

12-12-2014

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Recommended Citation

Leland, Alicia J., "Preschoolers' Emotion Regulation: Maternal Perspectives on Tantrums and Emotion Regulation" (2014). *Master's Theses*. 702.

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Preschoolers' Emotion Regulation: Maternal Perspectives on Tantrums and Emotion Regulation

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B.S., Worcester State University, 2012

A Thesis

Submitted in Partial Fulfillment of the

Requirements for the Degree of

Master of Arts

At the

University of Connecticut

2014

APPROVAL PAGE

Masters of Arts Thesis

Preschoolers' Emotion Regulation: Maternal Perspectives on Tantrums and Emotion Regulation

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2014

Abstract

Emotion regulation begins to develop in young children and is likely influenced by early caregiver relationships. Emotion regulation is necessary during conflict situations; for children, this may arise as a temper tantrum. Children and caregivers must both utilize emotion regulation strategies during tantrum situations in order to restore emotions to a calm level. The current study looked at maternal perspectives on children's emotion regulation. Mothers completed the Emotion Regulation Checklist, which measures a child's emotion regulation, and responded to open-ended questions about their child's tantrum experiences in order to examine strategies used by mothers and children during tantrum episodes. A total of 32 mothers were recruited from two New England service providers (Head Start preschool and sports/activities classes). Mother-child dyads showed significant similarities in calming strategies in regards to physical distraction techniques. Results also showed a significant positive correlation between children's emotion regulation abilities and length of tantrums as well as mean differences in reported length of tantrums between mothers who reported teaching their children regulation strategies and those that did not. Implications include teaching families strategies for emotion regulation in order to promote regulation in children and prevent future difficulties as children age.

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Acknowledgments: Thank you to all the families that participated, as well as the data collection and coding team: Courtney Lincoln, Emily Beaulieu, and Erin Donohue, and my advising committee: Dr. Beth Russell, Dr. Preston Britner, and Dr. Shayne Anderson.

Preschoolers' Emotion Regulation: Maternal Perspectives on Tantrums and Emotion Regulation

Introduction

The current study examined the relationship between emotion regulation in preschoolers and their tantrum behavior. Because research has pointed toward familial influences in the development of regulatory behaviors (Feldman & Klein, 2003; Raikes, Robinson, Bradley, Raikes, & Ayoub, 2007; Russell, Londhe, & Britner, 2013; Silverman & Ippolito, 1995), the current study looked to examine the relationship between mothers' self-reported strategies taught to children regarding regulation, and mother-reported child emotion regulation abilities. Mother-reported accounts of tantrum behavior were also examined in order to gain a better understanding of the tantrum recovery process (i.e. frequency, duration, and strategies used to recover) because tantrums are a common situation for preschoolers where emotion regulation is necessary.

One of the several potential causes of tantrums in children is frustration (e.g., the child not getting his/her way; Daniels, Mandleco, & Luthy, 2012). In a situation where a child is not getting his/her way, the tantrum is likely due to a misalignment in goals between the child and another individual (e.g., the child wants a cookie before dinner, but the mother does not want the child to spoil his/her appetite). When this frustration results in a tantrum, it can be emotionally challenging for both the mother and the child (Einon & Poregal, 1994). The current study looked at temper tantrums as potential parent-child conflict situations. Parent-child conflict between a parent and a young child, as defined by Huang, Teti, Caughy, Feldstein, and Geneviro (2007), is "the first oppositional verbal/behavioral turn in a mother-child behavior exchange... To be defined as conflict, the interaction does not need to result in mutual opposition or aggression between mother and child" (p. 220). This means that even for parents who do not experience the event as emotionally challenging, the event may still be considered conflict. Examining how this

conflict is resolved may provide the field with better understanding about the early development of conflict resolution in families.

Self-Regulation

Self-regulation involves the ability to control one's behavior, cognition, and emotions (Jahromi & Stifter, 2008; Karreman, van Tuijl, van Aken, & Deovic, 2006). Behavioral self-regulation includes self-control, which involves the inhibition of behavior, or the delay of gratification (Jahromi & Stifter, 2008; Karreman et al., 2006). This means individuals with self-control are able to wait for desired outcomes, stop themselves from engaging in behaviors that are impulsive, and comply with directions, even at relatively young ages for some children (Carlson & Wang, 2007; Mischel, Shoda, & Rodriguez, 1989; Mittal, Russell, Britner, & Peake, 2013). The cognition aspect of self-control requires executive function, which involves the ability to sustain attention (Raikes et al., 2007), meaning individuals with executive function abilities can focus their attention on tasks and exhibit goal-directed behavior (Jahromi & Stifter, 2008). The emotional aspect of self-control is emotion regulation, which involves the ability to manage one's emotions (both positive and negative); this management involves the evaluation of emotions (knowing which emotion is being experienced), the expression of emotions (understanding how the emotion is being expressed), and adjusting the expression when necessary (Carlson & Wang, 2007; Grolnick, Bridges, & Connell, 1996; Jahromi & Stifter, 2008; Karreman et al., 2006). Regulation of emotions applies to both positive and negative emotions as individuals display an ability to initiate, maintain, and monitor their emotional expressiveness in given situations (Grolnick et al., 1996).

Children as young as three years old exhibit intentional self-regulation abilities (Cole, Dennis, Smith-Simon, & Cohen, 2008; Grolnick et al., 1996). Kopp (1982) discusses the

progression of regulation abilities, beginning with rudimentary forms of regulation in infants in the form of physiological regulation (e.g., a wake sleep cycle) or sensorimotor regulation (e.g. understanding one's own actions – reaching for or playing with a stimuli). Following this, more sophisticated forms of regulation begin to develop, as children become more aware of social demands (e.g., parent's expectations or compliance to parent's requests; Kopp, 1982). During the preschool period, typically ages three and four, there is a large increase in the ability to regulate oneself (Cole et al., 2008; Kopp, 1982; Mittal et al., 2013). Children with better self-regulation are able to adapt to the environment around them in order to produce socially acceptable behaviors (Kopp, 1982). Hence, self-regulation in children is an indicator of their ability to understand socially approved behaviors (Kopp 1982).

As Raikes and colleagues (2007) mention, those who have a strong ability to self-regulate are able to focus their attention as well as regulate their emotions effectively. Preschool-aged children are learning to regulate their emotions; their ability to focus their attention is expanding, which allows them to attend to their emotions more effectively. Doing so allows children to participate in social interactions successfully and appropriately (Raikes et al., 2007). One implication of this is that as children learn to regulate their emotions, they may be less likely to engage in outbursts (e.g., tantrums), thus displaying socially appropriate behaviors.

Social Influences on the Development of Self-Regulation

Researchers have begun to consider the impact parenting has on the development of self-control in young children (Feldman & Klein, 2003; Raikes et al., 2007; Russell et al., 2013; Silverman & Ippolito, 1995). Social learning theory indicates that individuals may learn through observing others (Laible & Thompson, 2002; Perlman, Garfinkel & Turrell, 2007). Parents may serve as models to their children, displaying behaviors indicative of regulatory behavior, and

children may then model or imitate parental behaviors. Parents may also scaffold the development of self-regulation by teaching children how to manage emotions/behavior (Jacobsen, Huss, Fendrich, Kruesi, & Ziegenhain, 1997; Russell et al., 2013), or parents may exhibit control over children in an attempt to regulate their children's emotions/behaviors. Parents may teach their children regulation behaviors through rewards and punishments of either desirable or undesirable behavior, providing children with stability or organization in their daily life, or encouraging responsibility of one's own actions (Silverman & Ippolito, 1995).

