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The purpose of the current study was to explore the interactive effect of youth's dispositional susceptibility to negative emotions—or negative emotionality (NE)—and parental socialization of youth's negative emotions in predicting adolescent emotion regulation (ER). ER is characterized by an individual's ability to modify activated emotions. It was hypothesized that higher levels of NE in youth would predict subsequent poor ER skills, particularly in youth whose parents endorsed greater levels of non-supportive responses to their negative emotions. However, this effect would be mitigated among Black youth relative to White youth (Dunbar, Leerkes, Coard, Supple, & Calkins, 2017; Leerkes, Supple, & Gudmunson, 2014). In the large-scale, longitudinal study from which the current secondary analyses were drawn, mothers completed measures on youth's NE at 5 years of age and their non-supportive responses to their child's emotions at 5, 7, and 10 years of age. Adolescents ( $N = 371$ ; 70.6% White, 29.4% Black;  $M_{\text{age}} = 15.64$  years) completed a measure of ER at 15 years of age. A multi-group analysis indicated no significant moderation of race on the interaction between NE and non-supportive parental responses. However, a significant main effect of non-supportive responses emerged, where greater non-supportive responses across childhood predicted lower ER in all adolescents. Exploratory post hoc analyses revealed differential outcomes for non-supportive responses to dominant versus submissive emotions as well as differential outcomes for non-supportive responses of discrete emotions to adolescent ER

between Black and White youth. Potential interpretations and contributions to the literature are discussed.

*Keywords:* emotion regulation, negative emotionality, parental emotion socialization

THE DEVELOPMENT OF ADOLESCENT EMOTION REGULATION AMONG  
BLACK AND WHITE YOUTH: THE ROLE OF NEGATIVE  
EMOTIONALITY AND PARENTAL  
EMOTION SOCIALIZATION

by

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## CHAPTER I

### INTRODUCTION

Emotions are central to the human experience. Though our environment evokes emotional responses within us, it is often our emotions that incite our actions. Emotions drive us to seek pleasure or avoid pain, pursue our goals or abandon our efforts, and connect socially or withdraw into isolation (Thompson, 1991). In this way, myriad emotions shape our everyday behaviors. Those who can effectively cope with their emotions and direct them towards positive behaviors may ultimately live fulfilling and engaging lives. However, those who have difficulty regulating their emotions may develop long-term emotional and behavioral problems (Compas et al., 2017). Thus, understanding *how* emotion regulation develops poses an important theoretical and practical question. Both internal and external factors need to be considered (Fox & Calkins, 2003). Specifically, our emotional reactions to stimuli as well as others' responses to these reactions may shape how we learn to manage our emotions over time.

#### **Significance of Emotion Regulation in Adolescence**

Adolescence is a period of heightened vulnerability to various problematic outcomes, particularly internalizing and externalizing disorders (Kessler, Avenevoli, & Ries Merikangas, 2001; Kessler et al., 2005). According to a review by Costello, Copeland, and Angold (2011), rates of depression, some anxiety disorders, and substance use disorders significantly increase from childhood to adolescence. Prevalence statistics

by the National Institutes of Mental Health (NIMH) reveal that an estimated 3.1 million adolescents aged 12 to 17 in the United States had at least one major depressive episode and an estimated 31.9% of adolescents aged 13 to 18 had any anxiety disorder (NIMH, 2018). Results from the 2018 national survey on drug use revealed that approximately 888,000 adolescents (3.7% of all adolescents) aged 12 to 17 met criteria for substance use disorder (Substance Abuse and Mental Health Services Administration [SAMHSA], 2019). Given the high rates of morbidity and mortality associated with these major psychological disorders (Walker, McGee, & Druss, 2015), there is a burgeoning body of theoretical and empirical research elucidating the underlying processes involved in the development of psychopathology.

Developmental neuroscience research has suggested that the increased risk of psychopathology in adolescence may be explained by the disproportionate rates of maturation between the developing brain and affective systems during this sensitive period (Steinberg, 2005). That is, emerging adolescents within Western societies start to experience increased emotional arousability, while brain regions involved in regulatory processes, such as the prefrontal cortex, do not start to mature until later in adolescence. This developmental mismatch between reactivity and regulation implicates risk for problems associated with regulation of affect and behavior in adolescence, particularly for youth deficient in emotion regulation skills (Steinberg, 2005).

Emotion regulation (ER) refers to the “extrinsic and intrinsic processes responsible for monitoring, evaluating, and modifying emotional reactions” (Thompson, 1994). ER can be conceptualized as voluntary/effortful or involuntary/automatic skills,

strategies, or behaviors that change the valence or intensity in the activated emotion (Cole, Martin, & Dennis, 2004). ER can involve suppressing or inhibiting emotional reactivity but also maintaining or enhancing certain emotional states (Zeman, Cassano, Perry-Parrish, & Stegall, 2006).

Rudimentary ER processes emerge in the first year of life and continue to evolve in more complex and sophisticated ways throughout development (Fox & Calkins, 2003). During infancy, behavioral components (e.g., help-seeking such as reaching for the caregiver, self-comforting behaviors such as thumb-sucking) and basic cognitive components (e.g., inhibitory control such as inhibition of motor movements, attentional control such as sustaining focus or shifting attention) undergird the regulation of emotions. Early childhood is marked by increased capacity, flexibility, and integration of these behavioral and cognitive processes to regulate emotions, as children develop self-awareness and are met with a variety of new developmental demands, such as compliance to adults' requests and delaying immediate gratification to reach long-term goals. During mid to late childhood, higher-order cognitive processes such as planning, reasoning, and problem-solving emerge and are used to regulate emotions within a variety of environmental contexts (e.g., school, peer, family). By adolescence, the coordination of these more complex, integrated systems including the development of meta-cognitive processes allows for an increased repertoire of nuanced behaviors and strategies to manage emotions (e.g., cognitive reappraisal, enacting coping skills; Calkins, 2007; Zeman et al., 2006). As adolescents experience heightened developmental demands, such as increased autonomy and engagement in more school and peer related activities, they

also experience increases in emotion-laden events and conflict (Steinberg & Morris, 2001). In the face of emotionally arousing situations, adolescents must successfully regulate their emotions in a manner that is flexible and appropriate to the context, whether by suppressing undesired emotions or maintaining desired ones, in order to engage in behaviors congruent with their goals and values. Not surprisingly, evidence indicates better adjustment and outcomes among youth who have developed effective ER skills, such as higher levels of social competence, better academic achievement, and lower rates of internalizing and externalizing symptoms (Compas et al., 2017; Dent, 2013; John & Gross, 2004; Trentacosta & Fine, 2010).

Conversely, youth with poor ER skills may be unsuccessful or unable to modify their emotional reactions in adaptive ways. Poor ER skills in the form of underdeveloped emotional understanding, dysregulated expressions of anger and sadness, and ruminative responses to distress have been found to predict increases in anxiety symptoms, aggressive behavior, and eating pathology in adolescents (McLaughlin, Hatzenbuehler, Mennin, & Nolen-Hoeksema, 2011). Greater use of maladaptive ER strategies, such as avoidance and rumination, has been associated with internalizing and externalizing disorders, substance use, and eating disorders in youth (Abela, Brozina, & Haigh, 2002; Van Beveren, McIntosh, et al., 2016; for reviews, see Aldao, Nolen-Hoeksema, & Schweizer, 2010; Compas et al., 2017). Moreover, associations between poor ER and maladjustment have been found in non-Western samples such as Turkish, Indonesian, and Chinese youth (Batum & Yagmurlu, 2007; Eisenberg, Pidada, & Liew, 2001; Jin, Zhang, & Han, 2017). Taken together, these concurrent and prospective links between

poor ER and various emotional and behavioral problems implicate emotion dysregulation as a transdiagnostic factor in the development and maintenance of youth psychopathology. Thus, examining pathways to ER development is warranted, specifically the conditions in which youth are more susceptible to developing maladaptive ER skills.

Despite the robust body of research exploring the consequences of poor ER (Compas et al., 2017; Eisenberg, Spinrad, & Eggum, 2010; Essau, LeBlanc, & Ollendick, 2017; McLaughlin et al., 2011), a limited body of longitudinal studies has examined the antecedent processes that underlie ER development during the period of adolescence (Schulz, Waldinger, Hauser, & Allen, 2005; Spangler & Zimmermann, 2014). Based on evidence from largely infant and early childhood research, Fox and Calkins (2003) proposed a developmental theory of emotion regulation or self-control, where innate factors (e.g., temperament) interact with extrinsic factors (e.g., parent socialization) to shape the development of emotional self-control over time. They argue that a child's temperamental reactivity creates opportunities for external intervention (e.g., parental responding), and the way parents respond to the temperament of the child contribute to the development of a repertoire of optimal emotion regulation strategies. Building on this theory, Yap, Allen, and Sheeber (2007) proposed a theoretical model within a developmental psychopathology framework, where adolescents' innate temperament interacts with parenting processes (e.g., parental emotion socialization) to influence the development of adolescent ER skills. Poor adolescent ER, in turn, mediates the influence of these processes on risk for psychopathology. Given their specific focus on the

adolescent period, the current study aims to test a portion of this model by Yap et al. (2007) by examining the interactive role of negative emotionality and parental emotion socialization in predicting adolescent ER.

### **Negative Emotionality**

Negative emotionality (NE) refers to the propensity to experience distress and negative emotions and involves features such as sadness, fear, discomfort, anger, and difficulty to soothe (Rothbart, Ahadi, & Evans, 2000; Rothbart & Putnam, 2002). This form of emotional reactivity has been conceptualized as a dispositional trait-like characteristic that is evident early on in infancy and is relatively stable over time (Briscoe, Stack, Dickson, & Serbin, 2018; Neppl et al., 2010). Within the developmental psychopathology literature, it is well established that youth with high NE are at greater risk for maladjustment, including internalizing and externalizing outcomes (Mezulis, Simonson, McCauley, & Vander Stoep, 2011; Muris, Meesters, & Blijlevens, 2007; Wetter & Hankin 2009; for a review, see Klein, Kotov, & Bufferd, 2011). That is, youth who are predisposed to experience frequent and intense negative emotions are susceptible to enduring patterns of impairing emotional and behavioral issues. Several researchers have theorized that ER may be one mechanism linking emotionality with risk for psychopathology and have called for researchers to directly examine this predictive pathway (Morris, Silk, Steinberg, Myers, & Robinson, 2007; Yap et al., 2007). While several studies have shown concurrent associations between NE and ER (Eisenberg et al., 2001; Murphy, Laible, Augustine, & Robeson, 2015; Van Beveren, McIntosh, et al., 2016), there is a dearth of longitudinal studies examining this predictive link (Chang,

Shelleby, Cheong, & Shaw, 2012; Mezulis et al., 2011). Thus, it remains unclear whether NE assessed in *early childhood* impacts ER in *adolescence*, therefore it is important to investigate whether this link exists within an interval that spans multiple developmental stages.

If certain youth are generally more reactive to negative emotions, they are met with more frequent challenges of regulating these aversive emotions. It is theorized that over time, frequent and intense emotional reactivity hinders the application of higher order cognitive processes required for learning and acquiring adaptive regulatory skills (Blair, 2002). Nevertheless, as youth are embedded in dynamic social environments, social interactions likely influence the degree to which individual differences in NE predict ER.

### **The Moderating Role of Parental Emotion Socialization**

Emotional experiences, from reactivity to regulation, occur within social contexts, thus one's repertoire of emotion regulation capabilities is developed within these contexts. One of the most important social contexts for youth is the parent-child dyad, as parents serve pivotal roles in socializing youth and their emotions throughout development (Zeman et al., 2006). Parents may socialize youths' emotions directly, such as through emotion coaching, or indirectly, such as through modeling emotional reactions (Saarni, 1993).

During infancy, parents' reactions and responses to infants' emotional displays impact their emotion regulation, such as using face-to-face interactions to model positive facial expressions, engaging in soothing behaviors, and reducing exposure to distressing

stimuli. As children gain greater verbal skills during toddlerhood, parents socialize youths' ability to use language to express their emotions through modeling and labeling of emotions. As children become exposed to increased social situations during early childhood, parents teach and model the use of appropriate display rules specific to the demands of the social context (Zeman et al., 2006). Beyond early childhood, parents continue to play a major role in socializing youths' emotions through discussions and expressions of emotion (Eisenberg, Cumberland, & Spinrad, 1998).

One important way in which parents socialize youth throughout childhood is in how they react and respond to youth's expressions of negative emotions (Eisenberg et al. 1998). For example, a child who sees a broken toy or gets rejected by peers may display normative expressions of sadness or anger. Some parents may respond in supportive ways by validating the child's negative emotions, responding with strategies to help the child feel better, or by helping the child solve the problem. Others may respond in non-supportive ways by reacting with their own distress, punishing the child's emotional displays, or minimizing the problem or the child's distress (Denham, Mitchell-Copeland, Strandberg, Auerbach, & Blair, 1997; Denham, Zoller, & Couchoud, 1994). Patterns of supportive versus non-supportive parental responses to youth's emotional displays throughout childhood likely influence the ways in which youth interpret, behave, and remember these emotion-laden experiences. While supportive responses have been proposed to enhance children's emotional understanding and self-efficacy to effectively regulate emotions, non-supportive responses have been proposed to undermine children's ability to constructively deal with emotions (Eisenberg et al., 1998). Indeed, empirical



research has found both concurrent and prospective links between supportive responses and adaptive ER as well as links between non-supportive responses and maladaptive ER (Breux, McQuade, Harvey, & Zakarian, 2018; Eisenberg, Fabes, & Murphy, 1996; Lunkenheimer, Shields, & Cortina, 2007; McQuade & Breux, 2017; Perry, Calkins, Nelson, Leerkes, & Marcovitch, 2012; Ramsden and Hubbard 2002; Sanders, Zeman, Poon, & Miller, 2015).

The current paper will use the term “non-supportive” to characterize punitive, minimizing, and distress responses, as it reflects a widely examined construct in the field of parental emotion socialization. However, it is important to acknowledge that the term “non-supportive” is a misnomer and does not reflect the nuanced ways in which parents may use these strategies to protect or support their children. Moreover, the current paper focuses on the moderating role of non-supportive emotion socialization rather than supportive emotion socialization. Some research suggests that supportive emotion socialization may be generally beneficial to all youth regardless of individual child characteristics (Breux et al., 2018; Perry et al., 2012), whereas non-supportive emotion socialization may differentially influence youth to a greater degree depending on their propensity to experience negative emotions. For example, when parents respond in non-supportive ways towards youth who demonstrate frequent and intense negative emotions, these youth may model their parents’ distress reactions more readily via emotion contagion or physiological synchrony (e.g., Papp, Pendry, & Adam, 2009; Suveg, Shaffer, & Davis, 2016), may experience prolonged negative mood or escalated

emotional reactions, and may select inappropriate or ineffective strategies to deal with negative emotions (e.g., avoidance).

Moreover, bidirectional processes likely exist between child and parent, where both agents are actively eliciting and regulating one another in any given interaction. It has been theorized that a child with a propensity towards negative emotions may elicit non-supportive responses from the parent and these responses, in turn, affect and maintain the child's emotionality (Briscoe et al., 2018). Over time, greater transactions between NE and parental non-supportive responses likely set youth on a trajectory towards lower adaptive ER development in adolescence. While it is important to recognize that bidirectionality exists in this way (e.g., Eisenberg et al., 1999; Lengua & Kovacs, 2005), the current study examines one possible pathway in which ER develops via the moderating role of non-supportive emotion socialization on the link between NE and ER.

### **The Moderating Role of Race**

Extant research suggests different emotion socialization practices between Black and White parents, specifically studies of cross-ethnic comparisons reveal that Black parents are more likely to respond in a way typically categorized as “non-supportive” to negative emotions than White parents (for meta-analysis, see Labella, 2018). While some studies reveal that non-supportive responses are linked with emotion dysregulation in both Black and White youth (Buckholdt, Parra, & Jobe-Shields, 2014; Mirabile, Scaramella, Sohr-Preston, & Robison, 2009), other studies reveal counter-theoretical outcomes where the negative consequences of non-supportive responses may be

mitigated for Black youth (Leerkes et al., 2014; Leerkes, Supple, Su, & Cavanaugh, 2015; Smith & Walden 2001). For example, Leerkes et al. (2014) found that although both White and Black women reported that they were more likely to feel hurt to recalled non-supportive responses by parents, Black women reported feeling less negatively (i.e., less ashamed, hurt, and more loved) compared to White women. Leerkes et al. (2015) found that recalled maternal non-supportive socialization was associated with greater depressive symptoms for White but not Black women. Lastly, Smith and Walden (2001) found that in a sample of Black preschoolers, mothers' punitive responses predicted less aggression in boys. Taken together, non-supportive responses (e.g., minimizing anger in public settings) may be more normative in Black families, serving an adaptive role as a racial socialization strategy (e.g., preparation for bias) to prepare Black youth to cope in a society where racism and discrimination towards minority racial/ethnic groups are common (Dunbar et al., 2017; Nelson, Leerkes, O'Brien, Calkins, & Marcovitch, 2012). Thus, while non-supportive emotion socialization may be maladaptive for ER development among White youth with high NE, this effect may be mitigated in Black youth with high NE.

### **Potential Covariates**

As parents hold discrepant expectations for boys' and girls' emotional expressions, the current literature suggests sex differences in parental emotion socialization practices (Cassano, Perry-Parrish, & Zeman, 2007; Fivush, Brotman, Buckner, & Goodman, 2000; Garside & Klimes-Dougan, 2002; Klimes-Dougan et al., 2007). The literature also suggests SES differences in parental emotion socialization

practices, such that higher SES has been found to be associated with fewer non-supportive responses to youth's negative emotions (Ahmetoglu, Ildiz, Acar, & Encinger, 2018). Given the potential for sex and SES to influence parental emotion socialization within our current sample, they will be included as potential covariates.

