through 15 incorrectly (Pokorny et al., 1981). A study conducted by Thomas (1943) reported significant correlations between the Ishihara Colorblind Test and the American Optical Company's Pseudo-Isochromatic Plates, which is another colorblind test. The study reported correlation coefficients of .62 for normal populations and .57 for colorblind populations between the two colorblind tests, which suggests construct validity.

The current study used an adapted computerized version of the tenth edition of the Ishihara Colorblind Test, which consisted of nine plates based on Hoffmann's and Menozzi's (1998) assessment of the computerized version of the colorblind test. The authors examined plates 1 through 15 since these plates are used for diagnosing color deficiency with luminance of computer monitors ranging between 95 and 105 cd/m² for white color with the external light switched off. The authors reported that sensitivity (i.e., "the percentage of abnormal subjects correctly identified as abnormal"; Hoffmann & Menozzi, 1998, p. 39) and specificity (i.e., "the percentage of normal subjects correctly identified as normal"; Hoffmann & Menozzi, 1998, p.39) are reduced for plates 4, 5, 6, 10, 14, and 15 in the computerized Ishihara Colorblind Test compared to the paper version. The authors did not find significant differences in answers between the computerized version and the paper version on plates 1, 2, 3, 7, 8, 9, 11, 12, and 13. Thus, based on their low screening inefficiency values, it is recommended to use these plates. Participants with at least two false answers for these plates were classified as color deficient and excluded from all analyses. To replicate Hoffmann's and Menozzi's study, the current study used computer monitors set to 100 cd/m² for white color with the external light switched off.

Analog for Parental Decision-making (Appendix C). Parenting decisions were assessed by the *Analog for Parental Decision-making* (APD) measure. This measure includes a

series of eight child behavioral vignettes that were developed by Maduro (2016). These vignettes were validated through pilot work using a college, non-parent sample, which provided convergent validity of the APD vignettes. Maduro (2016) reported that traditional attitudes toward parenting were associated with greater preferences for harsh parenting decisions, while progressive attitudes towards parenting were associated with fewer preferences for harsh parenting decisions as indicated by the *preference action choice* scale. The APD includes two types of misbehavior vignettes for four different child ages (i.e. 10 months, 1.5 years, 2.5 years, and 3.5 years). One type of vignette addresses behavior that is dangerous to the child's health and safety. The other type of vignette addresses child defiant behavior in response to a denied request. The APD measure includes three subscales: Importance of Action, Action Choice, and Preference for Action Choice.

Importance of action. Participants were asked to rate how important it is to address the child's behavior based on each vignette. Their options range from *1 = extremely unimportant* to *7 = extremely important*. Maduro (2016) reported good reliability with a Cronbach's alpha of .91.

Action choice. Participants were then asked to select a specific parenting response, which include the following: *1 = ignore the behavior, 2 = attempt to distract the child by talking, playing singing, etc., 3 = time out, then explain to the child why their behavior is not appropriate, 4 = raise your voice to the child, 5 = threaten to punish the child, 6 = yell, curse, or call the child names, 7 = spank on the bottom with bare hand, 8 = slap or pinch on the hand, arm, or leg, and 9 = hit on the bottom with something like a belt, hairbrush, a stick or some other hard object*. The Action Choice subscale presents good reliability ($\alpha = .75$; Maduro, 2016).

Preference for action choice. Participants were then asked to rate how strongly they preferred each of the responses after choosing a parenting behavior from the Action Choice subscale. The preference responses ranges from 1 = *strongly not prefer* to 7 = *strongly prefer*. The Preference for Action Choice subscale is comprised of three subscales: Preference for non-harsh choice, preference for verbal harsh choice, and preference for physical harsh choice. Maduro (2016) indicated all three subscales had good reliability (Cronbach's alphas of .76, .90, and .92).

Demographic Questionnaire (Appendix D). A demographic questionnaire was included to obtain background information about the participants. The measure will request the participants' age, gender, race/ethnicity, and information on the participant's mother and father regarding their annual income.

Parental Modernity Inventory (Appendix E). The *Parental Modernity Inventory* (Schaefer & Edgerton, 1985) is a 30-item questionnaire that was used to assess participants' attitudes toward childrearing. Each item uses a 4-point Likert scale from 1 = *strongly disagree* to 4 = *strongly agree*. Individuals receive a progressive and authoritarian childrearing attitude score based on their responses to items such as "Children have a right to their own point of view and should be allowed to express it." Schaefer and Edgerton's (1985) original study reported a Cronbach's alpha range for progressive and traditional scores of .88 to .94, which indicates good internal consistency. In addition, their results presented good test-retest reliability with a correlation of .84 between time points. Schaefer's study in 1989 established concurrent validity by examining the relationship between parent's scores on the Parental Modernity Inventory and teacher ratings of child verbal intelligence ($r = .55$).

Emotion Regulation Questionnaire (Appendix F). The *Emotion Regulation Questionnaire* (ERQ) was used to measure participants' overall capacity to self-regulate their emotions (Gross & John, 2003). The ERQ is a 10-item questionnaire that uses a 7-point Likert scale from 1 = *strongly disagree* to 7 = *strongly agree*. Individuals answer questions along the dimensions of cognitive reappraisal and expressive suppression. Cognitive reappraisal involves "construing a potentially emotion-eliciting situation in a way that changes its emotional impact" (Gross & John, 2003, p. 349; e.g., "When I want to feel less negative emotion (such as sadness or anger), I change what I'm thinking about."), while expressive suppression involves moderating or inhibiting behaviors related to expressing emotion (e.g., "I keep my emotions to myself."). Gross and Johns (2003) reported a Cronbach's alpha for the Reappraisal and Suppression subscales of .88 and .71, which indicates good reliability. In addition, the authors reported evidence of construct validity by finding a significant correlation ($r = .53, p < .001$) between the ERQ and their peer's report of their emotional expression measure.

Multiple Affect Adjective Check List-Revised (Appendix G). The *Multiple Affect Adjective Check List-Revised* (MAACL-R; Zuckerman & Lubin, 1999) is a 132-adjective checklist and, depending on the research question, can be used as a state or a trait measure. The measure provides a negative affect and a positive affect score. In the current study used the MAACL-R as a state measure of negative affect that participants will complete before and after the experimental manipulation. The negative affect score was obtained using items on the Anxiety (e.g. 10 items), Depression (12 items), and Hostility (15 items) subscales. The positive affect score was a single score made up of 21 positive adjectives. The MAACL-R has been found to have good internal consistency with Cronbach's alpha score ranging from .68 to .95 depending on the population that is being studied (Zuckermann & Lubin, 1999). Studies have

reported low test-retest reliability coefficients (ranging from -.04 to .32) for the MAACL-R. However, these low test-retest reliability scores are not surprising for an assessment of mood state, which is not stable over time (Zuckermann & Lubin, 1999). In addition, the MAACL-R has good convergent validity. The MAACL-R scales correlate with measures such as the State Trait Personality Inventory (e.g., MAACL-R Anxiety subscale and S-ANX subscale were significantly related, $r = .52$, and MAACL-R Depression subscale and S-DEP subscale were significantly related, $r = .49$), the Sensation Seeking Scale (MAACL-R Anxiety subscale and Thrill subscale were significantly related, $r = -.27$, and MAACL-R Depression subscale and Thrill subscale were significantly related, $r = -.27$), and the Affect Balance Scale (MAACL-R Anxiety subscale and BNEG subscale were significantly related, $r = .49$, and MAACL-R Positive Affect subscale and BPOS subscale were significantly related, $r = .31$).

Exposure to Abusive and Supporting Environment-Parenting Inventory (Appendix H). The *Exposure to Abusive and Supporting Environment-Parenting Inventory* (EASE-PI; Nicholas & Bieber, 1997) measures the occurrence of positive and negative experiences with the participant's parent during childhood. For the purposes of the current study, we only used the Physical and Emotional Abusiveness subscales (e.g. "Your mother (father) kicked you", "Your mother (father) insulted or swore at you") to assess the participant's first-hand experiences with physical and psychological harsh parenting. These subscales use a 5-point Likert-type scale from 0 = *never* to 4 = *very often*. Nicholas and Bieber (1997) found good test-retest reliability for both subscales (Physical Abusiveness $\alpha = .92$; Emotional Abusiveness $\alpha = .84$). Concurrent validity was established by examining the relationship between the EASE-PI and the Conflict Tactics Scale (CT), the Family Experience Questionnaire (FEQ), the Parental Bonding Instrument (PBI), and the Parent-Child Relations Questionnaire (PCR). Nicholas and Bieber

(1997) reported a positive correlation between the Emotional and Physical Abusiveness scales of the EASE-PI and the CT, the FEQ, and the PCR. In addition, the Love/Support scale of the EASE-PI positively correlated with the PCR and the Independence scale negatively correlated with the PBI Overprotection scale.

Procedure

Participants were randomly assigned to one of two experimental conditions: (1) white noise and (2) high pitched infant crying noise (950 hz). White noise has been used as a control condition in a multitude of studies (Chen & Spense, 2010; Emmerich, Fantini, & Brown, 1986; Leske et al., 2014; Mitchell & MacDonald, 2006). Including white noise as a control condition allows researchers to regulate any potentially confounding background noise that may interfere with participant's responses (Mitchell & MacDonald, 2006); therefore, the current study used white noise as the control condition as opposed to a no noise condition. The sound level for each noise condition was set to a peak level of 82 dBA, which is within the noise exposure regulation set by the Occupational Safety and Health Administration (U.S. Department of Labor, 2008).

Upon arrival, participants were required to read and accept all elements of the informed consent (Appendix A) before participating in the study. The researcher also presented the informed consent material verbally and provided an opportunity to address any questions participants may have had. Researchers then informed participants that "Participants with the highest scores on all cognitive tasks [would] be entered into a raffle for a \$100 VISA gift card." Participants with correct trial scores equal to or greater than 0 on the Stroop Color-Word task were entered into the raffle. Once the informed consent procedure was completed, participants completed a pre-Stroop Color-Word Task to provide a baseline of the participant's behavioral inhibition. Next, the participants completed a series of questionnaires in the following order: (1)

Demographics Questionnaire; (2) Parental Modernity Inventory; (3) Emotional Regulation Questionnaire; and (4) Pre-Multiple Affect Adjective Checklist-Revised. Participants were then prompted to stop and wait for all other participants in experimental session to complete the questionnaires. Each session consisted of up to 9 participants. After all participants completed the first series of questionnaires, the noise (i.e., white noise or infant crying) began to play.

Participants then completed the computerized Ishihara Colorblind Test to test for red-green deficiencies that may interfere with their scores on the Stroop Color-Word task. Next, participants completed a computerized cognitive task for approximately five minutes. As a filler task, the present study used a computerized version of the digit transformation task as outlined by Kahneman, Tursky, Shapiro, and Crider (1969). Participants were instructed to add 3 to a string of four digits. For example, if the string of four digits was 5214, then the answer would be 8547. The screen presented each trial one at a time and allowed three seconds for participants to look at each string of numbers before continuing to the next page where they were asked to type their answer. The purpose of this cognitive task was to allow enough time for the infant crying noise to play and have a potential impact on individual's post-Stroop interference effect RT. Although the Kahneman and colleagues (1969) developed this study to provoke physiological measures of mental effort, a more recent study by Maduro (2016) found that this cognitive task did not have a significant effect on cognitive fatigue (i.e., a decline in cognitive performance due to an overarousal; Pattyn, Neyt, Henderickx, & Soetens, 2008). Furthermore, Maduro's study found that the cognitive task did not affect participants' hostility, decision-making time, and endorsement of harsh parenting. These findings make the digit transformation task an ideal filler task due to the higher likelihood of not interfering with the Stroop task and harsh parenting preference scores.

After completing this filler task, participants completed a post-Stroop Color-Word Task, the Post-Multiple Affect Adjective Checklist-Revised, answered a series of validated parenting vignettes from the Analog for Parental Decision-making, and completed the Exposure to Abusive and Supporting Environment-Parenting Inventory. After all participants finished these cognitive tasks and surveys, they were debriefed by the researcher. The debriefing procedure included a verbal discussion of the true purpose of the study and a Non-Disclosure Contract (Appendix B). During this debriefing, participants were given the opportunity to share their thoughts about the experimental manipulation, which will serve as feedback that may be incorporated in future studies. After participants were debriefed, they were asked to sign a non-disclosure contract.

Analysis Approach

Preliminary analysis. The current study proposed preliminary analyses, which involved first examining the means, standard deviations, and alphas for each variable. Next, the data would be checked for missing data, normality by examining skewness and kurtosis as well as using histograms, and outliers using boxplots. Univariate and multivariate outliers that are more than three standard deviations from the mean would be further examined for data entry or scoring errors. Logarithmic transformations would then be used to address any remaining outliers. In addition, I would test measurement error by examining each measures' alpha coefficients.