Parents often have expectations about how and when their children should express their emotions, and these expectations are conveyed through their parenting (Berlin & Cassidy, 2003). Parents may guide their children through emotional experiences (both positive and negative), providing emotional support and teaching them strategies for dealing with emotions (Cole et al., 2008). Doing so allows children to learn how to verbalize emotions in appropriate ways, rather than resorting to crying or inappropriate behaviors (Cole et al., 2008). However, children who have more intrusive parents may not learn appropriate emotion regulation abilities (Harris, Robinson, Chang, & Burns, 2007). For example, if a parent simply tells a child to stop crying, the child does not learn to use his or her words to explain why he or she is upset. A parent that explores the child's expression of emotion by asking what is upsetting the child encourages the child's emotional understanding. It is important to consider parental perspectives of one's child because these perceptions influence the interactions between the parent and the child. For example, Eisenberg and Fabes (1994) found the reactions of mothers to their child's behaviors to be related to the mother's perceptions of her child's temperament.

Strategies for Self-Regulation in Preschoolers

Regulation is a useful skill when one is in stressful (or exciting) situations. The ability to control one's emotions and behaviors in response to stimuli is necessary across the lifespan due to the expected/accepted behaviors within society. For example, it is considered inappropriate to yell across the room in a library; one needs to regulate emotions and behaviors in order to follow the social expectations of the situation. Giesbrecht, Miller, and Muller (2010) mention "emotion regulation helps to safeguard individuals from uncomfortably high levels of excitement and distress" (p. 480). For example, a child that experiences high levels of distress may have a temper tantrum; as a child's regulatory abilities increase, the likelihood of a tantrum may decrease because the child has learned to appropriately express emotions.

Children use various techniques when regulating their emotions in situations including distraction and self-soothing behaviors (Grolnick et al., 1996; Peake, Hebl, & Mischel, 2002; Russell et al., 2013). Young children may proximity seek, or look to a trusted other for comfort (typically a parent) in order to alleviate negative emotions, but as children enter preschool, their abilities to alleviate these emotions independently increase (Carlson & Wang, 2007). Distraction behaviors often include playing with another toy, singing songs, looking around the room, etc. (Carlson & Wang, 2007; Peake et al., 2002). Self-soothing behaviors may include stroking ones hair, thumb sucking, or using a familiar object (e.g. "blanky") to gain comfort (Grolnick et al., 1996). Self-soothing behaviors are considered to be a more passive form of emotion regulation, where distraction and proximity seeking are considered more active forms of emotion regulation (Graziano, Calkins, & Keane, 2011). Active strategies tend to require more attention and are reported to be more effective (Graziano et al., 2011; Grolnick et al., 1996).

Stansbury and Sigman (2000) discuss four categories of regulation strategies in regards to frustrating situations: comforting behaviors, instrumental behaviors, distraction behaviors, and cognitive reappraisals. Comforting behaviors are used to “soothe the internal experience of negative emotion” (p. 184). Instrumental behaviors are used to “eliminate the source of frustration” (p. 185). Distraction behaviors are used to divert attention away from the situation and “internal experience of emotion” (p. 185). Finally, cognitive reappraisals are used to try and reframe the situation more positively (Stansbury & Sigman, 2000). This last strategy, cognitive reappraisal, is more common among older children, whereas comforting behaviors are more common among younger children (Stansbury & Sigman, 2000). Cole and colleagues (2008) found that the more regulation strategies a child knew, the more likely the child was to persist at a difficult task independently, likely due to the child’s ability to regulate his or her anger/frustration.

Developmental Implications of Self-Regulation

Research shows that a child’s self-regulation abilities influence later development (Fabes et al., 1999; Jacobsen et al., 1997). Vazsonyi and Huang (2010) note that once regulatory abilities are fully developed (around middle childhood – between ages 8 and 10), one’s self control tends to be stable across the lifespan. Those who have better regulatory abilities as a child tend to have better achievement in school, can cope with stressful situations better, and tend to display socially appropriate behaviors later in life (Jacobsen et al., 1997). It is likely that children who have difficulty regulating emotions will be at greater risk for developing behavioral problems later in life (Carlson & Wang, 2007; Causadias, Salvatore, & Sroufe, 2012). Children who do not develop a strong sense of self-control are also at a greater risk for experiencing academic difficulties (Jacobsen et al., 1997).

Understanding the development of emotion-regulation in young children is particularly important for helping those who are developing within an at-risk environment. Harris and colleagues (2007) mention that for individuals in at-risk environments, it is likely that the ability to regulate emotions may help them to cope better with their circumstances. Raikes and colleagues (2007) mention that in situations where children develop in a high-risk environment and are at a greater risk of developing behavioral or school achievement problems, regulatory abilities may be particularly important because they may promote adaptive development.

Tantrums

Temper tantrums are thought to be impulsive external displays of anger or frustration (Daniels et al., 2012; Giesbrecht et al., 2010). Giesbrecht and colleagues (2010) describe temper tantrums by breaking down the phrase; “the term temper refers to the dynamic qualities of the child’s affect (its intensity and explosiveness), whereas tantrum denotes its externalizing form (disorganized and highly active)” (p. 479). Temper tantrums, usually recognized by their externalizing behaviors, may consist of shouting, crying, screaming, falling on the floor, or violent behaviors such as kicking, hitting, throwing items, head/hand/feet banging, etc. (Daniels et al., 2012; Osterman, & Bjorkqvist, 2010). These behaviors are typical of toddlers, and occur in most preschoolers; Wakschlag and colleagues (2012) found tantrums to occur in about 10% of preschool children daily. Osterman, and Bjorkqvist (2010) found temper tantrums to last less than 5 minutes in 8% of their sample, 5 to 10 minutes in 46.5% of the sample, and over 30 minutes in about 6% of the sample.

Tantrums are a normative behavior in children and occur because children struggle to verbalize and process their emotions (Osterman & Bjorkqvist, 2010). Daniels and colleagues (2012) mention that tantrums may be a result of the child being hungry, tired, sick, or frustrated,

or they could be due to an attempt to get attention, to get what he or she wants, or to avoid doing something the child does not want to do. As children learn to regulate their physical and mental states by modulating their behaviors and emotions, they may be less likely to display tantrum behavior (Daniels et al., 2012).

Tantrums are not only emotionally challenging for children, but parents may also feel negative emotions from the situation. Cole, Teti, and Zahn-Waxler (2003) summarize previous research that indicates that there is a mutual regulation of emotions within relationships, in this case, between children and their parents. Within mutual regulation of emotions, the child's emotions influence the parent's emotions, and the parent's emotions influence the child's emotions as described by Cole and colleagues (2003). When a child is defiant, for example, the parent's reaction may be harsh, which in turn may elicit more defiance from the child (Cole et al., 2013). Within the infant literature, Cole and colleagues (2003) summarize that mutual emotion regulation is characterized by "synchrony and reciprocity of positive emotion and caregiver responsiveness to infant distress" (p. 2). Cole and colleagues (2003) found that in preschool-aged children, mutual regulation of positive emotions was characteristic of children with fewer conduct problems, whereas the reciprocity of negative emotions between the child and parent was associated with children who had more conduct problems in early school years (Cole et al., 2003). Cole and colleagues (2003) also found that mothers' expression of emotion influenced the child's conduct problems in early school years, noting that displaying anger was indicative of stability in conduct problems and display of positive emotion was indicative of improvement in conduct problems. It would seem as though, depending on a parent's response to a child's temper tantrum, the child will exhibit either increased tantrum behavior or increased regulatory behavior.

Current Study

This study attempts to understand how emotions are regulated within a conflict situation between a preschooler and his or her mother. There is insufficient literature that looks into this aspect of emotion regulation development. The study does so by focusing on tantrums in which the child and mother's goals do not align (child wants to play outside, but the mother needs to cook dinner). This scenario creates a sense of conflict between the child and the mother in which both individuals need to regulate emotions. Though there is literature surrounding many aspects of tantrums, the literature linking emotion regulation to tantrums is minimal. There were several hypotheses in the current study. 1) Mothers who report teaching their children strategies for regulating will also report better emotion regulation abilities in their children. 2) Children who have higher mother-reported emotion regulation abilities would also have shorter tantrum episodes. 3) Mothers who report teaching their children regulation strategies will have children who have shorter tantrum episodes. 4) Similarities will arise between how mothers report calming themselves down from tantrum situations and how they report their children calm down from tantrum situations.

