Maternal Emotion Socialization and Children’s Emotional Development: Mechanisms in the Intergenerational Transmission of Depression

DISSERTATION

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Abstract

The intergenerational transmission of depression represents a clear risk to children’s development and functioning later in life. Maternal parenting practices have been identified as a possible mechanism in this process. In particular, the emotion socialization process may be uniquely significant in defining how maternal depression impacts children, and represents an area for further exploration and possible intervention. The current dissertation presents the results of three studies which investigated the emotional interactions of depressed mothers and their young children, as well as the efficacy of an emotion-centered family therapy intervention designed to target the risk that children of depressed mothers experience.

In the first chapter, important concepts and concerns regarding the intergenerational transmission of depression, maternal emotion socialization practices, and children’s emotional development are presented. Chapters 2, 3, and 4 present the results of three studies. The first of these studies examined maternal and child emotionally congruent and incongruent contingent responses, as well as their relations with maternal depressive symptoms and child problem behaviors. It also investigated how mothers’ parenting stress moderated the associations between maternal and child responses and outcomes. Mother-child interactions were micro-coded and conditional probability scores were generated for mothers’ and children’s emotional responses. These scores, mothers’ depressive symptoms, and children’s behavior problems were
then examined using longitudinal path models. Results revealed that incongruent responding on the part of the child tended to be related to poorer outcomes for mothers and children; whereas, parenting stress was found to moderate the relations between positive congruent responses and both mother and child outcomes.

In chapter 3 the results of a pilot randomized-controlled trial of a brief, family therapy, emotion-centered intervention are presented. This study examined the primary outcomes of the intervention, which included mothers’ emotional acceptance and regulation, maternal emotion socialization practices, and children’s emotion regulation abilities and knowledge. Repeated measures ANOVA were used to examine changes from pre- to post-treatment for the control and treatment conditions. Results revealed that children in the treatment condition tended to show the greatest improvements, and mothers in this condition tended to remain stable as control mothers tended to decline on outcome variables.

In chapter 4 the secondary outcomes of the intervention are presented. These included mothers’ depressive symptoms, anxiety, and stress, as well as children’s internalizing and externalizing problems. Again, repeated measures ANOVA were conducted, and results revealed that the treatment families tended to decrease in the majority of these domains, whereas control families remained stable. Finally, chapter 5 presents an overall discussion of these findings with a focus on their research and clinical implications.
For my family. Thank you so much for all of your support.
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Chapter 1: Introduction

Children’s abilities to understand, express, and regulate their emotions are extremely important for their later success (Cole & Hall, 2008; Eisenberg, Spinrad, & Eggum, 2010; von Salisch, 2001). Emotional competence refers to children’s abilities related the experience and expression of emotions, the understanding of emotions in oneself and others, and the regulation of emotions (Denham, Bassett, & Wyatt, 2014), and children’s competence in these areas is related to a host of outcomes later in life including social functioning and risk for developing psychopathology (Eisenberg, Cumberland, et. al., 2001; Eisenberg, Fabes, Guthrie, & Reiser, 2000; John & Gross, 2004; Rydell, Berlin, & Bohlin, 2003). When children are young, their emotional skills develop largely within the context of their families (Eisenberg, Cumberland, & Spinrad, 1998; Morris, Silk, Steinberg, Myers, & Robinson, 2007). In particular, mothers have been found to play a significant role in socializing children to express and regulate their emotions appropriately (Eisenberg & Morris, 2003; Fox & Calkins, 2003). Emotion socialization refers to maternal practices that inform children about the experience, expression, and regulation of emotions and related behaviors (Denham, Bassett, & Wyatt, 2014).

Family systems theory would suggest that the processes taking place within the mother-child subsystem which promote or undermine children’s adaptive emotional
development are systemic. This means that both the mother and child contribute to the process, with the result being more an either member’s individual behaviors or beliefs (Minuchin, 1974; Minuchin, 1985; Cox & Paley, 1997). Therefore, maternal and child characteristics are understood to mutually impact both their own and the other members behaviors. In particular, maternal depression has been identified as related to both maternal emotion socialization practices and children’s emotional development (Campbell, Morgan-Lopez, Cox, & McLoyd, 2009; Goodman et. al., 2011: Lovejoy, Graczyk, O’Hare, & Neuman, 2000). Specifically, maternal depression is related to deficits in mother’s emotion socialization, including her modeling of emotion expression and responsiveness to her child’s emotions (Eisenberg & Fabes, 1994; Shaw et. al., 2006; Silk et. al., 2011). Moreover, it is related to children’s risk to develop poor emotional competence (Maughan, Cicchetti, Toth, & Rogosch, 2007; Olino et. al., 2010; Raikes & Thompson, 2005; Silk, Shaw, Skuban, Oland, & Kovacs, 2006), as well as other emotion-related problem behaviors (Silk, Shaw, Forbes, Lane, & Kovacs, 2006; Silk et. al., 2011). Given the importance of the emotion socialization process and the systemic, interrelated factors taking place between mother and child that it entails, a family therapy intervention may be best suited to intervening in this process when individual risk factors are present. Thus, the current dissertation focuses on the interrelated characteristics and behaviors of mothers and children that are associated with the emotion socialization process, as well as a systemic family therapy intervention designed to intervene when risk due to mothers’ depressive symptoms is present.

Emotion socialization
The family serves as one of the first and most influential socialization agents for children (Maccoby & Martin, 1983). Of particular interest when considering child socialization is their emotion socialization, as it has a significant impact on their overall development (Denham et. al., 2007; 2014). The socialization of emotion within the family has been discussed in-depth and has somewhat varying definitions and descriptions; however, it generally tends to focus on the parents’ impact on the child. One definition of parental socialization of emotion describes it as the “parental practices and behaviors that influence a child’s learning regarding the experience, expression, and regulation of emotion and emotion-related behavior” (Eisenberg, Gershoff, et. al., 2001, p. 183). This definition highlights the impact that the socialization process has on children’s expression, understanding, and regulation of emotion; however, our understanding of this process and how to promote it may benefit by looking beyond the impact of parenting practices on children’s development to consider instead the dynamic interactional processes that occur within the family and between family members.

Eisenberg and colleagues (1998) outlined a model for how emotion socialization occurs within the family, and later Morris and colleagues (2007) applied this model to children’s emotion regulation in particular. The main components of the model include the ways in which parent and child characteristics impact emotion-related parenting practices, which primarily include parental modeling of emotion expression and parents’ reactions to and coaching of children’s expressions. These processes are then related to children’s outcomes, including their expression, understanding, and regulation of emotion, which are in turn related to their later adjustment and functioning. The authors
later replied to commentaries on their model by adapting the relations between components that they had outlined (Eisenberg, Spinrad, Cumberland, 1998). What this modified model primarily did as account for a greater degree of interrelatedness between parental and child factors, in particular the child’s mutual influence on parenting characteristics and practices. This adaptation highlights our growing understanding of the complex, dynamic, and bidirectional processes taking place between parents and their children that contribute to children’s emotional development. Family systems theory offers a way of understanding the interconnectedness between members and the complexities of their mutual influence on one another during the emotion socialization process.

**Family Systems Theory and Emotion Socialization**

The emotion socialization of children by caregivers involves a process by which family members create and impart meaning around the experience, expression, and regulation of emotion through their emotion-related behaviors and interactions (Eisenberg et. al., 1998; Eisenberg, Gershoff et al., 2001). Therefore, this process lends itself to evaluation through a family systems perspective. Family systems theory argues that individual parts (family members) organize into systems (families) in which each member is interdependent and combines with others to create a single whole (Cox & Paley, 1997; Hanson, 1995; Minuchin, 1974, 1985). Additionally, the larger family system is understood to be made up of smaller subsystems (Bornstein & Sawyer, 2006; Minuchin, 1985), including the mother-child subsystem. Each subsystem is defined by boundaries that tend to establish typical styles of interaction (Bornstein & Sawyer, 2006).
Also included in this concept is the idea that systems have emergent properties which cannot be attributed to any one member (Weiner, 1989), meaning that the whole is greater than the sum of its parts. Thus, considering the mother-child subsystem in particular,

The manner in which the family system self-regulates and adapts to change is also a prominent consideration of family systems theory (Bornstein & Sawyer, 2006; Minuchin, 1974). Families are understood to function so that homeostasis or a steady equilibrium is maintained; however, at times of change when the system is perturbed, it will adapt and seek viability over homeostasis (Minuchin, 1985). This has implications for the emotion socialization of children within the family because it highlights the importance of developmental stages and tasks. In particular, early childhood and the entry to school period may represent a time when families are rapidly adapting to changes in both children’s growing emotional skills and the overall structure and functioning of the family (Eisenberg & Morris, 2003; Fox & Calkins, 2003; Kazak, 2004; Thompson, 1991).