Hypothesis testing. The current study proposed using a hierarchical multiple regression to examine the moderating effect of infant crying with harsh parenting preferences as the dependent variable and the post-Stroop interference effect and noise condition as the independent variables. It was proposed that before entering variables into the appropriate steps of the

hierarchical multiple regression analysis, I would center scores for all continuous predictor variables (i.e., Stroop interference effect RT, PMI, ERQ, MAACL-R, and the EASE-PI). Prior to conducting the proposed analysis, I would test relevant statistical assumptions associated with hierarchical multiple regression analyses (i.e., linearity, measurement error, homoscedasticity, independence of residuals, and multicollinearity). I proposed the following to test each of these assumptions: plotting residuals against each predictor variable and against the predicted values to test for linearity; examining each measure's alpha coefficient for measurement error; plotting and examining LOWESS fit lines at the mean of the residuals, one standard deviation above the mean, and one standard deviation below the mean of the residuals to test for homoscedasticity; using scatterplots to assess if there is independence; using normal q-q plots to test for normality of residuals; and examining the variance of inflation factor (VIF) to test for multicollinearity (Cohen et al., 2013).

It was proposed that all covariates would be entered in the first step of the hierarchical multiple regression based on demographic characteristics that were significantly related to harsh parenting preferences. In the second step, first-order effects (i.e., post-Stroop interference effect RT, and noise condition) would be entered at the same time. Finally, in the third step, the higher-order effect (i.e., the interaction between the post-Stroop interference effect RT and the noise condition) would be entered. Once this analysis has been conducted, I will review the F of change value and the associated p value for the interaction term in order to determine whether the moderating effect of infant crying noise is significant. If the p value of the interaction term was significant then this would suggest that the interaction between the Stroop effect RT would be significant above and beyond the covariates and main effects entered in the previous steps; thus, suggesting a significant moderating effect. It was proposed that the current study would

also examine the change in R^2 to interpret how much more additional variance is explained by the interaction term and identify the nature of the moderating effect by plotting the regression lines for each predictor in the second step (i.e., Stroop effect RT and Noise Condition; Cohen et al., 2013).

The current study proposed using a 2 x 2 analysis of covariance (ANCOVA) with harsh parenting preferences as the dependent variable and gender and noise condition as the independent variables to examine gender differences in harsh parenting behavior when exposed to infant crying noise. More specifically, the ANCOVA would examine two levels of gender (i.e., male, and female) with two levels of the noise conditions (i.e., white noise and infant crying noise). Statistical assumptions of the ANCOVA would also be tested prior to running the analysis. As described above, I would test normality by examining skewness, kurtosis and using histogram analysis. Homogeneity of variance would be assessed using Levene's test (Maxwell & Delany, 2004).

CHAPTER IV

RESULTS

Data Cleaning

A total of 167 individuals participated in the study. Five participants reported that they had hearing problems and did not have a hearing aid and were therefore dropped from the analysis. Three participants reported that they played a primary caregiver role for their siblings and were therefore dropped from the analysis. Finally, 27 participants received a score of 6 or lower on the Ishihara Colorblind Test, suggesting that these participants had some form of color deficiency that may have interfered with their data on the Stroop Color-Word Task, and were therefore dropped as well. After assessing and removing all cases terminated due to disqualifications ($n = 35$), I analyzed the remaining survey cases ($n = 132$) for failed attention checks. Three participants failed the attention check within the survey and were consequently dropped from the analyses. Among the 38 participants who were dropped from the analyses, 30 of these participants were women, six were men, and one was missing data on gender. The final sample included a total of 129 participants.

Preliminary Analyses

Manipulation check. Results from an independent samples t-test revealed that there was a statistically significant difference between participants' negative affect score (i.e., anxiety, hostility, and depression) in the white noise versus infant crying noise conditions ($t = -2.89, p < .001$). Participants in the white noise condition reported significantly lower negative affect ($M = 1.64$) compared to the infant crying condition ($M = 6.35$). These results support the use of white noise as a control condition since this noise allows researchers to regulate any potentially interfering background noises while inducing significantly lower negative affect responses than

the infant crying noise. Furthermore, qualitative feedback from participants suggested that the infant crying noise had a greater negative impact on participants' experience compared to the white noise. For example, one participant in the infant crying condition reported that the crying noise was "extremely irritating." Multiple participants reported feeling "annoyed" and "overwhelmed" and that it was harder to concentrate on the cognitive task and survey questions when the crying noise was playing. All participants in the infant crying condition reported negative emotional and cognitive reactions to the noise itself and the duration of the noise. No participants reported negative reactions to the white noise condition. Furthermore, one participant reported that they could "tune [the white noise] out" during the cognitive tasks and surveys. These qualitative data suggest that the infant crying condition may have had a more negative impact on the participants' overall experience compared to the white noise condition. The results indicated that the white noise condition provoked lower negative affect scores compared to the infant crying noise, which suggests that this is an ideal control condition.

Testing the cognitive task. Before conducting the primary analysis, the Stroop data were aggregated to provide participants' average reaction time (RT) for each type of trial (i.e., congruent, incongruent, and control). A one-way ANOVA was then used to test for differences in RT across the different types of trials. Levene's test was not significant, which indicated the assumption of homogeneity of variance was met, $F(2, 174) = 3.02, p = .051$. Results revealed that RT differed significantly between trial types, $F(2, 174) = 13.01, p < .001$, partial $\eta^2 = .130$, such that the congruent trials were the fastest ($M = 0.90, SD = 0.43$), the control trials were the second fastest ($M = 0.91, SD = 0.50$), and incongruent trials were the slowest ($M = 1.24; SD = 7.47$). This finding is consistent with the extant literature that longer RT suggests lower

behavioral inhibition capacities (Logan et al., 1997) and suggests that the Stroop Color Word task is an appropriate measure of behavioral inhibition.

Measurement performance. Measurement errors were assessed by examining each measures' alpha coefficients. The current study found evidence of good reliability for the Importance of Action ($\alpha = .77$), Action Choice ($\alpha = .75$), as well as the nonharsh, verbal, and physical preference subscales (Cronbach's alphas of .76, .91, .92) of the *Analog for Parental Decision-making* (APD) measure. The *Parental Modernity Inventory* (PMI) had good internal consistency ($\alpha = .77$); however, this high reliability score was primarily due to the item performance on the traditional subscale ($\alpha = .83$), despite items on the progressive subscale ($\alpha = .38$). The current study found evidence of good internal consistency for the Reappraisal ($\alpha = .87$) and Suppression ($\alpha = .75$) subscales of the *Emotion Regulation Questionnaire* (ERQ). The *Multiple Affect Adjective Check List-Revised* (MAACL-R) exhibited good internal consistency for the Negative ($\alpha = .88$) and Positive ($\alpha = .93$) Affect subscales. In addition, the current study found evidence of good internal consistency for the Physical ($\alpha = .86$) and Emotional ($\alpha = .95$) Abusiveness subscales of the *Exposure to Abusive and Supporting Environment-Parenting Inventory*.

Outliers. Univariate outliers across cases were assessed using box plots, which revealed zero univariate outliers after using logarithmic transformations. Multivariate outliers were assessed using a $p < .001$ criterion for Mahalanobis distance test, which yielded a cutoff score of 22.46 (Tabachnick & Fidell, 2013). Mahalanobis distance test revealed three multivariate outliers. Upon further evaluation, one case was kept in the dataset based on their 95% accuracy on incongruent trials and their reaction times on the congruent and control trials, which were comparative to the rest of the sample. This particular case may reflect a participant with a lower

threshold for inhibitory processes, which is a primary focus for the present study. However, the remaining multivariate outliers were removed based on their 20% accuracy on incongruent trials, which may suggest the participants were not paying attention during the Stroop task.

Table 2

Descriptive Statistics of Study Measures

Continuous Variables	<i>M</i> (<i>SD</i>)	Range [Min, Max]	Skewness (<i>SE</i>)	Kurtosis (<i>SE</i>)
Pref. – total harsh (log)	1.95 (0.16)	0.67 [1.68, 2.35]	0.39 (0.22)	0.54 (0.43)
Pref, - verbal harsh	57.52 (23.01)	92.66 [24.00, 117.66]	0.69 (-0.22)	-0.18 (0.43)
Pref.- physical harsh (log)	1.54 (0.18)	0.73 [1.38, 2.11]	1.11 (0.22)	0.44 (0.43)
Stroop Interference Effect (log)	0.05 (0.05)	0.31 [-0.04, 0.26]	1.34 (0.22)	3.59 (0.43)
Traditional/ Authoritarian	67.10 (12.13)	63.00 [33.00, 96.00]	-0.37 (0.22)	-0.22 (0.43)
Cognitive Reappraisal	30.98 (6.84)	36.00 [6.00, 42.00]	-0.66 (0.22)	1.13 (0.43)
Expressive Suppression	14.80 (4.98)	22.00 [4.00, 26.00]	0.002 (0.22)	-0.43 (0.43)
Negative Affect (log)	1.01 (0.81)	3.18 [0.00, 3.18]	0.49 (0.22)	-0.27 (0.43)
History - phys. abuse (log)	2.76 (0.30)	1.20 [2.48, 3.69]	1.20 (0.22)	0.72 (0.22)
History - verb. abuse (log)	3.31 (0.35)	1.39 [3.00, 4.38]	1.29 (0.22)	0.88 (0.43)

Note. $N = 127$. Logarithmic transformations were performed on Pref. - total harsh, Pref. - physical harsh, Stroop Interference Effect, Negative Affect, History - phys. abuse, and History - verb. abuse.

Hypothesis Testing

Before testing my hypotheses and research question, all statistical assumptions were tested for the hierarchical multiple regression and analysis of covariance. Per Cohen and colleagues' (2013) suggestion, all continuous variables (i.e., the Stroop interference effect, PMI, ERQ, MAACL-R, and the EASE-PI) were centered to the mean. In addition, all categorical

variables were dummy coded (i.e., race, family income, social family class, education, maternal education, and paternal education). Homoscedasticity of residuals was assessed by using scatter plots and examining the LOWESS fit lines of these residuals (Tabachnick & Fidell, 2013).

Scatter plots revealed evidence of homoscedasticity of residuals. Independence of residuals were assessed using autocorrelations, which were found nonsignificant ($p = .485$); thus, providing evidence of independence (Cohen et al., 2013). Normality of residuals were assessed using q-q plots, which provided evidence of normally distributed residuals. Finally, multicollinearity was tested using the variance inflation factor (VIF), which indicated that a very low level of multicollinearity was present for the tested model with overall harsh parenting preferences ($VIF = 1.01$ for the Stroop interference effect; $VIF = 1.03$ for condition), verbal harsh parenting preferences ($VIF = 2.34$ for the Stroop interference effect; $VIF = 1.07$ for condition), and physical harsh parenting preferences ($VIF = 1.00$ for the Stroop interference effect; $VIF = 1.00$ for condition) as the dependent variables.

Bivariate correlations among demographic measures and the predictor and outcome measures were performed to assess potential covariates and are presented in Tables 3 and 4. Before conducting any analyses, gender, family income, family social class, level of education for participant, mother, and father, and race were dummy coded. Gender was dummy coded as 1 = women and 0 = men. Family income was dummy coded as 1 = less than \$40,000 and 0 = more than \$40,001. Family social class was dummy coded as 1 = low and 0 = middle/high. Level of education for participant, mother, and father were dummy coded as 1 = high school level and 0 = some college. Race was dummy coded as 1 = Caucasian and 0 = Not Caucasian. Results indicated that race ($r = -.38, p < .001$) and education ($r = .25, p = .004$) was significantly related to physical harsh parenting preferences and that race was also significantly related to overall

harsh parenting preferences ($r = -.26, p = .003$). These variables were included as covariates for analyses examining overall and physical harsh parenting preferences. Other covariates that were significantly related to physical harsh parenting preferences included traditional/authoritarian beliefs ($r = .28, p = .002$) and history of physical abuse ($r = .31, p < .001$).

Traditional/authoritarian beliefs ($r = .21, p = .016$) was significantly related to verbal harsh parenting preferences as well as overall harsh parenting preferences ($r = .27, p = .002$). These variables were run as covariates in separate follow-up models to examine the nature of the moderating effect.

Table 3

Bivariate Correlations – Demographics characteristics and Outcomes.