Method

The current study was part of a larger project examining self-regulation in preschool children. Participants were recruited from two sites. For the purposes of this study, mothers of preschoolers were asked to complete self-report and other-report questionnaires asking questions regarding their own emotional experiences and their child's emotion regulation and tantrum tendencies. As part of the larger study, however, participants from site one were also asked to visit the child lab for a video-recorded mother-child dyad free play session and were compensated with a \$25.00 gift card for their time. Site two participants only completed the

questionnaires and were not compensated for their time. Results presented here are drawn from the survey data only; observed behavior results for site one are presented elsewhere.

Participants

A total of 32 mother-child dyads participated in this study (15 from site one, 17 from site two). In order to be included in the current study, dyads needed to be English speaking, mothers needed to be at least 18 years of age, and their children needed to be between the ages of 3 and 4 years at the time of data collection. All children were between the ages of 3 and 4 years (range: 37-58 months; $M_{\text{site1}} = 46.40$, $SD_{\text{site1}} = 7.173$; $M_{\text{site2}} = 47.65$, $SD_{\text{site2}} = 6.509$); mothers' ages ranged from 20 to 45 years ($M_{\text{site1}} = 30.8$, $SD_{\text{site1}} = 7.173$; $M_{\text{site2}} = 35.13$, $SD_{\text{site2}} = 4.319$). Given IRB concerns regarding identifiability, no information was collected pertaining to race, ethnicity, or income; however, the populations sampled can be described using current census data.

Participants from site one were recruited from Waterbury CT, a city that is 45.5% White, non-Hispanic, with a median income of \$40,867 per year, 21.9% of people living below the poverty line, and 16.8% of people holding a bachelors degree or higher (United States Census Bureau, 2014b). Mothers from Waterbury were invited to participate via flyers, which were distributed through Head Start programs. This means that the families that were recruited met one of the following criteria (the eligibility requirements for Head Start services) – the family's annual income must be below the poverty guidelines, parents receive federal subsidy assistance, be homeless, or foster/kinship families (Head Start, 2014).

Participants from site two were recruited from Shrewsbury, MA. Mothers were invited to participate via local sports and activities classes that serve both Shrewsbury and the surrounding towns. Local demographic census data is not collected for Shrewsbury, so data from Northborough, MA, a neighboring town, is reported. Northborough is 86.2% White, non-

Hispanic, with a median income of \$89,516 per year, 2.2% of people living below the poverty line, and 55.2% of people holding a bachelors degree or higher (United States Census Bureau, 2014a). Flyers were distributed through programs that offer classes/services to preschool aged children (ages 3-4), all of which require fees; therefore, those attending the classes had the resources to pay for classes. No direct information regarding this particular sample's eligibility for Head Start is known.

Measures

Demographic questions. Upon enrollment, basic demographic information was gathered. Items on this portion of the survey include: mother's age, child's age, child's gender, mother's marital status, number of child's siblings in the home both older and younger than the target child (indicative of birth order), and whether or not the child spends 10 or more hours per week in childcare outside the home.

Emotion Regulation Checklist. The Emotion Regulation Checklist (ERC; Shields, & Cicchetti, 1997) is a 24-item scale designed to measure self-regulation in a child as reported by someone other than the child (in this case, the mother) with an internal consistency reported at .89 (Shields, & Cicchetti, 1997). Items are reported on a 4-point scale: 1 = "Never; 2 = "Sometimes"; 3 = "Often"; 4 = "Almost Always". This scale yields two subscales: Lability/Negativity (higher scores indicate more dysregulation) and Emotion Regulation (higher scores indicate better regulation). Items from each subscale are summed to create a total score for each subscale. The internal consistency for the Lability/Negativity subscale is .96; for the Emotion Regulation subscale it is .83 (Shields, & Cicchetti, 1997). In the current study, internal consistency for the Lability/Negativity 15-item subscale was .763, and for the 8-item Emotion Regulation subscale was .464. Internal consistency can be improved to .571 by dropping three

items from the subscale (items 1, 16, and 18), this is, however, still below the acceptable cut-offs for internal consistency, hence the subscale is excluded from all analyses. Shields and Cicchetti (1997) note that there is one item that does not load on either factor (lability/negativity or emotion regulation).

PICI: Maternal behavior. Questions were adapted from the Parental Interview on Caregiving authored by Beth S. Russell (not published). This is a 4-question self-report measure that uses open-ended response questions as well as visual analog scale questions to ask parents about their caregiving experiences. Questions included “Do you teach your child specific strategies for being patient or waiting? If yes, please describe”; “Is your child good at calming themselves down after being upset, or is your help needed to soothe them?” (“needs my help to calm down” – “calms down independently”); “Are you careful about showing your emotions when you spend time with your child?” (“I am careful about how I show my emotions” – “I let all my emotions show”); “If you monitor how you show emotions to your child, which emotions are you the most attentive to?”. Narrative answers to these open-ended questions were coded on if/how mothers teach regulation strategies to their children. The codes for how mothers teach regulation strategies come from previous literature indicating that attention plays a role in waiting – those that are distracted from attending to the desired outcome tend to be better at delaying their gratification (Peake et al., 2002). The codes for strategies taught by mothers to help children learn to wait included “Doesn’t use any”; “Be patient – no further direction given”; “Distraction to another task/object” (e.g., go find me some crayons); and “Distraction to a mental task” (e.g., the game I Spy).

Tantrum behavior. For this study, additional questions were added to the PICI to assess temper tantrum behavior. Mothers provided the following information about the child’s

tantrums: the frequency (6-point scale: “several each day” to “less than one per month”) and duration of tantrums (5-point scale: “less than five minutes” to “can take hours”), how often mothers experience negative emotions in response to their child’s tantrums (4-point scale: “never” to “always”), and how long it takes for mothers to calm down from a tantrum situation (5-point scale: “less than five minutes” to “can take hours”). A vignette scenario was also developed for the purpose of this study to look at how mothers and preschoolers mutually regulate stressful situations in the home (i.e., temper tantrums). Mothers were given a temper tantrum scenario and were asked to explain how this scenario would play out in their home. Prompts for describing the scenario included “how do you usually respond?”; “How does your child calm down”; and “What steps do you take to help yourself feel better?” (mothers who did not report feeling negative emotions in response to tantrums left this question blank). Responses were coded using a grounded theory approach (as explained by Charmaz, 2001) looking for themes among strategies used to calm down from tantrum situations. Once themes for strategies were established, responses were coded for strategies used; strategies included “none” (e.g., cry it out); “physical distraction” (e.g., play with object); “time out” (e.g., sit on bed); “comfort” (e.g., hug); “cognitive distraction” (e.g., counting); and “other” (e.g., bribes). Themes displayed through responses regarding how the mother reports the child calms down and how she herself calms down were compared to one another (see analysis section for description of coding). Raters coded open-ended responses; inter-rater reliability for two raters was established with 12.5% of the sample (Inter-rater reliability estimated through Kappa = .968, $p < .01$).

Procedure

This study was part of a larger project examining self-regulation in preschool children and dyadic interactions between mothers and their preschool aged children. As part of the larger study, mothers from Waterbury (site one) responded to flyers distributed at their local Head Start

programs by calling or e-mailing to schedule a play session. Upon arrival to the lab at a New England university on the day of the play session, mothers filled out informed consent sheets. Dyads were instructed to play as they normally would at home in the lab for no more than twenty-five minutes. Upon completion of the free play session, mothers were asked to fill out a few questionnaires; it took approximately fifteen minutes for mothers to complete the questionnaires. Only the responses to the questionnaires, not the data from the play sessions, pertain to the current study; results are presented below.