Eisenberg and colleagues’ (1998) model of emotion socialization within the family can also be considered from a family systems perspective. For example, a main aspect of the model is parents’ emotion expression, and it has been found that mothers’ emotion expression tends to influence children’s expression (Denham, Mitchell-Copeland, Strandberg, Auerbach, & Blaire, 1997; Eisenberg, Losoya, et al., 2001; Feng, Shaw, Skuban, & Lane, 2007), as well as their general emotional development (Eisenberg et. al., 2003). Another related focus is on parents’ reactions or responses to their
children’s emotions, which also often involve the parents’ expressive responses (e.g. magnifying the emotion with their own expression). Here again, the manner in which parents respond tends to impact both children’s expression and their overall emotional development (Chaplin, Cole, & Zahn-Waxler, 2005; Eisenberg & Fabes, 1994; Klimes-Dougan et. al., 2007; Silk et. al., 2011). However, whereas the model accounts for children’s temperament and general arousal, it does not emphasize the impact that children’s expression can have on parents. Indeed, less is known about how children’s emotion expression may mutually influence parent’s expression, although, there is reason to believe that their influence is bidirectional (Morelan & Suveg, 2012; Thomassin & Suveg, 2014). Family systems theory would suggest that it is necessary to examine the reciprocal relations between mother and child emotion expression and reactions in order to better understand the emotion socialization process.

**The Intergenerational Transmission of Depression**

Children with a depressed mother are at risk to for a variety of poor outcomes, including problem behaviors, poor social competence, and psychopathology (Barker, Copeland, Maughan, Jaffee, & Uher; Beardslee, Gladstone, & O’Connor, 2011; Campbell, Morgan-Lopez, Cox, & McLoyd, 2009; Cummings, Keller, & Davies, 2005; Luoma et. al., 2001). Furthermore, the associations between maternal depression and negative child outcomes tend to last into adulthood (Timko, Cronkite, Swindle, Robinson, & Moos, 2009), with children of depressed mothers showing a threelfold increase in the risk of developing depression themselves (Williamson, Birmaher, Axelson, Ryan, & Dahl, 2004).
In order to understand the rate at which children of depressed mothers experience risk, it is first necessary to realize the nature and prevalence of depression in our population. Based on findings from the National Comorbidity Survey Replication (NCS-R; Kessler et al., 2003), the lifetime prevalence of depression was found to be 16.2%, with the 12-month prevalence at 6.6%. Additionally, depression rates tend to vary amid age groups, with it occurring most prevalently between the mid-twenties to middle age (Kessler et al., 2003). This is often the age range when women are conceiving and raising children. A report from the Institute of Medicine and National Research Council (England & Sim, 2009) estimated that 7.5 million adults with depression have an average of two children under the age of 18 living with them, meaning that 15 million children are living with a parent who suffers from depression at some point during their childhood. More children may be exposed across the span of childhood to subclinical depressive symptoms of parents, as parental depressive mood may fluctuate (Luoma, 2001). Most significantly, however, is the finding that depression occurs much more often in women. The DSM-5 (2013) reported that females experience 1.5 to 3-fold higher rates than males, and the NCS-R (Kessler et al., 2003) found that women were 1.7 times as likely to have MDD as men. While mothers are more likely than fathers to experience depression as a consequence of their sex, motherhood itself has also been found to be a risk factor for developing depression as there is a threefold higher rate of onset of depression (postpartum) closely following childbirth (Cox, Murray, & Chapman, 1993).
There are various possible mechanisms involved in the intergenerational transmission of depression from mothers to children. Goodman (2007) has outlined several of these, and have identified exposure to mothers’ negative and maladaptive behaviors and emotion expressions as a possible link between mothers’ depression and children’s risk. Family systems theory would also highlight maternal parenting processes and mother-child interactions as a possible mechanism of risk. This is because family processes are understood to be perpetuated by members and to generalize to other areas of an individual member’s life (Minuchin, 1985). Thus, it would suggest that these behaviors begin to characterize the mother-child subsystem and then children learn to repeat these dynamics throughout their life and relationships, which in turn promotes the development of depression in themselves. Moreover, there is reason to believe that, although heritability and environment represent other possible mechanisms (Goodman, 2007), it cannot fully explain children’s risk. For example, in a study that included children born through assisted conception, it was found that among genetically unrelated mother-child pairs there remained an intergenerational risk for depression; moreover, this risk was not accounted for by shared adversity, such as low income or negative life events (Lewis, Rice, Harold, Collishaw, & Thapar, 2011).

Maternal Depression and Emotion Socialization

In particular, when children have a depressed mother, they are more likely to experience deficits in their emotional development (Campbell et al., 2009; Cummings & Davies, 1994; Hoffman, Crnic, & Baker, 2006). This extends to children’s emotions expression and emotion regulation, with children tended to display more negative and
less positive emotion and utilize less adaptive emotion regulation strategies when their mother is depressed (Feng, Shaw, Kovacs, Lane, O’Rourke, & Alarcon, 2008; Hoffman et. al., 2006; Olino et. al., 2010; Silk, Shaw, Skuban, Oland, & Kovacs, 2006). Children’s deficits in emotional skills may be in part due to depressed mothers tendency to engage in emotion-related parenting practices that either don’t support or undermine their emotional development (Lovejoy et. al., 2000; Shaw et. al., 2006; Silk et. al., 2011).

Therefore, although children with depressed mothers are at risk, there is reason to believe that both parenting behaviors and the mother-child relationship impact the degree of this risk (e.g. Brennan, Brocque, & Hammen, 2003; Feng et. al., 2009). For example, it is suggested that children’s adaptive emotion regulation abilities may be protective against their risk for poor outcomes, including depression (Eisenberg, Spinrad, & Eggum, 2010; Yap, Allen, & Sheeber, 2007). Moreover, it has been found that when depressed mothers utilize positive and supportive parenting practices this also tends to lead to more resilient outcomes for their children (Brennan et. al., 2003), in particular their emotional development (Feng et. al., 2008). Taken together, this suggests that supporting mothers’ positive emotion socialization practices and children’s emotional development may reduce the risk that children of depressed mothers experience.

*A Family Therapy Intervention*

When first applying family systems theory to the understanding of family functioning, this theory was also hugely influential for the development of family therapy models and provided a guiding framework for family therapy (Cox & Paley, 1997; Haley, 1967; Minuchin, 1974; Minuchin, 1985; Skrowron, van Epps, & Cipriano-Essel, 2014).
Thus, a possible approach to intervening in the emotion socialization process is through family therapy, which tends to focus on relationships rather than individuals and their problems (Madanes & Haley, 1977; Minuchin, 1974). This allows for the focus of therapy to be on relational processes, such as emotion socialization, rather than on a single individual’s issues or problems. There have also been several calls for interventions aimed at reducing the risk posed to children of depressed parents to involve the parents and children together in the treatment (Collins & Dozios, 2008; Compas, Langrock, Keller, Merchant, & Copeland, 2002; Horowitz & Garber, 2006).