	1	2	3	4	5	6	7	8	9	10	11
1. Pref. - total harsh (log)	-	.91***	.80***	-.17	-.08	-.26**	.02	.02	.12	.03	-.03
2. Pref. - verbal harsh		-	.52***	-.15	-.07	-.07	-.14	.03	0.00	.02	.02
3. Pref. - physical harsh (log)			-	-.17	.02	-.37**	0.00	.07	.26**	-.02	-.09
4. Age				-	-.08	.32***	-.20*	-.08	-.42***	-.24**	-.22*
5. Gender					-	-.03	.14	.05	.03	-.05	.10
6. Race - Caucasian						-	-.21*	-.13	-.26**	-.16	-.17
7. Household Income - >\$40,000							-	.43***	-.02	.18*	.29**
8. Soc. Class Family - low								-	.03	.17	.29**
9. Education – self									-	.11	.004
10. Education - mother										-	.26**
11. Education – father											-

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. Logarithmic transformations were performed on Pref. - total harsh and Pref. - physical harsh. Gender was dummy coded as 1 = women 2 = men. Family Income was dummy coded as 1 = less than \$40,000 0 = more than \$40,001. Social Class Family was dummy coded as 1 = low 0 = middle/high. Education – self, mother, and father variables were dummy coded as 1 = high school level 0 = some college. AA = African American. Spearman rho correlations were conducted on all variables except for Pref. - total harsh, Pref. - verbal harsh, Pref. - physical harsh, and Age.

Table 4

Bivariate Correlations – Predictors and Outcomes.

	1	2	3	4	5	6	7	8	9	10	11
1. Pref. - total harsh (log)	-	.91***	.80***	.10	.05	.27**	.09	.02	.15	.12	.17
2. Pref. - verbal harsh		-	.52***	-.01	.03	.21*	.10	.01	.17	.13	.02
3. Pref. - physical harsh (log)			-	.22*	.07	.28**	-.01	.02	.08	.12	.31***
4. Stroop Interference Effect (log)				-	-.03	-.01	-.03	-.11	-.12	-.06	-.05
5. Condition - infant crying noise					-	.07	-.12	.09	.30**	-.10	.13
6. Traditional/Authoritarian						-	.22*	.24**	-.04	-.08	.08
7. Cognitive Reappraisal							-	.04	-.12	-.22*	-.15
8. Expressive Suppression								-	.07	-.07	.15
9. Negative Affect									-	.30**	.20*
10. History - Verb. Abuse (log)										-	.60***
11. History – Phys. Abuse (log)											-

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. Logarithmic transformations were performed on Pref. - total harsh, Pref. - physical harsh, Stroop Interference Effect, Negative Affect, History - phys. abuse, and History - verb. abuse. Condition - infant crying noise was dummy coded to 1 = infant crying noise and 0 = white noise condition.

Hypothesis 1. It was predicted that infant crying noise (i.e., condition) would have a moderating effect on the relationship between behavioral inhibition and harsh parenting preferences, in that the inverse relationship between participants' behavioral inhibition and harsh parenting preferences would be stronger in the presence of infant crying noise. Before any statistical analyses were conducted, the continuous predictor variable (i.e., the Stroop interference effect) and the interaction term (i.e., the Stroop interference effect X condition) were centered to the mean to make the first order effects more interpretable and to reduce non-essential multicollinearity (Cohen, 2013). Three separate three-step hierarchical multiple regressions with Harsh Parenting Preferences (i.e., overall harsh parenting preferences, verbal harsh parenting preferences, and physical harsh parenting preferences) as the dependent variable were used to test this moderating effect.

To test this moderating effect on (log) overall harsh parenting preferences, the Stroop interference effect and condition variables were entered at step one and their interaction term was entered at step two. Results depicted in Table 5 reveal a non-significant moderating effect of condition (i.e., white noise versus infant crying noise) on the relationship between the Stroop interference effect and overall harsh parenting preferences, $R^2 = 0.08$, $\Delta R^2 = 0.00$, $F_{change}(1, 121) = 0.03$, $p = 0.876$.

Table 3

Summary of Hierarchical Multiple Regression Analyses Predicting Overall Harsh Parenting Preferences (N = 126)

Variable	Model 1			Model 2			Model 3		
	<i>B</i>	<i>SE</i> <i>B</i>	β	<i>B</i>	<i>SE</i> <i>B</i>	β	<i>B</i>	<i>SE</i> <i>B</i>	β
Race (cv)	-0.08	0.03	-0.26**	-0.08	0.03	-0.26**	-0.08	0.03	-0.26**
Stroop Interference Effect (log) Condition				0.28	0.29	0.08	0.22	0.44	0.07
Stroop Interference Effect (log) × Condition				-0.004	0.03	-0.01	-0.004	0.03	-0.01
							0.09	0.58	0.02

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. Logarithmic transformations were performed on Overall Harsh Preferences score and Stroop Interference Effect. Stroop Interference Effect was centered to the mean. Race was dummy coded as 1 = Caucasian and 0 = Not Caucasian. Condition was dummy coded to 1 = infant crying noise and 0 = white noise condition.

To test the moderating effect on verbal harsh parenting preferences, the Stroop interference effect and condition variables were entered at step one and their interaction term was entered at step two. Results depicted in Table 6 reveal a non-significant moderating effect of condition on the relationship between the Stroop interference effect and verbal harsh parenting preferences, $R^2 = 0.00$, $\Delta R^2 = 0.00$, $F_{\text{change}}(1, 123) = 0.00$, $p = 0.993$.

Table 4

Summary of Hierarchical Multiple Regression Analyses Predicting Verbal Harsh Parenting Preferences (N = 127)

Variable	Model 1			Model 2		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
Stroop Interference Effect (log)	-1.59	44.02	-0.003	-1.14	67.58	-0.002
Condition	0.35	4.15	0.01	0.35	4.16	0.01
Stroop Interference Effect (log) × Condition				-0.79	89.33	-0.001

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. Logarithmic transformations were performed on Stroop Interference Effect. Stroop Interference Effect was centered to the mean. Condition was dummy coded to 1 = infant crying noise and 0 = white noise condition.

To test this moderating effect on (log) physical harsh parenting preferences, race (i.e., Caucasian versus not Caucasian) and education (i.e. high school versus some college) were entered at step one of the regression as covariates. The Stroop interference effect and condition variables were entered at step two and their interaction term was entered at step three. Results depicted in Table 7 reveal a non-significant moderating effect of condition on the relationship between the Stroop interference effect and physical harsh parenting preferences, $R^2 = 0.19$, $\Delta R^2 = 0.002$, $F_{\text{change}}(1, 117) = 0.36$, $p = 0.549$. Taken together, these results indicate that Hypothesis 1 was not supported.

Table 5

Summary of Hierarchical Multiple Regression Analyses Predicting Physical Harsh Parenting Preferences (N = 123)

Variable	Model 1			Model 2			Model 3		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
Race (cv)	-0.11	0.03	-0.31***	-0.11	0.03	-0.30**	-0.11	0.03	-0.29**
Education (cv)	0.06	0.03	0.18*	0.06	0.03	0.17	0.06	0.03	0.17
Stroop Interference Effect (log) Condition				0.66	0.31	0.18*	0.44	0.48	0.12
Stroop Interference Effect (log) × Condition							0.38	0.63	0.08

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. Race was dummy coded as 1 = Caucasian and 0 = Not Caucasian. Education was dummy coded as 1 = high school level 0 = some college. Logarithmic transformations were performed on Physical Harsh Preferences score and Stroop Interference Effect. Stroop Interference Effect was centered to the mean. Condition was dummy coded to 1 = infant crying noise and 0 = white noise condition.

Hypothesis 1A. Hypothesis 1A predicted that behavioral inhibition would have a negative association with harsh parenting preferences, such that participants with poorer inhibition would prefer harsher parenting strategies. The hierarchical multiple regression analyses revealed that the Stroop interference effect did not significantly predict overall harsh parenting preferences ($\beta = 0.28$, $t(125) = 0.08$, $p = .339$) and verbal harsh parenting preferences ($\beta = -0.003$, $t(125) = -0.04$, $p = .971$). However, results from the hierarchical multiple regression with physical harsh parenting preferences as the dependent variable indicated that Stroop interference effect significantly predicted physical harsh parenting preferences above and beyond race and education, $\beta = 0.18$, $t(122) = 2.12$, $p = .036$. Longer RT on interference trials suggests lower behavioral inhibition capacities (Logan, Schacher, & Tannock, 1997); thus, these findings suggests that participants with lower behavioral inhibition (i.e., longer RTs) endorse more

physical harsh parenting preferences compared to participants with higher behavioral inhibition (i.e., shorter RTs) capacities. Based on these findings, Hypothesis 1A was partially supported.

Bivariate correlations among behavioral inhibition and items within the physical harsh parenting preferences subscale were examined in order to explore the nature of this relationship. The physical harsh parenting preferences subscale consists of three items: (1) *Spank on the bottom with bare hand*; (2) *Slap or pinch on the hand, arm, or leg*; and (3) *Hit on the bottom with something like a belt, hairbrush, a stick or some other hard object*. Results indicated that behavioral inhibition was not significantly related to item 1 ($r = .14, p = .148$), item 2 ($r = .17, p = .066$), and item 3 ($r = .08, p = .383$) of the subscale; thus, suggesting that these physical harsh preferences do not correlate differently with behavioral inhibition. However, when summed to a total physical harsh preference score, the effect of behavioral inhibition is detectable.

Hypothesis 1B. Hypothesis 1B predicted that the infant crying condition will produce a stronger negative association between behavioral inhibition and physical harsh parenting preferences compared to the white noise condition. Results revealed a non-significant moderating effect of condition on the relationship between Stroop interference effect and all harsh parenting preference outcome variables (see Hypothesis 1 section for further discussion). Consequently, no follow up analyses were performed due to this non-significant interaction term; thus, Hypothesis 1B was not supported.

Research question

A research question was included to explore how men and women with no prior experience with children differ in physical harsh parenting preferences when exposed to infant crying noise. Three separate 2 x 2 between-subjects analyses of covariance (ANCOVA) was performed to examine the role of gender and condition on harsh parenting preferences (i.e.,

overall, verbal, and physical harsh parenting preferences). Before conducting the analyses, statistical assumptions were evaluated (see Hypothesis Testing section for further discussion). It is important to note that the current study did not recruit enough men to meet the a priori sample size calculated to reach power $< .80$ (i.e., 29 men), which was determined by a fixed ANCOVA power analysis; thus, results of the ANCOVAs should be interpreted with caution.

Homogeneity of variance for all ANCOVAs were examined using Levene's test.

Levene's test for the 2 x 2 ANCOVA examining (log) overall harsh parenting preferences was not significant, which indicated the assumption of homogeneity of variance was met, $F(3, 121) = 0.96, p = .416$. Results of the ANCOVA revealed that after controlling for race, there was no significant difference between men ($Adj. M = 1.97, SD = 0.15$) and women's ($Adj. M = 1.94, SD = 0.16$) endorsement of harsher parenting preferences, $F(1, 120) = 0.79, p = .376$, partial $\eta^2 = .007$. There was also no significant difference between the infant crying noise ($Adj. M = 1.97, SD = 0.15$) and the white noise condition ($Adj. M = 1.94, SD = 0.16$) in provoking overall harsh parenting preferences, $F(1, 120) = 0.34, p = .551$, partial $\eta^2 = .009$. The interaction between Gender and Condition was not significant, $F(1, 120) = 1.07, p = .304$, partial $\eta^2 = .009$.

ANCOVA statistics are presented in Table 8.

Table 6

Analysis of Covariance for Overall Harsh Parenting Preferences (N = 125)

Source	SS	df	MS	F	partial η^2
Gender	0.02	1	0.02	0.79	.007
Condition	0.01	1	0.01	0.34	.009
Gender \times Condition	0.02	1	0.02	1.07	.009
Race (cv)	0.20	1	0.20	8.85**	.069
Error	2.72	120	0.02		

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. Race was dummy coded as 1 = Caucasian and 0 = Not Caucasian and entered as covariate. Condition was dummy coded to 1 = infant crying noise and 0 = white noise condition. Logarithmic transformations were performed on Overall Harsh Preferences score.

Levene's test for the 2 x 2 ANCOVA examining verbal harsh parenting preferences was not significant, which indicated the assumption of homogeneity of variance was met, $F(3, 122) = 0.93, p = .428$. Results of the ANCOVA revealed that there was no significant difference in men (*Adj. M* = 58.30, *SD* = 19.05) and women's (*Adj. M* = 56.93, *SD* = 23.81) endorsement of verbal harsh parenting preferences, $F(1, 122) = 0.08, p = .776$, partial $\eta^2 = .001$. There was also no significant difference between the infant crying noise (*Adj. M* = 58.65, *SD* = 21.82) and the white noise condition (*Adj. M* = 56.58, *SD* = 24.29), $F(1, 122) = 0.18, p = .674$, partial $\eta^2 = .001$. The interaction between Gender and Condition was not significant, $F(1, 122) = 0.12, p = .740$, partial $\eta^2 = .001$. ANCOVA statistics are presented in Table 9.