Mothers from Shrewsbury (site two) responded to flyers distributed at sports and activities classes by e-mailing to schedule a time to complete the questionnaires or expressing interest to the researcher directly during visits to the site. Mothers were given an information sheet that described the purpose and procedures of the study prior to filling out the questionnaires. Due to the anonymous nature of the questionnaires, reading the information sheet and completing the questionnaire set implied consent in the Shrewsbury sample.

Analysis

Strategy coding. A grounded theory approach was used when coding for strategies mothers and their children used to calm down from tantrum situations. According to Charmaz (2001), grounded theory includes “creation of analytic codes and categories developed from data, not preconceived hypotheses” (p. 336). This means that codes were not created prior to looking at the data. Coders in the current study examined the responses from participants and identified similarities in answers. Groupings of similar strategies were then categorized by an overarching theme surrounding how one calms, or regulates emotions (i.e., none, physical distraction, comfort, time out, cognitive distraction, and other). Because similar answers were given to describe how children and mothers calm down, the same overarching themes were used for both

mothers and children so that they may later be compared during data analysis. Please see Appendix A for sample participant responses for each strategy for both mothers and children.

Those that were categorized under “none” had mother reported answers that were not clear on how calming occurs – no description is provided for a strategy utilized to calm down. In situations where “physical distraction” was used, there was an effort to deter attention away from the emotional experience at hand using a physical object (e.g., a toy or a phone). The strategy “comfort” was used when mothers reported behaviors that she or her child typically engage in that bring comfort when distressed. The individual removing himself or herself from the situation and taking the time to compose his or her own emotions characterizes the strategy “time out.” Those who used “cognitive distraction” diverted attention away from the emotional experience by distracting the mind (e.g., counting or prayer). Finally, those who were coded as “other” provided a strategy that was not accounted for within the prior codes. Due to the fact that a strategy was provided, these individuals could not be coded as “none”, and because the strategy provided did not fit into the prior codes, the “other” code was developed. Examples of strategies included within the “other” code included bribing or threatening children to help children calm down or mothers utilizing cognitive re-appraisal techniques to help themselves calm down.

These codes developed for the current study are also supported by the literature. Stansbury and Sigman (2000) discuss regulation strategies: comforting behaviors; instrumental behaviors; distraction behaviors; and cognitive reappraisals. The current study’s strategy comfort is similar to Stansbury and Sigman’s (2000) comforting behaviors, physical and cognitive distraction to Stansbury and Sigman’s distraction behaviors, and the current study’s time out strategy is similar to instrumental behaviors.

Hypothesis testing. In order to test the primary hypotheses, correlation analysis, t-tests, and chi-squared tests were used. For the purposes of this study, a .10 significance level is used due to the low sample size and subsequent low power (Cohen, 1992; Suresh & Chandrashekara, 2012).

Results

Descriptive Statistics

Demographic information was gathered from all participants. The results for child gender, childcare breakdown, mother's marital status, child's birth order, frequency of temper tantrums, and duration of temper tantrums as well as frequency of the mother's negative emotions and how long it takes the mother to calm down are reported in Table 1. A majority of the children were female, had married mothers, had siblings and were first born, spent more than ten hours a week in childcare outside of the home, experienced temper tantrums at least once daily, and took less than five minutes to calm down from a tantrum. Means and standard deviations for parent age, child age, birth order, Lability subscale, number of reported strategies taught, number of reported calming strategies used by the mother and the child, mother-reported frequency and duration of tantrums, mother-reported frequency and duration of mother's negative emotions are reported in Table 2.

Site differences. There were several differences across the sites. A majority of the children from Waterbury were male (60%), whereas a majority of the children from Shrewsbury were female (82.4%; $t_{(30)} = -2.658, p < .05$). On average, the mothers from Waterbury were younger ($M = 30.8, SD = 7.173$) than those from Shrewsbury ($M = 35.13, SD = 4.319; t_{(29)} = -2.049, p < .05$). A majority of the mothers from Waterbury were not married (80%), compared to a majority of the mothers from Shrewsbury who were married (94.1%; $t_{(30)} = -6.269, p < .01$).

All of the children from Waterbury spent greater than ten hours per week in childcare outside of the home, where 35.3% of the sample from Shrewsbury spent fewer than ten hours a week in childcare outside the home ($t_{(30)} = 2.770, p < .01$). A majority of the children from Waterbury (60%) did not have siblings inside of the home, whereas a majority of the children from Shrewsbury (88.2%) did have siblings inside of the home ($t_{(30)} = -3.220, p < .01$). Finally, a majority of the children from Waterbury experienced tantrums at least once daily (73.3%), where only 11.8% of the sample from Shrewsbury experienced tantrums at least once daily ($t_{(29)} = 3.638, p < .01$). T-test results for site differences with standardized effect sizes (Cohen's *D*) are reported in Table 3. Though there were several site differences found, none of these differences could be attributed to demographic differences (e.g., family income, race, ethnicity, parent education level), therefore results are analyzed using the entire sample rather than by site.

Hypothesis Testing

H1. The hypothesis that mothers who report teaching strategies to their children would have children with better emotion regulation abilities was tested using a t-test. No significant mean differences were found on ERC lability scores between mothers who reported teaching patience strategies ($M = 30.21, SD = 5.432$) and mothers who did not report teaching strategies to their children ($M = 31.00, SD = 3.162$), $t_{(30)} = .280, p > .10, d = .177$.

H2. The primary hypothesis, that children who have higher mother-reported regulation abilities would also have shorter tantrum episodes, was tested using correlation analysis. Results indicate a significant correlation between mother-reported ERC lability scores and mother-reported duration of tantrums, $r = .462, p < .01$. These results indicate that there is a relationship between a child's emotional lability and the length of his/her tantrums, as a child's emotion regulation abilities become more dysregulated, his/her tantrums tend to become longer.

H3. The hypothesis that mothers who report teaching their children patience strategies would have children who have shorter tantrums was tested using a t-test. Significant mean differences were found on length of tantrums between mothers who reported teaching patience strategies ($M = 1.64$, $SD = .780$) and mothers who did not report teaching patience strategies to their children ($M = 2.50$, $SD = .577$), $t_{(30)} = 2.104$, $p < .05$, $d = 1.254$. This indicates that children who were taught patience strategies had shorter tantrums than those children who were not taught patience strategies.

H4. Chi-square analysis was used to test the hypotheses that there would be similarities between how mothers reported calming down from tantrum situations and how mothers reported their child calms down from tantrum situations. As noted earlier, the themes that arose from an initial review of the data resulted in the following categories of strategies for both children and mothers: none, physical distraction, comfort, time out, cognitive distraction, and other. Chi square statistics for each strategy were as follows: none: $X^2(1) = .229$, $p > .10$; physical distraction: $X^2(1) = 4.710$, $p < .05$ (see Table 4 for crosstabulation of significant result); comfort: $X^2(1) = .880$, $p > .10$; time out: $X^2(1) = 2.59$, $p > .10$; cognitive distraction: $X^2(1) = 0.066$, $p > .10$; and other: $X^2(1) = 1.582$, $p > .10$. These results indicate that there are no significant similarities between how mothers report they calm down from a tantrum situation and how mothers report their children calm down from a tantrum situation with the exception of the use of physical distraction. This result indicates some similarity between the mother's use of physical distraction and the child's use of physical distraction to calm down from a tantrum.