Broadly speaking, narrative therapy theory is informed by postmodernism and social constructivism (Freedman & Combs, 1996), and is based on the idea that our social realities are constructed, especially through language, and that there are no objective truths (Weingarten, 1998). It emphasizes the concept of subjective realities by focusing on how meaning is attached to experiences, often through relational co-construction (Zimmerman & Dickerson, 1994). Narrative family therapy also includes techniques, such as externalization, that help to define and make meaning of problems that families face (Freedman & Combs, 1996). In describing how human beings naturally change, develop, and understand themselves and the world they are in, White and Epston (1990) explained that, “in striving to make sense of life, persons face the task of arranging their experiences of events in sequences across time in such a way as to arrive at a coherent account of themselves and the world around them” (p. 10). With this, they were explaining that individuals tend to create a story of themselves and their lives that assists them in applying meaning to events and placing them in succession, while also
interpreting their identity or role in the story. In this way, family therapy, and narrative family therapy in particular, offers a unique approach to addressing the emotion socialization processes engaged in by depressed mothers and their young children.

Family theory and therapy models would also suggest that focusing on and understanding emotional processes in the family is centrally necessary to understanding family relationships (Bertrando & Arcelloni, 2014; Madden-Derdich, 2002). Therefore, this would indicate that intervening in emotional processes would improve family relational functioning (e.g. parent-child relations) and vice versa. Emotions are connected to the meaning that family members attach to one another and so an intervention developed to facilitate or improve the emotion socialization process would potentially have positive implication for overall family functioning, as well as individual well-being (Bertrando & Arcelloni, 2014).

Additionally, family systems theory would suggest that an intervention should be implemented during a time of transition for a family (Cox & Paley, 1997; Minuchin, 1985). This is because during times of transition the family is both especially vulnerable and malleable as it is adapting to a new homeostasis and equilibrium. This would suggest intervention at developmentally normative times of transitions for families, as these are times when an intervention may be most necessary and most effective. In particular, early childhood has been identified as an acutely significant period of life in which to target mechanisms that have been shown to lead to later disorders (O’Connell, Boat, & Warner, 2009). Taken together, this would suggest that the children’s entry to school transition may be an optimal time to intervene.
The Current Dissertation

Structure

The current dissertation focuses on mothers’ emotion socialization practices and young children’s emotional development. In particular, it is concerned with examining the emotional interactions between mothers experiencing depressive symptoms and their young children, and assessing the efficacy of an emotion-centered family therapy intervention. The dissertation is comprised of three independent studies which focus on maternal depressive symptoms, maternal emotion socialization practices, and related child emotional outcomes, with a particular focus on the emotional interactions taking place in the mother-child subsystem.

The first study is presented in chapter 2. This study examines the relations between maternal depressive symptoms, child problem behaviors, and mother-child contingent emotional responses during the preschool years. It also considers how parenting stress may moderate the associations between mothers’ responses and child problem behaviors, as well as the association between children’s responses and maternal depressive symptoms. It investigates how congruent responses, or matched positive emotional exchanges, may differ from incongruent responses, or mismatched mother-positive and child-negative emotional exchanges. The study utilizes longitudinal path models to examine these relations from when children are 3 years old to when they are 4. Finally, it discusses how parenting stress may play a unique role in the relations between mother-child emotional exchanges and maternal depressive symptoms and children’s development.
The second and third studies are presented in chapters 3 and 4, respectively. They are both concerned with evaluating the efficacy of a pilot randomized-controlled, brief, family therapy intervention targeting mothers experiencing depression and their young children. This intervention was designed to intervene in the intergenerational transmission of depression and to address the risk that children with depressed mothers experience. It was emotion-centered and targeted mothers’ emotion socialization practices and children’s emotional development, with the aim to improve the emotional processes taking place in the mother child subsystem. Study 2 examines the primary outcomes of the intervention, including 1) mothers’ emotional acceptance and regulation, 2) mothers’ supportive and undermining emotion socialization practices, 3) children’s emotion regulation abilities, and 4) children’s emotion knowledge. Study 3 examines the secondary outcomes of the intervention. These include maternal depressive symptoms, state anxiety, and parenting stress, as well as children’s internalizing and externalizing problem behaviors. For both studies, repeated-measures ANOVA were conducted in order to examine differences between the control and treatment conditions from pre- to post-treatment.

Finally, chapter 5 is concerned with describing the overall implications and conclusions which can be drawn from the studies when considered collectively. In particular, it discusses the implications of maternal characteristics which are often associated with depressive symptoms, as well as the implications of how mother-child emotional behaviors are assessed and evaluated. This chapter also presents a discussion of the research and clinical implications related to intervening when children are young.
and their mothers are experiencing depressive symptoms. It discusses both the limitations and strengths of the studies presented in chapters 2, 3, and 4, and provides recommendations for future research.

**Data**

Data for this dissertation come from two related sources. Study 1 utilized data that followed a sample of mothers and their children at two time points, when children were ages 3 and 4 years old. Approximately half of the mothers in the sample had elevated depressive symptoms at the time of enrollment when their children were 3. This was a community sample of families recruited from a large Midwestern city. The study used maternal report measures to assess mothers’ depressive symptoms, their parenting stress, and children’s problem behaviors. In addition, it utilized observational measures to assess patterns of emotion expression during mother-child interactions. These tasks were coded second-by-second and contingent probabilities scores were generated. These scores represented the probability that mothers and children would respond to each other’s expressions of emotion with an expression of their own. Both congruent scores, positive to positive expression, and incongruent scores, positive to negative and negative to positive expression, were examined. The data were used to investigate how measures when children were 3 years old were related to measures when children were 4, while also considering the role of parenting stress as a moderator.

Studies 2 and 3 utilize data from a pilot randomized-controlled intervention trial. A portion of the participants completing the intervention project had also participated in study 1, and the rest of the families were recruited from the community. The intervention
enrolled families when children were 5 or 6 years old, and only included mothers experiencing elevated depressive symptoms. Mothers and their children first completed a baseline assessment and were randomized to either a treatment or control condition. The treatment families completed 3 family therapy intervention sessions, and then all families returned for follow-up assessments. Study 2 examines data from the baseline and first follow-up assessment, which occurred soon after the treatment was completed. This includes maternal report, as well as data collected by interview, observation, and experimenter-administered assessment. The interviews were coded globally to assess mothers’ meta-emotion philosophies, and observations of a mother-child interaction were coded second-by-second to assess both mothers’ emotion socialization parenting practices and children’s emotion regulation. Study 3 utilizes data from the baseline, as well as two follow-up assessments taking place soon after and a few months following treatment. This study utilizes data measured by maternal report.
Chapter 2: Mother-Child Contingent Emotional Responses, Maternal Depressive Symptoms, and Child Problem Behaviors: The Moderating Role of Parenting Stress

Emotion socialization within the family is generally understood to include, “parental practices and behaviors that influence a child’s learning regarding the experience, expression, and regulation of emotion and emotion-related behavior” (Eisenberg, Losoya, et al., 2001, p. 183). With this understanding, it has traditionally been studied through the examination of how certain parenting practices or parental factors influence children’s emotional development. However, more recently the study of emotion socialization has expanded to include the impact of child factors on parenting (e.g. Burke, Pardini, & Loeber, 2008; Wu, Feng, Hooper, & Ku, 2017). Whereas, theoretically the emotion socialization process has long been understood as a complex “web” (Halberstadt, 1991) which “should be transactional because characteristics of the child influence his or her socialization environment and the behaviors of socializers” (Eisenberg, Spinrad, & Cumberland, 1998, p. 321), it has only been relatively recently that we have begun to empirically examine emotion socialization in this way. For example, both maternal depression and parenting stress impact parental emotion socialization practices and children’s emotional development (e.g. Anthony et al., 2005; Feng, Shaw, Kovacs, Lane, O’Rourke, & Alarcon, 2008; Vallotton, Harewood, Froyen, Brophy-Herb, & Ayoub, 2016), and children’s behavior problems can impact parenting
practices and mental health (e.g. Burke, Pardini, & Loeber, 2008; Gross, Shaw, & Moilanen, 2008). Therefore, a more complete view of the emotion socialization process would need to account for both child and parental factors that influence how both children and their parents engage in and respond to the socialization process.