Table 7

Analysis of Covariance for Verbal Harsh Parenting Preferences (N = 126)

Source	SS	df	MS	F	partial η^2
Gender	43.45	1	43.45	0.08	.001
Condition	94.54	1	94.54	0.18	.001
Gender \times Condition	62.40	1	62.40	0.12	.001
Error	65070.44	122	533.36		

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. Condition was dummy coded to 1 = infant crying noise and 0 = white noise condition.

Levene's test of the 2 x 2 ANCOVA examining (log) physical harsh parenting preferences was not significant, which indicated the assumption of homogeneity of variance was met, $F(3, 118) = 0.18, p = .912$ (Maxwell & Delany, 2004). Results of ANCOVA revealed that after controlling for race and education, there was no significant difference between men (*Adj. M* = 1.56, *SD* = 0.21) and women's (*Adj. M* = 1.53, *SD* = 0.17) endorsement of physical harsh parenting preferences, $F(1, 116) = 0.49, p = .486$, partial $\eta^2 = .004$. There was also no significant difference between the infant crying noise (*Adj. M* = 1.56, *SD* = 0.18) and the white noise condition (*Adj. M* = 1.52, *SD* = 0.18), $F(1, 116) = 1.26, p = .263$, partial $\eta^2 = .011$. The interaction between Gender and Condition was not significant, $F(1, 116) = 1.95, p = .165$, partial $\eta^2 = .017$. ANCOVA statistics are presented in Table 10.

Table 8

Analysis of Covariance for Physical Harsh Parenting Preferences (N = 122)

Source	SS	df	MS	F	partial η^2
Gender	.013	1	.013	0.49	.004
Condition	.034	1	.034	1.26	.011
Gender \times Condition	.052	1	.052	1.95	.017
Race (cv)	.316	1	.316	11.75**	.092
Education (cv)	.124	1	.124	4.62*	.038
Error	3.120	116	.027		

Note. Race was dummy coded as 1 = Caucasian and 0 = Not Caucasian and entered as a covariate. Education was dummy coded as 1 = high school level 0 = some college and entered as a covariate. Condition was dummy coded to 1 = infant crying noise and 0 = white noise condition. Logarithmic transformations were performed on Physical Harsh Preferences score.

Follow-Up Analyses

Follow-up analyses using other variables that may bear a theoretical association with harsh parenting preferences were entered as covariates to provide a better understanding of the role of behavioral inhibition in harsh parenting preferences. As described earlier, bivariate correlations revealed that traditional/authoritarian beliefs were significantly related to overall, verbal, and physical harsh parenting preferences. In addition, history of physical abuse was also significantly related to physical harsh parenting preferences. Three separate hierarchical regressions as well as three separate ANCOVAs with these variables entered as additional covariate variables.

Results from the hierarchical multiple regression analyses revealed a nonsignificant moderating effect of condition (i.e., white noise versus infant crying noise) on the relationship between the (log) Stroop interference effect and (log) overall harsh parenting preferences, $R^2 = 0.11$, $\Delta R^2 = 0.001$, $F_{change}(1, 120) = 0.13$, $p = 0.724$. In addition, results revealed a non-

significant moderating effect of condition (i.e., white noise versus infant crying noise) on the relationship between the (log) Stroop interference effect and verbal harsh parenting preferences, $R^2 = 0.05$, $\Delta R^2 = 0.00$, $F_{change}(1, 122) = 0.02$, $p = 0.876$. Results revealed a non-significant moderating effect of condition (i.e., white noise versus infant crying noise) on the relationship between the (log) Stroop interference effect and (log) physical harsh parenting preferences, $R^2 = 0.27$, $\Delta R^2 = 0.004$, $F_{change}(1, 115) = 0.57$, $p = 0.451$. The hierarchical multiple regression analyses indicated that the (log) Stroop interference effect did not significantly predict (log) overall harsh parenting preferences ($\beta = 0.09$, $t(125) = 1.06$, $p = .293$) and verbal harsh parenting preferences ($\beta = -0.002$, $t(126) = -0.02$, $p = .982$). However, results from the hierarchical multiple regression with physical harsh parenting preferences as the dependent variable indicated that Stroop interference effect significantly predicted physical harsh parenting preferences above and beyond race, education, traditional/authoritarian beliefs, and history of physical abuse, $\beta = 0.20$, $t(122) = 2.51$, $p = .013$. These results are depicted in Tables 11-13.

Table 9

Follow-Up Analyses: Summary of Hierarchical Multiple Regression Analyses Predicting Overall Harsh Parenting Preferences (N = 126)

Variable	Model 1			Model 2			Model 3		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
Race (cv)	-0.06	0.03	-0.19*	-0.06	0.03	-0.19	-0.05	0.03	-0.19
Traditional/ Authoritarian (cv)	0.002	0.001	0.19*	0.002	0.001	0.19*	0.002	0.001	0.20*
Stroop Interference Effect (log)				0.30	0.95	0.09	-0.02	0.95	-0.01
Condition				-0.004	0.03	-0.01	-0.004	0.03	-0.01
Stroop Interference Effect (log) × Condition							0.20	0.10	0.10

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. Logarithmic transformations were performed on Overall Harsh Preferences score and Stroop Interference Effect. Stroop Interference Effect was centered to the mean. Race was dummy coded as 1 = Caucasian and 0 = Not Caucasian. Condition was dummy coded to 1 = infant crying noise and 0 = white noise condition.

Table 10

Follow-Up Analyses: Summary of Hierarchical Multiple Regression Analyses Predicting Verbal Harsh Parenting Preferences (N = 127)

Variable	Model 1			Model 2			Model 3		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
Traditional/ Authoritarian (cv)	0.40	0.17	0.21*	0.40	0.17	0.21*	0.41	0.17	0.21*
Stroop Interference Effect (log) Condition				-0.95	43.19	-0.002	-22.51	144.76	-0.05
Stroop Interference Effect (log) × Condition				-0.39	4.08	-0.01	-0.41	4.10	-0.01
							13.71	87.85	0.05

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. Logarithmic transformations were performed on Stroop Interference Effect. Stroop Interference Effect was centered to the mean. Condition was dummy coded to 1 = infant crying noise and 0 = white noise condition.

Table 11

Follow-Up Analyses: Summary of Hierarchical Multiple Regression Analyses Predicting Physical Harsh Parenting Preferences (N = 123)

Variable	Model 1			Model 2			Model 3		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
Race (cv)	-0.08	0.03	-0.21*	-0.07	0.03	-0.19*	-0.07	0.03	-0.19*
Education (cv)	0.06	0.03	0.16	0.05	0.03	0.13	-0.05	0.03	0.13
Traditional/ Authoritarian (cv)	0.002	0.001	0.14	0.002	0.001	0.15	0.002	0.001	0.16
History - Phys. Abuse (cv)	0.15	0.05	0.24**	0.15	0.05	0.25**	0.15	0.05	0.20**
Stroop Interference Effect (log) Condition				0.75	0.30	0.20*	0.04	0.99	0.01
Stroop Interference Effect (log) × Condition				0.001	0.03	0.004	0.001	0.03	0.003
							0.45	0.60	0.20

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. Race was dummy coded as 1 = Caucasian and 0 = Not Caucasian. Education was dummy coded as 1 = high school level 0 = some college. Logarithmic transformations were performed on Physical Harsh Preferences score and Stroop Interference Effect. Stroop Interference Effect was centered to the mean. Condition was dummy coded to 1 = infant crying noise and 0 = white noise condition.

Levene's test of the 2 x 2 ANCOVA examining (log) overall harsh parenting preferences was not significant, which indicated the assumption of homogeneity of variance was met, $F(3, 121) = 0.96, p = .416$. Results of the ANCOVA revealed that after controlling for race, there was no significant difference between men (*Adj. M* = 1.97, *SD* = 0.15) and women's (*Adj. M* = 1.94, *SD* = 0.16) endorsement of harsher parenting preferences, $F(1, 120) = 0.51, p = .376$, partial $\eta^2 = .004$. There was also no significant difference between the infant crying noise (*Adj. M* = 1.97, *SD* = 0.15) and the white noise condition (*Adj. M* = 1.94, *SD* = 0.16) in provoking overall harsh parenting preferences, $F(1, 120) = 0.35, p = .551$, partial $\eta^2 = .003$. The interaction between

Gender and Condition was not significant, $F(1, 120) = 1.12, p = .304$, partial $\eta^2 = .009$. These ANCOVA statistics are presented in Table 14.

Table 12

Follow-Up Analysis of Covariance for Overall Harsh Parenting Preferences (N = 125)

Source	SS	df	MS	F	partial η^2
Gender	0.01	1	0.01	0.51	.004
Condition	0.01	1	0.01	0.35	.003
Gender \times Condition	0.03	1	0.03	1.12	.009
Race (cv)	0.10	1	0.10	4.29	.031
Traditional/Authoritarian (cv)	0.08	1	0.08	3.78*	.035
Error	2.64	119	0.02		

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. Race was dummy coded as 1 = Caucasian and 0 = Not Caucasian and entered as covariate. Condition was dummy coded to 1 = infant crying noise and 0 = white noise condition. Logarithmic transformations were performed on Overall Harsh Preferences score.

Levene's test of the 2 x 2 ANCOVA examining verbal harsh parenting preferences was not significant, which indicated the assumption of homogeneity of variance was met, $F(3, 122) = 0.93, p = .428$. Results of the ANCOVA revealed that there was no significant difference in men (*Adj. M* = 58.30, *SD* = 19.05) and women's (*Adj. M* = 56.93, *SD* = 23.81) endorsement of verbal harsh parenting preferences, $F(1, 122) = 0.01, p = .776$, partial $\eta^2 = 0.00$. There was also no significant difference between the infant crying noise (*Adj. M* = 58.65, *SD* = 21.82) and the white noise condition (*Adj. M* = 56.58, *SD* = 24.29), $F(1, 122) = 0.09, p = .674$, partial $\eta^2 = .001$. The interaction between Gender and Condition was not significant, $F(1, 122) = 0.12, p = .740$, partial $\eta^2 = .001$. ANCOVA statistics are presented in Table 15.

Table 13

Follow-Up Analysis of Covariance for Verbal Harsh Parenting Preferences (N = 126)

Source	SS	df	MS	F	partial η^2
Gender	3.40	1	3.40	0.01	0.00
Condition	43.69	1	43.69	0.09	.001
Gender \times Condition	62.84	1	62.84	0.12	.001
Traditional/Authoritarian (cv)	2825.54	1	2825.54	5.05*	.044
Error	6201.67	121	513.24		

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. Condition was dummy coded to 1 = infant crying noise and 0 = white noise condition.

Levene's test of the 2 x 2 ANCOVA examining (log) physical harsh parenting preferences was not significant, which indicated the assumption of homogeneity of variance was met, $F(3, 118) = 0.18, p = .912$. Results of the ANCOVA revealed that after controlling for race and education, there was no significant difference between men ($Adj. M = 1.54, SD = 0.21$) and women's ($Adj. M = 1.53, SD = 0.17$) endorsement of physical harsh parenting preferences, $F(1, 116) = 0.01, p = .486, \text{partial } \eta^2 = 0.00$. There was also no significant difference between the infant crying noise ($Adj. M = 1.55, SD = 0.18$) and the white noise condition ($Adj. M = 1.52, SD = 0.18$), $F(1, 116) = 0.83, p = .263, \text{partial } \eta^2 = .007$. The interaction between Gender and Condition was not significant, $F(1, 116) = 2.39, p = .165, \text{partial } \eta^2 = .021$. ANCOVA statistics are presented in Table 10.

Table 14

Follow-Up Analysis of Covariance for Physical Harsh Parenting Preferences (N = 122)

Source	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	partial η^2
Gender	0.00	1	0.00	0.01	0.00
Condition	0.02	1	0.02	0.83	.007
Gender \times Condition	0.06	1	0.06	2.39	.021
Race (cv)	0.13	1	0.13	5.30*	.044
Education (cv)	0.08	1	0.08	3.35	.029
Traditional/Authoritarian (cv)	0.06	1	0.06	2.50	.021
History - Phys. Abuse (cv)	0.20	1	0.20	8.01**	.066
Error	2.86	114	0.03		

Note. Race was dummy coded as 1 = Caucasian and 0 = Not Caucasian and entered as a covariate. Education was dummy coded as 1 = high school level 0 = some college and entered as a covariate. Condition was dummy coded to 1 = infant crying noise and 0 = white noise condition. Logarithmic transformations were performed on Physical Harsh Preferences score.