Interesting Findings

Following the hypothesis testing, exploratory analyses revealed some interesting findings. Results showed a significant correlation between reported length of the child's tantrum and how

long the mother reports it takes her to calm down from a tantrum $r = .530, p < .01$. These results indicate that the longer the child's tantrum lasts, the longer it takes for the mother to calm down from the situation. A correlation was also found between a child's lability and how often mothers report their children have tantrums $r = .537, p < .01$. These results show that as a child becomes more dysregulated, he/she tends to experience tantrums more often. Please see Table 5 for correlations among all major variables.

The significant finding for H3 regarding teaching patience strategies and length of tantrums prompted further investigation of the strategies mothers reported teaching their children and whether or not these strategies have an impact on children's tantrums. T-test comparisons were used to examine mean differences in length of tantrums for children who were taught distraction techniques and children who were not taught distraction techniques. Results indicate a significant mean difference in length of tantrums between children who were taught distraction techniques ($M = 1.93, SD = .884$) and those who were not taught distraction techniques ($M = 1.31, SD = .480; t_{(26)} = -2.274, p < .05, d = .8716$). This indicates that children who were taught distraction techniques had longer tantrums than those who were not taught distraction techniques.

Discussion

The main purpose of this study was to explore emotion regulation in preschool aged children with a focus on temper tantrums. Mother reported data was collected to examine the influence mothers have on the development of emotion regulation abilities in their children. Mothers reported information on their child's ability to regulate as well as answered questions regarding their child's temper tantrums. The primary hypotheses were tested; results are discussed by hypothesis below.

Lability and Teaching Regulation Abilities

No significant mean differences were found in children's emotional lability among children who were taught regulation strategies and those who were not taught regulation strategies. This is likely due to the fact that there was little variation among lability scores. The lowest score one could obtain on the lability subscale of the ERC is a 15 (less dysregulation) and the highest is a 60 (more dysregulation). The range of scores in the current sample was 23 through 47; only two children had scores above 37.5 (the midpoint of the scale). This indicates that within this sample, most of the children were reportedly less dysregulated than average.

The lack of significance in regards to lability scores may also be due to the nature of mothers reporting on their child's behavior. Mother's reports surrounding her own behavior may be more accurate than reports on aspects of her child's behavior. As mentioned before, a mother's interactions with her child are influenced by her perceptions of her child (Eisenberg & Fabes, 1994). This may be represented in the current data as a mother's perception of her child's emotion regulation may not be accurately represented when she describes her child's tantrum behaviors, but rather confounded by her perceptions of her child. The mother may be either over or under representing some aspect of her child's emotionality within her reporting.

Tantrums and Lability

A significant correlation was found between mother-reported child lability and length of temper tantrums. Not surprisingly, results showed that children who had a more difficult time regulating their emotions (more dysregulation) tended to have longer tantrums. As children experience a tantrum, those who have better regulatory abilities will likely be able to resolve the tantrum situation more quickly due, at least in part, to their ability to control their emotions in a stressful situation.

Tantrums and Teaching Regulation Abilities

Results showed significant mean differences in the length of children's tantrums among children who were taught regulation strategies and those who were not taught regulation strategies. This is interesting because this result implies that mothers may influence regulation in children, in this case, the child's ability to end a tantrum sooner. This prompted further investigation regarding which strategies children were taught. When the sample is broken down further to examine the influence teaching distraction techniques has on the length of tantrums, results showed those who were taught distraction techniques actually had longer tantrums than those who were not taught distraction techniques. A possible explanation for these results may be that those with shorter tantrums did not need to be taught distraction techniques because they already were able to control their emotions within a short period of time. Mothers who had children with longer tantrums may report teaching distraction strategies in order to facilitate the regulation process in her child.

Comparing Strategies

When it comes to strategies used by the child and by the mother to calm down from temper tantrum situations, the data show no statistically significant results, with the exception of physical distraction. Comparing strategies used by both mothers and their children, mothers reported using time out most often ($n = 16$), followed by cognitive distraction ($n = 12$), other ($n = 10$), comfort ($n = 5$), physical distraction ($n = 4$), and none ($n = 2$). Mothers reported their children using comfort strategies most often ($n = 12$), followed by time out ($n = 11$), physical distraction ($n = 9$), cognitive distraction ($n = 7$), and other and none (both $n = 3$).

The lack of similarity in strategies used may be due to the fact that children this age do not yet understand how to use the various calming strategies; that is, some strategies may not be

developmentally appropriate for some children. Social learning theory explains that children learn in part via imitating behaviors modeled by others (Laible & Thompson, 2002; Perlman et al., 2007). When these behaviors are developmentally inappropriate or difficult to see in others (as some of those strategies under “other” may be – e.g. cognitive reframing), however, perhaps they are more difficult for the parent to model or for the child to imitate. Among some of the strategies reportedly used most often, both mothers and children use physical distraction. Previous research surrounding delay of gratification tasks highlights that children who use distraction techniques and do not focus on the desired object tend to perform better at the wait task (Grolnick et al., 1996). It may be that this behavior is also one that children have learned to imitate well.

The lack of significant results regarding the strategies used to calm down may also be attributed to the possibility that the answers that the survey questions elicited from mothers were not necessarily the typical calming strategies used by mothers. The questions that were asked looked to understand how mothers calm down when their child has a tantrum. The strategies the mother uses during a tantrum scenario may not be the same strategies she would use in other stressful life situations (i.e., an unexpected large expense). Because of the emotional distress children may experience during a tantrum, they may not be attuned to how their mother is regulating her own emotions in that situation; therefore the strategies the mother and child use to calm during a tantrum situation may differ. It may be that children practice regulation strategies through modeling strategies mothers used previously during other stressful situations (like the unexpected expense) rather than modeling strategies the mother uses during the tantrum situation. More research is necessary to uncover whether or not mothers and their children use similar strategies to regulate emotions.

Interesting Findings

There were trends with respect to how long mothers experience negative emotions when their child has a temper tantrum. Significant results showed that as children experienced longer temper tantrums, mothers tended to take longer to calm down from their own negative emotions. It may be that the child's tantrum is a difficult situation for the mother to cope with and the longer the child tantrums, the longer it takes for the mother to calm down. As Dix (1991) mentions, parents typically respond emotionally to children's emotions due to the fact that they likely wish for their child to be well (emotionally and physically), which may partially explain why mother's emotions were correlated with aspects of children's tantrums.

Results also showed a significant correlation between how frequently children tantrum and their emotional lability. Those children that were more dysregulated tended to have more frequent tantrums. It seems that children who are better able to control their emotions tend to have fewer temper tantrums in part due to their emotion regulation abilities.

Implications for Future Work

The current study examined the social influence mothers may have on the development of emotion regulation in their preschool aged children. In order to accomplish this, mothers described a temper tantrum and described how both she and her child calm down from temper tantrum episodes. Understanding how a child develops the ability to regulate emotions can help researchers, professionals, and parents better guide this often-difficult aspect of early childhood development. Previous research has clearly indicated that there is a social influence on the development of emotion regulation, particularly from parents (Berlin & Cassidy, 2003; Russell, et al., 2013; Silverman & Ippolito, 1995). One must learn to regulate emotions and behaviors so that one can behave in socially appropriate ways (Kopp, 1982). During the preschool years,

children are quickly gaining knowledge about what is considered acceptable and not acceptable, and they are learning strategies regarding how to control their behavior and emotions. As researchers, understanding how emotion regulation develops in young children can inform other professionals who work with children to better understand how to positively influence this development. As some of these strategies may be learned through interactions with parents, it is also essential that parents understand how they can influence the development of emotion regulation.

This is especially true during times of conflict between a parent and a child. Dix (1991) notes that conflict occurs approximately 3 ½ to 15 times an hour between parents and their young children. It seems reasonable to expect that some of these conflicts may escalate to a tantrum on the part of the child, especially when the tantrum is a result of mismatched goals between the parent and the child. A child may have a temper tantrum due to the inability to express his or her emotions effectively. This outburst may also negatively affect the parent, potentially creating feelings of annoyance, distress, anger, etc. in the parent as Dix (1991) indicates occurs when a child's behavior activates an emotional response in a caregiver. The parent and the child must both utilize emotion regulation strategies during this situation.