Family systems theory is concerned with the mutual and interrelated influences between family members and how these interact to define the family system and subsystems (Cox & Paley, 1997; Minuchin, 1985). Applying this theory to the emotion socialization of children, it would suggest that interactional processes, as well as the interrelated nature of parent and child influences should be considered. In addition, these should be examined across time in order to investigate the ongoing and changing processes within the family system. Specifically, mothers’ depression and stress and children’s problem behaviors have been found to be interrelated with emotion expression in the mother-child subsystem (Farmer & Lee, 2011; Feng, Shaw, Skuban, & Lane, 2007; Olino, Lopez-Duran, Kovaes, George, Gentzler, & Shaw, 2010). Taking these concepts into account, the current study investigated patterns of contingent emotional responses within the mother-child subsystem across a period of children’s early emotional development. The focus of the study is on how mothers’ emotional responding is related to children’s later development and how children’s responding is associated with mothers’ depression, while considering how the added context of maternal parenting stress impacts this process.

**Mother and Child Emotional Interactions**
Commonly, when discussing emotion socialization, the focus has largely been on mothers and the part that they play in the emotion socialization of their children (Eisenberg et al., 1998; Morris, Silk, Steinberg, Myers, Robinson, 2007). Here, expression of emotion is often considered a significant factor (Denham, 1998; Denham et al., 2007, 2014; Halberstadt, 1991; Eisenberg et. al, 1998; Morris et al., 2007). This refers to the mothers’ own specific expressions of emotion, generally considered as positive (e.g. happiness) or negative (e.g. anger/frustration, sadness, fear/anxiety). For example, maternal positive expression has been found to be related to children’s expression 2 years later (Feng et al., 2007). This aspect of emotion socialization represents individual member influences; however, it is generally acknowledged that family members mutually influence and react to one another’s emotion expression, as emotion expression is an important component of social communication (Gross, 2013). Because of this, it may be necessary to view emotion expressions in the mother-child subsystem as interrelated and dynamic, with both children emotionally responding to mothers’ expressions and mothers emotionally responding to children’s expressions in the moment. Moreover, these emotional responses could be viewed as either congruent, meaning that the emotions are matched (e.g. positive expression followed by a positive response), or incongruent and mismatched (e.g. positive expression followed by a negative response). In this way, the impact of one member’s expression on the other member’s expression is taken into account and the relational dynamics of the emotional exchange are considered.
The way in which mothers respond to their children’s emotion expressions is also considered an important component of the emotion socialization process (Eisenberg et al., 1998; Morris et al., 2007); however, this is often assessed globally and by maternal report (e.g. Eisenberg et al., 1999; O’Neal & Magai, 2005). Although, this approach can measure mothers’ awareness of her own typical response style when children are emotional, it may be missing certain subtle qualities of the emotional exchanges between mother and child of which mothers are not fully aware. Examining emotional interactions moment-to-moment allows for a new understanding of how mothers and children interact, though this type of investigation is less common. For example, in a study investigating infant-mother interactions, it was found that both mothers and children more often followed each other’s expressions of emotion with congruent, rather than incongruent, expressions, and that children tended to show less negative emotion when mothers were more positive (Aktar et al., 2016). During interactions with older adolescent children, maternal negative emotion expression predicted immediate, subsequent youth negative expression (Connell et al., 2015). In examining emotion socialization processes at this level, family systems principles of contingent responses and circular relational processes are applied since it includes the child’s expression of emotion, the parent’s conditional response, and the child’s socialized understanding communicated from that response.

Although the role of emotion expression within the family has chiefly been considered from the perspective of how maternal expression influences children’s current and later expression, there is also reason to believe that children impact mothers in this
process. It is likely that the relation between child expression and mothers’ later expression is not as strong as it is for mothers and children’s later expression (e.g. Feng et al., 2007), and this would be expected with mothers as the driving agents of the emotion socialization process during the early years of children’s lives. However, there is evidence that children’s expressions impact mothers’ expressions moment-to-moment. For example, children’s negative expression of emotion is inversely related to mothers’ reports of her own positive emotion experienced during a waiting task (Martin, Clements, & Crnic, 2002). More broadly, mothers reported that their children’s negative emotionality was related to their own negative expressiveness in the family (Wong, McElwain, & Halberstadt, 2009). In addition, children’s regulatory abilities during a conflict discussion task have been shown to be related to lower levels of subsequent maternal negative emotion expression during the task (Connell et al., 2015). Likewise, mothers are more like to follow children’s adaptive emotion regulation with supportive emotional responses (Morelen & Suveg, 2012). Thus, it may be that children’s negative emotion expression and the appropriateness with which they express or regulate their emotion influences mothers’ expression most.

Overall, we know fairly little about how children’s emotion expression may impact mothers’ expression, and this is partly because, most often, mother-child emotional interactions are evaluated for their degree of mutual or synchronous emotion expression (e.g. Cole, Teti, & Zahn-Waxler, 2003). This refers to when the mother and child are simultaneously expressing the same emotion or mismatched emotions. Although this provides valuable information about mothers’ and children’s shared
emotional states, it fails to capture how these individuals are instigating or reciprocating emotions throughout the interaction. Family systems theory would suggest that this is a significant oversight, as it partially ignores the possibility that mothers and children may take different roles in defining their emotional interactions.

The preschool age period represents a very important time in the emotion socialization process (Morris et al., 2007). First, this is a developmental period when children are rapidly gaining new skills in their emotion understanding, expression, and regulation (Eisenberg & Morris, 2003; Cole et al., 2011). Second, during this time children are beginning to transition from a primary reliance on parental and other external forces to help regulate their emotions to a more internalized set of emotional skills (Cole et al., 2003; Denham & Kochanoff, 2002). Third, the entry into school represents a time when children’s social worlds are expanding and they will be required to generalize the emotional skills and practices developed within the family to broader and more diverse social contexts. Finally, this is a time when problem behaviors, including anxious/depressive symptoms and aggression, often emerge and may impact development (Campbell, 1995). Therefore, this is a time when it is especially necessary and important to understand the intricate emotional processes taking place between mothers and children and how these are related to children’s emotional competencies.

Child problem behaviors and mother-child emotional interactions

Maternal emotion socialization practices, including emotion expression and responses, are also found to be associated with later child problem behaviors, including internalizing and externalizing problems (Eisenberg et al., 2001; Chaplin, Cole, & Zahn-
A family systems perspective would argue that if typical interactional patterns of emotion expression within the family are unhealthy then they would be reinforced across time and would then contribute to the development of children’s emotion-related psychopathology (e.g. Lunkenheimer et al., 2011, Thomassin and Suveg, 2014). Generally, children with internalizing problems are prone to sadness, and children with externalizing problems tend to express more anger; whereas, both types of problem behaviors are associated with poorer child emotional outcomes (Eisenberg, Cumberland, et al., 2001; Rydell, Berlin, & Bohlin, 2003).

When considering the characteristics and patterns of mother-child emotional exchanges, it has generally been found that interactions characterized by shared or congruent positive affect tend to be beneficial and related to greater child social competence and less aggression (Harrist, Pettit, Dodge, & Bates, 1994). More specifically, preschool children with greater externalizing problems have been found to have difficulty initiating positive interchanges with their mothers during frustrating tasks; moreover, when mother-child dyads engaged in greater mutual and congruent positive expression, children tended to have fewer externalizing problems one year later (Cole et al., 2003). In families with school-age children, parents’ supportive emotional parenting and children’s adaptive emotion regulation are found to be contingently related, meaning that when parents are emotionally supportive, their children are likely to immediately follow this with displays of more competent emotion regulation and vice versa (Morelen & Suveg, 2012). With regard to incongruent emotion expression, mothers’ positive responses to child anger are associated with a pattern of stable externalizing problems.
across the preschool age (Cole et al., 2003). Likewise, nonsynchronous mother-child interactions, characterized by low engagement and shared affective tone, are associated with greater child aggression (Harrist et al., 1994). These findings highlight the manner in which mothers’ and children’s emotional exchanges may become patterned over time and subsequently contribute to children’s development of problem behaviors.