CHAPTER V

DISCUSSION

The present study sought to (1) investigate the role of behavioral inhibition on individuals' harsh parenting preferences and how this process may be moderated by infant crying noise and (2) explore how men and women differ in harsh parenting preferences when exposed to stressors such as infant crying noise. It was hypothesized that infant crying would have a moderating effect on the relationship between behavioral inhibition and harsh parenting preferences, in that participants with lower inhibitory capacities would endorse harsher parenting preferences in the presence of infant crying. The hypothesis regarding infant crying noise as a moderator was not supported. However, results revealed promising findings regarding behavioral inhibition and harsh parenting preferences. Lower behavioral inhibition predicted harsher physical parenting preferences; thus, partially supporting my second hypothesis. It was also hypothesized that the infant crying noise condition would result in a stronger negative association between behavioral inhibition and harsh parenting preferences when compared to the white noise condition. This hypothesis was not supported. Finally, results of this study replicated previous harsh parenting literature regarding several distal factors that are associated with harsh parenting preferences.

The Moderating Role of Infant Crying: Linking Behavioral Inhibition to Harsh Parenting

It was hypothesized that participants with lower behavioral inhibition capacities would endorse harsher parenting preferences in the presence of infant crying noise and that infant crying would result in a stronger negative association compared to white noise. These hypotheses were largely unsupported. Contrary to the hypothesis, there was no observed moderation effect of infant crying noise on the relationship between participants' behavioral inhibition capacities

and harsh parenting preferences. One possible explanation for this lack of moderation may be the use of hypothetical vignettes, which may not be sensitive enough to capture harsh parenting preferences in a non-parent sample. In addition, it is important to note the potential impact of participants working in groups. Specifically, this lack of effect may have been due to social desirability bias. Due to concerns with self-presentation, participants may underreport socially undesirable activities, or topics that are considered “taboo” (e.g., violence, bigotry, intolerance, etc.), and overreport socially desirable behaviors in order to preserve their image (Krumpal, 2013). Another possible methodological explanation may be the infant crying noise itself. Although the infant crying noise is a recording of a real infant, this noise may not have been perceived as a realistic representation of an infant crying by participants due to the sound quality of the recording and possibly the nature of the room in which the sessions were being held since participants were in view of the stereo.

Furthermore, this lack of moderation may be due to other contextual factors that were not considered in the current study. Specifically, there may be other environmental factors (i.e., crowding and lack of routines; Deater-Deckard et al., 2012) that, when combined with infant crying noise, impact harsh parenting preferences. A study by Deater-Deckard and colleagues (2012) examined maternal executive function (i.e., attention, inhibition, and working memory) and household regulation as critical factors of childrearing. Their study provided strong evidence that maternal executive function moderated the relationship between child conduct problems and harsh parenting practices, in that harsh parenting was linked to child conduct problems only among mothers with poorer executive function. This effect was particularly strong when mothers reported calmer households. In contrast, maternal executive function did not modulate harsh parenting practices in chaotic households (i.e., excessive noise, crowding, and lack of routines),

which suggests that executive function may be compromised in chaotic environments. Chen, Deater-Deckard, and Bell (2014) observed a similar moderating effect of household chaos in the relationship between child problem behavior and maternal harsh parenting where harsh parenting and child problem behavior were most strongly associated for children with low effortful control and living in a chaotic household. While the current study did examine excessive infant crying noise as a moderator of harsh parenting preferences, the study was unable to simulate other environmental factors of household chaos such as over-crowding and irregularity in routine; thus, this study may not reflect a realistic approach to capturing how parental stressors (i.e., household chaos) impact in-the-moment processes and ultimately harsh parenting preferences. Furthermore, Deater-Deckard and colleagues (2012) utilized a self-report measure of the degree to which mothers perceive their household as “chaotic.” Collecting self-report data on how stressful and/or chaotic participants perceived their environment was may be more impactful than simply being exposed to infant crying noise. Specifically, participants who perceived the infant crying noise as more stressful may be influenced differently than participants who were not as affected by the noise.

Behavioral inhibition. It was also hypothesized that lower behavioral inhibition capacities would be associated with harsher parenting preferences. Upon investigation of this hypothesis, it was found that behavioral inhibition was negatively associated with physical harsh parenting preferences but not with overall and verbal harsh parenting preferences, thereby partially supporting this hypothesis. However, this significant relationship was not observed when examining the role of behavioral inhibition on the item level of the physical harsh parenting preference subscale. These results suggest that specific harsh physical parenting strategies alone (i.e., *Spank child on the bottom with bare hand; slap or pinch child on the hand,*

arm, or leg; and/or hit child on the bottom with something like a belt, hairbrush, a stick or some other hard object.) may not be sensitive enough to capture individuals' preferences for physical harsh parenting strategies. However, when these items are examined together we are able to decrease error and increase our precision in capturing these preferences. Overall, this finding suggests that behavioral inhibition may influence an underlying factor of physical discipline that is inherent in any physical form of discipline. This negative relationship suggests that individuals with lower behavioral inhibition capacities endorse harsher physical parenting preferences. Specifically, individuals who have difficulty inhibiting responses to interfering stimuli are more likely to endorse harsher physical strategies. This finding is consistent with Harmon-Jones' (2003) study, which reported that behavioral inhibition was negatively associated with physical aggression but not verbal aggression. Barkley (2012) conceptualizes behavioral inhibition as the capacity to inhibit responses to prepotent events and proposes that there is a threshold for this inhibitory process. When this threshold is exceeded due to too many interfering events, the opportunity for executive functions (i.e., *working memory* (nonverbal), *internalization of speech* (verbal working memory), *self-regulation of affect/motivation/arousal*, and *reconstitution*) to occur is limited; thus, resulting in behaviors identified as "impulsive, selfish, and even irrational" (Barkley, 2012, p. 70). Therefore, participants who had lower behavioral inhibition capacities may have impulsively selected harsher physical strategies due to their lower threshold for prepotent events.

However, this negative relationship was not observed for overall and verbal harsh preferences. One potential factor that may explain this difference in physical and verbal harsh parenting preferences is how the child's behavior is perceived by the individual. McCarthy (2017) conducted three studies to investigate whether perceived child "instigation" (i.e., non-

compliant behavior) moderated the relationship between trait aggression and harsh parenting behaviors. McCarthy reported that child instigation only moderated the relationship between trait aggression and physical harsh parenting behaviors, but did not modulate the relationship for verbal harsh parenting behaviors. Thus, this study demonstrates that there may be situational factors (i.e., child instigation) that elicit physical harsh parenting behaviors over verbal harsh parenting behaviors. Based on McCarthy's report, one may argue that poor behavioral inhibition may not provide a long enough delay period for other self-regulatory processes (i.e., self-regulation of affect/motivation/arousal; Barkley, 1997) to occur that may play as a protective factor against situational factors such as child instigation.

Gender Differences in Harsh Parenting Preferences

The second aim of the study was to examine gender differences in harsh parenting preferences in the presence of infant crying. Due to the inconsistencies in the parenting literature on gender differences, this aim was posed as an exploratory research question. Although the present study did not observe any differences between males and females in endorsement of overall, verbal, and physical harsh parenting preferences, it is important to note that the current study was underpowered, which makes it difficult to interpret this lack of effect.

Future studies should continue to explore gender differences in harsh parenting preferences and behaviors to address inconsistencies regarding gender in the parenting literature. As previously discussed, men without children endorse harsher parenting preferences compared to women without children. A study by Flynn (1998) used a nonparent college sample to examine gender differences in attitudes toward corporal punishment (i.e., spanking). Flynn's results indicated that males reported more favorable attitudes towards spanking compared to females. A later study by Budd and colleagues (2011), which also used a non-parent college

sample, examine gender differences in attitudes towards acceptable and unacceptable parenting practices found similar results. The authors reported that males had higher ratings on critical feedback (i.e., verbal harsh parenting) and physical discipline (i.e., physical harsh parenting) and had correspondingly lower ratings on supportive feedback (i.e., non-harsh parenting) compared to females. However, these findings are inconsistent from the literature looking at parent populations and harsh parenting behavior. Mokrova and colleagues (2010) used a parent sample to examine the relationship between inattention and impulsivity and reports of corporal punishment and inconsistent discipline. The authors reported that fathers who endorsed more inattention and impulsivity reported practicing more lax and unsupportive parenting strategies compared to mothers. Another study by Chronis-Tuscano and colleagues (2008) reported that mothers with deficits in attention and impulsivity reported practicing more corporal punishment and inconsistent discipline. These inconsistencies highlight the importance of furthering our understanding of how men and women differ in harsh parenting.

It may be worthwhile for future studies to explore gender differences in trait aggression and how this may be related to harsh parenting preferences. Looking through an evolutionary lens, researchers argue that aggressiveness and risk taking are more functional for males compared to females. Specifically, aggression and risk-taking behaviors promote males' physical competencies as well as their social status (Fischer & Mosquera, 2011; Ellis et al., 2012; Meyers-Levy & Loken, 2015). A study by Weaver, Vandello, Bosson, and Burnaford (2009) revealed that males perceive manhood as a temporary state that often requires behavioral confirmation through aggressive behaviors. Additionally, researchers argue that males have more difficulty than females in emotion-regulation and arousal in non-violent ways. A meta-analysis by Knight, Guthrie, Page, and Fabes (2002) revealed that although males and females were equally effective

at regulating aggressive behaviors, in situations of high arousal males were more aggressive. Taking this into consideration, trait aggression may be the missing link between gender differences and harsh parenting.

Harsh Parenting Preferences: Distal Factors

Consistent with Deater-Deckard et al. (1996) and Maduro (2016), the present study found that individuals who identified as Caucasian endorsed significantly lower verbal and physical harsh parenting preferences compared to participants who identified as African American. Longest and colleagues (2007) reported similar findings, which showed African American mothers endorsing higher levels of harsh parenting practices compared to Caucasian parents. The authors suggested that one reason why African American parenting tends to be harsher, particularly with sons compared to daughters, is to increase awareness and prepare them for potential dangers they may face. In addition, the current study found that individuals who reported lower education (i.e., high school diploma or GED) endorsed harsher parenting preferences (physical) compared to individuals who reported higher education (i.e., bachelor's degree), which is consistent with previous literature that identifies parent education level as an important predictor of harsh parenting practices (Deater-Deckard et al, 2012; Lee, 2009; Simons, Whitbeck, Conger, & Wu, 1991).

The present study also found a significant relationship between participants' attitudes toward parenting and their preference for harsh parenting strategies. Participants who endorsed more traditional/authoritarian beliefs about childrearing endorsed significantly harsher verbal and physical parenting preferences, which is consistent with previous research that has examined the role of authoritarian beliefs and harsh parenting (Jocson et al., 2012; Maduro, 2016). Finally, the results of this study indicated that participants who reported early experiences with physical

abuse from their parent/caregiver endorsed significantly more physical harsh parenting preferences. The link between history of abuse and harsh parenting preferences/behavior has been well established in parenting literature and is known as intergenerational transmission (Capaldi et al., 2003; Conger et al., 2009; Simons et al., 1991).

Strengths and Implications

The current study has several strengths and presents valuable theoretical and practical insights for understanding harsh parenting. Although parenting literature has investigated the role of cognitive and emotional processes involved in harsh parenting, little of this research has explored these proximal factors experimentally. To the best of the author's knowledge, this study is the first to use an experimental approach to explore how attention-related processes (i.e., behavioral inhibition) are compromised under simulated parental stress (i.e., infant crying noise) and how this may relate to participant's harsh parenting preferences. An experimental design allows the researcher to control independent variables to remove extraneous variables to examine the relationship between independent and dependent variables.

Furthermore, although infant crying noise did not moderate the relationship between behavioral inhibition and harsh parenting preferences, the current study furthered our theoretical understanding of cognitive deficits associated with harsh parenting by demonstrating that those with lower behavioral inhibition capacities endorsed harsher parenting preferences. Although correlational studies have observed a similar negative association (Deater-Deckard et al., 2012), the current study's use of an experimental design allowed us to capture participants' inhibitory capacity right before making parenting decisions; thus, the current study gives insight into how deficits in this cognitive process may impact in-the-moment decision-making. Furthermore, many researchers theorize that deficits in behavioral inhibition is the central impairment of

ADHD (Barkley, 1990; Barkley, 1997; Quay, 1988; Schachar, Tannock, Marriott, & Logan, 1995); thus, this study provides foundational work that may inform future studies looking at cognitive processes involved in ADHD and how this clinical population may be vulnerable to harsh parenting preferences and behaviors.

In addition, these findings offer some insight on potential clinical interventions to enhance parent training programs. Specifically, the results suggest that individuals with deficits in attention control and, consequently, are more impulsive may have difficulties in engaging in programs and may be susceptible to more distractions. Thus, outcomes of parent interventions may significantly improve if programs design more interactive methods of psychoeducation and intervention. Additionally, providing psychoeducation and teaching new parents skills to cope with stress and other distractions may prepare them for parental stressors and ultimately lower the likelihood of harsh parenting behavior. Support for these recommendations can be found in the report by Crandall and colleagues (2015).