### **Goals and Hypotheses**

Prior research supports the role of poor ER as both a risk and maintenance factor for various maladaptive outcomes, including internalizing and externalizing symptoms (Aldao & Nolen-Hoeksema, 2010; McLaughlin et al., 2011). However, the ways in which ER is shaped throughout development are less well understood, particularly during adolescence (Yap et al., 2007). The current study considers two antecedent processes that may influence the development of ER, namely individual differences in youth negative emotionality and parental socialization of emotions. Both the youth's reactivity towards frequent and intense negative emotions and a pattern of distressing, punitive, and minimizing parental responses to youth's negative emotions likely impact adolescents' ability to regulate their emotions. Moreover, racial differences in emotion socialization practices may produce differential outcomes for White versus Black youth.

The overarching goal of this study was to explore a three-way interaction, specifically the moderating role of race in the interaction between youth's negative emotionality and parental socialization of youth's emotions in predicting adolescent ER. It is hypothesized that youth with higher levels of NE and whose mothers endorse greater use of non-supportive responses to their negative emotions will develop lower adaptive

ER in adolescence. However, this effect will be reduced/mitigated among Black youth relative to White youth (see Figure 1).

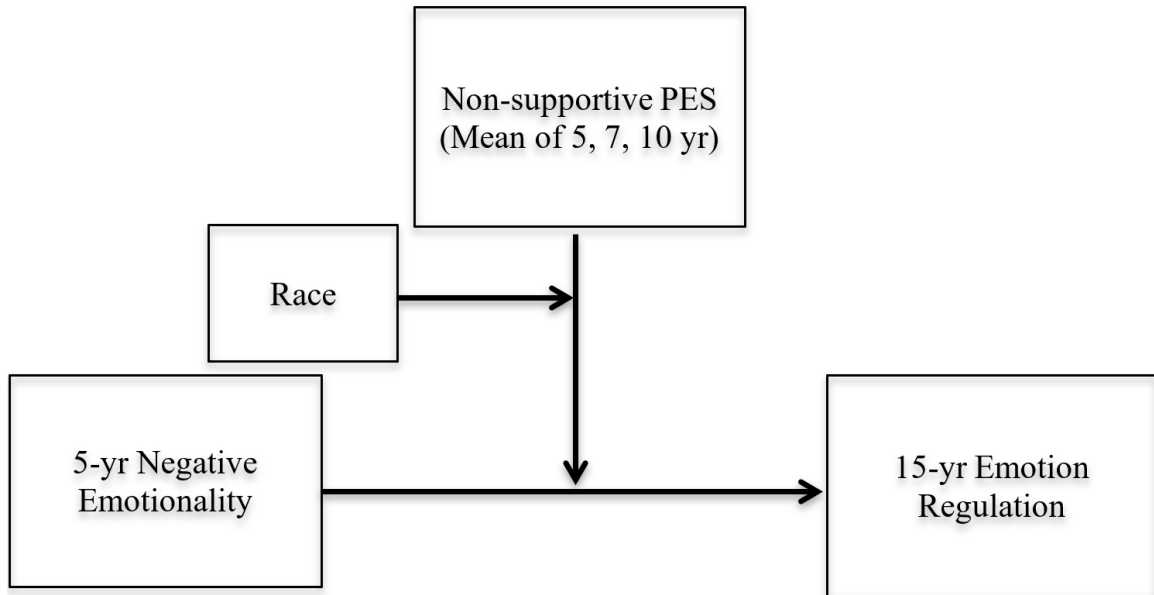


Figure 1. Conceptual Model. The Moderating Role of Race on the Interaction between Negative Emotionality and Non-supportive Parental Emotion Socialization Predicting Adolescent Emotion Regulation.

## **CHAPTER II**

### **METHODOLOGY**

#### **Participants**

The current study utilized data from three cohorts of children who are part of an ongoing longitudinal study of social and emotional development. The goal for recruitment was to obtain a sample of children who were at risk for developing future externalizing behavior problems and who were representative of the surrounding community in terms of race and socioeconomic status (SES). All cohorts were recruited through child day care centers, the County Health Department, and the local Women, Infants, and Children (WIC) program. Potential participants for cohorts 1 and 2 were recruited at 2-years of age (cohort 1: 1994-1996 and cohort 2: 2000-2001) and screened using the Child Behavior Checklist (CBCL 2-3; Achenbach, 1992), completed by the mother, in order to over-sample for externalizing behavior problems. Children were identified as being at risk for future externalizing behaviors if they received an externalizing T-score of 60 or above. Efforts were made to obtain approximately equal numbers of males and females. This recruitment effort resulted in a total of 307 children. Cohort 3 was initially recruited when infants were 6 months of age (in 1998) for their level of frustration, based on laboratory observation and parent report, and were followed through the toddler period (see Calkins, Dedmon, Gill, Lomax, & Johnson, 2002, for more information). Children from Cohort 3 whose mothers completed the CBCL at two-

years of age ( $N = 140$ ) were then included in the larger study. Of the entire sample ( $N = 447$ ), 37% of children were identified as being at risk for future externalizing problems. There were no significant demographic differences between cohorts with regard to sex,  $\chi^2(2, N = 447) = .63, p = .73$ , race,  $\chi^2(2, N = 447) = 1.13, p = .57$ , or two-year SES,  $F(2, 444) = .53, p = .59$ .

Of the 447 originally selected participants, six were dropped because they did not participate in any data collection at 2 years old. An additional 12 families participated at recruitment, did not participate at two-year, but did participate at later years. At age 5, 365 families participated, including four that did not participate in the four-year assessment. There were no significant differences between families who did and did not participate in terms of sex,  $\chi^2(1, N = 447) = .76, p = .38$ , race,  $\chi^2(1, N = 447) = .14, p = .71$ , 2-year SES,  $t(432) = -1.93, p = .06$ , and 2-year externalizing T score,  $t(445) = 1.39, p = .17$ . At age 10, 357 families participated, including 31 families that did not participate in the 7-year assessment. No significant differences were noted between families who did and did not participate in the 10-year assessment in terms of child sex,  $\chi^2(1, N = 447) = 3.31, p = .07$ ; race,  $\chi^2(3, N = 447) = 3.12, p = .08$ ; 2-year SES,  $t(432) = .02, p = .98$ ; or 2-year externalizing T score,  $t(445) = -.11, p = .91$ . At age 15, 327 families participated, including 27 families that did not participate in the 10-year assessment. Again, there were no significant differences between families who did and did not participate in the 15-year assessment in terms of race,  $\chi^2(3, N = 447) = 3.96, p = .27$ ; 2-year SES,  $t(432) = -.56, p = .58$ ; or 2-year externalizing T score,  $t(445) = .24, p = .81$ . Boys were less likely to participate in the 15-year assessment,  $\chi^2(1, N = 447) = 9.31, p = .002$ .

Participants in the current sample include 418 parent-child dyads (218 girls, 200 boys; 117 Black, 301 White) and the current study will use data from 5, 7, 10, and 15-year assessments. There was no significant relation between sex and race in this sample, that is sex is independent from race in this sample,  $\chi^2(1, N = 418) = .187, p = .67$ . Based on the goals of the current study, parents who did not identify themselves or their child as either White or Black were excluded from analyses ( $N = 29$ ). Families were economically diverse based on Hollingshead (1975) scores at the 5-year assessment (Min-Max = 14-66,  $M = 43.4, SD = 10.3$ ), 7-year assessment (Min-Max = 9-66,  $M = 45.2, SD = 11.6$ ), 10-year assessment (Min-Max = 12-66,  $M = 44.6, SD = 12.1$ ), and 15-year assessment (Min-Max = 9-66,  $M = 44.2, SD = 13.3$ ), thus representing families from each level of social strata typically captured by this scale. Hollingshead scores ranging from 40 to 54 reflect minor professional and technical occupations considered to be representative of middle class.

### **Procedure**

Children and their mothers participated in an ongoing longitudinal study beginning at ages 2. When children were 5 years old, mother-child dyads came to the laboratory and mothers completed measures of their child's negative emotionality and parental emotion socialization. When children were 7 and 10 years old, mothers completed measures of parental emotion socialization. When youth were 15 years old, they completed a self-report measure of emotion regulation. Only the measures that are relevant to the current study are reported here.



## Measures

### Negative Emotionality

When youth were 5 years of age, participant mothers completed the Children's Behavior Questionnaire –Long Form, a 195-item measure developed to assess differences in levels of reactivity and self-regulation in youth (see Appendix A; CBQ-LF; Rothbart, Ahadi, Hershey, & Fisher, 2001). The parent read items about their child's reaction to various situations and decided to what extent each item was true or untrue of their child, using the past 6 months as a reference point. Each item was rated on a scale from 1 (*Extremely Untrue*) to 7 (*Extremely True*), with the additional option of selecting "N/A." Scores for negative emotionality were computed as the average of anger (e.g., "My child gets quite frustrated when prevented from doing something s/he wants to do"), discomfort (e.g., "My child is likely to cry when even a little bit hurt"), fear (e.g., "My child is afraid of loud noises"), sadness (e.g., "My child tends to become sad if the family's plans don't work out."), and reversed soothability (e.g., "My child is easy to soothe when s/he is upset") subscales, with higher scores reflecting greater negative emotionality. These subscales have been shown by multiple factor analyses to load onto the broad dimension of negative emotionality (Putnam, Gartstein, & Rothbart, 2006; Rothbart et al., 2001; Rothbart & Putnam, 2002). Internal consistency for the negative emotionality subscale in the overall sample was  $\alpha = .897$  ( $N = 62$  items;  $\alpha = .904$  for White,  $\alpha = .883$  for Black).

### **Parental Emotion Socialization**

When youth were 5, 7, and 10 years of age, participant mothers completed the Coping with Children's Negative Emotions Scale, a measure with 12 scenarios designed to assess parent emotion socialization processes (see Appendix B; CCNES; Fabes, Eisenberg, & Bernzweig, 1990). The study used a modified version adapted from the original (Newell, 2001), which includes changes to questions 6 and 8 to include more anger-related items. Each scenario presented the parent with a situation that typically produces negative affect in children, and parents rated the likelihood that they would react in various ways (e.g., "If my child becomes angry because s/he is sick or hurt and can't go to a friend's birthday party."). Three scenarios described the child's expression of anger (items 1, 6, and 8 from the revised measure), four scenarios described the child's expression of sadness (items 2, 3, 10, and 11 from the revised measure), and five scenarios described the child's expression of fear (items 4, 5, 7, 9, and 12 from the revised measure). Each scenario included six possible situation-specific reactions for which the parent rated the likelihood of reacting in that fashion on a scale from 1 (*Very Unlikely*) to 7 (*Very Likely*). Three possible supportive reactions included expressive encouragement ("tell my child it is okay to cry"), emotion-focused ("comfort my child"), and problem-focused ("help my child think of something else to do") reactions. Possible non-supportive reactions included distress ("get angry at my child"), punitive ("send my child to his/her room to cool off") and minimizing ("tell my child not to make a big deal out of missing the party") reactions. The current study focused on the non-supportive socialization subscale, which was computed as the mean of all distress, punitive, and

minimizing reactions across all 12 scenarios. As measuring parental emotion socialization at one time point may not capture parents' consistent ways of responding to youth's emotions during childhood, the current study used a mean composite variable of non-supportive emotion socialization by averaging 5, 7, and 10-year non-supportive subscales. Studies support CCNES as a valid and reliable measure and indicate reliability and predictive validity of the non-supportive subscale (Altan-Aytun, Yagmurlu, & Yavuz, 2013; Fabes, Poulin, Eisenberg, & Madden-Derdich, 2002). Internal consistencies for the overall non-supportive subscales ( $N = 36$  items) were  $\alpha = .865$  at 5-year,  $\alpha = .885$  at 7-year, and  $\alpha = .866$  at 10-year assessments (for White sample,  $\alpha$ 's = .871, .878, and .882, respectively; for Black sample,  $\alpha$ 's = .859, .896, and .836, respectively).

### **Emotion Regulation**

When youth were 15 years of age, they completed the Children's Emotion Management Scale, a 30-item measure assessing sadness and anger management across 3 dimensions of Inhibition, Dysregulated Expression, and Emotion Regulation Coping (CEMS; Zeman, Shipman, & Penza-Clyve, 2001; Zeman, Shipman, & Suveg, 2002; see Appendix C). While various measurements including self-report measures of ER exist across the developmental spectrum, CEMS has been demonstrated to be a reliable and valid measure of emotion management and regulation among adolescent samples (Sim & Zeman, 2005; Wills, Walker, Mendoza, & Ainette, 2006). Youth responded to items on a 3-point scale from 1 (*Hardly Ever*) to 3 (*Often*). Emotion regulation was assessed using items from the Emotion Regulation Coping and Dysregulated Expression subscales. Items from Emotion Regulation Coping subscale reflect the ability to manage and control

emotional arousal and items from the Dysregulated Expression subscale reflect dysregulated or inappropriate expressions of emotions. Emotion Regulation Coping consisted of 13 items across sadness and anger emotions (e.g., “I can stop myself from losing control of my sad feelings, “I control my temper”) and Dysregulated Expression consisted of 7 items across sadness and anger emotions (e.g., “I attack whatever it is that makes me angry”, “I cry and carry on when I’m sad”). An average composite score of ER was computed by taking the total average of items in both subscales, with items from Dysregulated Expression reverse coded, such that higher scores reflected greater adaptive emotion regulation. Internal consistency for the emotion regulation composite in the current sample was  $\alpha = .783$  ( $N = 20$  items;  $\alpha = .782$  for White,  $\alpha = .788$  for Black).

### **Covariates**

Demographic variables (i.e., socio-economic status, sex) were examined as potential covariates in the model.

### **Data Analysis Plan**

Preliminary analyses were conducted using SPSS version 23. Preliminary analyses included running correlations and descriptive statistics on all study variables as well as assessing normality of data. After the completion of preliminary analyses, main analyses were completed in Mplus 8 (Muthén & Muthén, 1998-2017). Missing data was handled by Full Information Maximum Likelihood (FIML) to preserve power and minimize bias in the model estimates. FIML is a method of generating parameter estimates using all available data to handle variable-level missingness. All predictors were centered at the grand mean before computing interaction terms. To test the 3-way

interaction model, a multi-group analysis was computed to test the 2-way interaction (NE and non-supportive socialization) between White and Black youth. Rather than using stepwise or hierarchical regression procedures, a multi-group analysis is conducted within the structural equation modeling framework by entering all predictor variables and interactions simultaneously into a model. In order to test for moderation, two models were compared using a chi-square difference test: an *unconstrained* model in which all paths are freely estimated across race and a *constrained* model where all structural weights are set to be equal across race. Model fit was evaluated using several indices, including the chi-square test of model fit (p-value > .05 = good fit), the Comparative Fit Index (CFI; >.90 good, >.95 excellent), the Tucker-Lewis Index (TLI; >.90 good, >.95 excellent) and the Root Mean Square Error of Approximation (RMSEA; <.05 good fit, <.08 acceptable). If there is a significant chi-square difference between the two models, this suggests that the unconstrained model fits better than the constrained model, and that there is statistical significance in at least one factor loading (i.e., moderation).

If traditional chi-square difference testing reveals poor or unacceptable fit indices, modification indices will be used to examine potential strain in parameters and attain improved fit. Specifically, the modification index is an estimate of the amount by which the chi-square would be reduced if a single parameter restriction, such as equality restraints, were to be removed from the model. Strain on the interaction path suggests a moderated effect, such that the paths for the interaction of NE and non-supportive responses are statistically different between the two groups.

Given a significant moderation of race, a 2-way product-term regression analysis will be run in Mplus separately for White and Black participants using bias-corrected bootstrapped 95% confidence intervals (10,000 draws; MacKinnon, Lockwood, & Williams, 2004). Any significant interactions will be probed using the Johnson-Neyman technique in MPLUS (Johnson & Neyman, 1936), which identifies specific levels of the moderator where the relationship between NE and ER transitions into significance. Tests of statistical significance for simple slopes will be set at  $p = .05$ .

## CHAPTER III

### RESULTS

#### Preliminary Analyses

##### Descriptive Statistics and Correlations

Descriptive statistics for all study variables in the overall sample can be found in Table 1 and descriptive statistics split by race can be found in Table 2. There were no issues with skew or kurtosis for any study variables. The variables NE and ER had sufficient variability. However, given an item range of 1 to 7 for the measure of parental emotion socialization, both Black and White mothers endorsed relatively low levels of non-supportive reactions ( $M_{\text{Black}} = 2.58$ ,  $SD_{\text{Black}} = 0.63$ ;  $M_{\text{White}} = 2.44$ ,  $SD_{\text{White}} = 0.55$ ). Zero-order correlations were run among all study variables and can be found in Table 3.

Table 1

##### Descriptive Statistics in Overall Sample

Variable	<i>N</i>	<i>M</i>	<i>SD</i>	Min-Max	Item Range	Variance	Skew	Kurtosis
NE	322	4.05	0.59	2.34-5.86	1-7	.350	.080	.135
Non-supportive PES	359	2.48	0.58	1.24-4.72	1-7	.331	.532	.215
ER	262	2.32	0.29	1.45-2.90	1-3	.085	-.258	-.269

*Note.* Total Study *N* = 371 (White *N* = 262; Black *N* = 109). NE = Negative Emotionality. Non-supportive PES = Non-supportive Parental Emotion Socialization. ER = Emotion Regulation.

Table 2  
Descriptive Statistics Split by Race

Variable	<i>N</i>	<i>M</i>	<i>SD</i>	Min-Max	Variance	Skew	Kurtosis
White Sample							
NE	229	4.01	0.58	2.34-5.86	.338	.294	.139
Non-supportive PES	253	2.44	0.55	1.24-4.00	.300	.424	-.166
ER	180	2.31	0.29	1.25-2.90	.085	-.421	-.121
Black Sample							
NE	93	4.15	0.61	2.42-5.45	.370	-.429	.637
Non-supportive PES	106	2.58	0.63	1.27-4.72	.394	.617	.473
ER	82	2.33	0.30	1.70-2.90	.088	.266	-.613

*Note.* NE = Negative Emotionality. Non-supportive PES = Non-supportive Parental Emotion Socialization. ER = Emotion Regulation.