*Maternal depression and mother-child emotional interactions.*

Finally, caregiver characteristics are believed to affect the emotion socialization process (Eisenberg, et al., 1998), and would be considered to play a role in the functioning of the mother-child subsystem. More specifically, a caregiving environmental factor that has been investigated in relation to children’s emotional development is parental, especially maternal, psychopathology, particularly depression (e.g. Hoffman et al., 2006), as maternal depression has been found to be linked to later psychopathology in children (Goodman, 2007; Goodman & Gotlib, 1999; Goodman et al., 2011). This association has been examined because depression may influence mothers’ emotion socialization practices, such as negative affect expression and emotional unresponsiveness (Lovejoy, Graczyk, O’Hare, & Neuman, 2000; Shaw et al., 2006). Assessing this relationship over time, it has been found that children of depressed mothers tend to show less positive affect from infancy through middle-childhood compared to children whose mothers did not have depression (Olino et al., 2010), establishing this as a consistent risk across early development.

When interacting with their infants, it has been found that depressed mothers tend to display certain negative or mismatched interaction styles, characterized as intrusive or
withdrawn; however, not all depressed mothers are found to display these styles, with some of them showing more supportive and emotionally matched interactions (Field, Hernandez-Reif, & Diego, 2006). Whereas many of the broad associations between mothers’ depressive symptoms, emotion socialization practices, and children’s emotional development have been established, the specifics of moment-to-moment mother-child interactions have only relatively recently been examined. For example, during face-to-face interactions between mothers and infants, both depressed mothers and their children tended to show less positive emotion, and children showed more neutral emotion; however, the presence of maternal depression did not impact how often they contingently responded to one another (Aktar et al., 2016). Likewise, during discussion tasks between adolescents and their depressed mothers, maternal depression was positively related to both mothers’ and children’s negative emotion expression (Connell et al., 2015). In addition, associations have been found between maternal depression and greater emotionally incongruent states (e.g. mother positive and child negative) in mother-infant interactions (Riva Crugnola et al., 2016). Finally, maternal depression is associated with lower levels of mother-child dyadic emotional flexibility, meaning that mother and child tend to transition between fewer emotional states and are thus “stuck” in a particular pattern of expression (Lunkenheimer, Albrecht, & Kemp, 2013).

Less is known about how children’s behavior and emotion expressions impact maternal depression, and this is in part because these associations are generally not the focus of attention. Often, researchers are concerned with the impact that maternal factors or parenting have on children’s development and not vice versa. However, in applying a
family systems framework, one would expect that both members of the mother-child subsystem would mutually influence one another’s outcomes, and there is some evidence of this. When looking at reciprocal relations between maternal depression and child aggression, child aggressive behaviors lead to increases in maternal depression just as maternal depression leads to increases in children’s aggressive behavior (Gross et al., 2008). When mothers are depressed, children’s problem behaviors may also be related to later decreases in maternal emotional responsiveness (Feng et al., 2007). Moreover, just as depressed mothers may have more difficulty engaging in prolonged, congruent emotional interactions with their children, children of depressed mothers also engage in less coordinated and sustained interactions and are less likely to try to repair interactions with their mothers (Jameson, Gelfand, Kulcsar, & Teti, 1997). Though this indicates that there is some evidence that children’s expression may impact depressed mothers’ affective parenting, the association seems to be stronger for mothers’ effect on children (Feng et al., 2007). Thus, it is necessary to gain a better understanding of how children actively contribute to the functioning of the mother-child subsystem and maternal mental health.

**Maternal Stress**

Parenting stress is another important consideration, as it is often a very normative aspect of parenting (Deater-Deckard & Scarr, 1996) and is highly interrelated with emotion expression (Lazarus, 2006). Additionally, there is a strong positive relation between stress and depressive symptoms and episodes (Hammen, 2005), with the presence of stress exacerbating and prolonging depressive symptoms (Tennant, 2002).
Moreover, like depression, parenting stress is also related to parenting behaviors and emotion expression (Crnic, Gaze, & Hoffman, 2005; Farmer & Lee, 2011; Turney, 2011). Theoretically, stress is understood to occur within the family as a result of stressors, such as parenting responsibilities, and the family’s inability to cope with these stressors (McCubbin et al., 1980). Thus, individual family member stress may indicate their difficulty in coping with a particular stressor (Lazarus & Folkman, 1984). In the case of parenting stress, high levels of stress may be an indicator of difficulties functioning in the parent role. For example, parenting stress tends to be related to more maladaptive parenting behaviors (Anthony et al., 2005; Bayer, Sanson, & Hemphill, 2006). Finally, family systems theory would suggest that the presence of parenting stress might exacerbate the effects that interactions in the mother-child subsystem have on subsequent mother and child functioning. This is because stress indicates that there is strain on the system and that pile-up, or the accumulation of demands and lack of resources, may be occurring (McCubbin et al., 1980).

Moreover, the associations between parenting stress and parenting behaviors extends to the emotion socialization of children and their emotional development. For example, in interactions between mothers and their infants, parenting stress was found to be positively associated with incongruent interaction patterns characterized by child negative expression followed by maternal positive responses (Feldman, Gordon, & Zagoory-Sharon, 2011). In addition, mothers’ parenting stress is associated with less positive expression and shared pleasure during interactions with children (Crnic et al., 2005). With regard to children’s emotional development, parenting stress has been found
to be related to greater child negative emotion expression and higher levels of both child internalizing and externalizing problems (Anthony et al., 2005; Crnic et al., 2005; Mazure, 1998; Moss, Rousseau, Parent, St-Laurent, & Saintonge, 1998). Specifically, parenting stress is related to greater child anxious and depressed symptoms (Rodriguez, 2011). However, it has been argued that parenting stress does not cause child adjustment problems (Rodriguez, 2011), but, rather, there may be a more complicated interaction occurring between parenting behavior, parenting stress, and child functioning (Baker, Heller, & Henker, 2000; Bayer et al., 2006; Coldwell, Pike, & Dunn, 2006; Deater-Deckard & Scarr, 1996; Shea & Coyne, 2011).

It is possible that maternal parenting stress may serve to underlie the differential relations between mother-child emotion expression, maternal depression, and child outcomes. For example, when mothers tend to have higher levels of stress in combination with higher positive emotionality, their children tend to show more positive and less negative emotion during interaction tasks than when mothers have high stress and low positive emotionality; however, when low maternal positive emotionality and expression is not accompanied by high stress, children do not tend to have as many anxious/depressed or aggressive symptoms as when maternal positivity is low and stress is high (Hooper, Feng, Christian, & Slesnick, 2015). Thus, maternal parenting stress may play a unique role in the emotion socialization process, as its presence may serve to determine the degree to which emotional interactions are related to functioning.

**The Current Study**
The emotional interactions and exchanges that take place between mothers and their children have been identified as an integral part of the emotion socialization process (Cole et al., 1994; Eisenberg et al., 1998; Morris et al., 2007). However, mothers’ and children’s emotional interactions are rarely examined at the moment-to-moment relational level, with each emotional exchange being considered sequentially. Moreover, contingent responses that include children’s influence and impact on mothers’ expressions are generally not considered. Therefore, the current study investigated the emotional interactions between mothers and their preschool age children across time. Both patterns of congruent (e.g. positive expression in response to positive expression) and incongruent (e.g. negative expression in response to positive expression) responses were examined in order to gain a better understanding of the types of emotional exchanges that may contribute to dysfunction. Additionally, because parenting stress has been shown to impact emotion expression (Crnic et al., 2005), as well as maternal depression and child problems behaviors (Vallotton et al., 2016), this study also investigated the moderating effect of stress on the relations between mothers’ responses and child outcomes, as well as children’s responses and mothers’ outcomes (see Figure 2.1).

Child sex and maternal education are considered as covariates, as they have been found to be associated with parenting, emotion expression, and child outcomes. For example, parenting stress and greater parental negative affect expression within the family is associated with lower parental education levels (Deater-Deckard & Scarr, 1996; Dunn & Brown, 1994). Additionally, mothers have been found to be more likely to
respond positively to girls, and girls initiate more positive exchanges with mothers during frustrating tasks (Cole et al., 2003). In addition, girls tend to have lower levels of externalizing behaviors (Anthony et al., 2005).