Laible and Thompson (2002) mention that episodes of parent-child conflict may help children to understand emotions. How a parent responds to a child's emotional expressions and how a parent expresses emotions influences a child's understanding of emotions (Laible & Thompson, 2002). Understanding emotional lives of preschoolers may help researchers, educators, and other professionals to provide assistance to parents when necessary.

Limitations

The current study was limited in several ways. First, the sample size was relatively small. A larger sample size for each site may have brought about more significant results. Second, all of the data used in the current study was mother-reported; results may have been different had data from an emotion regulation task been used and a temper tantrum been witnessed in order to code for actual calming strategies used by the mother and the child. Third, the current study only looks at mother-child relationship; other relationships that may influence the development of self-regulation are not investigated (i.e., father-child, teacher-child, sibling-child). Collecting data from other individuals who spend large amounts of time with the child would have been beneficial, especially when asking questions about the child's typical behavior. Future research should consider data collection from additional important individuals in the child's life. All of the children were recruited from places that provide services to families outside of the home; because of this, the mother's reports of the child's behavior may not be completely accurate as she is not with the child all the time. In addition, mother reports may also be skewed due to her perceptions of her child (Eisenberg & Fabes, 1994). In order to account for this perception, an objective observer may also be considered for data collection purposes. Fourth, the current study looked at whether or not mothers teach their child regulation strategies, but did not examine the amount of exposure mothers have to children (i.e., do they work in a preschool?). This type of knowledge/training may influence how the mother interacts with her child, therefore influencing her perceptions of her child. Fifth, within the current study, there were many site differences that may have influenced the results, such as the large gender difference between sites, the large difference in marital status, the difference in economic level (obtained from census data), etc. which made it difficult to compare sites because it is unknown which variable(s) influenced the

results. Future research should collect additional demographic information from participants and attempt to obtain a more representative sample of the population. Accounting for these limitations may provide more information about the development of emotion regulation within various parts of the greater population, thus making the results more generalizable.

The current sample is too small to break children into groups based on type of strategy used, but future research should examine whether or not the type of strategy used is related to the child's emotion regulation ability level. Previous research indicates that during a self-regulation task, children who are able to divert their attention away from the proposed desired outcome by using distraction techniques are more successful at waiting (Peake et al., 2002). These findings may transfer to the emotion regulation literature if the strategy a child uses to calm down is related to his or her tantrum length, tantrum frequency, or emotion regulation ability. It may be that use of certain strategies may result in more successful regulation. Future research should continue to investigate this idea with larger sample sizes.

Future research may also consider taking a more child centered approach to understanding the development of emotion regulation. Examining child behavior patterns may lead to a better understanding of how parents respond. Grouping children based on their frequency of tantrums, length of tantrums, or age, rather than based on whether or not mothers report teaching their children patience strategies may have yielded different results. It may be that there are patterns between child age and those who tantrum frequently, moderately, and rarely. Understanding some of these patterns may lead to better support for families who perhaps have an older child (e.g. 5-year old) who tantrums frequently (a behavior that is expected to decrease with age; Daniels et al., 2012). The current sample is too small to look into

grouping children in this way, but future research with larger samples should consider this approach.

Conclusion

Previous research indicates that children who have self-regulation difficulties may face negative outcomes later in life. These children may have greater difficulty in school (Jacobsen et al., 1997), be at greater risk of engaging in risky behaviors (Vazsonyi, & Huang, 2010), or develop behavioral disorders (Carlson & Wang, 2007). In order to prevent these outcomes, researchers need to understand how self-regulation develops and what influences its development so that this information can be relayed to those in helping professions and parents.

Overall, the current study sought to understand a situation where emotion regulation is required from the point of view of the mother. The results of this study support previous research that indicates there is a familial influence on the development of children's regulatory behaviors (Feldman & Klein, 2003; Raikes et al., 2007; Russell et al., 2013; Silverman & Ippolito, 1995). It seems as though whether or not children are taught distraction strategies has an influence on the length of their tantrums. Future research should continue to investigate this finding and look deeper into which strategies seem to be most helpful for children in regulating their emotions. Though a majority of the calming strategies between mothers and children yielded non-significant results, there may be some utility in further investigation to understand how mothers and children cope with conflict situations. Future research should continue to understand where the differences lie in order to help children and parents become better regulators of their emotions.

References

- Berlin, L. J., & Cassidy, J. (2003). Mothers' self-reported control of their preschool children's emotional expressiveness: A longitudinal study of associations with infant-mother attachment and children's emotion regulation. *Social Development, 12*(4), 477-495.
- Carlson, S. M., & Wang, T. S. (2007). Inhibitory control and emotion regulation in preschool children. *Cognitive Development, 22*(4), 489-510.
- Causadias, J. M., Salvatore, J. E., & Sroufe, L. (2012). Early patterns of self-regulation as risk and promotive factors in development: A longitudinal study from childhood to adulthood in a high-risk sample. *International Journal of Behavioral Development, 36*(4), 293-302.
- Charmaz, K. (2001) Grounded theory. In Robert M. Emerson (Ed.), *Contemporary field research perspectives and formulations* (2nd ed.) (pp. 335-352). Long Grove, IL: Waveland Press, Inc.
- Cohen, J. (1992). A power primer. *Psychological Bulletin, 112*(1), 155-159.
- Cole, P. M., Dennis, T. A., Smith-Simon, K. E., & Cohen, L. H. (2008). Preschoolers' emotion regulation strategy understanding: Relations with emotion socialization and child self-regulation. *Social Development, 18*(2), 324-352.
- Cole, P. M., Teti, L. O., & Zahn-Waxler, C. (2003). Mutual emotion regulation and the stability of conduct problems between preschool and early school age. *Development and Psychopathology, 15*(1), 1-18.
- Daniels, E., Mandleco, B., & Luthy, K. E. (2012). Assessment, management, and prevention of childhood temper tantrums. *Journal of the American Academy of Nurse Practitioners, 24*(10), 569-573.

- Dix, T. (1991). The affective organization of parenting: Adaptive and maladaptive processes. *Psychological Bulletin*, 110(1), 3-25.
- Einon, D., & Potegal, M. (1994). Temper tantrums in young children. In M. Potegal & J. F. Kunston (Eds.), *The dynamics of aggression* (pp. 157-194). Hillsdale, NJ: Lawrence Erlbaum Associates, Publishers.
- Eisenberg, N., & Fabes, R. (1994). Mothers' reactions to children's negative emotions: Relations to children's temperament and anger behavior. *Merrill-Palmer Quarterly*, 40(1), 138-156.
- Fabes, R. A., Eisenberg, N., Jones, S., Smith, M., Guthrie, I., Poulin, R., Shephard, S., & Friedman, J. (1999). Regulation, emotionality, and preschoolers' socially competent peer interactions. *Child Development*, 70(2), 432-442.
- Feldman, R., & Klein, P. S. (2003). Toddlers' self-regulated compliance to mothers, caregivers, and fathers: Implications for theories of socialization. *Developmental Psychology*, 39(4), 680-692.
- Fiese, B. H., & Sameroff, A. J. (1999). I. The family narrative consortium: A multidimensional approach to narratives. *Monographs of the Society for Research in Child Development*, 64(2), 1-36.
- Giesbrecht, G. F., Miller, M. R., & Müller, U. (2010). The anger-distress model of temper tantrums: Associations with emotional reactivity and emotional competence. *Infant and Child Development*, 19(5), 478-497.
- Grolnick, W. S., Bridges, L. J., & Connell, J. P. (1996). Emotion regulation in two-year-olds: Strategies and emotional expression in four contexts. *Child Development*, 67(3), 928-941.