Table 3  
Bivariate Correlations among Study Variables

Variable	1	2	3
1. NE	—	.276**	-.165*
2. Non-supportive PES		—	-.194**
3. ER			—

*Note.* NE = Negative Emotionality. Non-supportive PES = Non-supportive Parental Emotion Socialization. ER = Emotion Regulation. \* $p < .05$ . \*\* $p < .01$ .

Correlations were in the expected direction, and while modest, indicated significant associations among key study variables. NE was positively correlated with non-supportive parental emotion socialization ( $r = .276, p = .000$ ) and negatively correlated with ER ( $r = -.165, p = .012$ ). Non-supportive socialization was negatively correlated with ER ( $r = -.194, p = .002$ ). Consistent with past literature, Black mothers endorsed greater mean levels of non-supportive responses compared to White mothers, t



(357) = 2.067,  $p = .039$ . There were no racial differences in levels of NE or ER.

Correlations split by race can be found in Table 4.

Table 4

Bivariate Correlations Split by Race

Variable	1	2	3
1. NE	—	.233**	-.171*
2. Non-supportive PES	.350**	—	-.177*
3. ER	-.154	-.231*	—

*Note.* Above diagonal = White. Below Diagonal = Black. NE = Negative Emotionality. Non-supportive PES = Non-supportive Parental Emotion Socialization. ER = Emotion Regulation. \* $p < .05$ . \*\* $p < .01$ .

### Covariates

Correlations between demographic covariates and main variables of interest were run in order to justify the inclusion of and conclusions drawn from covariates (Spector & Brannick, 2011). There were no sex differences in non-supportive emotion socialization,  $t(357) = .507$ ,  $p = .613$ , thus sex was not added as a covariate in the final model. A mean of SES across 5 to 15-year time-points was not significantly correlated with non-supportive emotion socialization ( $r = -.033$ ,  $p = .535$ ). Although SES was significantly correlated with ER ( $r = .135$ ,  $p = .029$ ), the weak relationship between SES and ER did not warrant the inclusion of SES into the final model. Moreover, the inclusion of sex and SES as covariates did not significantly alter the results nor the interpretations of the current analyses, thus they were removed for greater parsimony.

### Missing Data

Out of 418 participants, 11.2% ( $N = 47$ ) of the participants had missing data on all study variables. Thus, the final sample size for all analyses was  $N = 371$  (Black  $N = 109$ ; White  $N = 262$ ). Those with partial data were included in analyses. Based on Little's MCAR test, data were missing at random,  $\chi^2(48) = 40.54, p > .05$ .

### Primary Analyses

The main study hypothesis was that higher levels of NE would predict lower ER for youth whose mothers endorsed greater non-supportive responses, and this interactive effect would be mitigated among Black youth relative to White youth. A multi-group analysis was conducted to examine whether race moderated this interactive link. A chi-square difference test revealed that the constrained model did not fit significantly worse than the unconstrained model ( $\chi^2_{\Delta}(3) = .689, p = .876$ ). A non-significant change suggests that the paths are not statistically different for Black and White youth. As a follow-up to the traditional chi-square omnibus test, a theory driven unconstrained model was tested by constraining all main effect paths to equality and freeing the interaction path. Results indicated excellent fit for the model ( $\chi^2(2) = .113, p = .945$ ; CFI = 1.00; TLI = 1.00; RMSEA = .000). The model was then run using bias-corrected bootstrapped confidence intervals. However, the results revealed that the interaction paths for both Black and White youth were not significant ( $\beta = -.051, SE = .151, p = .737, 95\% CI [-.330, .256]$ ;  $\beta = -.145, SE = .079, p = .067, 95\% CI [-.300, .010]$ , respectively). Thus, contrary to the study hypothesis, race did not moderate the link between NE and non-supportive socialization to ER.

As race was not a significant moderator, a two-way product-term interaction was subsequently conducted to examine the relationship between NE and non-supportive emotion socialization in the overall sample. Results indicated excellent fit for the model ( $\chi^2(2) = .906, p = .64$ ; CFI = 1.00; TLI = 1.00; RMSEA = .000). The model was then run using bias-corrected bootstrapped confidence intervals to examine the 2-way interaction in the overall sample. There was a significant main effect of non-supportive emotion socialization ( $\beta = -.167, SE = .068, p = .016, 95\% CI [-.151, -.012]$ ), that is greater non-supportive emotion socialization in childhood predicted lower ER in adolescence. However, there was no significant interaction ( $\beta = -.099, SE = .078, p = .206, 95\% CI [-.224, .052]$ ; see Table 5 and Figure 2), thus the effect of NE on ER does not depend on the level of non-supportive emotion socialization. Rather, it appears that greater non-supportive emotion socialization during childhood predicts lower adaptive ER regardless of levels of youth NE. Given that this model explains 5.9% of the overall variance in ER by the main effects and interaction entered altogether, other internal and external processes not captured in this model play an important role in shaping ER from early childhood to adolescence. Post hoc analyses were subsequently conducted in order to further explore the data.

Table 5

Parameter Estimates for 2-way Interaction between NE and Non-supportive Emotion Socialization Predicting ER in Overall Sample

Full Model ( $N=371$ )	$\beta$	$B$	SE_B	$p$	95% CI	$R^2$
NE	-.106	-.052	0.033	0.113	[-.114, .015]	.059
Non-supportive PES	-.167	-.085	0.035	0.016	[-.151, -.012]	
Interaction	-.099	-.089	0.071	0.206	[-.224, .052]	

Note. Model fit ( $\chi^2(2) = .906, p = .64$ ; CFI = 1.00; TLI = 1.00; RMSEA = .000).  $R^2$  in MPLUS reflects the overall variance explained in a dependent variable by the set of independent variables entered altogether.

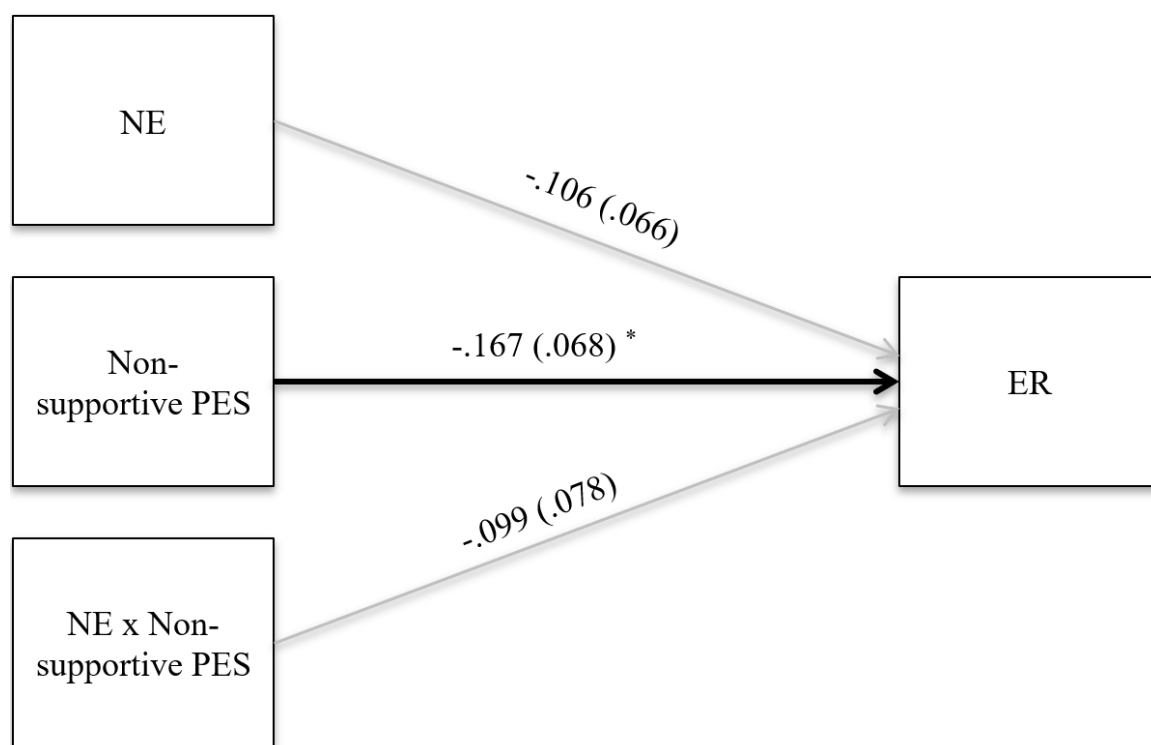


Figure 2. Two-way Interaction in Overall Sample. Interaction between Negative Emotionality (NE) and Non-supportive Parental Emotion Socialization (PES) to Emotion Regulation (ER) in Overall Sample. Standardized Coefficients are Presented with Standard Errors in Parentheses. \* $p < .05$ .

## Post Hoc Analyses

### Submissive Versus Dominant Emotions

Past literature has found differences between the socialization of negative submissive emotions (i.e., sadness, fear), and dominant emotions (i.e., anger; Chaplin, Cole, & Zahn-Waxler, 2005; Garside & Klimes-Dougan, 2002; Klimes-Dougan et al., 2007; Nelson et al., 2013). For example, Klimes-Dougan et al. (2007) found that mothers punish youth for expressions of anger compared to sadness, especially more for adolescent boys than girls in a majority White sample, and Nelson et al. (2013) found that Black mothers of boys tended to be more non-supportive of submissive emotions than Black mothers of girls.

Internal consistencies for submissive non-supportive responses ( $N = 27$  items) were  $\alpha = .817$  at 5-year,  $\alpha = .842$  at 7-year, and  $\alpha = .810$  at 10-year assessments. Internal consistencies for dominant non-supportive responses ( $N = 9$  items) were  $\alpha = .718$  at 5-year,  $\alpha = .760$  at 7-year, and  $\alpha = .739$  at 10-year assessments. Two-way ANOVAs were run to determine any mean differences in non-supportive responses to dominant and submissive emotions based on child race and sex. There was a significant mean difference in non-supportive responses to dominant emotions for race, where Black mothers endorsed higher levels of non-support than White mothers,  $F(1) = 3.906, p = .049$ , but there was no significant main effect of sex,  $F(1) = .082, p = .775$ , or a sex by race interaction,  $F(1) = .011, p = .917$ . There were no significant mean differences in non-supportive responses to submissive emotions for child sex,  $F(1) = .506, p = .478$ , child race,  $F(1) = 2.90, p = .089$ , and its interaction,  $F(1) = .159, p = .690$ . These results

suggest that Black mothers use higher levels of non-supportive strategies to manage both boys' and girls' expressions of anger compared to White mothers, while both Black and White mothers respond to boys' and girls' expressions of sadness and fear in similar ways. Bivariate correlations reveal that White mothers' non-supportive socialization to both dominant and submissive emotions is negatively correlated with youth ER ( $r = -.169, p = .028$ ;  $r = -.166, p = .030$ , respectively). For Black mothers, their non-supportive socialization to anger is not significantly correlated with youth ER ( $r = -.147, p = .196$ ), but non-supportive socialization to sadness and fear is negatively correlated with ER ( $r = -.245, p = .030$ ).

Multi-group analyses examining the interaction of NE and dominant versus submissive emotions to ER were run. For the multi-group analysis examining dominant non-supportive socialization, a chi-square difference test revealed that the constrained model did not fit statistically worse than the unconstrained model ( $\chi^2\Delta(3) = .545, p = .909$ ), suggesting that the paths are not statistically different for Black and White youth. As a follow-up to the omnibus test, a theory driven unconstrained model was tested by constraining all main effect paths to equality and freeing the interaction path. Results indicated excellent fit for the model ( $\chi^2(2) = .310, p = .857$ ; CFI = 1.00; TLI = 1.00; RMSEA = .000). The model was then run using bias-corrected bootstrapped confidence intervals. However, the results revealed that the interaction paths for both Black and White youth were not significant ( $\beta = -.007, SE = .159, p = .964, 95\% CI [-.298, .320]$ ;  $\beta = -.079, SE = .092, p = .393, 95\% CI [-.264, .100]$ , respectively). For the multi-group analysis examining submissive non-supportive socialization, a chi-square difference test

revealed that the constrained model did not fit statistically worse than the unconstrained model ( $\chi^2\Delta(3) = 1.031, p = .794$ ), suggesting that the paths are not statistically different for Black and White youth. As a follow-up to the omnibus test, a theory driven unconstrained model was tested by constraining all main effect paths to equality and freeing the interaction path. Results indicated excellent fit for the model ( $\chi^2(2) = .092, p = .955$ ; CFI = 1.00; TLI = 1.00; RMSEA = .000). The model was then run using bias-corrected bootstrapped confidence intervals. However, the results revealed that the interaction paths for both Black and White youth were not significant ( $\beta = -.052$  SE = .135,  $p = .702$ , 95% CI [-.305, .223];  $\beta = -.106$ , SE = .066,  $p = .109$ , 95% CI [-.232, .031], respectively). Taken together, race did not moderate the interaction of NE and dominant versus submissive socialization to ER.

Given that the multi-group analyses for both dominant and submissive non-supportive socialization did not reveal significant moderation of race, 2-way interactions in the whole sample were examined. For non-supportive responses to dominant emotions, results revealed no significant main effect of NE ( $\beta = -0.121, p = .075$ ), no significant main effect of dominant non-supportive socialization ( $\beta = -0.134, p = .063$ ), and no significant interaction ( $\beta = -0.042, p = .606$ ; see Table 6). However, for non-supportive responses to submissive emotions, results revealed a significant main effect of non-supportive responses ( $\beta = -0.161, p = .015$ ), but no significant main effect of NE ( $\beta = -0.110, p = .095$ ) or interaction ( $\beta = -0.110, p = .120$ ; see Table 7). Given the main study's finding of the direct effect of non-supportive emotion socialization on ER, these

findings provide additional insight by revealing that non-supportive emotion socialization to fear and sadness, rather than anger, appear to negatively impact ER across race.

Table 6

Parameter Estimates for 2-way Interaction between NE and Dominant Non-supportive Emotion Socialization Predicting ER in Overall Sample

Full Model ( $N=371$ )	$\beta$	$B$	SE_B	$p$	95% CI	$R^2$
NE	-.121	-.060	.033	.075	[-.124, .008]	
Dominant Non-supportive PES	-.134	-.045	.024	.063	[-.091, .004]	
Interaction	-.042	-.025	.049	.606	[-.122, .071]	
						.044

*Note.* Model fit ( $\chi^2(0) = 0.000, p = .000$ ; CFI = 1.00; TLI = 1.00; RMSEA = .000).  $R^2$  in MPLUS reflects the overall variance explained in a dependent variable by the set of independent variables entered altogether.

Table 7

Parameter Estimates for 2-way Interaction between NE and Submissive Non-supportive Emotion Socialization Predicting ER in Overall Sample

Full Model ( $N=371$ )	$\beta$	$B$	SE_B	$p$	95% CI	$R^2$
NE	-.110	-.054	.033	.095	[-.116, .013]	
Submissive Non-supportive PES	-.161	-.087	.036	.015	[-.155, -.013]	
Interaction	-.110	-.107	.069	.120	[-.239, .031]	
						.061

*Note.* Model fit ( $\chi^2(0) = 0.000, p = .000$ ; CFI = 1.00; TLI = 1.00; RMSEA = .000).  $R^2$  in MPLUS reflects the overall variance explained in a dependent variable by the set of independent variables entered altogether.

### Discrete Non-supportive Responses

Although there was a significant main effect for non-supportive emotion socialization in both White and Black samples, specific non-supportive responses may be



driving the effect differentially in each group. Indeed, some studies suggest ethnic/racial differences between distinct non-supportive responses, such that punitive and minimizing responses may be more common and confer less maladaptation for Black youth relative to White youth (Montague, Magai, Consedine, & Gillespie, 2003; Smith & Walden, 2001; Vendlinski, Silk, Shaw, & Lane, 2006).

Internal consistencies for distress reactions were ( $N = 12$  items) were  $\alpha = .692$  at 5-year,  $\alpha = .728$  at 7-year, and  $\alpha = .733$  at 10-year assessments. Internal consistencies for punitive reactions were ( $N = 12$  items) were  $\alpha = .716$  at 5-year,  $\alpha = .723$  at 7-year, and  $\alpha = .692$  at 10-year assessments. Internal consistencies for minimizing reactions were ( $N = 12$  items) were  $\alpha = .828$  at 5-year,  $\alpha = .835$  at 7-year, and  $\alpha = .826$  at 10-year assessments. Upon examination of mean differences in the non-supportive subscales, Black mothers ( $M = 2.81$ ,  $SD = 0.90$ ) endorsed significantly higher levels of minimization responses than White mothers ( $M = 2.41$ ,  $SD = 0.78$ ;  $t(176) = -3.90$ ,  $p = .000$ ), Black mothers ( $M = 2.51$ ,  $SD = 0.66$ ) endorsed significantly higher levels of punitive reactions than White mothers ( $M = 2.31$ ,  $SD = 0.57$ ;  $t(357) = -2.85$ ,  $p = .005$ ), and Black mothers ( $M = 2.42$ ,  $SD = 0.71$ ) endorsed significantly lower levels of distress reactions than White mothers ( $M = 2.59$ ,  $SD = 0.64$ ;  $t(357) = 2.28$ ,  $p = .023$ ). Among White youth, bivariate correlations revealed that distress and punitive responses were negatively correlated with ER ( $r = -.158$ ,  $p = .039$ ;  $r = -.167$ ,  $p = .028$ , respectively), but minimizing responses were not significantly correlated with ER ( $r = -.116$ ,  $p = .131$ ). Among Black youth, although punitive responses were negatively correlated with ER

( $r = -.308, p = .006$ ), distress and minimization responses were not significantly correlated with ER ( $r = -.099, p = .384$ ;  $r = -.188, p = .098$ , respectively).