Based on previous research, the following hypotheses were proposed. It was expected that mother-child contingent responses, maternal depressive symptoms, and child emotional and behavioral problems (anxious depressed symptoms and aggressive behavior) would be related across time. It was expected that maternal depressive symptoms and child problems would be related to fewer later positive congruent responses (positive response to positive expression) and increased later incongruent responses (negative response to positive expression and positive response to negative expression). It was also expected that mother-child positive congruent responses would be related to fewer depressive symptoms and child problems later on; whereas, mother-child incongruent responses would be related to increased depressive symptoms and child problems. Finally, it was expected that maternal parenting stress would moderate the associations between children’s contingent responses and mothers’ depressive symptoms, as well as mothers’ contingent responses and children problems. Here, mother’s and children’s congruent positive responses would be related to fewer child problems and maternal depressive symptoms, respectively, only when maternal stress was high; whereas, mothers’ and children’s incongruent responses would be related to greater child problems and maternal symptoms, respectively, when stress was high.

**Methods**

**Participants**
Participants included 126 children (65 girls, 61 boys) and their biological mothers. Data included assessments completed when children were three (T1; mean age = 3.23, SD = .17) and four (T2; mean age = 4.21, SD = .15) years old. Of the families who participated at T1, 109 participated again at T2 (86.51% retention). All participants were screened, and mothers first met enrollment eligibility criteria if they 1) were 21 years of age or older; 2) had a biological child between 3 and 3.5 years old at the time of enrollment; and 3) had not been diagnosed with any psychiatric disorders other than depression (could include comorbid anxiety). Children were excluded from participation if they had been diagnosed with developmental delays or disorders. Mothers’ average age at T1 was 31.21 years old (SD = 5.58). About half of the mothers had attained at least a bachelor’s degree (51.59%), with several mothers earning graduate or professional degrees (23.02%); whereas, fewer mothers had attained only a high school education or less (13.49%). Among the mothers in the sample, 65.9% were White, 28.6% were Black/African American, and 5.6% reported their race as Biracial. At T1, 9.5% of the participants had an annual household income of less than $10,000, 27.00% had an income between $10,000 and $30,000, 25.3% had an income between $30,000 and $60,000, and 38.00% had an income greater than $60,000 a year. Finally, 57.9% of the mothers were married at T1, 14.3% were living with a partner, 12.7% were divorced or widowed, and 15.1% were single.

Procedures

Mothers and children attended two, 2-hour laboratory visits at T1 and T2. At these visits, mothers and children participated in a variety of tasks together including a
clean-up task and a Tickle-Me-Elmo play task. During the clean-up task, mothers were instructed to have their children put away some toys that they had just been playing with together. Mothers were also instructed not to clean up the toys for their child. During the Tickle-Me-Elmo play task, mothers and children were presented with a Tickle-Me-Elmo doll that would laugh and shake when he was “tickled” and were instructed to play with him in whatever way they chose. Both interaction tasks lasted for five minutes, or in the case of the clean-up task, it ended sooner if all of the toys were put away. Either at the visit or in the week prior, mothers completed several online questionnaires which asked about their depressive symptoms and parenting stress, their child’s behavior problems, and their family’s demographic information. The videos of the two interaction tasks were later coded for expressions of emotion on a second-by-second basis.

**Measures**

*Maternal depressive symptoms* were assessed using the Beck Depression Inventory (BDI-II; Beck, Steer, Ball, & Ranieri, 1996) at T1 and T2. The BDI is a 21-item self-report questionnaire that assesses current depressive symptoms experienced over the past two weeks. It is a well-established measure, assessing current depressive symptomatology rated on a 4-point scale and yielding total scores with a potential range from 0 to 63. Example items include “I dislike myself” and “I don’t have enough energy to do anything.” The questionnaire demonstrated high internal consistency (α = .95 at T1 and α = .93 at T2).

*Maternal parenting stress* was assessed at T1 using the Parenting Daily Hassles questionnaire (PDH; Crnic & Greenberg, 1990), which assesses stress levels associated
with everyday parenting tasks. The questionnaire includes 20 stressful events that mothers may experience throughout the day, and mothers rate how much of a hassle each event is for them on a 5-point scale (0 = no hassle to 4 = extreme hassle). Example items include, “Always cleaning up messes of toys and food” and “Trouble getting the kids ready for outings and leaving on time.” Item scores were combined to generate an overall score for the intensity of parenting stress that mothers experienced, and this scale was shown to be reliable (α = .93).

_Mothers’ and children’s contingent emotional responses_ were assessed through two mother-child interaction tasks completed at T1 and T2. These included a clean-up task, which was meant to elicit mild negative expression, and a Tickle-Me-Elmo play task, which elicited positive expression. The videos of these tasks were then coded for second-by-second expressions of emotion, using a coding system that had been adapted from previous studies (Jabson, Dishion, Gardner, & Burton, 2002; Silk, 2004; Shaw et al., 2006) in order to capture moment-to-moment expressions of emotion. Maternal and child expressions of positive emotion, anger, and sadness, as well as child fear were coded. _Positive emotion_ expressions included facial cues (e.g. smiling), vocal indicators (e.g. high pitched tone), statements (e.g. “Yay!”), and behaviors (e.g. clapping). _Sadness_ expressions included facial cues (e.g. frowning), vocal indicators (e.g. whining), and statements (e.g. “I don’t like this.”), as well as gestures (e.g. hanging head). _Anger/frustration_ expressions included facial cues (e.g. drawn brows), vocal cues (e.g. yelling), statements (e.g. “No!”), and behaviors (e.g. stamping feet). Expressions of _fear_ were only coded for children and include facial indicators (e.g. raised eyebrows), voice
(e.g. whimpering), statements (e.g. “I don’t want to touch it”), and physical cues (e.g. freezing body). A team of graduate and undergraduate research assistants were trained to code the videos. After completing training, they met together weekly to discuss questions, issues, and disagreements in codes.

Approximately 30% of the observations were double-coded to assess inter-coder reliability. Child coding showed good reliability at T1: positive expression (clean-up kappa = .79, Elmo kappa = .78), anger (clean-up kappa = .75, Elmo kappa = .74), sadness (clean-up kappa = .77, Elmo kappa = .64), and fear (clean-up kappa = .80, Elmo kappa = .70). At T2, positive expression (clean-up kappa = .76, Elmo kappa = .77), anger (clean-up kappa = .77, Elmo kappa = .81), sadness (clean-up kappa = .76, Elmo kappa = .77), and fear (clean-up kappa = .76, Elmo kappa = .74) were also reliable. Maternal positive expression was also shown to be reliable (T1: clean-up kappa = .77, Elmo kappa = .72; T2: clean-up kappa = .77, Elmo kappa = .70); however maternal negative expression codes could not be utilized because they occurred very infrequently, with only 18.90% of mothers at T1 and 11.82% of mothers at T2 expressing any negative emotion.

Noldus Observer 11.5 software (Noldus Information Technology. 2013) was utilized for the second-by-second coding of the videos and to generate dyadic contingency scores of mother and child expression. These scores represent the probability that the initiation of one member’s emotion expression was immediately followed by the other member’s expression. Because children’s negative emotion expressions were less common in the laboratory setting, anger/frustration, sadness, and fear scores were considered jointly to represent negative expression in general. The
coding software used lag sequential analysis to calculate a transitional probability based on the likelihood that the initiation of a criterion expression (e.g. child positive expression) would be immediately followed by a target expression (e.g. maternal positive expression). A time lag window of 3 seconds was chosen between the initiation of the criterion expression and the target expression. This lag was chosen based on theoretical and empirical considerations. During both interactions, the average expression lasted between 2.5 to 3 seconds, and so a lag of 3 seconds would allow time for the expression to convey affective meaning (particularly in the case of a statement) and the other member to react. In addition, it is suggested that during an interpersonal interaction a lag of several seconds should be used (De Barbaro et al., 2013). Previous research investigating similar dyadic affective interactions have utilized lags lasting between 2 and 10 seconds (Aktar et al., 2016; Morelan & Suveg, 2012), and so a 3 second lag was considered conservative enough to capture true interpersonal exchanges. The transitional probability for each expression was then averaged to produce an overall probability score for those expression pairings (criterion and target) across the course of the interaction. Because maternal negative expression occurred very infrequently, only the child positive and negative and maternal positive expressions could be used. Based on these expressions, four probability scores were generated, with two scores representing congruent exchanges (positive to positive) and two scores representing incongruent exchanges (positive to negative and negative to positive). The final contingency scores included mother positive response to child positive expression (MP to CP), child positive response to mother positive expression (CP to MP), mother positive response to child positive expression (MP to CP), and child positive response to mother positive expression (CP to MP).
negative expression (MP to CN), and child negative response to mother positive expression (CN to MP).