Limitations

Although great measures were taken to ensure a strong study, there were still some limitations due to its nature. First, methodological limitations related to the study's design and population are important factors to consider. One limitation that may have impacted the non-significant results was the study's single-blind design since the experimenters may have subconsciously affected the participants responses during informed consent and directive procedures. In addition, as previously discussed, group administration of experimental sessions may have interfered with participants' responses due to social desirability bias. Another limitation is the study's overall sample, which may not have been representative of the population. Although there is some novelty in using a sample with no prior experience with

children to study a particularly vulnerable population for harsh parenting behavior, the study's use of a non-parent sample makes it difficult to generalize these findings to a parent population. It is also important to note that the study was overwhelmingly female (81%). Furthermore, the study was unable to recruit enough males to meet power criteria for the research question regarding gender differences; thus, making these results misleading and not generalizable.

Second, although qualitative data collected from the first pilot study suggested that the infant crying noise condition was stressful for participants, as discussed earlier, the study failed to consider other stressful environmental factors such as crowding and disorganized routine that may be additive to individual preference for harsh parenting strategies. While infant crying noise may provoke some stress reaction, harsh parenting preferences may be dependent on the broader context of the environment. Conducting this experiment in a controlled laboratory setting as opposed to a more realistic setting (e.g., a room with toys thrown across the room) may have impacted the study's non-significant results. In addition, situations that require multitasking from parents have been identified as "barriers" to non-harsh discipline and has been associated with impulsivity and anger (Rhoades, Grice, & Del Vecchio, 2017). The current study did not account for this other contextual factor, which may have provoked more stress reactions and harsher parenting preferences if included. Furthermore, the study did not ask participants about the degree of how stressful and/or irritating their current environment was, which may have shared insight into how much participants were impacted by the noise condition.

Future Research

Future research should extend this research by addressing the methodological limitations of the study. When replicating this experiment, researchers should consider administering individual sessions as opposed to group administration to avoid social desirability bias.

Researchers should also consider using a double-blind design to avoid any experimenter bias. In addition, it is recommended to oversample from males to further examine gender differences. Furthermore, future research investigating the impact of proximal factors such as behavioral inhibition on harsh parenting preferences and behaviors is needed. To extend this study, future studies should aim at not only exploring the role of specific parental stressors (i.e., infant crying noise) via an experimental design, but also consider the broader context of in-the-moment parent decision-making by examining the over-arching construct of household chaos and the degree to which individuals perceive this chaos. Future studies should also consider examining the role of child instigation and how this may interact with behavioral inhibition and other self-regulatory processes. Additionally, while the findings regarding behavioral inhibition and physical harsh parenting preferences are interesting, this research is preliminary and should be extended to a parent population as opposed to a non-parent population. Expanding to a parent population would strengthen our understanding of the proximal and contextual factors contributing to harsh parenting behavior; thus, shedding light on specific in-the-moment processes that are involved in parent decision-making and the risk factors associated with these processes.

CHAPTER VI

CONCLUSION

While a myriad of studies has highlighted the negative physical and psychological outcomes of harsh parenting, rates of child abuse victims continue to rise; thus, highlighting a need to understand the determinants of harsh parenting preferences. To date, limited research has attempted to understand the proximal factors (i.e., psychological resources in the immediate context) of parent decision-making experimentally. To address this gap in the literature, the present study used an experimental design to examine the role of infant crying noise and how this parental stressor may compromise cognitive processes such as behavioral inhibition, and ultimately impact participant's parenting preferences. The results revealed a negative association between behavioral inhibition and physical harsh parenting preferences; however, this relationship was not observed for overall and verbal harsh parenting preferences. In addition, there was no significant moderating effect of infant crying on this relationship. Finally, the results revealed no gender differences in harsh parenting preferences when exposed to infant crying noise. However, these results may have been due to insufficient power related to the number of males the study had. Overall, the current research offers insight regarding the role of behavioral inhibition on harsh parenting preferences and paves the path for future research to explore this relationship and explore environmental risks to this process.

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APPENDICES

- A. Participant Informed Consent
- B. “Parenting Decisions” Experiment Non-Disclosure Agreement
- C. Analog for Parental Decision Making
- D. Demographic Questionnaire
- E. Parental Modernity Inventory
- F. Emotion Regulation Questionnaire
- G. Multiple Affect Adjective Check List – Revised
- H. Exposure to Abusive and Supporting Environment – Parenting Inventory

A. Participant Informed Consent Document

Project Title: Parenting Decisions

Introduction: The purpose of this form is to give you information that may affect your decision whether to say YES or NO to participation in this research, and to record the consent of those who say YES. The name of this research study is “Parenting Decisions”. The study will be conducted in person.

Researchers: Project Investigators:
Dr. James Paulson, Responsible Project Investigator, Ph.D., Associate Professor;
Kelsey Ellis, B.S., Graduate Research Assistant, College of Sciences, Department of Psychology.

Description of research study: The study is about your beliefs and reactions to circumstances surrounding parenting. The study involves attending an in-person study session at ODU. You will be asked to complete series of questionnaires and other computer generated tasks such as reading vignettes about children and sharing your opinions about parenting actions. The study will take approximately 60 minutes to complete. Approximately 180 students will be participating in this study.

Exclusionary criteria: To be eligible for the present study, you must (1) be at least 18 years of age, and (2) have no personal parenting experience (e.g., have never raised or babysat a child, have never worked at a daycare facility, have never taken any formal parenting training classes as a course or employment requirement).

Risks and benefits:

Risks: If you decide to participate in this study, you may experience emotional distress as a result of making difficult decisions regarding parenting a young child. The researcher will try to reduce the risk of emotional distress by monitoring for signs of distress and offer you the option to postpone or end the survey without penalty. Another potential risk associated with all research involves breach of confidentiality. To ensure confidentiality of all participants, participant data will be coded by ID number rather than by name. Analyses and conclusions of the study data will be conducted in aggregate form, thus, no individual identifying information will be presented.

Benefits: There are no direct benefits for participation in this study. Potential benefits to participants include gaining increased self-knowledge into your own personal experiences, particularly related to your ideas about parenting.

If your participation in this study has caused you concerns, anxiety, or otherwise distressed you, you may want to contact the ODU Counseling Center at (757) 683-4401.

Costs and payments: If you decide to participate in this study, you will receive 1.0 on-site Psychology Department research credits, which may be applied to course requirements or extra credit in certain Psychology courses. Equivalent credits may be obtained in other ways. You do not have to participate in this study, or any Psychology Department study, in order to obtain this

credit.

New information: If the researchers find new information during this study that would reasonably change your decision about participating, then they will give it to you.

Confidentiality: All information obtained about you in this study is strictly confidential unless disclosure is required by law. The results of this study may be used in reports, presentations and publications, but the researcher will not identify you.

Non-disclosure: The experiment, and the ideas and concepts regarding its procedures, measures, and debriefing represent Confidential Information of the investigator sponsoring this research study (“Parenting Decisions”). By signing this consent form you agree to maintain the confidentiality of information disclosed during this experiment. Violation of this agreement may result in loss of any research participation credit you have received for this study (“Parenting Decisions”).

Withdrawal privilege: It is OK for you to say NO. Even if you say YES now, you are free to say NO later, and walk away or withdraw from the study – at any time. Your decision will not affect your relationship with Old Dominion University, or otherwise cause a loss of benefits to which you might otherwise be entitled. The researchers reserve the right to withdraw your participation in this study, at any time, if they observe potential problems with your continued participation.

Compensation for illness and injury: By signing this document, you provide your consent to participate in this study which does not waive any of your legal rights. However, in the event of harm arising from this study, neither Old Dominion University nor the researchers are able to give you any money, insurance coverage, free medical care, or any other compensation for such injury. In the event that you suffer injury as a result of participation in any research project, you may contact Dr. James Paulson at (757) 683-4222 or jpaulson@odu.edu who would be glad to review the matter with you. You may also contact Dr. Tancy Vandecar-Burdin, IRB chairperson at (757) 683-3802 or tvandeca@odu.edu, or The Office of Research at (757) 683-3460.

Voluntary consent: By signing this document, you are saying several things. You are saying that you have read this form or have had it read to you, that you are satisfied that you understand the form, the research study, and its risks and benefits. The researchers should have answered any questions you may have had about the research. In addition to the researchers, whose contact information appears below, you may also contact the The Office of Research at (757) 683-3460. If you have any questions later on, then the researchers should be able to answer them:

Dr. James Paulson, Ph.D.
Department of Psychology, MGB 244B
Phone: (757) 683-4222

Kelsey Ellis, B.S.
Department of Psychology, MGB 335
Phone: (757) 683-6941

Full Name _____
Signature _____
Date _____

B. “Parenting Decisions” Experiment Non-Disclosure Agreement

Thank you for agreeing to participate in the “Parenting decisions” research project. The experiment, and the ideas and concepts regarding its procedures, measures, and debriefing represent Confidential Information of the investigator sponsoring this research study (“Parenting Decisions”).

I, _____ hereby agree to maintain the confidentiality of information disclosed during this experiment or observed live as follows:

- a) To hold in confidence any and all technical information (i.e. different noises) to which you were exposed;
- b) To hold in confidence any and all questions, materials, documentation and records which you were given (i.e. surveys and addition tasks);
- c) That you, shall at all times hold in trust, keep confidential and not disclose to any third party or make any use of the Confidential Information beyond those activities that are part of the experiment.

Violation of this agreement may results in loss of any research participation credit you have received for this study (“Parenting Decisions”).

By submitting this form you will be entering a Non-Disclosure agreement with:

Dr. James Paulson, Responsible Project Investigator, Ph.D., Associate Professor, Department of Psychology, MGB 244B

Participant Signature: _____

Date: _____

C. Analog Parenting Decision-making Instrument

This questionnaire will present a series of vignettes, or stories about an episode of child behavior. As you read each of these, imagine yourself being in the position of the parent of the child who is portrayed. As you finish reading each vignette, pay close attention to the first reactions that come to your mind and use those reactions to guide your responses to the questions about the vignette.

Vignette A. You are driving on a long car trip with your **10-month old** child secured in a car seat in the back seat area of your car. The child is quietly watching a cartoon on a portable DVD player when the DVD player suddenly stops working. The child starts fussing and this fussing eventually turns into crying and screaming that becomes so loud that it makes it difficult for you to concentrate on driving.

As a parent of this child, how important is it that you do something to address this behavior?
7pt (Extremely Important – Extremely Unimportant)

As a parent of this child, which of the following responses is the closest to what you might do?

1. Ignore the behavior and continue on with your activities.
2. Attempt to distract the child by talking, playing, singing, etc.
3. Time-out, then explain to the child why their behavior is not appropriate.
4. Raise your voice to the child.
5. Threaten to punish the child.
6. Yell, curse, or call the child names.
7. Spank on the bottom with bare hand.
8. Slap or pinch on the hand, arm or leg.
9. Hit on the bottom with something like a belt, hairbrush, as stick or some other hard object

[NEXT SCREEN]

As a parent of this child, please rate how strongly you would prefer each of the following responses to this troubling behavior.

7pt (Strongly Prefer –Not Prefer At All)

1. Ignore the behavior and continue on with your activities.
2. Attempt to distract the child by talking, playing, singing, etc.
3. Time-out, then explain to the child why their behavior is not appropriate.
4. Raise your voice to the child.
5. Threaten to punish the child.
6. Yell, curse, or call the child names.
7. Spank on the bottom with bare hand.
8. Slap or pinch on the hand, arm or leg.

9. Hit on the bottom with something like a belt, hairbrush, as stick or some other hard object

Vignette B. You are at home alone doing household chores when you realize that your **10-month-old** has crawled over to an electrical outlet that has several items plugged into it. Your child is reaching into the electrical cords and tugging at them. This is an extremely alarming behavior and you worry that your child might be hurt. You immediately move the child away from the danger.

As a parent of this child, how important is it that you do something to address this behavior?

7pt (Extremely Important – Extremely Unimportant)

As a parent of this child, which of the following responses is the closest to what you might do?

1. After the child is safe, do nothing more and continue on with your activities.
2. Attempt to engage the child in an activity away from the danger.
3. Time-out, then explain to the child why their behavior is not appropriate.
4. Raise your voice to the child.
5. Threaten to punish the child.
6. Yell, curse, or call the child names.
7. Spank on the bottom with bare hand.
8. Slap or pinch on the hand, arm or leg.
9. Hit on the bottom with something like a belt, hairbrush, as stick or some other hard object

[NEXT SCREEN]

As a parent of this child, please rate how strongly you would prefer each of the following responses to this troubling behavior.