Based on past empirical work and mean differences in specific non-supportive responses between Black and White mothers, multi-group analyses were run separately for distress, punitive, and minimizing responses to test its interaction with NE in predicting ER. For minimizing responses, no significant main effects or interactions emerged. For punitive responses, a significant main effect of punitive responses to ER emerged, regardless of race and levels of NE ( $\chi^2(3) = 1.130, p = .770$ ; CFI = 1.00; TLI = 1.23; RMSEA = .000;  $B = -0.097, p = .003$ ).

For distress responses, race significantly moderated the interactive link between NE and distress responses predicting ER. Traditional chi-square difference testing revealed a non-significant decrement in model fit using chi-square ( $\chi^2\Delta(3) = 4.709, p = .194$ ), however other fit indices were not acceptable (CFI = .780, TLI = .561) and the change in RMSEA was large (RMSEA $\Delta = .055$ ; see Table 8).

Table 8

Fit Indices for Post Hoc Multi-group Analysis: The Moderating Role of Race on the Interaction of NE and Distress Reactions Predicting ER

Model	$\chi^2$	<i>df</i>	<i>p</i>	RMSEA	CFI	TLI	SRMR
Constrained	4.709	3	.1944	0.055	0.780	0.561	0.044
Full Unconstrained	0.000	0	.0000	0.000	1.000	1.000	0.000
Final Model	0.233	2	.8902	0.000	1.000	1.681	0.012

As a follow-up, modification indices were examined to examine potential strain in parameters. Modification indices revealed that the interaction path was significantly different, which is consistent with theory, so this path was freed for the final model to best fit the data ( $\chi^2(2) = .233, p = .890$ ; CFI = 1.00; TLI = 1.68; RMSEA = .000). This freed path suggests a moderated effect of race, such that the paths for the interaction of NE and distress reactions are statistically different for Black and White youth. The multi-group analysis using this best fitting model was then run using bias-corrected bootstrapped confidence intervals to examine significant 2-way interactions in both samples of youth. There was a significant NE x distress reactions interaction for White ( $\beta = -.165, SE_{\beta} = .066, p = .011, 95\% \text{ CI } [-0.236, -0.026]$ ), but not Black youth ( $\beta = .108, SE_{\beta} = .164, p = .507, 95\% \text{ CI } [-0.153, 0.237]$ ; see Table 9 and Figure 3).

Table 9

Parameter Estimates for 3-way Interaction between NE, Distress Reactions, and Race Predicting ER

Variable	$\beta$	B	SE_B	<i>p</i>	95% CI	<i>R</i> <sup>2</sup>
White Sample						
NE	-.097	-.048	.034	.158	[-.111, .022]	
Non-supportive PES	-.108	-.049	.027	.067	[-.098, .006]	
ER	-.165	-.137	.054	.011	[-.236, -.026]	
						.052
Black Sample						
NE	-.099	-.048	.034	.158	[-.111, .022]	
Non-supportive PES	-.116	-.049	.027	.067	[-.098, .006]	
ER	.108	.069	.103	.507	[-.153, .237]	
						.043

*Note.* Model fit ( $\chi^2(2) = .233, p = .890$ ; CFI = 1.00; TLI = 1.68; RMSEA = .000). *R*<sup>2</sup> in MPLUS reflects the overall variance explained in a dependent variable by the set of independent variables entered altogether.

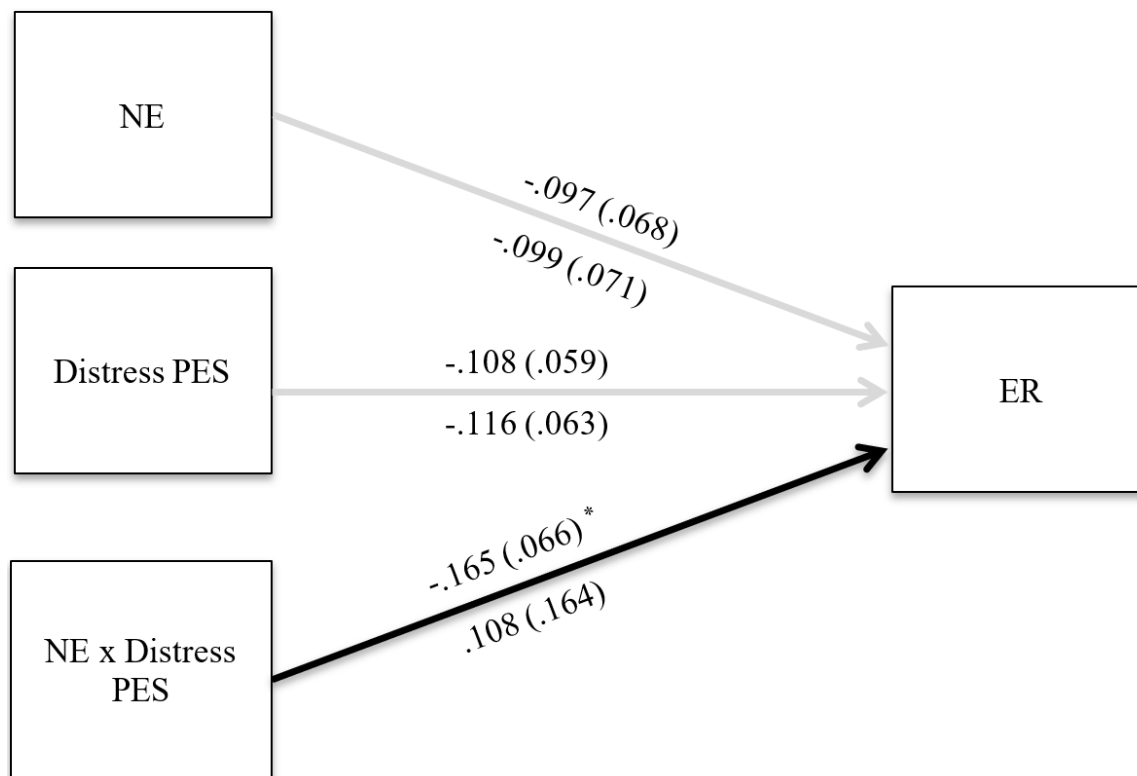


Figure 3. Multi-group Analysis for Distress Reactions. Interaction between Negative Emotionality (NE) and Distress Parental Emotion Socialization (PES) between White and Black Youth to Emotion Regulation (ER). Values above the Line Represent Parameter Estimates for White Youth and Values below the Line Represent Parameter Estimates for Black Youth. Standardized Coefficients are Presented with Standard Errors in Parentheses. \*  $p < .05$ .

The interaction for White youth was probed using the Johnson-Neyman technique to identify specific scores for distress reactions where the relationship between NE and ER transitioned into significance (see Figure 4). At first glance, the plot suggests that for those who are roughly 0.23 standard deviations above and 0.35 standard deviations below the mean level of the moderator, NE predicts ER. Upon testing simple slopes that correspond to the regions above and below these observed values, only the simple slope at the high level of the moderator (.23 SD above the moderator) was significant ( $B = -$

.081,  $p = .048$ ; 95% CI [-.162, -.002]) – the more that parents endorsed distress reactions, the more strongly NE predicted lower ER in White youth. Specifically, the effect of NE on ER was significant in the negative direction when the distress reactions scores were 0.23 standard deviations above the mean level of distress reactions (equivalent to a non-centered score of 2.57 and 38.7% of scores above this cutoff). The moderating effect of distress reactions below this cutoff value was not significant, which suggests that only slightly higher levels of distress reactions moderate the relationship between NE and ER in White youth.

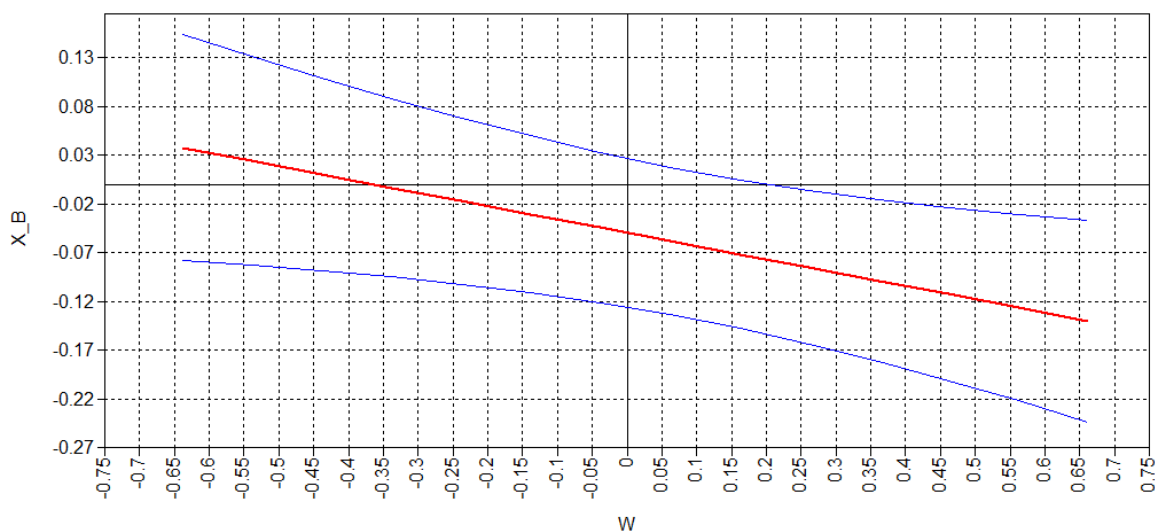


Figure 4. Regions of Significance for Distress Reactions. Plot of Regions of Significance for the NE x Distress Reactions Interaction in White youth. The X-axis ( $W$ ) is the Continuous Range of the Centered Moderator. The Y-axis ( $X_B$ ) is the Continuous Range of Values for the Adjusted Effect of NE on ER. The Red Plot Line Represents Values of the Adjusted Effect ( $X_B$ ) and the Blue Lines above and below the Red Plot Line Represent 95% Confidence Bands.

### **Supportive Socialization**

As supportive emotion socialization serves as a distinct but related subscale of emotion socialization and correlational studies reveal links between supportive socialization and adaptive ER (Eisenberg et al., 1996; McQuade & Breaux, 2017; Perry et al., 2012), supportive emotion socialization strategies were examined in order to completely understand relationships between supportive emotion socialization to ER as well as with non-supportive emotion socialization. Moreover, while several studies have not found ethnic differences in supportive responses to negative emotions (Buckholdt, Parra, & Jobe-Shields, 2009; Jobe-Shields, Buckholdt, & Parra, 2013; Leerkes et al., 2015; Rogers, Halberstadt, Castro, MacCormack, & Garrett-Peters, 2016), a study by Nelson et al. (2012) found that Black mothers reported fewer supportive responses to their children's negative emotions relative to White mothers, and a study by Brown, Craig, and Halberstadt (2015) found that Black mothers were more supportive of girls' distress and less supportive of boys' distress. In the current study, supportive parental emotion socialization was not significantly negatively correlated with non-supportive emotion socialization ( $r = -.065, p = .222$ ), which suggests that mothers who endorse high levels of non-supportive responses are not necessarily low in their supportive responses and may instead be using combinations of supportive and non-supportive strategies to deal with youth's negative emotions. Descriptively, White and Black mothers reported moderately high means for supportive responses ( $M_{\text{White}} = 5.62, SD = .60; M_{\text{Black}} = 5.72, SD = .63$ ) and there were no mean differences between Black and White mothers' supportive responses ( $t(357) = -1.50, p = .135$ ). Multi-group analyses

examining overall supportive socialization and its distinct strategies (i.e., expressive encouragement, emotion-focused, problem-focused reactions) were run to examine whether supportive responses moderated the relationship between NE and ER in Black and White youth. However, no significant findings emerged.

## **CHAPTER IV**

### **DISCUSSION**

The ability to regulate emotions flexibly and appropriately is a crucial skill for youth's socio-emotional functioning, particularly for adolescents who experience heightened emotional arousability and who are met with increasingly complex developmental demands (Kerig, Schulz, & Hauser, 2012). Although prior research implicates poor ER as a transdiagnostic factor in the development and maintenance of youth psychopathology (Aldao & Nolen-Hoeksema, 2010), the processes that shape ER throughout development are less well understood, especially ER during adolescence (Yap et al., 2007). Developmental theories suggest that ER is rooted in transactions between internal and external systems, whereby individual differences interact dynamically with environmental factors over time (Calkins, 2007; Fox & Calkins, 2003). It has been proposed that individual differences in temperament (e.g., negative emotionality) and family processes (e.g., parental emotion socialization) interact across time to facilitate or hinder the development of more complex ER skills in adolescence (Yap et al., 2007). When a youngster with a dispositional tendency to experience frequent and intense negative emotions receive distressing, punitive, and/or minimizing parental responses to their emotional displays, these interactions likely impact the youngster's ability to model and acquire a repertoire of adaptive ER strategies over time. Despite a modest body of research supporting the direct links of NE to poor ER (Eisenberg et al., 2001; Murphy et



al., 2015; Van Beveren, McIntosh, et al., 2016; Chang et al., 2012; Mezulis et al., 2011) and non-supportive emotion socialization to poor ER (Breux et al., 2018; Eisenberg et al., 1996; Eisenberg et al., 1999; Lunkenheimer et al., 2007; McQuade & Breux, 2017; Perry et al., 2012; Ramsden and Hubbard 2002; Sanders et al., 2015; Yap, Allen, & Ladouceur, 2008), no longitudinal studies to my knowledge have examined the interactive contribution of NE and non-supportive emotion socialization to ER development in adolescence. Moreover, extant research indicates racial differences in parental emotion socialization practices, where Black youth receive greater non-supportive responses compared to White youth (Labella, 2018). Whereas some studies reveal negative outcomes for both Black and White youth's emotional functioning (Buckholdt et al., 2014; Mirabile et al., 2009), other studies reveal that the negative consequences are mitigated for Black youth (Leerkes et al., 2014; Leerkes et al., 2015; Smith & Walden 2001), such that non-supportive emotion socialization may confer less maladaptation for Black youth within a cultural context of oppression, racism, and discrimination (Nelson et al., 2012).

The primary goal of this study was to examine the interaction between individual differences in negative emotionality and non-supportive parental emotion socialization among Black and White youth in predicting adolescent emotion regulation. It was hypothesized that youth with a dispositional propensity towards frequent and intense negative emotions and whose mothers endorsed greater use of non-supportive responses to their negative emotions throughout childhood would develop lower ER in adolescence. However, this interactive effect would be mitigated among Black youth relative to White

youth. The study's main hypothesis was not supported. A multi-group analysis revealed that the interaction between NE and non-supportive parental emotion socialization was not moderated by race, thus the interaction was subsequently examined in the full sample. The two-way interaction analysis revealed a main effect of non-supportive parental emotion socialization on ER but no significant interaction. This finding suggests that non-supportive parental emotion socialization in childhood negatively impacts adolescent ER development, regardless of race and levels of NE.

Despite a robust link between NE and ER in the existing literature (Chang et al., 2012; Eisenberg et al., 2001; Mezulis et al., 2011; Murphy et al., 2015; Van Beveren, McIntosh, et al., 2016), the predictive link between NE and ER did not emerge in the current study. Given that NE was measured when youth were 5 years of age and ER was measured at 15 years of age, other internal or external processes likely come into play and impact ER during this 10-year span of development. With regard to internal processes, joint contributions of other aspects of temperament (e.g., effortful control, positive emotionality) or other aspects of self-regulation (e.g., vagal or physiological regulation) may dampen the negative effects of NE on the development of complex ER skills in adolescence (see Van Beveren, Mezulis, Wante, & Braet, 2016). Moreover, it is important to consider developmental trajectories of NE as related to risk for poor ER. For example, although certain youth may be characterized by high NE during early childhood, they may, on average, experience a normative decline in NE as they acquire regulatory abilities throughout childhood. Compared to youth who experience high NE at one time point in early childhood, perhaps youth who experience *consistently* high levels

of NE throughout early to late childhood may go on to develop poorer ER in adolescence. With regard to external systems, the current study revealed that non-supportive parental emotion socialization during childhood significantly influences adolescent ER. This finding suggests that early to late childhood serves as a sensitive period wherein parents exert prominent influence on youth's ER development through emotion socialization (Morris et al., 2007). There are likely other external systems that influence ER development during childhood, including peer socialization (Rubin, Bowker, McDonald, & Menzer, 2013) and other forms of parental socialization (e.g., parental expression of emotion, parental discussion or coaching of emotion; Eisenberg et al., 1998).

Subsequent post hoc analyses revealed differential outcomes for non-supportive responses to dominant versus submissive emotions as well as the distinct contribution of distress reactions to ER in White youth with high NE.

### **Post Hoc Analyses**

#### **Submissive Versus Dominant Emotions**

Post hoc analyses examining the socialization of dominant emotions revealed that non-supportive responses to anger did not impact ER for Black or White youth. Mothers' use of non-supportive responses to regulate expressions of anger may be developmentally normative and socially appropriate strategies of anger management during early to late childhood (e.g., punishing a child for acting out, minimizing or ignoring temper tantrums). Emotional displays of anger may be better tolerated by parents during the childhood period, even for youth who display frequent and intense anger. Thus, non-supportive strategies to anger may not confer any detriment towards youth's ability to

acquire adaptive ER skills. This finding is especially important for Black youth, as Black mothers endorsed higher mean levels of non-supportive responses to manage youth's anger than White mothers. Consistent with theory positing that non-supportive responses to negative emotions may serve an adaptive role in preparing Black youth to cope with racism and discrimination (Dunbar et al., 2017), these results provide additional insight suggesting that non-supportive responses to specifically *anger* do not appear to detrimentally impact Black youth's emotional development. Post hoc analyses examining the socialization of submissive emotions revealed that non-supportive responses to sadness and fear impacted poor ER in adolescence across race. Mothers' non-supportive responses to regulate expressions of sadness and fear may send more overt messages to youth that their internal emotions are inappropriate, unwanted, and deserving of negative consequences. Thus, this latter form of non-supportive emotion socialization to submissive emotions may overtime negatively impact youth's ability to openly express and effectively regulate these normative emotions.