Children’s emotional and behavioral problems were assessed using the Child Behavioral Checklist (CBCL; Achenbach & Rescorla, 2001) at T1 and T2. This is a widely used parent-report measure that assesses children’s behaviors associated with emotion expression, functioning, and development. The questionnaire contains 99 questions, and mothers’ rate behaviors as not true, somewhat true, or very true of their child (3-point scale), with higher scores indicating more frequent and severe problem behaviors. Two subscales of the CBCL are used in the current study, and these subscales assess children’s anxious/depressed symptoms and aggressive behaviors. Both subscales demonstrated good internal reliability at T1 (anxious/depressed symptoms kappa = .74; aggressive behavior kappa = .88) and T2 (anxious/depressed symptoms kappa = .70; aggressive behavior kappa = .91).

Analyses

Two longitudinal path models were examined in order to assess relations between maternal depressive symptoms, children’s emotional and behavioral problems, and both mothers’ and children’s congruent and incongruent contingent emotional responses (see Figure 2.1). Maternal parenting stress was included as a moderator between T1 child contingent responses and T2 maternal depressive symptoms, as well as T1 maternal responses and T2 child symptoms. Analyses were conducted using Mplus (v. 7.4; Muthén & Muthén, 2014). Data were determined to be missing completely at random, $\chi^2 = 41.72$, $df = 47$, $p = .69$, and full information likelihood estimation was used to estimate
missing data. Table 1 includes the number of cases available for each variable, percent of missing data ranged from 0.08-14.3%. The contingent response variables were found to be skewed, and so they were transformed using their natural log. After transformation, the outcome congruent response variables had skewness values of -.11 and .11, and the outcome incongruent response variables’ skewness was 1.62 and 1.92.

In the congruent contingent response model, mothers’ positive responses to their children’s positive expression (MP to CP) and children’s positive response to their mothers’ positive expression (CP to MP) were included at T1 and T2. In the incongruent model, mother’s positive responses to their children’s negative expression (MP to CN) and children’s negative responses to their mother’s positive expression (CN to MP) were included at T1 and T2. In both models, maternal depressive symptoms, child anxious/depressed symptoms, and child aggressive behaviors were included at T1 and T2. Finally, maternal parenting stress was included as a moderator. This investigated whether mothers’ parenting stress moderated the relation between child responses and maternal depression or maternal responses and child problem behaviors. In this way, it was examined whether one member of the dyad’s contingent responses were associated with the other member’s outcomes one year later. Parenting stress (moderator) and the interaction terms were removed from the models when nonsignificant. All variables involved in calculating the interaction terms (contingent response and parenting stress) were centered. In the interaction plots, maternal parenting stress was centered at its mean, one standard deviation above the mean, and one standard deviation below the
mean. Maternal education and child sex were included as covariates for all outcome variables, and they were removed from the model when nonsignificant.

**Results**

**Preliminary Analyses**

Descriptive information and correlation values are show in Table 1. Maternally rated scores at T1 were highly, positively related to scores at T2. Maternal depressive symptoms were positively correlated with child problem behaviors and maternal stress. CN to MP at T1 was positively associated with child problem behaviors at both T1 and T2, and it was also positively associated with maternal depressive symptoms (T1 and T2) and stress. CP to MP at T1 and T2 were positively correlated, and MP to CN at the two time points were also positively correlated. With regard to covariates, child sex was only found to be related to child aggressive behavior at age 4 ($r = .18$, $p = .04$), with boys tending to have greater symptoms. Maternal education was positively related to MP to CP at T2 ($r = .22$, $p = .02$), and it was negatively related to maternal depression at T1 ($r = -.22$, $p = .02$) and T2 ($r = -.22$, $p = .02$) and child anxious depressed symptoms at T2 ($r = -.19$, $p = .04$).

**Model Results**

Two path models, one with congruent responses and the other with incongruent responses, were evaluated with relations between T1 and T2 variables. Maternal parenting stress was included as a moderator, and interaction terms were removed when nonsignificant. Additionally, associations with maternal education and child sex were tested for all T2 variables and nonsignificant relations were trimmed from the models.
The results for the congruent emotion expression and response model are shown in Figure 2.2, and the model demonstrated good fit, $\chi^2 = 35.10, df = 28, p = .17$; RMSEA = .045, 90% CI = .000 - .086; CFI = .972; TLI = .940. CP to MP at T1 was positively related to CP to MP at T2 ($B = .19, SE = .08, \beta = .22, p = .02$); however, MP to CP (T1) was unrelated to MP to CP (T2). T1 scores of maternal depressive symptoms ($B = .54, SE = .06, \beta = .67, p < .00$), as well as child anxious/depressed symptoms ($B = .48, SE = .09, \beta = .50, p < .00$) and aggressive behavior ($B = .56, SE = .08, \beta = .57, p < .00$) were all positively related to T2 scores of the same variable. Maternal education (T1) was positively related to MP to CP at T2 ($B = .02, SE = .01, \beta = .25, p < .00$), and child sex was related to aggressive behavior ($B = 1.96, SE = .77, \beta = .16, p = .01$) with boys tending to be rated higher on this scale. The intensity of maternal parenting stress at T1 was positively related to child aggressive behavior at T2 ($B = .12, SE = .04, \beta = .29, p < .00$).

A significant interaction was found when maternal parenting stress was included as a moderator between child responses to maternal expression and maternal depressive symptoms ($B = .80, SE = .29, \beta = .16, p < .00$). As shown in Figure 2.3, it was only when parenting stress was high (+1 SD) that CP to MP (T1) was significantly related to maternal depressive symptoms at T2 ($B = 15.84, SE = 6.60, \beta = .21, p = .02$). When mothers reported that they felt intensely stressed by their parenting tasks, children’s responses to their mothers’ expressions were positively related to mothers’ depressive symptoms. This indicated that when children were highly contingently positive, mothers’
only experienced greater depressive symptoms one year later if they were also highly stressed.

In addition, two significant interactions were found between MP to CP at T1 and child problem behaviors (anxious/depressed symptoms and aggressive behavior) at T2. Figure 2.4 depicts the interaction plot for MP to CP and child anxious/depressed symptoms \( (B = -.21, SE = .07, \beta = -.22, p < .00) \). Here, when mothers’ parenting stress was high (+1 SD), their positive contingent responses were negatively related to children’s anxious/depressed symptoms one year later \( (B = -3.32, SE = 1.33, \beta = -.22, p = .01) \). Thus, when mothers were particularly stressed and when they responded positively to their children’s positive expressions, children tended to have fewer reported anxious/depressed symptoms. Finally, an interaction between MP to CP (T1) and child aggressive behavior (T2) was found \( (B = -.50, SE = .18, \beta = -.18, p < .00) \). As shown in Figure 2.5, mothers’ contingent positive responses were positively related to child aggressive behavior when maternal stress was low (-1 SD) \( (B = 9.47, SE = 4.40, \beta = .21, p = .03) \). In this case, it was only when maternal parenting stress was particularly low that greater maternal positive responses to child positive expression were related to greater child aggressive behavior. All other associations in the congruent contingency model were found to be nonsignificant.