1. After the child is safe, do nothing more and continue on with your activities.
2. Attempt to engage the child in an activity away from the danger.
3. Time-out, then explain to the child why their behavior is not appropriate.
4. Raise your voice to the child.
5. Threaten to punish the child.
6. Yell, curse, or call the child names.
7. Spank on the bottom with bare hand.
8. Slap or pinch on the hand, arm or leg.
9. Hit on the bottom with something like a belt, hairbrush, as stick or some other hard object

Vignette C. You are at a friend's home with your **1 ½-year-old** toddler, who is playing with your friend's child of a similar age. You see your child strike and bite the other child in order to get a toy. After being struck and bitten by your child, your friend's child starts crying loudly as your child plays with their stolen toy.

As a parent of this child, how important is it that you do something to address this behavior?

7pt (Extremely Important – Extremely Unimportant)

As a parent of this child, which of the following responses is the closest to what you might do?

1. Ignore the behavior and continue on with your activities.
2. Attempt to distract the child by talking, playing, singing, etc.
3. Time-out, then explain to the child why their behavior is not appropriate.
4. Raise your voice to the child.
5. Threaten to punish the child.
6. Yell, curse, or call the child names.
7. Spank on the bottom with bare hand.
8. Slap or pinch on the hand, arm or leg.
9. Hit on the bottom with something like a belt, hairbrush, as stick or some other hard object

[NEXT SCREEN]

As a parent of this child, please rate how strongly you would prefer each of the following responses to this troubling behavior.

1. Ignore the behavior and continue on with your activities.
2. Attempt to distract the child by talking, playing, singing, etc.
3. Time-out, then explain to the child why their behavior is not appropriate.
4. Raise your voice to the child.
5. Threaten to punish the child.
6. Yell, curse, or call the child names.
7. Spank on the bottom with bare hand.
8. Slap or pinch on the hand, arm or leg.
9. Hit on the bottom with something like a belt, hairbrush, as stick or some other hard object

Vignette D. You are putting items into your car after a shopping trip when your **1 ½-year-old** toddler pulls away from your hand and runs into the parking lot where a car has to stop suddenly to avoid striking the child. You quickly collect your child and bring them back to the car.

As a parent of this child, how important is it that you do something to address this behavior?
7pt (Extremely Important – Extremely Unimportant)

As a parent of this child, which of the following responses is the closest to what you might do?

1. After the child is safe, do nothing more and continue on with your activities.
2. Attempt to engage the child in an activity away from the danger.
3. Time-out, then explain to the child why their behavior is not appropriate.
4. Raise your voice to the child.
5. Threaten to punish the child.
6. Yell, curse, or call the child names.
7. Spank on the bottom with bare hand.
8. Slap or pinch on the hand, arm or leg.
9. Hit on the bottom with something like a belt, hairbrush, as stick or some other hard object

[NEXT SCREEN]

As a parent of this child, please rate how strongly you would prefer each of the following responses to this troubling behavior.

1. After the child is safe, do nothing more and continue on with your activities.
2. Attempt to engage the child in an activity away from the danger.
3. Time-out, then explain to the child why their behavior is not appropriate.
4. Raise your voice to the child.
5. Threaten to punish the child.
6. Yell, curse, or call the child names.
7. Spank on the bottom with bare hand.
8. Slap or pinch on the hand, arm or leg.
9. Hit on the bottom with something like a belt, hairbrush, as stick or some other hard object

Vignette E. You are shopping in a grocery store with your **2 ½-year-old** preschooler, who is riding in the cart. When you arrive at the checkout aisle, your child asks for candy, but you deny this request. The child becomes upset, fusses, and then says “shit” loudly. Other people in the store turn to look at you and your cursing child.

As a parent of this child, how important is it that you do something to address this behavior?
7pt (Extremely Important – Extremely Unimportant)

As a parent of this child, which of the following responses is the closest to what you might do?

1. Ignore the behavior and continue on with your activities.
2. Attempt to distract the child by talking, playing, singing, etc.
3. Time-out, then explain to the child why their behavior is not appropriate.
4. Raise your voice to the child.
5. Threaten to punish the child.
6. Yell, curse, or call the child names.
7. Spank on the bottom with bare hand.
8. Slap or pinch on the hand, arm or leg.
9. Hit on the bottom with something like a belt, hairbrush, as stick or some other hard object

[NEXT SCREEN]

As a parent of this child, please rate how strongly you would prefer each of the following responses to this troubling behavior.

1. Ignore the behavior and continue on with your activities.
2. Attempt to distract the child by talking, playing, singing, etc.
3. Time-out, then explain to the child why their behavior is not appropriate.
4. Raise your voice to the child.
5. Threaten to punish the child.
6. Yell, curse, or call the child names.
7. Spank on the bottom with bare hand.
8. Slap or pinch on the hand, arm or leg.
9. Hit on the bottom with something like a belt, hairbrush, as stick or some other hard object

Vignette F. You are cooking pasta at home while your **2 ½-year-old** preschooler, interested in what you're doing, is in the kitchen looking on. The child unexpectedly grabs a spoon and attempts to stir the pasta, almost knocking the pot of boiling water off of the stove and onto themselves. You stop the child and move the pot of boiling water away from the front of the stove.

As a parent of this child, how important is it that you do something to address this behavior?
7pt (Extremely Important – Extremely Unimportant)

As a parent of this child, which of the following responses is the closest to what you might do?

1. After the child is safe, do nothing more and continue on with your activities.
2. Attempt to engage the child in an activity away from the danger.
3. Time-out, then explain to the child why their behavior is not appropriate.
4. Raise your voice to the child.
5. Threaten to punish the child.
6. Yell, curse, or call the child names.
7. Spank on the bottom with bare hand.
8. Slap or pinch on the hand, arm or leg.
9. Hit on the bottom with something like a belt, hairbrush, as stick or some other hard object

[NEXT SCREEN]

As a parent of this child, please rate how strongly you would prefer each of the following responses to this troubling behavior.

1. After the child is safe, do nothing more and continue on with your activities.
2. Attempt to engage the child in an activity away from the danger.
3. Time-out, then explain to the child why their behavior is not appropriate.
4. Raise your voice to the child.
5. Threaten to punish the child.
6. Yell, curse, or call the child names.
7. Spank on the bottom with bare hand.
8. Slap or pinch on the hand, arm or leg.
9. Hit on the bottom with something like a belt, hairbrush, as stick or some other hard object

Vignette G. You are eating dinner at a restaurant with your **3 ½-year-old** preschooler and other family members. Your child does well at dinner, but becomes very upset when they realize that there will be no dessert. The child's behavior rapidly deteriorates with the child ultimately tantruming –on the ground flailing arms and legs while screaming loudly.

As a parent of this child, how important is it that you do something to address this behavior?
7pt (Extremely Important – Extremely Unimportant)

As a parent of this child, which of the following responses is the closest to what you might do?

1. Ignore the behavior and continue on with your activities.
2. Attempt to distract the child by talking, playing, singing, etc.

3. Time-out, then explain to the child why their behavior is not appropriate.
4. Raise your voice to the child.
5. Threaten to punish the child.
6. Yell, curse, or call the child names.
7. Spank on the bottom with bare hand.
8. Slap or pinch on the hand, arm or leg.
9. Hit on the bottom with something like a belt, hairbrush, as stick or some other hard object

[NEXT SCREEN]

As a parent of this child, please rate how strongly you would prefer each of the following responses to this troubling behavior.

1. Ignore the behavior and continue on with your activities.
2. Attempt to distract the child by talking, playing, singing, etc.
3. Time-out, then explain to the child why their behavior is not appropriate.
4. Raise your voice to the child.
5. Threaten to punish the child.
6. Yell, curse, or call the child names.
7. Spank on the bottom with bare hand.
8. Slap or pinch on the hand, arm or leg.
9. Hit on the bottom with something like a belt, hairbrush, as stick or some other hard object

Vignette H. You are going for a walk around the neighborhood with your **3 ½-year-old** preschooler. You encounter a new neighbor walking a large unfamiliar dog. When you stop to greet the neighbor, your child gets close to the dog and excitedly pulls at the dogs whiskers, eliciting a growl. You are able to move your child back from the dog before the situation escalates.

As a parent of this child, how important is it that you do something to address this behavior?
7pt (Extremely Important – Extremely Unimportant)

As a parent of this child, which of the following responses is the closest to what you might do?

1. After the child is safe, do nothing more and continue on with your activities.
2. Attempt to engage the child in an activity away from the danger.
3. Time-out, then explain to the child why their behavior is not appropriate.
4. Raise your voice to the child.
5. Threaten to punish the child.
6. Yell, curse, or call the child names.
7. Spank on the bottom with bare hand.
8. Slap or pinch on the hand, arm or leg.
9. Hit on the bottom with something like a belt, hairbrush, as stick or some other hard object

[NEXT SCREEN]

As a parent of this child, please rate how strongly you would prefer each of the following responses to this troubling behavior.

1. After the child is safe, do nothing more and continue on with your activities.
2. Attempt to engage the child in an activity away from the danger.
3. Time-out, then explain to the child why their behavior is not appropriate.
4. Raise your voice to the child.
5. Threaten to punish the child.
6. Yell, curse, or call the child names.
7. Spank on the bottom with bare hand.
8. Slap or pinch on the hand, arm or leg.
9. Hit on the bottom with something like a belt, hairbrush, as stick or some other hard object

D. Demographics Questionnaire

ID -

Today's Date: ____/____/____

1. What is your age in years? _____

2. What is your gender?

Female

Male

3. Do you currently have a problem with hearing?

Yes

No

3a. Do you have a hearing aid device?*

Yes

No

**Note: Participants' response to item #3 will prompt survey software to display #3a*

4. What is your race?

American Indian or Alaska Native

Asian

Black or African American

Native Hawaiian or Other Pacific Islander

White

Other

5. What is your ethnicity?

Latino or Hispanic

Not Latino or Hispanic

6. What is your household income?

- Less than \$10,000
- \$10,000 - 20,000
- \$20,001 - 30,000
- \$30,001 - 40,000
- \$40,001 - 50,000
- \$50,001 - 75,000
- More than \$75,000

7. What is the household income of your parents?

- Less than \$10,000
- \$10,000 - 20,000
- \$20,001 - 30,000
- \$30,001 - 40,000
- \$40,001 - 50,000
- \$50,001 - 75,000
- More than \$75,000

8. What was the social class of your family when you were growing up?

- Lower
- Lower-middle
- Middle
- Upper-middle
- Upper

9. What is the highest level of education you completed?

- Some High School

- High School Diploma or GED
- Trade School
- Some College
- Bachelor's Degree
- Master's Degree
- Doctoral Degree
- Other (please specify): _____

10. What is the highest level of education your mother completed?

- Some High School
- High School Diploma or GED
- Trade School
- Some College
- Bachelor's Degree
- Master's Degree
- Doctoral Degree
- Other (please specify): _____

1. What is the highest level of education your father completed?

- Some High School
- High School Diploma or GED
- Trade School
- Some College
- Bachelor's Degree
- Master's Degree
- Doctoral Degree

Other (please specify): _____

11. Do you have any siblings?

Yes

No

11a. Please indicate the number of siblings you have:*

1

2

3

4

5

6 or more

11b. What is the nature of your relationship?*

11c. Did you ever babysit your sibling(s)?*

Yes

No

**Note: Participants' response to item #11 will prompt survey software to display #11a-11c.*

11d. Please select one of the following that best describes how often you babysat your sibling(s):**

Everyday

1-2 times per week

Once a month

***Note: Participants' response to item #11c will prompt survey software to display #11d.*

11. Please indicate your current employment status (check all that apply):

- Not Employed
- Staying home with child(ren)
- Military (Active Duty)
- Military (not Active Duty)
- Full-time student
- Part-time student
- Employed Part-time
- Employed Full-time

E. Parental Modernity Inventory

Here are some statements other parents have made about rearing and educating children. For each one, please fill in the box that best indicates how you feel in general, not just about your own baby.