### **Discrete Non-supportive Responses**

Based on tests of mean differences, Black mothers endorsed greater punitive and minimizing responses and fewer distress responses compared to their White counterparts. These findings are consistent with previous work showing that Black mothers use greater punitive and minimizing strategies than White mothers, although greater use of these responses does not appear to confer the same detrimental effect on Black youth relative to White youth (Montague et al., 2003; Smith & Walden, 2001; Vendlinski et al., 2006). It has been theorized that Black parents may use certain non-supportive strategies in efforts

to socialize emotional suppression and control in children and thus conferring adaption within a cultural context of racism and discrimination towards members of minority racial/ethnic groups (Nelson et al., 2012). Rather than reacting with their distress, which may draw attention and potential for negative judgment, Black mothers may choose to minimize or punish Black youth's negative emotions as a way to protect and prepare them in a society that often views Black youth's normative negative emotional displays as aggressive and threatening (Kang & Chasteen, 2009). Subsequent analyses revealed that although Black mothers endorsed the greatest use of minimizing strategies to deal with youth's negative emotions, these responses did not statistically impact youth ER. This suggests that minimization is a common strategy for Black mothers to manage their children's negative emotions and does not appear to negatively impact the development of emotion regulatory strategies later on.

Inconsistent with research suggesting that punitive responses have less detrimental impact for Black relative to White youth (Montague et al., 2003; Perry, Leerkes, Dunbar, & Cavanaugh, 2017), the current study found that greater punitive responses predicted poorer ER in both Black and White youth. Beyond the cultural and racial context, all mothers who react to youth's negative emotions by punishing them may send more overt messages that their negative emotions are inappropriate, undesirable, and are deserving of negative consequences. Thus, it is theorized that youth who are consistently punished for their negative emotions may learn ineffective ER strategies to suppress or avoid their emotions until they are released in intense and dysregulated ways (Fabes et al., 2002).

Lastly, the impact of distress responses on ER differed for Black and White youth. While distress reactions did not predict poor ER in Black youth, White youth with high NE and whose mothers endorsed high levels of distress reactions experienced lower ER in adolescence. It is also notable that White mothers endorsed that they would more likely react with distress compared to minimizing and punishing responses. These findings may be elucidated by theory and research suggesting that emotional expression, even negative ones, may be more common and perceived as more culturally acceptable for White relative to Black individuals (Consedine & Magai, 2002; Matsumoto, 1993; Nelson et al., 2012). For example, Consedine and Magai (2002) found that White adults reported that they express more negative emotions on a day-to-day basis than Black adults, and Matsumoto (1993) found that White adults rated displays of negative emotions, namely disgust and sadness, as more appropriate than Black adults. Nelson et al. (2012) found that Black mothers were less likely to believe that it was appropriate for their children to display negative emotions in public or private settings compared to White Mothers. Despite Afro-cultural traditions that value emotional expression, it is theorized that a history of oppression has influenced Black individuals to exercise emotional self-control and limit their emotional expression (Nelson et al., 2012). Thus, while it may be culturally normative for White mothers to express negative emotions, Black mothers may be modeling limited emotional expression as an adaptive emotion socialization strategy. Distress reactions consist of responses such as “getting angry and yelling back at my child,” “getting upset with him/her for being so careless and then crying about it,” and “feeling upset and uncomfortable because of the child’s reactions.”

Thus, in the context of youth's negative emotional displays, White mothers may be similarly reacting with anger, sadness, and fear. Given that emotional expression may be more normative among White mothers, their distress reactions may create opportunities for children to model the emotional reactivity and responses through emotion contagion or synchronization (Shih, Quiñones-Camacho, Karan, & Davis, 2019), which may then sustain over-arousal in the child. For youth who inherently experience frequent and intense negative emotions and have difficulty coming down from these emotions, they are directly learning an ineffective ER strategy (i.e., modeling distress) and are prevented from enacting more adaptive ER strategies due to their state of prolonged over-arousal.

### **Strengths**

The current study has several notable strengths. First, the longitudinal nature of the study addresses the dearth of prospective studies in ER and parental emotion socialization research and tests a portion of a theoretical framework posited by Yap et al. (2007) to examine whether individual differences in NE interact with parental emotion socialization to predict ER in adolescence. Despite the plethora of studies examining the consequences of poor ER and its associations with psychopathology, few studies have examined the antecedent processes that predict ER during adolescence (Schulz et al., 2005; Spangler and Zimmermann, 2014). Therefore, the current study contributes to the developmental psychopathology literature by highlighting internal and external processes that shape ER in adolescence, notably the significant role of non-supportive emotion socialization in predicting poor ER. Second, past studies of parental emotion socialization assessed this construct at one time point. As measuring parental emotion socialization at a

single time point may not capture parents' consistent engagement in these practices throughout childhood, the current study used a composite of non-supportive socialization assessed at three time points from early to late childhood. No longitudinal studies to my knowledge have assessed and used a composite score of parental emotion socialization from multiple time points, thus the current study utilized a more robust method to operationalize parental emotion socialization over the course of childhood. Lastly, the large sample size of families provided ample power to examine potential racial differences in parental emotion socialization. Although the study's main hypothesis was not supported, post hoc findings on the unique contributions of submissive emotions and racial differences in discrete non-supportive responses to ER development contribute to the growing body of parental emotion socialization and ER literature.

### **Limitations**

Despite its strengths and contributions to the literature, the current study has several limitations. The study is limited in its mono-method approach of measuring all study variables (i.e., questionnaire measures) and mono-informant (i.e., maternal report) in measuring NE and parental emotion socialization. The significant positive correlation between NE and non-supportive parental emotion socialization may reflect shared source variance, although the number of years between assessments and the weaker strength of the correlation (i.e.,  $r = .276$ ) reduces concern about multicollinearity. Despite the solid reliability and validity of the current measures, questionnaire measures may be prone to biased reporting. For example, although the low range and means for the non-supportive strategies may suggest that mothers are normally using fewer of these strategies, it may



also reflect social desirability bias where mothers are responding in a favorable manner. Future research may benefit from capturing the child's perceptions of parents' socialization responses, as youth's perceptions may be equally, if not more, important for understanding its impact on youth's emotional development (see Sanders et al., 2015).

There are several limitations with the measure of parental emotion socialization (i.e., CCNES) that may have influenced the current study's results. First, there is an imbalance in the number of emotion-related scenarios, such that there are three anger scenarios, four sadness scenarios, and five fear scenarios. The greater number of submissive emotion items from nine scenarios relative to dominant items from 3 scenarios may have contributed to the significant effect of submissive non-supportive socialization on ER. Second, the scenarios on the CCNES measure do not take into account the inherent developmental changes from early to mid-childhood. Therefore, scenarios may be more or less developmentally appropriate and applicable depending on the child's age. Lastly, as the CCNES measure was not developed for racial/ethnic minority populations, the scenarios themselves may be interpreted differently between Black and White mothers. For example, in the current study, White mothers endorsed greater distress reactions than Black mothers. As the measure was developed and validated using a majority White sample, the items likely reflect situations that White mothers may find distressing; however, Black mothers may not find the specific situations to be distressing or even relatable. Although testing for measurement invariance could help to determine whether the measure operates differently across groups and would reduce the likelihood that differences found could be due to non-

invariance across ethnicity, the current study is limited as it did not test for this. Given that some studies have found the CCNES measure to operate differently among Black and White families (Brown et al., 2015; Leerkes et al., 2015), future studies would benefit from conducting measurement invariance analyses when using this measure to examine racial differences in parental emotion socialization.

Moreover, the current measure of ER broadly captures both cognitive and behavioral responses to regulate sadness and anger emotions. This measure does not capture the frequency, intensity, and context of the emotions being regulated, does not discriminate specific and distinct ER strategies within the literature (e.g., reappraisal, suppression, avoidance), and does not capture the regulation of other negative emotions such as fear, shame, embarrassment, etc. To address these limitations, future research may benefit from examining ER through other validated measures that assess specific strategies, secondary negative emotions, and various contexts as well as novel measurement approaches such as the observation and modeling of real time dynamics of specific emotions (Snyder, Stoolmiller, Wilson, & Yamamoto, 2003; Stoolmiller & Snyder, 2006) or structured observation of parent-adolescent interactions (Allen, McElhaney, Kuperminc, & Jodl, 2004).

Lastly, the current study was conducted in a community sample, thus adolescents did not endorse levels of ER typically found in clinical samples (Suveg & Zeman, 2004). Given that poor ER is implicated in risk for and maintenance of adolescent psychopathology (Aldao et al., 2010; Compas et al., 2017), it would be important for

future research to examine ER development in clinical or at-risk samples of adolescents and elucidate thresholds or levels of ER associated with psychopathology.

### **Future Directions**

Measurement for the current study could be strengthened for future research. Given that the current study did not control for previous levels of youth ER, it would be important for future research to examine whether non-supportive emotion socialization impacts ER in adolescence above and beyond youth's preexisting levels of ER capabilities. Given the low range of scores for non-supportive emotion socialization, future research may employ observational methods to capture parental emotions to children's negative emotions. Moreover, the current measure of ER assessed the regulation of anger and sadness emotions in adolescents and did not assess regulation of fear. As fear is encapsulated as a factor of NE and as part of the parental emotion socialization measure, it would be important for future research to examine how these factors impact the regulation of fear or worry in adolescence.

Although the current study operationalized NE using a well-validated global construct, some studies have partitioned frustration/anger reactivity and sadness/fear reactivity from the global construct and have found that frustration/anger reactivity is associated with greater externalizing outcomes while sadness/fear reactivity is associated with greater internalizing outcomes (Eisenberg et al., 2001; Eisenberg et al., 2009; Wang, Eisenberg, Valiente, & Spinrad, 2016). Future research could examine whether dispositional differences in frustration/anger reactivity and sadness/fear reactivity contribute to differences in ER (e.g., regulation of dominant versus submissive emotions)

and longitudinally predict externalizing versus internalizing psychopathology. Moreover, given that the current study did not find a significant influence of NE on ER, future research may benefit from examining trajectories of NE and the ways in which NE may change throughout development (e.g., developmental cascades). Lastly, patterns of significant correlations between NE and non-supportive socialization ( $r = .276, p = .000$ ) and non-supportive socialization and ER ( $r = -.194, p = .002$ ) suggest that rather than a moderating role, parental emotion socialization may potentially mediate the relation between NE and ER. Future research may benefit from examining these alternative analytical methods to fully understand the associations between these processes.

In addition to parental emotion socialization, other parental characteristics likely interact with youth NE to shape ER development, such as parental psychopathology and parental NE (Briscoe et al., 2018; van der Pol et al., 2016; Yap et al., 2007). Parents' psychopathology and NE undoubtedly impact parent-child interactions, including their reactions and responses to youth's emotional displays. Future research on ER development would benefit from examining these additional parental processes and their potential interactions with youth temperament. It is also notable that the parental emotion socialization literature largely focuses on the socialization of *negative* emotions and *mothers* as socializers. It would be important for future research to examine parental socialization of positive emotions (e.g., Yap et al., 2008) as well as other socializing agents such as fathers, peers, and siblings (see Klimes-Dougan et al., 2007; Wong, McElwain, & Halberstadt, 2009). Given that several studies have found sex and racial differences in parental emotion socialization (Brown et al., 2015; Nelson et al., 2012;

Perry et al., 2017), future research would benefit from examining the interaction of sex and race on various socialization practices in a large sample size to ensure robust power in examining these effects. Furthermore, although there is a steadily increasing body of literature on cross-ethnic differences in parental emotion socialization, this area is still limited to White and Black samples in Western societies. It would be important for future research to examine parental emotion socialization in other non-Western racial/ethnic groups (see Corapci, Aksan, & Yagmurlu, 2012; Jin et al., 2017; Tao, Zhou, & Wang, 2010; Yagmurlu & Altan, 2010) and its associations with ER, as the adaptive versus maladaptive nature of the regulation of emotions depends on the culture in which these emotions are experienced and expressed.

Although the current study focused on emotion regulation, other forms of self-regulation influence development, such as physiological or vagal regulation (Blandon, Calkins, Keane, & O'Brien, 2008; Gentzler, Santucci, Kovacs, & Fox, 2009; Vasilev, Crowell, Beauchaine, Mead, & Gatzke-Kopp, 2009). According to Calkins's (2007) self-regulation framework, self-regulatory systems are hierarchically organized, such that foundational regulatory systems (e.g., physiological regulation) give rise to more sophisticated regulatory systems (e.g., emotion regulation) across development. In this way, examining the functioning of early biological systems may elucidate adaptive and maladaptive trajectories for ER development. Empirically, there is growing evidence for the interactive role of parental emotion socialization and physiological regulation relating to ER. For example, in a study of 197 children 4 years of age, Perry et al. (2012) examined the moderating role of vagal withdrawal in the link between parental emotion

socialization and ER. They found that greater non-supportive responses predicted lower ER behaviors among children with lower levels of vagal regulation. Additionally, in an older sample of 61 pre-adolescent youth aged 9 to 13, McQuade and Breaux (2017) found that children with blunted vagal regulation to peer rejection and lower supportive responses from parents were rated as having lower ER skills. In this way, future research may benefit from measuring various forms of self-regulation (e.g., behavioral, cognitive, physiological) via various methods (e.g., observational tasks, EEG, ECG) to fully understand the development and maturation of self-regulatory abilities across the lifespan.

### **Conclusion**

In conclusion, the current study used a large, community sample of Black and White mother-child dyads to examine the interaction between dispositional negative emotionality and non-supportive parental emotion socialization captured throughout childhood to predict emotion regulation in adolescence. Although the main hypothesis was not supported, subsequent analyses elucidate important processes involved in ER development among youth. Notably, it was found that non-supportive socialization to displays of anger did not negatively impact ER across all youth, whereas non-supportive socialization to displays of sadness and fear uniquely contributed to poor ER. Lastly, White youth with high NE whose mothers reacted with distress to their negative emotional displays experienced poorer ER as adolescents relative to White youth with low NE. This association was not found among Black youth, as both mothers' distress and minimizing responses did not positively or negatively impact ER development. In the

overall sample, mothers' punitive responses directly predicted poorer ER in adolescents, thus a pattern of punishing youth for their negative emotions globally interferes with the development of healthy and adaptive strategies to regulate emotions later on. Overall, these findings highlight that the labels "non-supportive" and "supportive" in emotion socialization research are indeed misnomers, as the adaptive or maladaptive function of certain socialization strategies on ER development depends on a multitude of factors including youth NE and race. Above all, it is important to acknowledge that all of these processes are highly complex and dynamic. Parents and children are constantly reacting and regulating individually and interpersonally, always embedded within and interacting with the cultural context, values, beliefs, and identities of all social agents.

## REFERENCES

- Abela, J. R., Brozina, K., & Haigh, E. P. (2002). An examination of the response styles theory of depression in third- and seventh-grade children: A short-term longitudinal study. *Journal of Abnormal Child Psychology*, *30*(5), 515–527.
- Achenbach, T. M. (1992). *Manual for Child Behavior Checklist/2-3 and 1992 Profile*. Burlington: University of Vermont Department of Psychiatry.
- Ahmetoglu, E., Ildiz, G., Acar, I., & Encinger, A. (2018). Children's emotion regulation and attachment to parents: Parental emotion socialization as moderator. *Social Behavior and Personality*, *46*(6), 969–984.
- Aldao, A., & Nolen-Hoeksema, S. (2010). Specificity of cognitive emotion regulation strategies: A transdiagnostic examination. *Behaviour Research and Therapy*, *48*(10), 974–983.
- Aldao, A., Nolen-Hoeksema S., & Schweizer, S. (2010). Emotion-regulation strategies across psychopathology: A meta-analytic review. *Clinical Psychology Review*, *30*(2), 217–237.
- Allen, J. P., McElhaney, K. B., Kuperminc, G. P., & Jodl, K. M. (2004). Stability and change in attachment security across adolescence. *Child Development*, *75*(6), 1792–1805.



- Altan-Aytun, Ö., Yagmurlu, B., & Yavuz, H. M. (2013). Turkish mothers' coping with children's negative emotions: A brief report. *Journal of Child and Family Studies*, 22(3), 437–443.
- Batum, P., & Yagmurlu, B. (2007). What counts in externalizing behaviors? The contributions of emotions and behavior regulation. *Current Psychology*, 25(4), 272–294.
- Blair, C. (2002). School readiness: Integrating cognition and emotion in a neurobiological conceptualization of children's functioning at school entry. *American Psychologist*, 57(2), 111–127.
- Blandon, A. Y., Calkins, S. D., Keane, S. P., & O'Brien, M. (2008). Individual differences in trajectories of emotion regulation processes: The effects of maternal depressive symptomatology and children's physiological regulation. *Developmental Psychology*, 44(4), 1110–1123.
- Breaux, R. P., McQuade, J. D., Harvey, E. A., & Zakarian, R. J. (2018). Longitudinal associations of parental emotion socialization and children's emotion regulation: The moderating role of ADHD symptomatology. *Journal of Abnormal Child Psychology*, 46(4), 671–683.
- Briscoe, C., Stack, D. M., Dickson, D. J., & Serbin, L. A. (2018). Maternal emotion socialization mediates the relationship between maternal and adolescent negative emotionality. *Journal of Youth and Adolescence*, 48(3), 495–509.