- Graziano, P. A., Calkins, S. D., & Keane, S. P. (2011). Sustained attention deployment during the toddlerhood to preschool period: Associations with toddlers' emotion regulation strategies and maternal behavior. *Infant and Child Development*, 20, 389-408.
- Harris, R. C., Robinson, J. B., Chang, F., & Burns, B. M. (2007). Characterizing preschool children's attention regulation in parent-child interactions: The roles of effortful control and motivation. *Journal of Applied Developmental Psychology*, 28(1), 25-39.
- Head Start. (2014). *Poverty guidelines and determining eligibility for participation in Head Start programs*. Retrieved from <http://eclkc.ohs.acf.hhs.gov/hslc/tta-system/operations/mgmt-admin/eligibility-enroll/income/PovertyGuideline.htm>
- Huang, K., Teti, D. M., Caughy, M. O., Feldstein, S., & Genevro, J. (2007). Mother-child conflict interaction in the toddler years: Behavior patterns and correlates. *Journal of Child and Family Studies*, 16, 219-241.
- Jacobsen, T., Huss, M., Fendrich, M., Kruesi, M. P., & Ziegenhain, U. (1997). Children's ability to delay gratification: Longitudinal relations to mother-child attachment. *The Journal of Genetic Psychology: Research and Theory on Human Development*, 158(4), 411-426.
- Jahromi, L. B., & Stifter, C. A. (2008). Individual differences in preschoolers' self-regulation and theory of mind. *Merrill-Palmer Quarterly: Journal of Developmental Psychology*, 54(1), 125-150.
- Karreman, A., van Tuijl, C., van Aken, M. G., & Dekovic, M. (2006). Parenting and self-regulation in preschoolers: A meta-analysis. *Infant And Child Development*, 15(6), 561-579.
- Kopp, C. B. (1982). Antecedents of self-regulation: A developmental perspective. *Developmental Psychology*, 18(2), 199-214.

- Laible, D. J., & Thompson, R. A. (2002). Mother-child conflict in the toddler years: Lessons in emotion, morality, and relationships. *Child Development*, 73(4), 1187-1203.
- Mischel, W., Shoda, Y., & Rodriguez, M. L. (1989). Delay of gratification in children. *Science*, 244(4907), 933-938.
- Mittal, R., Russell, B. S., Britner, P. A., & Peake, P. K. (2013). Delay of gratification in two- and three-year-olds: Associations with attachment, personality, and temperament. *Journal of Child and Family Studies*, 22(4), 479-489.
- Österman, K., & Björkqvist, K. (2010). A cross-sectional study of onset, cessation, frequency, and duration of children's temper tantrums in a nonclinical sample. *Psychological Reports*, 106(2), 448-454.
- Peake, P. K., Hebl, M., & Mischel, W. (2002). Strategic attention deployment for delay of gratification in working and waiting situations. *Developmental Psychology*, 38(2), 313-326.
- Perlman, M., Garfinkel, D. A., & Turrell, S. L. (2007). Parent and sibling influences on the quality of children's conflict behaviours across the preschool period. *Social Development*, 16(4), 619-641.
- Raikes, H., Robinson, J. L., Bradley, R. H., Raikes, H. H., & Ayoub, C. C. (2007). Developmental trends in self-regulation among low-income toddlers. *Social Development*, 16(1), 128-149.
- Raver, C. C. (1996). Relations between social contingency in mother-child interaction and 2-year-olds' social competence. *Developmental Psychology*, 32(5), 850-859.

- Russell, B. S., Londhe, R., & Britner, P. A. (2013). Parental contributions to the delay of gratification in preschool-aged children. *Journal of Child and Family Studies*, 22(4), 471-478.
- Shields, A., & Cicchetti, D. (1997). Emotion regulation among school-age children: The development and validation of a new criterion q-sort scale. *Developmental Psychology*, 33, 906-916.
- Silverman, I. W., & Ippolito, M. F. (1995). Maternal antecedents of delay ability in young children. *Journal of Applied Developmental Psychology*, 16(4), 569-591.
- Stansbury, K., & Sigman, M. (2000). Responses of preschoolers in two frustrating episodes: Emergence of complex strategies for emotion regulation. *The Journal of Genetic Psychology: Research and Theory on Human Development*, 161(2), 182-202.
- Suresh, K. P., & Chandrashekara, S. (21012). Sample size estimation and power analysis for clinical research studies. *Journal of Human Reproductive Science*. 5(1), 7-13.
- United States Census Bureau. (2014a). Northborough CDP QuickFacts from the US Census Bureau. Retrieved from <http://quickfacts.census.gov/qfd/states/25/2546785.html>
- United States Census Bureau. (2014b). Waterbury (city) QuickFacts from the US Census Bureau. Retrieved from <http://quickfacts.census.gov/qfd/states/09/0980000.html>
- Vazsonyi, A. T., & Huang, L. (2010). Where self-control comes from: On the development of self-control and its relationship to deviance over time. *Developmental Psychology*, 46(1), 245-257.
- Wakschlag, L. S., Choi, S. W., Carter, A. S., Hullsiek, H., Burns, J., McCarthy, K., Leibenluft, E. & Briggs-Gowan, M. J. (2012). Defining the developmental parameters of temper loss in

early childhood: Implications for developmental psychopathology. *Journal of Child Psychology and Psychiatry*, 53(11), 1099-1108.

Table 1

Demographic Characteristics of Participants

Characteristic	Waterbury		Shrewsbury		Total Sample	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Child Gender						
Male	9	60.0	3	17.6	12.0	37.5
Female	6	40.0	14	82.4	20.0	62.5
Childcare Outside the Home						
Fewer than 10 Hours	0	0.0	6	35.3	6.0	18.8
Greater than 10 Hours	15	100.0	11	64.7	26.0	81.3
Marital Status						
Single	12	80.0	1	5.9	13.0	40.6
Married	3	20.0	16	94.1	19.0	59.4
Child's Siblings						
None	9	60.0	2	11.8	11.0	34.4
Some	6	40.0	15	88.2	21.0	65.6
Birth Order						
First	9	60.0	8	47.1	17.0	53.1
Second	3	20.0	5	29.4	8.0	25.0
Third	2	13.3	3	17.6	6.0	18.8
Seventh	1	6.7	0	0.0	1.0	3.1
Teach Strategies						
No	3	20.0	1	5.9	4.0	12.5
Yes	12	80.0	16	94.1	28.0	87.5
Frequency of Tantrums						
Several each day	5	33.3	0	0.0	5.0	15.6
Once daily	6	40.0	2	11.8	8.0	25.0
Several each week	1	6.7	3	17.6	4.0	12.5
Once weekly	1	6.7	4	23.5	5.0	15.6
Once monthly	1	6.7	3	17.6	4.0	12.5
< 1 per month	1	6.7	4	23.5	5.0	15.6
Duration of Tantrums						
< 5 minutes	4	26.7	10	58.8	14.0	43.8
5 -15 minutes	9	60.0	4	23.5	13.0	40.6
15 - 30 minutes	1	6.7	3	17.6	4.0	12.5
As long as 60 minutes	1	6.7	0	0.0	1.0	3.1
Hours	0	0.0	0	0.0	0.0	0.0
Frequency - Mom's Negative Emotions						
Never	2	13.3	1	5.9	3.0	9.4
Rarely	7	46.7	10	58.8	17.0	53.1
Often	6	40.0	4	23.5	10.0	31.3
Always	0	0.0	2	11.8	2.0	6.3
Time Required for Mom to Calm						
< 5 minutes	10	66.7	8	47.1	18.0	56.3
5 -15 minutes	2	13.3	4	23.5	6.0	18.8
15 - 30 minutes	1	6.7	2	11.8	3.0	9.4
As long as 60 minutes	1	6.7	0	0.0	0.0	0.0
Hours	0	0.0	0	0.0	0.0	0.0