	1- Strongly disagree	2- Mildly disagree	3- Not sure	4- Mildly agree	5- Strongly agree
1. Since parents lack special training in education, they should not question the teacher's teaching methods.	1	2	3	4	5
2. Children should be treated the same regardless of differences among them.	1	2	3	4	5
3. Children should always obey the teacher.	1	2	3	4	5
4. Preparing for the future is more important for a child than enjoying today.	1	2	3	4	5
5. Children will not do the right thing unless they must.	1	2	3	4	5
6. Children should be allowed to disagree with their parents if they feel their own ideas are better.	1	2	3	4	5
7. Children should be kept busy with work and study at home and at school.	1	2	3	4	5
8. The major goal of education is to put basic information into the minds of the children.	1	2	3	4	5
9. In order to be fair, a teacher must treat all children alike.	1	2	3	4	5
10. The most important thing to teach children is absolute obedience to whoever is in authority.	1	2	3	4	5
11. Children learn best by doing things themselves rather than listening to others.	1	2	3	4	5
12. Children must be carefully trained early in life or their natural impulses will make them unmanageable.	1	2	3	4	5

		1- Strongly disagree	2- Mildly disagree	3- Not sure	4- Mildly agree	5- Strongly agree
13.	Children have a right to their own point of view and should be allowed to express it.	1	2	3	4	5
14.	Children's learning results mainly from being presented basic information again and again.	1	2	3	4	5
15.	Children like to teach other children.	1	2	3	4	5
16.	The most important thing to teach children is absolute obedience to parents.	1	2	3	4	5
17.	The school has the main responsibility for a child's education.	1	2	3	4	5
18.	Children generally do not do what they should unless someone sees to it.	1	2	3	4	5
19.	Parents should teach their children that they should be doing something useful at all times.	1	2	3	4	5
20.	It's all right for a child to disagree with his/her parents.	1	2	3	4	5
21.	Children should always obey their parents.	1	2	3	4	5
22.	Teachers need not be concerned with what goes on in a child's home.	1	2	3	4	5
23.	Parents should go along with the game when their child is pretending something.	1	2	3	4	5
24.	Parents should teach their children to have unquestioning loyalty to them.	1	2	3	4	5
25.	Teachers should discipline all the children the same.	1	2	3	4	5
26.	Children should not question the authority of their parents.	1	2	3	4	5
27.	What parents teach their child at home is very important to his/her school success.	1	2	3	4	5
28.	Children will be bad unless they are taught what is right.	1	2	3	4	5
29.	A child's ideas should be seriously considered in making family decisions.	1	2	3	4	5
30.	A teacher has no right to seek information about a child's home background.	1	2	3	4	5

F. Emotion regulation questionnaire (ERQ)

We would like to ask you some questions about your emotional life, in particular, how you control (that is, regulate and manage) your emotions. The questions below involve two distinct aspects of your emotional life. One is your emotional experience, or what you feel like inside. The other is your emotional expression, or how you show your emotions in the way you talk, gesture, or behave. Although some of the following questions may seem similar to one another, they differ in important ways. For each item, please answer using the following scale:

1	2	3	4	5	6	7
Strongly Disagree			Neutral			Strongly Agree

1. ____ When I want to feel more positive emotion (such as joy or amusement), I change what I'm thinking about.
2. ____ I keep my emotions to myself.
3. ____ When I want to feel less negative emotion (such as sadness or anger), I change what I'm thinking about.
4. ____ When I am feeling positive emotions, I am careful not to express them.
5. ____ When I'm faced with a stressful situation, I make myself think about it in a way that helps me stay calm.
6. ____ I control my emotions by not expressing them.
7. ____ When I want to feel more positive emotion, I change the way I'm thinking about the situation.
8. ____ I control my emotions by changing the way I think about the situation I'm in.
9. ____ When I am feeling negative emotions, I make sure not to express them.
10. ____ When I want to feel less negative emotion, I change the way I'm thinking about the situation.

G, Multiple Affect Adjective Check List-Revised

Listed below you will find words which describe different kinds of moods and feelings. Please put a check in each box that describes how you feel right now.

Work rapidly in describing your feelings (check all that apply).

<input type="checkbox"/> active	<input type="checkbox"/> fit	<input type="checkbox"/> peaceful
<input type="checkbox"/> adventurous	<input type="checkbox"/> forlorn	<input type="checkbox"/> pleased
<input type="checkbox"/> affectionate	<input type="checkbox"/> frank	<input type="checkbox"/> polite
<input type="checkbox"/> afraid	<input type="checkbox"/> free	<input type="checkbox"/> powerful
<input type="checkbox"/> agitated	<input type="checkbox"/> friendly	<input type="checkbox"/> quiet
<input type="checkbox"/> agreeable	<input type="checkbox"/> frightened	<input type="checkbox"/> reckless
<input type="checkbox"/> aggressive	<input type="checkbox"/> furious	<input type="checkbox"/> rejected
<input type="checkbox"/> alive	<input type="checkbox"/> lively	<input type="checkbox"/> rough
<input type="checkbox"/> alone	<input type="checkbox"/> gentle	<input type="checkbox"/> sad
<input type="checkbox"/> amiable	<input type="checkbox"/> glad	<input type="checkbox"/> safe
<input type="checkbox"/> amused	<input type="checkbox"/> gloomy	<input type="checkbox"/> satisfied
<input type="checkbox"/> angry	<input type="checkbox"/> good	<input type="checkbox"/> secure
<input type="checkbox"/> annoyed	<input type="checkbox"/> good-natured	<input type="checkbox"/> shaky
<input type="checkbox"/> awful	<input type="checkbox"/> grim	<input type="checkbox"/> shy
<input type="checkbox"/> bashful	<input type="checkbox"/> happy	<input type="checkbox"/> soothed
<input type="checkbox"/> bitter	<input type="checkbox"/> healthy	<input type="checkbox"/> steady
<input type="checkbox"/> blue	<input type="checkbox"/> hopeless	<input type="checkbox"/> stubborn
<input type="checkbox"/> bored	<input type="checkbox"/> hostile	<input type="checkbox"/> stormy
<input type="checkbox"/> calm	<input type="checkbox"/> impatient	<input type="checkbox"/> strong
<input type="checkbox"/> cautious	<input type="checkbox"/> incensed	<input type="checkbox"/> suffering
<input type="checkbox"/> cheerful	<input type="checkbox"/> indignant	<input type="checkbox"/> sullen
<input type="checkbox"/> clean	<input type="checkbox"/> inspired	<input type="checkbox"/> sunk
<input type="checkbox"/> complaining	<input type="checkbox"/> interested	<input type="checkbox"/> sympathetic
<input type="checkbox"/> contented	<input type="checkbox"/> irritated	<input type="checkbox"/> tame
<input type="checkbox"/> contrary	<input type="checkbox"/> jealous	<input type="checkbox"/> tender

<input type="checkbox"/> cool	<input type="checkbox"/> joyful	<input type="checkbox"/> tense
<input type="checkbox"/> cooperative	<input type="checkbox"/> kindly	<input type="checkbox"/> terrible
<input type="checkbox"/> critical	<input type="checkbox"/> lonely	<input type="checkbox"/> terrified
<input type="checkbox"/> cross	<input type="checkbox"/> lost	<input type="checkbox"/> thoughtful
<input type="checkbox"/> cruel	<input type="checkbox"/> loving	<input type="checkbox"/> timid
<input type="checkbox"/> daring	<input type="checkbox"/> low	<input type="checkbox"/> tormented
<input type="checkbox"/> desperate	<input type="checkbox"/> lucky	<input type="checkbox"/> understanding
<input type="checkbox"/> destroyed	<input type="checkbox"/> mad	<input type="checkbox"/> unhappy
<input type="checkbox"/> devoted	<input type="checkbox"/> mean	<input type="checkbox"/> unsociable
<input type="checkbox"/> disagreeable	<input type="checkbox"/> meek	<input type="checkbox"/> upset
<input type="checkbox"/> discontented	<input type="checkbox"/> merry	<input type="checkbox"/> vexed
<input type="checkbox"/> discouraged	<input type="checkbox"/> mild	<input type="checkbox"/> warm
<input type="checkbox"/> disgusted	<input type="checkbox"/> miserable	<input type="checkbox"/> whole
<input type="checkbox"/> displeased	<input type="checkbox"/> nervous	<input type="checkbox"/> wild
<input type="checkbox"/> energetic	<input type="checkbox"/> obliging	<input type="checkbox"/> willful
<input type="checkbox"/> enraged	<input type="checkbox"/> offended	<input type="checkbox"/> wilted
<input type="checkbox"/> enthusiastic	<input type="checkbox"/> outraged	<input type="checkbox"/> worrying
<input type="checkbox"/> fearful	<input type="checkbox"/> panicky	<input type="checkbox"/> young
<input type="checkbox"/> fine	<input type="checkbox"/> patient	<input type="checkbox"/>

H. Exposure to Abusive and Supporting Environments - Parenting Inventory (EASE-PI) Physical and Emotional Abusiveness Subscales

This questionnaire covers experiences you may have had when you were a child. If you did not live with both biological parents, please answer these questions with a mother figure (e.g., stepmother, grandmother, adoptive mother) or father figure (e.g., stepfather, grandfather, adoptive father) in mind.

The maternal figure I am completing this scale about is my:

- 1) biological mother
- 2) step-mother
- 3) adoptive mother
- 4) other _____ (please write in who this person was-e.g., grandmother)
- 5) I did not have a mother figure while growing up.

The paternal figure I am completing this scale about is my:

- 1) biological father
- 2) step-father
- 3) adoptive father
- 4) other _____ (please write in who this person was-e.g., grandfather)
- 5) I did not have a father figure while growing up.

Please answer the questions using the following scale:

0 = Never, 1 = Rarely, 2 = Sometimes, 3 = Often, 4 = Very Often

Your mother or father:

- | | | | | | |
|--|---|---|---|---|---|
| 1. Broke or smashed objects near you when angry with you. | 0 | 1 | 2 | 3 | 4 |
| 2. Threw things at you. | 0 | 1 | 2 | 3 | 4 |
| 3. Pulled your hair. | 0 | 1 | 2 | 3 | 4 |
| 4. Pushed, grabbed, or shoved you. | 0 | 1 | 2 | 3 | 4 |
| 5. Deliberately scratched you. | | | | | |
| 6. Hit you. | 0 | 1 | 2 | 3 | 4 |
| 7. Hit you with objects. | 0 | 1 | 2 | 3 | 4 |
| 8. Beat you up. | 0 | 1 | 2 | 3 | 4 |
| 9. Choked you. | 0 | 1 | 2 | 3 | 4 |
| 10. Kicked you. | 0 | 1 | 2 | 3 | 4 |
| 11. Threatened to kill you. | 0 | 1 | 2 | 3 | 4 |
| 12. Threatened you with a weapon (such as a knife or gun). | 0 | 1 | 2 | 3 | 4 |
| 13. Used a weapon (such as a knife or gun) on you. | 0 | 1 | 2 | 3 | 4 |

Please answer the questions using the following scale:

0 = Never, 1 = Rarely, 2 = Sometimes, 3 = Often, 4 = Very Often

Your mother or father:

- | | | | | | |
|--|---|---|---|---|---|
| 1. Made you feel vulnerable or likely to be hurt. | 0 | 1 | 2 | 3 | 4 |
| 2. Insulted or swore at you. | 0 | 1 | 2 | 3 | 4 |
| 3. Made you feel stupid when you didn't understand something. | 0 | 1 | 2 | 3 | 4 |
| 4. Treated you like the "black sheep" of The family. | 0 | 1 | 2 | 3 | 4 |
| 5. Made you want revenge. | | | | | |
| 6. Said she (he) hated you | 0 | 1 | 2 | 3 | 4 |
| 7. Threatened to hurt you. | 0 | 1 | 2 | 3 | 4 |
| 8. Ridiculed your feelings. | 0 | 1 | 2 | 3 | 4 |
| 9. Belittled or made fun of your physical appearance. | 0 | 1 | 2 | 3 | 4 |
| 10. Ignored you for extended periods of time. | 0 | 1 | 2 | 3 | 4 |
| 11. Made statements such as,
"I wish you were never born." | 0 | 1 | 2 | 3 | 4 |
| 12. Made you feel worthless. | 0 | 1 | 2 | 3 | 4 |
| 13. Made you feel as if you were a bad person. | 0 | 1 | 2 | 3 | 4 |
| 14. Ridiculed or made fun of your beliefs. | 0 | 1 | 2 | 3 | 4 |
| 15. Criticized or humiliated you in front of others. | | | | | |
| 16. Was cold or rejecting. | 0 | 1 | 2 | 3 | 4 |
| 17. Let you know your brothers or sisters were loved more than you were. | 0 | 1 | 2 | 3 | 4 |
| 18. Made you feel terrible when you made a mistake. | 0 | 1 | 2 | 3 | 4 |
| 19. Made you feel that her (his) love was conditional (was there only if you did, or was, what she (he) wanted). | 0 | 1 | 2 | 3 | 4 |

VITA

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Background

Kelsey T. Ellis is a third year graduate student at Old Dominion University. She is pursuing her Master's degree in Experimental Psychology and, in the Spring of 2018, her Ph.D. in Clinical Psychology. She is currently a research assistant in the Early Family Laboratory of Dr. James Paulson. Kelsey's research interests include the study of early family dynamics, with emphasis on developmental psychopathology and emotional coping.

Selected Presentations

- Paulson, J. F., **Ellis, K. T.**, Jenkins, J. K., Dindial, H. (2017, May). *Perceptions of causality in perinatal depression and anxiety*. Poster presented at the 29th Annual Convention of the Association for Psychological Science, Boston, Massachusetts.
- Ellis, K. T.**, Maduro, R. S., & Paulson, J. F. (2016, May). *Examining the association between attachment and romantic codependency: Self-efficacy as a mediator*. Poster presented at the Annual Convention of the Association for Psychological Science, Chicago, Illinois.