- Brown, G. L., Craig, A. B., & Halberstadt, A. G. (2015). Parent gender differences in emotion socialization behaviors vary by ethnicity and child gender. *Parenting: Science and Practice, 15*(3), 135–157.
- Buckholdt, K. E., Parra, G. R., & Jobe-Shields, L. (2009). Emotion regulation as a mediator of the relation between emotion socialization and deliberate self-harm. *American Journal of Orthopsychiatry, 79*, 482–490.
- Buckholdt, K. E., Parra, G. R., & Jobe-Shields, L. (2014). Intergenerational transmission of emotion dysregulation through parental invalidation of emotions: Implications for adolescent internalizing and externalizing behaviors. *Journal of Child and Family Studies, 23*(2), 324–332.
- Calkins, S. D. (2007). The emergence of self-regulation: Biological and behavioral control mechanisms supporting toddler competencies. In C. A. Brownell & C. B. Kopp (Eds.), *Socioemotional development in the toddler years: Transitions and transformations* (pp. 261–284). New York, NY: Guilford Press.
- Calkins, S. D., Dedmon, S. E., Gill, K. L., Lomax, L. E., & Johnson, L. M. (2002). Frustration in infancy: Implications for emotion regulation, physiological processes, and temperament. *Infancy, 3*, 175–197.
- Cassano, M., Perry-Parrish, C., & Zeman, J. (2007). Influence of gender on parental socialization of children's sadness regulation. *Social Development, 16*(2), 210–31.
- Chang, H., Shelleby, E. C., Cheong, J., & Shaw, D. S. (2012). Cumulative risk, negative emotionality, and emotion regulation as predictors of social competence in

transition to school: A mediated moderation model. *Social Development*, 21(4), 780–800.

Chaplin, T. M., Cole, P. M., & Zahn-Waxler, C. (2005). Parental socialization of emotion expression: Gender differences and relations to child adjustment. *Emotion*, 5(1), 80–88.

Cole, P. M., Martin, S. E., & Dennis, T. A. (2004). Emotion regulation as a scientific construct: Methodological challenges and directions for child development research. *Child Development*, 75(2), 317–333.

Compas, B. E., Jaser, S. S., Bettis, A. H., Watson, K. H., Gruhn, M. A., Dunbar, J. P., . . . Thigpen, J. C. (2017). Coping, emotion regulation, and psychopathology in childhood and adolescence: A meta-analysis and narrative review. *Psychological Bulletin*, 143(9), 939–991.

Consedine, N. S., & Magai, C. (2002). The uncharted waters of emotion: Ethnicity, trait emotion and emotion expression in older adults. *Journal of Cross-Cultural Gerontology*, 17(1), 71–100.

Corapci, F., Aksan, N., & Yagmurlu, B. (2012). Socialization of Turkish children's emotions: Do different emotions elicit different responses?" *Global Studies of Childhood*, 2, 106.

Costello, E. J., Copeland, W., & Angold, A. (2011). Trends in psychopathology across the adolescent years: What changes when children become adolescents, and when adolescents become adults? *Journal of Child Psychology and Psychiatry, and Allied Disciplines*, 52(10), 1015–1025.

- Denham, S. A., Mitchell-Copeland, J., Strandberg, K., Auerbach, S., & Blair, K. (1997). Parental contributions to preschoolers' emotional competence: Direct and indirect effects. *Motivation and Emotion, 21*, 65–86.
- Denham, S. A., Zoller, D., & Couchoud, E. A. (1994). Socialization of preschoolers' emotion understanding. *Developmental Psychology, 30*, 928–936.
- Dent, A. L. (2013). *The relation between self-regulation and academic achievement: A meta-analysis exploring variation in the way constructs are labeled, defined, and measured* (doctoral dissertation). <https://dukespace.lib.duke.edu/dspace/handle/10161/7265>
- Dunbar, A. S., Leerkes, E. M., Coard, S. I., Supple, A. J., & Calkins, S. (2017). An integrative conceptual model of parental racial/ethnic and emotion socialization and links to children's social-emotional development among African American families. *Child Development Perspectives, 11*(1), 16–22.
- Eisenberg, N., Cumberland, A., & Spinrad, T. L. (1998). Parental socialization of emotion. *Psychological Inquiry, 9*(4), 241–273.
- Eisenberg, N., Fabes, R. A., & Murphy, B. C. (1996). Parents' reactions to children's negative emotions: Relations to children's social competence and comforting behavior. *Child Development, 67*(5), 2227–2247.
- Eisenberg, N., Fabes, R. A., Shepard, S. A., Guthrie, I. K., Murphy, B. C., & Reiser, M. (1999). Parental reactions to children's negative emotions: Longitudinal relations to quality of children's social functioning. *Child Development, 70*(2), 513–534.

- Eisenberg, N., Pidada, S., & Liew, J. (2001). The relations of regulation and negative emotionality to Indonesian children's social functioning. *Child Development, 72*(6), 1747–1763.
- Eisenberg, N., Spinrad, T. L., & Eggum, N. D. (2010). Emotion-related self-regulation and its relation to children's maladjustment. *Annual Review of Clinical Psychology, 6*, 495–525.
- Eisenberg, N., Valiente, C., Spinrad, T. L., Liew, J., Zhou, Q., Losoya, S. H., . . .  
Cumberland, A. (2009). Longitudinal relations of children's effortful control, impulsivity, and negative emotionality to their externalizing, internalizing, and co-occurring behavior problems. *Developmental Psychology, 45*(4), 988–1008.
- Essau, C. A., LeBlanc, S. S., & Ollendick, T. H. (2017). *Emotion regulation and psychopathology in children and adolescents*. Oxford University Press.
- Fabes, R. A., Eisenberg, N., & Bernzweig, J. (1990). *The Coping with Children's Negative Emotion Scale: Procedure and scoring*. Tempe: Arizona State University.
- Fabes, R. A., Poulin, R. E., Eisenberg, N., & Madden-Derdich, D. A. (2002). The coping with children's negative emotions scale (CCNES): Psychometric properties and relations with children's emotional competence. *Marriage & Family Review, 34*(3–4), 285–310.
- Fivush, R., Brotman, M., Buckner, J., & Goodman, S. (2000). Gender differences in parent-child emotion narratives. *Sex Roles, 42*, 233–253.

- Fox, N. A., & Calkins, S. D. (2003). The development of self-control of emotion: Intrinsic and extrinsic influences. *Motivation and Emotion, 27*(1), 7–26.
- Garside, R. B., & Klimes-Dougan, B. (2002). Socialization of discrete negative emotions: Gender differences and links with psychological distress. *Sex Roles, 47*(3–4), 115–128.
- Gentzler, A. L., Santucci, A. K., Kovacs, M., & Fox, N. A. (2009). Respiratory sinus arrhythmia reactivity predicts emotion regulation and depressive symptoms in at-risk and control children. *Biological Psychology, 82*(2), 156–163.
- Hollingshead, A. D. B. (1975). *Four Factor Index of Social Status*. Yale University Department of Sociology.
- Jin, Z., Zhang, X., & Han, Z. R. (2017). Parental emotion socialization and child psychological adjustment among Chinese urban families: Mediation through child emotion regulation and moderation through dyadic collaboration. *Frontiers in Psychology, 8*.
- Jobe-Shields, L., Buckholdt, K. E., & Parra, G. R. (2013). Perceptions of parental awareness of emotional responses to stressful life events. *The Family Journal, 21*, 408–416.
- John, O. P., & Gross, J. J. (2004). Healthy and unhealthy emotion regulation: Personality processes, individual differences, and life span development. *Journal of Personality, 72*(6), 1301–1334.

- Johnson, P. O., & Neyman, J. (1936). Tests of certain linear hypotheses and their applications to some educational problems. *Statistical Research Memoirs*, *1*, 57–93.
- Kang, S. K., & Chasteen, A. L. (2009). Beyond the double-jeopardy hypothesis: Assessing emotion on the faces of multiply-categorizable targets of prejudice. *Journal of Experimental Social Psychology*, *45*(6), 1281–1285.
- Kerig, P. K., Schulz, M. S., & Hauser, S. T. (2012). *Adolescence and beyond: Family processes and development* (M. S. Schulz, Ed.). Oxford University Press.
- Kessler, R. C., Avenevoli, S., & Ries Merikangas, K. (2001). Mood disorders in children and adolescents: An epidemiologic perspective. *Biological Psychiatry*, *49*(12), 1002–1014.
- Kessler, R. C., Berglund, P., Demler, O., Jin, R., Ries Merikangas, K., & Walters, E. E. (2005). Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the national comorbidity survey replication. *Archives of General Psychiatry*, *62*(6), 593–602.
- Klein, D. N., Kotov, R., & Bufferd, S. J. (2011). Personality and depression: Explanatory models and review of the evidence. *Annual Review of Clinical Psychology*, *7*, 269–295.
- Klimes-Dougan, B., Brand, A. E., Zahn-Waxler, C., Usher, B., Hastings, P. D., Kendziora, K., & Garside, R. B. (2007). Parental emotion socialization in adolescence: Differences in sex, age and problem status. *Social Development*, *16*(2), 326–342.

- Labella, M. H. (2018). The sociocultural context of emotion socialization in African American families. *Clinical Psychology Review, 59*, 1–15.
- Leerkes, E. M., Supple, A. J., & Gudmunson, J. A. (2014). Ethnic differences in women's emotional reactions to parental nonsupportive emotion socialization. *Marriage & Family Review, 50*(5), 435–446.
- Leerkes, E. M., Supple, A. J., Su, J., & Cavanaugh, A. M. (2015). Links between remembered childhood emotion socialization and adult adjustment: Similarities and differences between European American and African American women. *Journal of Family Issues, 36*(13), 1854–1877.
- Lengua, L. J., & Kovacs, E. A. (2005). Bidirectional associations between temperament and parenting and the prediction of adjustment problems in middle childhood. *Applied Developmental Psychology, 26*, 21–38.
- Lunkenheimer, E. S., Shields, A. M., & Cortina, K. S. (2007). Parental emotion coaching and dismissing in family interaction. *Social Development, 16*(2), 232–248.
- MacKinnon, D. P., Lockwood, C. M., & Williams, J. (2004). Confidence limits for the indirect effect: Distribution of the product and resampling methods. *Multivariate Behavioral Research, 39*(1), 99–128.
- Matsumoto, D. (1993) Ethnic differences in affect intensity, emotion judgments, display rule attitudes, and self-reported emotional expression in an American sample. *Motivation and Emotion, 17*(2), 107–123.



- McLaughlin, K. A., Hatzenbuehler, M. L., Mennin, D. S., & Nolen-Hoeksema, S. (2011). Emotion dysregulation and adolescent psychopathology: A prospective study. *Behaviour Research and Therapy, 49*(9), 544–554.
- McQuade, J. D., & Breaux, R. P. (2017). Parent emotion socialization and pre-adolescent's social and emotional adjustment: Moderating effects of autonomic nervous system reactivity. *Biological Psychology, 130*, 67–76.
- Mezulis, A., Simonson, J., McCauley, E., & Vander Stoep, A. (2011). The association between temperament and depressive symptoms in adolescence: Brooding and reflection as potential mediators. *Cognition and Emotion, 25*(8), 1460–1470.
- Mirabile, S. P., Scaramella, L. V., Sohr-Preston, S. L., & Robison, S. D. (2009). Mothers' socialization of emotion regulation: The moderating role of children's negative emotional reactivity. *Child & Youth Care Forum, 38*(1), 19–37.
- Montague, D. P. F., Magai, C., Consedine, N. S., & Gillespie, M. (2003). Attachment in African American and European American older adults: The roles of early life socialization and religiosity. *Attachment & Human Development, 5*(2), 188–214.
- Morris, A. S., Silk, J. S., Steinberg, L., Myers, S. S., & Robinson, L. R. (2007). The role of the family context in the development of emotion regulation. *Social Development, 16*(2), 361–388.
- Muthén, L. K., & Muthén, B. O. (1998-2017). *Mplus user's guide* (8th ed.). Los Angeles, CA: Muthén & Muthén.
- Muris, P., Meesters, C., & Blijlevens, P. (2007). Self-reported reactive and regulative temperament in early adolescence: Relations to internalizing and externalizing

problem behavior and ‘big three’ personality factors. *Journal of Adolescence*, 30(6), 1035–49.

Murphy, T. P., Laible, D. J., Augustine, M., & Robeson, L. (2015). Attachment’s links with adolescents’ social emotions: The roles of negative emotionality and emotion regulation. *The Journal of Genetic Psychology: Research and Theory on Human Development*, 176(5), 315–329.

Nelson, J. A., Leerkes, E. M., O’Brien, M., Calkins, S. D., & Marcovitch, S. (2012). African American and European American mothers’ beliefs about negative emotions and emotion socialization practices. *Parenting, Science and Practice*, 12(1), 22–41.

Nelson, J. A., Leerkes, E. M., Perry, N. B., O’Brien, M., Calkins, S. D., & Marcovitch, S. (2013). European-American and African-American mothers’ emotion socialization practices relate differently to their children’s academic and social-emotional competence. *Social Development*, 22(3), 485–498.

Neppl, T. K., Donnellan, M. B., Scaramella, L. V., Widaman, K. F., Spilman, S. K., Ontai, L. L., & Conger, R. D. (2010). Differential stability of temperament and personality from toddlerhood to middle childhood. *Journal of Research in Personality*, 44(3), 386–396.

Newell, C. A. (2001). Maternal responses to children’s emotions and child adjustment: The contribution of individual differences in emotionality. *Dissertation Abstracts International: Section B: The Sciences and Engineering*.

- National Institutes of Mental Health. (2018, January). *Statistics*. Retrieved from <https://www.nimh.nih.gov/health/statistics/index.shtml>
- Papp, L. M., Pendry, P., & Adam, E. K. (2009). Mother-adolescent physiological synchrony in naturalistic settings: Within-family cortisol associations and moderators. *Journal of Family Psychology, 23*(6), 882–894.
- Perry, N. B., Calkins, S. D., Nelson, J. A., Leerkes, E. M., & Marcovitch, S. (2012). Mothers' responses to children's negative emotions and child emotion regulation: The moderating role of vagal suppression. *Developmental Psychobiology, 54*(5), 503–513.
- Perry, N. B., Leerkes, E. M., Dunbar, A. S., & Cavanaugh, A. M. (2017). Gender and ethnic differences in young adults' emotional reactions to parental punitive and minimizing emotion socialization practices. *Emerging Adulthood, 5*(2), 83–92.
- Putnam, S. P., Gartstein, M. A., & Rothbart, M. K. (2006). Measurement of fine-grained aspects of toddler temperament: The early childhood behavior questionnaire. *Infant Behavior & Development, 29*(3), 386–401.
- Ramsden, S. R., & Hubbard, J. A. (2002). Family expressiveness and parental emotion coaching: Their role in children's emotion regulation and aggression. *Journal of Abnormal Child Psychology, 30*(6), 657–667.
- Rogers, M. L., Halberstadt, A. G., Castro, V. L., MacCormack, J. K., & Garrett-Peters, P. (2016). Maternal emotion socialization differentially predicts third grade children's emotion regulation and lability. *Emotion, 16*, 280–291.

- Rothbart, M. K., Ahadi, S. A., & Evans, D. E. (2000). Temperament and personality: Origins and outcomes. *Journal of Personality and Social Psychology*, 78(1), 122–35.
- Rothbart, M. K., Ahadi, S. A., Hersey, K. L., & Fisher, P. (2001). Investigations of temperament at three to seven years: The children's behavior questionnaire. *Child Development*, 72(5), 1394–1408.
- Rothbart, M. K., & Putnam, S. P. (2002). Temperament and socialization. In L. Pulkkinen & A. Caspi (Eds.), *Paths to successful development: Personality in the life course* (pp. 19–45). Cambridge University Press.
- Rubin, K., Bowker, J., McDonald, K., & Menzer, M. (2013). Peer relationships in childhood. In P. D. Zelazo (Ed.), *The Oxford handbook of developmental psychology* (Vol. 2: Self and Other). Oxford University Press.
- Saarni, C. (1993). Socialization of emotions. In M. Lewis & J. M. Haviland (Eds.), *Handbook of emotions* (pp. 435–446). New York, NY: Guilford Press.
- Sanders, W., Zeman, J., Poon, J., & Miller, R. (2015). Child regulation of negative emotions and depressive symptoms: The moderating role of parental emotion socialization. *Journal of Child and Family Studies*, 24(2), 402–415.
- Schulz, M. S., Waldinger, R. J., Hauser, S. T., & Allen, J. P. (2005). Adolescents' behavior in the presence of interparental hostility: Developmental and emotion regulatory influences. *Development and Psychopathology*, 17(2).

- Shih, E. W., Quiñones, C. L. E., Karan, A., & Davis, E. L. (2019). Physiological contagion in parent-child dyads during an emotional challenge. *Social Development, 28*(3), 620–636. doi:10.1111/sode.12359
- Sim, L., & Zeman, J. (2005). Emotion regulation factors as mediators between body dissatisfaction and bulimic symptoms in early adolescent girls. *Journal of Early Adolescence, 25*, 478–496.
- Smith, M., & Walden, T. (2001). An exploration of African American preschool-aged children's behavioral regulation in emotionally arousing situations. *Child Study Journal, 31*(1), 13–45.
- Snyder, J., Stoolmiller, M., Wilson, M., & Yamamoto, M. (2003). Child anger regulation, parental responses to children's anger displays, and early child antisocial behavior. *Social Development, 12*(3), 335–360.
- Spangler, G., & Zimmermann, P. (2014). Emotional and adrenocortical regulation in early adolescence: Prediction by attachment security and disorganization in infancy. *International Journal of Behavioral Development, 38*(2), 142–154.
- Spector, P. E., & Brannick, M. T. (2011). Methodological urban legends: The misuse of statistical control variables. *Organizational Research Methods, 14*, 287–306.
- Steinberg, L. (2005). Cognitive and affective development in adolescence. *Trends in Cognitive Sciences, 9*(2), 69–74.
- Steinberg, L., & Morris, A.S. (2001). Adolescent development. *Annual Review of Psychology, 52*, 83–110.