Table 2

Means and Standard Deviations for Major Variables

	Waterbury		Shrewsbury		Total	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Parent Age	30.80	7.17	35.13	4.32	33.03	6.18
Child Age (Months)	46.40	6.20	47.65	6.51	47.06	6.29
Birth Order	1.87	1.60	1.76	0.83	1.81	1.23
Lability Subscale	32.27	6.21	28.53	3.37	30.31	5.17
Number of strategies taught	1.08	0.52	1.31	0.48	1.21	0.50
Number of strategies used by child	1.20	0.56	1.24	0.56	1.22	0.55
Number of strategies used by mother	1.53	0.52	0.94	0.93	1.23	0.81
Temper Tantrum Frequency	4.67	1.54	2.75	1.39	3.68	1.74
Temper Tantrum Duration	1.93	0.80	1.59	0.80	1.72	0.80
Frequency of Mom's Negative Emotions	2.27	0.70	2.41	0.80	2.34	0.75
Duration of Mom's Negative Emotions	1.57	1.16	1.57	0.76	1.57	0.96

Note: Potential range for number of strategies taught: 0-3. Potential range for number of strategies used by child and number of strategies used by mother: 0-5

Table 3

Site differences - Mean comparisons

Variable	Waterbury		Shrewsbury		<i>t</i>	<i>df</i>	<i>p</i>	95%CI		Cohen's <i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>				LL	UL	
Parent Age	30.80	7.17	35.13	4.32	-2.05	29	0.05	-7.91	-0.74	0.73
Child Age	46.40	6.20	47.82	1.51	-0.55	30	0.58	-5.07	2.58	0.32
Child Gender	0.40	0.51	0.76	0.44	-2.66	30	0.01	-0.70	-0.15	0.76
Marital Status	1.20	0.41	1.94	0.24	-6.27	30	0.00	-0.94	-0.54	2.18
Child Care	1.00	0.00	0.65	0.49	2.77	30	0.01	0.14	0.57	1.00
Siblings	0.40	0.51	0.94	0.43	-3.22	30	0.00	-0.74	-0.23	1.15
Birth Order	1.87	1.60	1.76	0.83	0.23	30	0.82	-0.65	0.85	0.09
TT Freq.	4.67	1.54	2.75	1.39	3.64	29	0.00	1.02	2.81	1.31
TT Duration	1.93	0.80	1.59	0.80	0.97	30	0.34	-0.31	0.87	0.43
Mom Emotions	2.27	0.70	2.41	0.80	-0.54	30	0.59	-0.60	0.31	0.19
Mom Calming	1.57	1.16	1.57	0.76	0.00	26	1.00	-0.63	0.63	0.00
Are strategies taught	0.80	0.41	0.94	0.06	-1.19	30	0.24	-0.34	0.06	0.47
# Strat. Taught	1.08	0.52	1.31	0.48	-1.21	26	0.24	-0.55	0.09	0.46
# Child Strat.	1.20	0.56	1.24	0.56	-0.18	30	0.86	-0.37	0.30	0.07
# Mom Strat.	1.53	0.52	0.94	0.93	2.19	29	0.04	0.13	1.06	0.79
Lability Sub	32.27	6.20	28.59	3.37	2.12	30	0.04	0.18	7.29	0.74

Note: Parent Age = Age of parent, Child Age = Age of Child in Months; TT Freq = Frequency of temper tantrums; TT Length = how long it takes for the child to calm down; Mom Emotions = how often mom experiences negative emotions during tantrum episodes; Mom Calming = how long it take for mom to calm down during tantrum episodes; # Strat. Taught = the number of strategies taught for patience; # Child Strat = the number of child strategies used to calm down; # Mom Strat. = the number of strategies used by the mother to calm down; Coherence = average coherence score of the mother's narratives; Lability Sub = Lability Subscale of the Emotion Regulation Checklist

Table 4

Calming Strategies Crosstabulation: Physical Distraction (Waterbury)

	Mom Used	Mom Not Used	Total
Child Used	3	4	7
Child Not Used	0	8	8
Total	3	12	15

Table 5

Correlations

	Birth Order	Lability Sub	Parent Age	Child Age	TT Freq.	TT Length	Mom Emotions	Mom Calming	# Strat taught	# Child Stat.	# Mom Strat.
Birth Order	-										
Lability Sub	0.152	-									
Parent Age	0.292	-0.112	-								
Child Age	-0.153	-0.100	0.041	-							
TT Freq.	0.145	.537***	-0.243	-0.262	-						
TT Length	-0.082	.462***	0.008	0.080	.303*	-					
Mom Emotions	-0.068	-0.012	.348*	0.181	0.014	.418**	-				
Mom Calming	0.043	0.284	.359*	-0.008	0.057	.530***	0.372	-			
# Strat. Taught	0.036	-0.106	-0.016	.404**	-0.302	0.045	0.059	-0.072	-		
# Child Stat.	-0.068	-0.138	-0.095	0.785	0.057	0.094	0.187	0.112	0.042	-	
# Mom Stat.	0.133	.332*	-0.033	-0.259	0.143	0.092	0.203	.384**	0.227	0.203	-

Note: * $p < .10$; ** $p < .05$; *** $p < .01$

Birth Order = Birth order of the child; Lability Sub = Lability Subscale of the Emotion Regulation Checklist; Parent Age = Age of parent, Child Age = Age of Child in Months; TT Freq = Frequency of temper tantrums; TT Length = how long it takes for the child to calm down; Mom Emotions = how often mom experiences negative emotions during tantrum episodes; Mom Calming = how long it take for mom to calm down during tantrum episodes; # Strat. Taught = the number of strategies taught for patience; # Child Strat = the number of child strategies used to calm down; # Mom Strat. = the number of strategies used by the mother to calm down; Coherence = average coherence score of the mother's narratives

Appendix A

Categories for Patience Strategies (only relevant for parents who are using strategies):

Which of the following categories best represent what the parent is trying to teach their child about self control? Pick any of the following to best capture this parent's techniques (it's fine to use multiple categories for parents that do multiple things)

Doesn't Use Any	"Be patient" No further direction	Distraction to another task/object	Distraction to a mental task (counting, singing)
<i>No other strategies</i>	<i>Wait; Be patient; Explaining why there is a need to be patient or what patient means; providing a timeframe - in X minutes we can do Y</i>	<i>"Go find me X"; Playing with another object; physical distraction</i>	<i>Asking questions; I Spy; Having a conversation; Specific technique – counting; deep breaths; verbal distraction</i>
1	2	3	4

Categories for the child calming down from a tantrum:

Which of the following represents how the child calms down from his or her tantrum? You may choose all that apply. Please note if you choose "none" then no other category should be chosen.

None	Physical Distraction	Comfort	Time Out	Cognitive Distraction	Other
<i>Cry it out; calm down on own</i>	<i>Kid gets distracted/forgets; mom distracts</i>	<i>Mom gives hug; kid hugs teddy bear</i>	<i>Sit on bed; mom lets kid be</i>	<i>Deep breaths; counting</i>	<i>Anything that does not fit into other code – i.e. Mom bribes, threatens</i>
1	2	3	4	5	6

Categories for the mother calming down from a tantrum:

Which of the following represents how the parent calms down from their child's tantrum? You may choose all that apply. Please note if you choose "none" then no other category should be chosen.

None	Physical Distraction	Comfort	Time Out	Cognitive Distraction	Other
<i>Handle it like an adult; be patient</i>	<i>Facebook; Play with phone; Clean</i>	<i>Eat food; Have a cigarette; Talk with friend</i>	<i>Go for a walk; Go outside; Ignore child; Go in bedroom; Get some air</i>	<i>Breathe; Counting; Pray</i>	<i>Anything that does not fit into other code – i.e. Cognitive Re-appraisal</i>
1	2	3	4	5	6