- Stoolmiller, M., & Snyder, J. (2006). Modeling heterogeneity in social interaction processes using multilevel survival analysis. *Psychological Methods, 11*(2), 164–177.
- Substance Abuse and Mental Health Services Administration. (2019). *Key substance use and mental health indicators in the United States: Results from the 2018 National Survey on Drug Use and Health* (HHS Publication No. PEP19-5068, NSDUH Series H-54). Rockville, MD: Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration. Retrieved from <https://www.samhsa.gov/data/>
- Suveg, C., Shaffer, A., & Davis, M. (2016). Family stress moderates relations between physiological and behavioral synchrony and child self-regulation in mother-preschooler dyads. *Developmental Psychobiology, 58*(1), 83–97.
- Suveg, C., & Zeman, J. (2004). Emotion regulation in children with anxiety disorders. *Journal of Clinical Child and Adolescent Psychology, 33*(4), 750–759.
- Tao, A., Zhou, Q., & Wang, Y. (2010). Parental reactions to children's negative emotions: Prospective relations to Chinese children's psychological adjustment. *Journal of Family Psychology, 24*(2), 135–144.
- Thompson, R. A. (1991). Emotional regulation and emotional development. *Educational Psychological Review, 3*(4), 269–307. doi:10.1007/BF01319934
- Thompson, R. A. (1994). Emotion regulation: In search of definition. In N. A. Fox (Ed.), *The development of emotion regulation: Biological and behavioral*

considerations. *Monographs of the Society for Research in Child Development*, 59(2-3), 25–52.

Trentacosta, C. J., & Fine, S. E. (2010). Emotion knowledge, social competence, and behavior problems in childhood and adolescence: A meta-analytic review. *Social Development*, 19(1), 1–29.

Van Beveren, M., McIntosh, K., Vandevivere, E., Wante, L., Vandeweghe, L., Van Durme, K., . . . Braet, C. (2016). Associations between temperament, emotion regulation, and depression in youth: The role of positive temperament. *Journal of Child and Family Studies*, 25(6), 1954–1968.

Van Beveren, M., Mezulis, A., Wante, L., & Braet, C. (2016). Joint contributions of negative emotionality, positive Emotionality, and effortful control on depressive symptoms in youth. *Journal of Clinical Child & Adolescent Psychology*, 48(1), 131–142. doi:10.1080/15374416.2016.1233499

van der Pol, L. D., Groeneveld, M. G., Endendijk, J. J., van Berkel, S. R., Hallers-Haalboom, E. T., Bakermans-Kranenburg, M. J., & Mesman, J. (2016). Associations between fathers' and mothers' psychopathology symptoms, parental emotion socialization, and preschoolers' social-emotional development. *Journal of Child and Family Studies*, 25(11), 3367–3380.

Vasilev, C. A., Crowell, S. E., Beauchaine, T. P., Mead, H. K., & Gatzke-Kopp, L. M. (2009). Correspondence between physiological and self-report measures of emotion dysregulation: A longitudinal investigation of youth with and without

- psychopathology. *Journal of Child Psychology and Psychiatry*, 50(11), 1357–1364.
- Vendlinski, M., Silk, J. S., Shaw, D. S., & Lane, T. J. (2006). Ethnic differences in relations between family process and child internalizing problems. *Journal of Child Psychology and Psychiatry*, 47(9), 960–969.
- Walker, E. R., McGee, R. E., & Druss, B. G. (2015). Mortality in mental disorders and global disease burden implications: A systematic review and meta-analysis. *JAMA Psychiatry*, 72(4), 334–341.
- Wang, F. L., Eisenberg, N., Valiente, C., & Spinrad, T. L. (2016). Role of temperament in early adolescent pure and co-occurring internalizing and externalizing problems using a bifactor model: Moderation by parenting and gender. *Development and Psychopathology*, 28(4, Part 2), 1487–1504.
- Wills, T. A., Walker, C., Mendoza, D., & Ainette, M. G. (2006). Behavioral and emotional self-control: Relations to substance use in samples of middle and high school students. *Psychology of Addictive Behaviors*, 20, 265–278.
- Wong, M. S., McElwain, N. L., & Halberstadt, A. G. (2009). Parent, family, and child characteristics: Associations with mother- and father-reported emotion socialization practices. *Journal of Family Psychology*, 23(4), 452–463.
- Wetter, E. K., & Hankin, B. L. (2009). Mediation pathways through which positive and negative emotionality contribute to anhedonic symptoms of depression: A prospective study of adolescents. *Journal of Abnormal Child Psychology*, 37(4), 507–520.



- Yagmurlu, B., & Altan, O. (2010). Maternal socialization and child temperament as predictors of emotion regulation in Turkish preschoolers. *Infant and Child Development, 19*(3), 275–296.
- Yap, M. B. H., Allen, N. B., & Ladouceur, C. D. (2008). Maternal socialization of positive affect: The impact of invalidation on adolescent emotion regulation and depressive symptomatology. *Child Development, 79*(5), 1415–1431.
- Yap, M. B. H., Allen, N. B., & Sheeber, L. (2007). Using an emotion regulation framework to understand the role of temperament and family processes in risk for adolescent depressive disorders. *Clinical Child and Family Psychology Review, 10*(2), 180–196.
- Zeman, J., Cassano, M., Perry-Parrish, C., & Stegall, S. (2006). Emotion regulation in children and adolescents. *Journal of Developmental and Behavioral Pediatrics, 27*(2), 155–168.
- Zeman, J., Shipman, K., & Penza-Clyve, S. (2001). Development and initial validation of the children's sadness management scale. *Journal of Nonverbal Behavior, 25*, 187–205.
- Zeman, J., Shipman, K., & Suveg, C. (2002). Anger and sadness regulation: Predictions to internalizing and externalizing symptoms in children. *Journal of Clinical Child and Adolescent Psychology, 31*(3), 393–398.

**APPENDIX A**

**CHILDREN'S BEHAVIOR QUESTIONNAIRE**

Subject No. \_\_\_\_\_

Date of Child's Birth \_\_\_\_\_

Date \_\_\_\_\_

Sex of Child \_\_\_\_\_

Age of Child \_\_\_\_\_ yrs \_\_\_\_\_ months

**Instructions: Please read carefully before starting:**

On the next pages you will see a set of statements that describe children's reactions to a number of situations. We would like you to tell us what your child's reaction is likely to be in those situations. There are of course no "correct" ways of reacting; children differ widely in their reactions, and it is these differences we are trying to learn about. Please read each statement and decide whether it is a "true" or "untrue" description of your child's reaction within the past six months. Use the following scale to indicate how well a statement describes your child:

<u>Circle #</u>	<u>If the statement is:</u>
1	extremely untrue of your child
2	quite untrue of your child
3	slightly untrue of your child
4	neither true nor false of your child
5	slightly true of your child
6	quite true of your child
7	extremely true of your child

If you cannot answer any of the items because you have never seen the child in that situation, for example, if the statement is about the child's reaction to your singing and you have never sung to your child, then circle NA (not applicable).

Please be sure to circle a number or NA for every item. Please answer the questions on the back of this page.

1	2	3	4	5	6	7	NA
extremely untrue	quite untrue	slightly untrue	neither true/not untrue	slightly true	quite true	extremely true	not applicable

My child:

- |   |   |   |   |   |   |   |   |    |
|---|---|---|---|---|---|---|---|----|
| 1. Seems always in a big hurry to get from one place to another.                    | 1 | 2 | 3 | 4 | 5 | 6 | 7 | NA |
| 2. Gets angry when told s/he has to go to bed.                                      | 1 | 2 | 3 | 4 | 5 | 6 | 7 | NA |
| 3. Her/his feelings are not easily hurt by what parents say.                        | 1 | 2 | 3 | 4 | 5 | 6 | 7 | NA |
| 4. Can lower his/her voice when asked to do so.                                     | 1 | 2 | 3 | 4 | 5 | 6 | 7 | NA |
| 5. Is not very bothered by pain.  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | NA |
| 6. Is hard to get his/her attention when s/he is concentrating on something.        | 1 | 2 | 3 | 4 | 5 | 6 | 7 | NA |
| 7. Sometimes prefers to watch rather than join other children playing.              | 1 | 2 | 3 | 4 | 5 | 6 | 7 | NA |
| 8. Likes going down high slides or other adventurous activities.                    | 1 | 2 | 3 | 4 | 5 | 6 | 7 | NA |
| 9. Notices the smoothness or roughness of objects s/he touches.                     | 1 | 2 | 3 | 4 | 5 | 6 | 7 | NA |
| 10. Gets so worked up before an exciting event that s/he has trouble sitting still. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | NA |
| 11. Laughs a lot at jokes and silly happenings.                                     | 1 | 2 | 3 | 4 | 5 | 6 | 7 | NA |
| 12. Rarely enjoys just being talked to.   | 1 | 2 | 3 | 4 | 5 | 6 | 7 | NA |
| 13. Usually rushes into an activity without thinking about.                         | 1 | 2 | 3 | 4 | 5 | 6 | 7 | NA |
| 14. Has a hard time settling down for a nap.  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | NA |
| 15. Is not afraid of large dogs and/or other animals.                               | 1 | 2 | 3 | 4 | 5 | 6 | 7 | NA |
| 16. When picking up toys or other jobs, usually keeps at the task until it's done.  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | NA |
| 17. Is comfortable in situations where s/he will be meeting others.                 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | NA |

1	2	3	4	5	6	7	NA
extremely untrue	quite untrue	slightly untrue	neither true/not untrue	slightly true	quite true	extremely true	not applicable

My child:

18. Cries sadly when a favorite toy gets lost or broken.	1	2	3	4	5	6	7	NA
19. Rarely gets irritated when s/he makes a mistake.	1	2	3	4	5	6	7	NA
20. Is good at games like "Simon says," "Mother, May I?" and "Red Light, Green Light."	1	2	3	4	5	6	7	NA
21. Becomes quite uncomfortable when cold and/or wet.	1	2	3	4	5	6	7	NA
22. Likes to play so wild and recklessly that s/he might get hurt.	1	2	3	4	5	6	7	NA
23. Seems to be at ease with almost any person.	1	2	3	4	5	6	7	NA
24. When s/he sees a toy s/he wants, gets very excited about getting it.	1	2	3	4	5	6	7	NA
25. Tends to run rather than walk from room to room.	1	2	3	4	5	6	7	NA
26. Sometimes interrupts others when they are speaking.	1	2	3	4	5	6	7	NA
27. Calms down quickly following an exciting event.	1	2	3	4	5	6	7	NA
28. Usually doesn't comment on changes in parent's appearance.	1	2	3	4	5	6	7	NA
29. Can easily shift from one activity to another.	1	2	3	4	5	6	7	NA
30. Doesn't care for rough and rowdy games.	1	2	3	4	5	6	7	NA
31. Notices it when parents are wearing new clothing.	1	2	3	4	5	6	7	NA
32. Has a hard time following instructions.	1	2	3	4	5	6	7	NA
33. Is afraid of elevators.	1	2	3	4	5	6	7	NA
34. Has temper tantrums when s/he doesn't get what s/he wants.	1	2	3	4	5	6	7	NA
35. When s/he wants to do something, s/he talks about little else.	1	2	3	4	5	6	7	NA

1	2	3	4	5	6	7	NA
extremely untrue	quite untrue	slightly untrue	neither true/not untrue	slightly true	quite true	extremely true	not applicable

My child:

36. Enjoys just sitting quietly in the sunshine.	1	2	3	4	5	6	7	NA
37. Gets embarrassed when strangers pay a lot of attention to her/him.	1	2	3	4	5	6	7	NA
38. When practicing an activity, has a hard time keeping her/his mind on it.	1	2	3	4	5	6	7	NA
39. Tends to feel “down” at the end of an exciting day.	1	2	3	4	5	6	7	NA
40. Is afraid of burglars or the “boogie man.”	1	2	3	4	5	6	7	NA
41. When outside, often sits quietly.	1	2	3	4	5	6	7	NA
42. Can be “cheered up” by talking about something s/he is interested in.	1	2	3	4	5	6	7	NA
43. Enjoys funny stories but usually doesn’t laugh at them.	1	2	3	4	5	6	7	NA
44. Tends to become sad if the family’s plans don’t work out.	1	2	3	4	5	6	7	NA
45. Acts very friendly and outgoing with new children.	1	2	3	4	5	6	7	NA
46. Decides what s/he wants very quickly and goes after it.	1	2	3	4	5	6	7	NA
47. Will move from one task to another without completing any of them.	1	2	3	4	5	6	7	NA
48. Moves about actively (runs, climbs, jumps) when playing in the house.	1	2	3	4	5	6	7	NA
49. Dislikes having nails cut.	1	2	3	4	5	6	7	NA
50. Is afraid of loud noises.	1	2	3	4	5	6	7	NA
51. Does not like to take chances for the fun and excitement of it.	1	2	3	4	5	6	7	NA
52. Seems to listen to even quiet sounds.	1	2	3	4	5	6	7	NA
53. Has a hard time settling down after an exciting activity.	1	2	3	4	5	6	7	NA

1	2	3	4	5	6	7	NA
extremely untrue	quite untrue	slightly untrue	neither true/not untrue	slightly true	quite true	extremely true	not applicable

My child:

54. Enjoys taking warm baths.	1	2	3	4	5	6	7	NA
55. Seems to feel depressed when unable to accomplish some task.	1	2	3	4	5	6	7	NA
56. Smiles and laughs during plays with parents.	1	2	3	4	5	6	7	NA
57. Joins others quickly, even when they are strangers.	1	2	3	4	5	6	7	NA
58. Doesn't worry about injections by the doctor.	1	2	3	4	5	6	7	NA
59. Often rushes into new situations.	1	2	3	4	5	6	7	NA
60. Doesn't like to go down high slides at the amusement park or playground.	1	2	3	4	5	6	7	NA
61. Is quite upset by a little cut or bruise.	1	2	3	4	5	6	7	NA
62. Gets quite frustrated when prevented from doing something s/he wants to do.	1	2	3	4	5	6	7	NA
63. Prepares for trips and outings by planning things s/he will need.	1	2	3	4	5	6	7	NA
64. Becomes upset when loved relatives or friends are getting ready to leave following a visit.	1	2	3	4	5	6	7	NA
65. Comments when a parent has changed his/her appearance.	1	2	3	4	5	6	7	NA
66. Doesn't enjoy being read to very much.	1	2	3	4	5	6	7	NA
67. Enjoys activities such as being chased, spun around by the arms, etc.	1	2	3	4	5	6	7	NA
68. When angry about something, s/he tends to stay upset for ten minutes or longer.	1	2	3	4	5	6	7	NA
69. Has strong desires for certain kinds of foods.	1	2	3	4	5	6	7	NA
70. Is not afraid of the dark.	1	2	3	4	5	6	7	NA
71. Takes a long time in approaching new situations.	1	2	3	4	5	6	7	NA

1	2	3	4	5	6	7	NA
extremely untrue	quite untrue	slightly untrue	neither true/not untrue	slightly true	quite true	extremely true	not applicable

My child:

72. Does not usually become tearful when tired.	1	2	3	4	5	6	7	NA
73. Gets mad when even mildly criticized.	1	2	3	4	5	6	7	NA
74. Is sometimes shy even around people s/he has known a long time.	1	2	3	4	5	6	7	NA
75. Can wait before entering into new activities if s/he is asked to.	1	2	3	4	5	6	7	NA
76. Enjoys “snuggling up” next to a parent or babysitter.	1	2	3	4	5	6	7	NA
77. Enjoys being in crowds of people.	1	2	3	4	5	6	7	NA
78. Gets angry when s/he can’t find something s/he wants to play with.	1	2	3	4	5	6	7	NA
79. Usually stops and thinks things over before deciding to do something.	1	2	3	4	5	6	7	NA
80. Is afraid of fire.	1	2	3	4	5	6	7	NA
81. Her/his feelings are easily hurt by what parents say.	1	2	3	4	5	6	7	NA
82. Looks forward strongly to the visit of loved relatives.	1	2	3	4	5	6	7	NA
83. Usually has a serious expression, even during play.	1	2	3	4	5	6	7	NA
84. Doesn’t usually comment on people’s facial features, such as size of nose or mouth.	1	2	3	4	5	6	7	NA
85. Seems to forget a bump or scrape after a couple of minutes.	1	2	3	4	5	6	7	NA
86. Doesn’t care much for quiet games.	1	2	3	4	5	6	7	NA
87. Is bothered by light or color that is too bright.	1	2	3	4	5	6	7	NA
88. Sometimes sits quietly for long periods in the house.	1	2	3	4	5	6	7	NA
89. Sometimes seems nervous when talking to adults s/he has just met.	1	2	3	4	5	6	7	NA

1	2	3	4	5	6	7	NA
extremely untrue	quite untrue	slightly untrue	neither true/not untrue	slightly true	quite true	extremely true	not applicable

My child:

90. Is slow and unhurried in deciding what to do next.	1	2	3	4	5	6	7	NA
91. Is very frightened by nightmares.	1	2	3	4	5	6	7	NA
92. Changes from being upset to feeling much better within a few minutes.	1	2	3	4	5	6	7	NA
93. Has difficulty waiting in line for something.	1	2	3	4	5	6	7	NA
94. Becomes tearful when told to do something s/he does not want to do.	1	2	3	4	5	6	7	NA
95. Has a lot of trouble stopping an activity when called to do something else.	1	2	3	4	5	6	7	NA
96. Becomes very excited while planning for trips.	1	2	3	4	5	6	7	NA
97. Finds rough materials uncomfortable, such as wool against his/her skin.	1	2	3	4	5	6	7	NA
98. Is quickly aware of some new item in the living room.	1	2	3	4	5	6	7	NA
99. Hardly ever laughs out loud during play with other children.	1	2	3	4	5	6	7	NA
100. Enjoys exciting and suspenseful TV shows.	1	2	3	4	5	6	7	NA
101. Is not very upset at minor cuts or bruises.	1	2	3	4	5	6	7	NA
102. Prefers quiet activities to active games.	1	2	3	4	5	6	7	NA
103. Falls asleep within ten minutes of going to bed at night.	1	2	3	4	5	6	7	NA
104. Tends to say the first thing that comes to mind, without stopping to think about it.	1	2	3	4	5	6	7	NA
105. Usually comments if someone has an unusual voice.	1	2	3	4	5	6	7	NA
106. Acts shy around new people.	1	2	3	4	5	6	7	NA
107. Enjoys meeting Santa Claus or other strangers in costumes.	1	2	3	4	5	6	7	NA



1	2	3	4	5	6	7	NA
extremely untrue	quite untrue	slightly untrue	neither true/not untrue	slightly true	quite true	extremely true	not applicable

My child:

108. Has trouble sitting still when s/he is told to (at movies, church, etc.).	1	2	3	4	5	6	7	NA
109. Rarely cries when s/he hears a sad story.	1	2	3	4	5	6	7	NA
110. Sometimes smiles or giggles playing by her/himself.	1	2	3	4	5	6	7	NA
111. Isn't interested in watching quiet TV shows such as "Mister Rogers."	1	2	3	4	5	6	7	NA
112. Rarely becomes upset when watching a sad event in a TV show.	1	2	3	4	5	6	7	NA
113. Enjoys just being talked to.	1	2	3	4	5	6	7	NA
114. When eager to go outside, sometimes rushes out without putting on the right clothes.	1	2	3	4	5	6	7	NA
115. Is bothered by bathwater that is too hot or too cold.	1	2	3	4	5	6	7	NA
116. Is able to resist laughing or smiling when it isn't appropriate.	1	2	3	4	5	6	7	NA
117. Becomes very excited before an outing (e.g., picnic, party).	1	2	3	4	5	6	7	NA
118. If upset, cheers up quickly when s/he thinks about something else.	1	2	3	4	5	6	7	NA
119. Is comfortable asking other children to play.	1	2	3	4	5	6	7	NA
120. Rarely gets upset when told s/he has to go to bed.	1	2	3	4	5	6	7	NA
121. Rarely smiles and laughs when playing with pets.	1	2	3	4	5	6	7	NA
122. Does not seem to notice parents' facial expressions.	1	2	3	4	5	6	7	NA
123. Rarely runs or moves quickly in the house.	1	2	3	4	5	6	7	NA
124. Enjoys exploring new places.	1	2	3	4	5	6	7	NA
125. When drawing or coloring in a book, shows strong concentration.	1	2	3	4	5	6	7	NA

1	2	3	4	5	6	7	NA
extremely untrue	quite untrue	slightly untrue	neither true/not untrue	slightly true	quite true	extremely true	not applicable

My child:

126. Plays games slowly and deliberately.	1	2	3	4	5	6	7	NA
127. Sometimes appears downcast for no reason.	1	2	3	4	5	6	7	NA
128. Becomes easily frustrated when tired.	1	2	3	4	5	6	7	NA
129. Talks easily to new people.	1	2	3	4	5	6	7	NA
130. Is afraid of the dark.	1	2	3	4	5	6	7	NA
131. Is usually pretty calm before going on an outing (e.g., picnic, party).	1	2	3	4	5	6	7	NA
132. Is likely to cry when even a little bit hurt.	1	2	3	4	5	6	7	NA
133. Enjoys looking at picture books.	1	2	3	4	5	6	7	NA
134. Is easy to soothe when s/he is upset.	1	2	3	4	5	6	7	NA
135. Doesn't often giggle or act "silly."	1	2	3	4	5	6	7	NA
136. Is good at following instructions.	1	2	3	4	5	6	7	NA
137. Approaches slowly places where s/he might hurt her/himself.	1	2	3	4	5	6	7	NA
138. Is rarely frightened by "monsters" seen on TV or at movies.	1	2	3	4	5	6	7	NA
139. Likes to go high and fast when pushed on a swing.	1	2	3	4	5	6	7	NA
140. Gets irritable about having to eat food s/he doesn't like.	1	2	3	4	5	6	7	NA
141. Becomes distressed when hair is combed.	1	2	3	4	5	6	7	NA
142. Doesn't usually react to different textures of food.	1	2	3	4	5	6	7	NA
143. Sometimes turns away shyly from new acquaintances.	1	2	3	4	5	6	7	NA

1	2	3	4	5	6	7	NA
extremely untrue	quite untrue	slightly untrue	neither true/not untrue	slightly true	quite true	extremely true	not applicable

My child:

144. When building or putting something together, becomes very involved in what s/he is doing, and works for long periods.	1	2	3	4	5	6	7	NA
145. Sits quietly in the bath.	1	2	3	4	5	6	7	NA
146. Likes being sung to.	1	2	3	4	5	6	7	NA
147. Approaches places s/he has been told are dangerous slowly and cautiously.	1	2	3	4	5	6	7	NA
148. Gets very enthusiastic about the things s/he does.	1	2	3	4	5	6	7	NA
149. Rarely becomes discouraged when s/he has trouble making something work.	1	2	3	4	5	6	7	NA
150. Is very difficult to soothe when s/he has become upset.	1	2	3	4	5	6	7	NA
151. Likes the sound of words, such as nursery rhymes.	1	2	3	4	5	6	7	NA
152. Smiles a lot at people s/he likes.	1	2	3	4	5	6	7	NA
153. Plays actively outdoors with other children.	1	2	3	4	5	6	7	NA
154. Notices even little specks of dirt on objects.	1	2	3	4	5	6	7	NA
155. When s/he sees a toy or game s/he wants, is eager to have it right then.	1	2	3	4	5	6	7	NA
156. Rarely protests when another child takes his/her toy.	1	2	3	4	5	6	7	NA
157. Cries when given an injection.	1	2	3	4	5	6	7	NA
158. Seems completely at ease with almost any group.	1	2	3	4	5	6	7	NA
159. Dislikes rough and rowdy games.	1	2	3	4	5	6	7	NA
160. Has difficulty leaving a project s/he has begun.	1	2	3	4	5	6	7	NA
161. Is not afraid of heights.	1	2	3	4	5	6	7	NA

1	2	3	4	5	6	7	NA
extremely untrue	quite untrue	slightly untrue	neither true/not untrue	slightly true	quite true	extremely true	not applicable

My child:

162. Is not very careful and cautious in crossing streets.	1	2	3	4	5	6	7	NA
163. Often laughs out loud in play with other children.	1	2	3	4	5	6	7	NA
164. Enjoys gentle rhythmic activities such as rocking or swaying.	1	2	3	4	5	6	7	NA
165. Rarely laughs aloud while watching TV or movie comedies.	1	2	3	4	5	6	7	NA
166. Shows great excitement when opening a present.	1	2	3	4	5	6	7	NA
167. Has a hard time going back to sleep after waking in the night.	1	2	3	4	5	6	7	NA
168. Can easily stop an activity when s/he is told "no."	1	2	3	4	5	6	7	NA
169. Is among the last children to try out a new activity.	1	2	3	4	5	6	7	NA
170. Doesn't usually notice odors such as perfume, smoke, cooking, etc.	1	2	3	4	5	6	7	NA
171. Is easily distracted when listening to a story.	1	2	3	4	5	6	7	NA
172. Is full of energy, even in the evening.	1	2	3	4	5	6	7	NA
173. Easily gets irritated when s/he has trouble with some task (e.g., building, drawing, dressing).	1	2	3	4	5	6	7	NA
174. Enjoys sitting on parent's lap.	1	2	3	4	5	6	7	NA
175. Doesn't become very excited about upcoming television programs.	1	2	3	4	5	6	7	NA
176. Is rarely afraid of sleeping alone in a room.	1	2	3	4	5	6	7	NA
177. Rarely cries for more than a couple of minutes at a time.	1	2	3	4	5	6	7	NA
178. Is bothered by loud or scratchy sounds.	1	2	3	4	5	6	7	NA
179. Smiles at friendly strangers.	1	2	3	4	5	6	7	NA

1	2	3	4	5	6	7	NA
extremely untrue	quite untrue	slightly untrue	neither true/not untrue	slightly true	quite true	extremely true	not applicable

My child:

180. Has an easy time leaving play to come to dinner.	1	2	3	4	5	6	7	NA
181. Gets angry when called in from play before s/he is ready to quit.	1	2	3	4	5	6	7	NA
182. Enjoys riding a tricycle or bicycle fast and recklessly.	1	2	3	4	5	6	7	NA
183. Is "slow to warm up" to others.	1	2	3	4	5	6	7	NA
184. Sometimes doesn't seem to hear me when I talk to her/him.	1	2	3	4	5	6	7	NA
185. Is usually able to resist temptation when told s/he is not supposed to do something.	1	2	3	4	5	6	7	NA
186. Sometimes becomes absorbed in a picture book and looks at it for a long time.	1	2	3	4	5	6	7	NA
187. Has difficulty sitting still at dinner.	1	2	3	4	5	6	7	NA
188. Remains pretty calm about upcoming desserts like ice cream.	1	2	3	4	5	6	7	NA
189. Gets nervous about going to the dentist.	1	2	3	4	5	6	7	NA
190. Hardly ever complains when ill with a cold.	1	2	3	4	5	6	7	NA
191. Looks forward to family outings, but does not get too excited about them.	1	2	3	4	5	6	7	NA
192. Likes to sit quietly and watch people do things.	1	2	3	4	5	6	7	NA
193. Gets mad when provoked by other children.	1	2	3	4	5	6	7	NA
194. Smiles when looking at a picture book.	1	2	3	4	5	6	7	NA
195. Has a hard time concentrating on an activity when there are distracting noises.	1	2	3	4	5	6	7	NA

Please check back to make sure you have completed all the pages of the questionnaire.  
Thank you very much for your help!

## APPENDIX B

### COPING WITH CHILDREN'S NEGATIVE EMOTIONS SCALE

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

1	2	3	4	5	6	7
Very Unlikely			Medium			Very Likely

**1. If my child becomes angry because s/he is sick or hurt and can't go to a friend's birthday party, I would:**

a. send my child to his/her room to cool off.	1 2 3 4 5 6 7
b. get angry at my child.	1 2 3 4 5 6 7
c. help my child think about ways that s/he can still be with friends (e.g., invite	1 2 3 4 5 6 7
d. tell my child not to make a big deal out of missing the party.	1 2 3 4 5 6 7
e. encourage my child to express his/her feelings of anger and frustration.	1 2 3 4 5 6 7
f. soothe my child and do something fun with him/her to make him/her feel better	1 2 3 4 5 6 7

**2. If my child falls off his/her bike and breaks it, and then gets upset and cries, I would:**

a. remain calm and not let myself get anxious.	1 2 3 4 5 6 7
b. comfort my child and try to get him/her to forget about the accident.	1 2 3 4 5 6 7
c. tell my child that s/he is overreacting.	1 2 3 4 5 6 7
d. help my child figure out how to get the bike fixed.	1 2 3 4 5 6 7
e. tell my child it is okay to cry.	1 2 3 4 5 6 7
f. tell my child to stop crying or s/he won't be allowed to ride his/her bike anytime	1 2 3 4 5 6 7

**3. If my child loses some prized possession and reacts with tears, I would:**

a. get upset with him/her for being so careless and then crying about it.	1 2 3 4 5 6 7
b. tell my child that s/he is overreacting.	1 2 3 4 5 6 7
c. help my child think of places s/he hasn't looked yet.	1 2 3 4 5 6 7
d. distract my child by talking about happy things.	1 2 3 4 5 6 7
e. tell him/her it is okay to cry when you feel unhappy.	1 2 3 4 5 6 7
f. tell him/her that's what happens when you're not careful.	1 2 3 4 5 6 7

**4. If my child is afraid of injections and becomes quite shaky and teary while waiting for his/her turn to get a shot, I would:**

a. tell him/her to shape up or s/he won't be allowed to do something s/he likes to	1 2 3 4 5 6 7
b. encourage my child to talk about his/her fears.	1 2 3 4 5 6 7
c. tell my child not to make a big deal of the shot.	1 2 3 4 5 6 7
d. tell him/her not to embarrass us by crying.	1 2 3 4 5 6 7
e. comfort him/her before and after the shot.	1 2 3 4 5 6 7
f. talk to my child about ways to make it hurt less (such as relaxing so it won't hurt)	1 2 3 4 5 6 7

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

a. distract my child by talking about all the fun s/he will have with her/his friend.	1 2 3 4 5 6 7
b. help my child think of things that s/he could do so that being at the friend's	1 2 3 4 5 6 7
c. tell my child to quit overreacting and being a baby.	1 2 3 4 5 6 7
d. tell the child that if s/he doesn't stop that s/he won't be allowed to go out	1 2 3 4 5 6 7
e. feel upset and uncomfortable because of my child's reactions.	1 2 3 4 5 6 7
f. encourage my child to talk about his/her nervous feelings.	1 2 3 4 5 6 7

**6. If my child becomes angry and starts to yell after I accidentally throw away his favorite comic book, I would:**

a. punish my child for his/her behavior.	1 2 3 4 5 6 7
b. get angry and yell back at my child.	1 2 3 4 5 6 7
c. help my child find a special place to keep his/her comic books so they wouldn't	1 2 3 4 5 6 7
d. tell my child not to get so upset over a comic book.	1 2 3 4 5 6 7
e. apologize and encourage my child to express his/her feelings of frustration.	1 2 3 4 5 6 7
f. soothe my child and help them find another activity to do.	1 2 3 4 5 6 7

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

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

**8. If my child becomes very angry at her/his sibling and begins to shout and stomp around the room, and I am nearby, I would:**

a. tell him to calm down immediately or there will be consequences.	1 2 3 4 5 6 7
b. become angry and irritated with my child.	1 2 3 4 5 6 7
c. ask them to discuss the problem and work it out together.	1 2 3 4 5 6 7
d. separate them and have my child go to his room for a cool down period.	1 2 3 4 5 6 7
e. tell my child s/he doesn't need to get so upset over a silly disagreement.	1 2 3 4 5 6 7
f. encourage my child to vent his/her feelings and let him/her understand how difficult siblings can be.	1 2 3 4 5 6 7



**9. If my child is panicky and can't go to sleep after watching a scary TV show, I would:**

a. encourage my child to talk about what scared him/her.	1 2 3 4 5 6 7
b. get upset with him/her for being silly.	1 2 3 4 5 6 7
c. tell my child that he/she is over-reacting.	1 2 3 4 5 6 7
d. help my child to think of something to do so that he/she can get to sleep (e.g.,	1 2 3 4 5 6 7
e. tell him/her to go to bed or he/she won't be allowed to watch any more TV.	1 2 3 4 5 6 7
f. do something fun with my child to help him/her forget about what scared him/her.	1 2 3 4 5 6 7

**10. If my child is at the park and is on the verge of tears because the other children are mean to him/her and won't let him/her play with them, I would:**

a. not get upset myself.	1 2 3 4 5 6 7
b. tell my child that if he/she starts crying we will have to go home right away.	1 2 3 4 5 6 7
c. tell my child it's OK to cry when he/she feels bad.	1 2 3 4 5 6 7
d. comfort my child and try to get him/her to think about something happy.	1 2 3 4 5 6 7
e. help my child think of something else to do.	1 2 3 4 5 6 7
f. tell my child that he/she will feel better soon.	1 2 3 4 5 6 7

**11. If my child is playing with other children and one of them calls him/her names, and my child then begins to tremble and become tearful, I would:**

a. tell my child not to make a big deal out of it.	1 2 3 4 5 6 7
b. feel upset myself.	1 2 3 4 5 6 7
c. tell my child to behave or we'll have to go home right away.	1 2 3 4 5 6 7
d. help my child think of constructive things to do when other children tease	1 2 3 4 5 6 7
e. comfort him/her and play a game to take his/her mind off the upsetting event.	1 2 3 4 5 6 7
f. encourage him/her to talk about how it hurts to be teased.	1 2 3 4 5 6 7

**12. If my child is scared and shy around strangers and consistently becomes teary and wants to stay in his/her bedroom whenever family friends come to visit, I would:**

a. help my child think of things to do that would make meeting my friends less	<b>1 2 3 4 5 6 7</b>
b. tell my child that it is OK to feel nervous.	<b>1 2 3 4 5 6 7</b>
c. try to make my child happy by talking about the fun things we can do with our	<b>1 2 3 4 5 6 7</b>
d. feel upset and uncomfortable because of my child's reactions.	<b>1 2 3 4 5 6 7</b>
e. tell my child that he/she must stay in the living room and visit with our friends.	<b>1 2 3 4 5 6 7</b>
f. tell my child that he/she is being a baby.	<b>1 2 3 4 5 6 7</b>

## APPENDIX C

### CHILDREN'S EMOTION MANAGEMENT SCALE

*Circle the number that is under the most accurate response for each item.*

	<b>Hardly ever</b>	<b>Sometimes</b>	<b>Often</b>
1. I control my temper.	1	2	3
2. I show my anger.	1	2	3
3. I hold my anger in.	1	2	3
4. I talk to someone until I feel better.	1	2	3
5. I do things like slam doors when I'm mad.	1	2	3
6. I hide my anger.	1	2	3
7. I keep my cool or stay calm.	1	2	3
8. I attack whatever it is that makes me very angry.	1	2	3
9. I get mad inside but I don't show it.	1	2	3
10. I do something totally different until I calm down.	1	2	3
11. I say mean things.	1	2	3
12. I can stop myself from losing my temper.	1	2	3
13. I try to calmly settle the problem.	1	2	3
14. I lose my temper.	1	2	3
15. I'm afraid to show my anger.	1	2	3
16. I can control my crying and carrying on.	1	2	3
17. I show my sadness.	1	2	3
18. I hold my sad feelings in.	1	2	3
19. I talk to someone until I feel better.	1	2	3
20. I do things like mope around when I'm sad.	1	2	3
21. I hide my sadness.	1	2	3
22. I stay calm and don't let sad things get to me.	1	2	3
23. I try to get rid of anything that makes me very sad.	1	2	3
24. I get sad inside but I don't show it.	1	2	3
25. I do something totally different until I calm down.	1	2	3
26. I whine/fuss about what's making me sad.	1	2	3

	<b>Hardly ever</b>	<b>Sometimes</b>	<b>Often</b>
27. I can stop myself from losing control of my sad feelings.	<b>1</b>	<b>2</b>	<b>3</b>
28. I try to calmly deal with what is making me mad.	<b>1</b>	<b>2</b>	<b>3</b>
29. I cry and carry on when I'm sad.	<b>1</b>	<b>2</b>	<b>3</b>
30. I'm afraid to show my sadness.	<b>1</b>	<b>2</b>	<b>3</b>