The results for the incongruent emotional response model are shown in Figure 2.6. This model also showed good fit, \( \chi^2 = 10.44, df = 9, p = .32; \) RMSEA = .036, 90% CI = .000 -.110; CFI = .994; TLI = .973. Here, MP to CN (T1) was positively related to MP to CN at T2 \( (B = .21, SE = .10, \beta = .20, p = .03) \); however, CN to MP (T1) was not
significantly associated with later CN to MP (T2). Like the congruent response model, T1 scores of maternal depressive symptoms ($B = .55, SE = .06, \beta = .68, p < .00$) and child problem behaviors (anxious/depressed symptoms: $B = .46, SE = .09, \beta = .48, p < .00$; aggressive behavior: $B = .68, SE = .08, \beta = .67, p < .00$) were positively related with T2 values of the same variables. In addition, CN to MP (T1) was positively related to both maternal depressive symptoms ($B = 22.99, SE = 9.81, \beta = .15, p = .02$) and child aggressive behavior ($B = 14.11, SE = 6.41, \beta = .15, p = .03$) at T2. This indicated that when children were more likely to respond to their mothers’ positive expressions with negative expressions of emotion, mothers tended to have higher depressive symptoms and children tended to be reported as more aggressive one year later. When parenting stress was included as a moderator between child contingent responses and mothers’ depressive symptoms or between mothers’ contingent responses and child problem behaviors, no significant interactions were found and so they were not included in the model. All other associations between T1 and T2 variables in the incongruent model were found to be nonsignificant.

**Discussion**

This study adds to our growing understanding of the dynamic interactional patterns of emotion expression that take place between mothers and their young children and how these are related to child adjustment and maternal depressive symptoms. The study examined both congruent contingent responses when mothers and children responded with positive emotions to one another’s positive expressions, as well as incongruent contingent responses which occurred when children were negative in
response to mothers’ positive expression or mothers were positive in response to children’s negative expression. This type of assessment allows for a better understanding of the mother-child subsystem and mutual influences between mothers and children during emotional exchanges. Furthermore, the unique and differential impact of parenting stress was identified, as it played a role in defining how interaction patterns influenced partner outcomes. Overall, findings suggest that earlier patterns of emotional interaction, both congruent and incongruent, are more strongly related to later outcomes than earlier symptoms are related to later interactions. This is in line with previous research which has found that maternal responsiveness and mother-child shared congruent affect is related to later child adjustment (Lunkenheimer et al., 2011); whereas, maternal depressive symptoms may not be as predictive of later expression patterns (Connell et. al, 2015). This could also be related to the relative stability of maternal depressive symptoms and child anxious/depressed and aggressive symptoms across time. These findings support the family systems concept that patterns of emotional interaction gradually reinforce certain emotional states which manifest as symptoms of mood disorders.

With regard to the patterns of contingent responses, only child positive to mother positive and mother positive to child negative were positively related at the two time points. This may indicate that mothers’ positive and children’s negative expressions are more likely to elicit typical or predictable responses from their partners. Children may begin to dependably rely on mothers’ supportive positive expressions to upregulate their own positive expressions in response, as this is related to more adaptive emotion.
regulation (Morelen & Suveg, 2012); although, mothers’ contingent positive responses to their children have also been found to be stable across this age period (Feng et al., 2007). Like their children, mothers may also develop a habit of how they tend to respond positively in the face of their child’s negative expression. It is difficult, however, to draw conclusions from these findings in light of previous work in the area of responsiveness and contingent emotional responding due to methodological variations in the existing body of research. Currently, many studies are assessing mutual, synchronous, or dyadic emotion expression (i.e. periods when both members are expressing the same emotion), rather than contingent response styles. Furthermore, among those studies that measure response patterns, there is a great deal of discrepancy in how a “response” is defined (i.e. the lag time allowed between initial expression and response). Finally, many studies have only considered contingent responses at a single time point, and so are unable to speak to the stability of these responses styles. As this body of research grows, we will be able to gain a better understanding of how patterns of emotional exchanges between mothers and children remain stable or change over time.

In examining mothers and children’s incongruent response styles, child negative to mother positive responses were positively related to both greater child aggressive behavior and maternal depressive symptoms one year later. Conversely, no association was found between mothers’ earlier positive responses to children’s negative expressions and later child behavior problems. Amongst the studies that have investigated nonsynchronous or incongruent interactions, these interaction patterns have been found to be associated with greater child aggression and general externalizing problems (Harrist et
Findings from the current study suggest that this effect may be driven by children’s negative response style, as this may be related to defiance or noncompliance on the part of the child (Lunkenheimer, Kemp, et al., 2013). Additionally, children’s incongruent negative responses were related to greater maternal depressive symptoms, which would also be expected if this pattern of expression (i.e. mother positive expression followed by child negative) is characteristic of noncompliance (Gross, Conrad, Fogg, Willis, & Garvey, 1995). Alternatively, the association with maternal depression may be a result of the pattern of incongruence in negative expression itself, as differing rates of negative emotion expression between mother and child are more common when mothers are depressed than when they are nondepressed (Jameson et al., 1997). This may be the case, given that child incongruent negative responding was relatively stable across time and it has been found that maternal depression is associated with less dyadic flexibility in mother-child emotional interactions, meaning that mothers and children may be getting “stuck” in a mismatched emotional pattern which is associated with maternal depression (Lunkenheimer, Albrecht, et al., 2013). On the other hand, a possible reason that an association between maternal depression and later mother-child contingent response styles was not found may have to do with the inability to include maternal negative emotion expression in the analyses. Previous research has found that maternal depression has a stronger relation to negative, as opposed to positive, expression and parenting practices (Connell et al., 2015; Farmer & Lee, 2011; Lovejoy et al., 2000), and so maternal positive responses may be less likely to be influenced by maternal depressive symptoms. Future research would benefit from including mother-
child interaction tasks that elicit more frequent expression of maternal negative emotion expression.

**Interactions with stress**

Concerning the congruent emotion expression model, several interactions were found with maternal parenting stress. Maternal stress was found to moderate the relation between children’s positive responses to mothers’ positive expression and maternal depressive symptoms one year later. This indicated that very high amounts of child positive contingent emotion expression was related to mothers’ elevated depressive symptoms only when mothers were also experiencing intense parenting stress. Whereas mutual or synchronous positive emotion expression is generally found to be associated with fewer maternal depressive symptoms (Feng et al., 2007), it is possible that very high levels of child positive reciprocity may be indicative of high temperamental exuberance (Stifter, Putnam, & Jahromi, 2008). Therefore, this may suggest that when mothers are highly stressed by parenting tasks, their child’s frequent positive expressions in response to their own (especially if coupled with high energy level) become taxing and contribute to later depressive symptoms. It is also possible that mothers that are highly stressed by parenting find it difficult to manage highly positive interactions, as these may not match their internal state of tension or worry. In line with this, parenting stress has been found to be associated with fewer positive mother-child interactions (Farmer & Lee, 2011). When considered in this light, findings from the current study may indicate that stressed mothers tend to disengage during interactions with their children, and when their children are highly positively responsive to them they find this overwhelming. This high level of
positive engagement from their child may serve as an additional stressor and exacerbate their stress, thereby contributing to their depressive symptoms.

With regard to mothers’ contingent responding, two interactions were found between mothers’ positive responses to children’s positive expression and child behavior problems. It has been demonstrated that mothers are likely to respond positively to children’s positive expression (Denham, 1993); however, findings from the current study suggest that parenting stress may play a role in defining how this responsiveness is related to children’s development. First, greater maternal positive contingent responding was related to fewer child anxious/depressed symptoms when parenting stress was high. This finding supports the hypothesis that maternal positive responding may buffer the negative effects of maternal stress. It suggests that in the presence of high parenting stress, which has generally been associated with greater child internalizing problems (e.g. Anthony et al., 2005), maternal congruent positive responses to children’s expression may be especially beneficial. It is possible that when mothers are highly stressed, their contingent positive expression may be especially protective, in that it cultivates an internal sense of positivity in children who would otherwise be at risk of developing internalizing symptoms.

The second interaction between mothers’ contingent responses and stress concerned the association with child aggressive behavior. It was found that when mothers were more likely to respond positively to their child’s positive expression and had low parenting stress, children tended to have higher aggressive behavior. This finding was unexpected, and may speak to two important considerations when evaluating
the relations between maternal contingent emotional responses and child behavior problems: the balance between positive and negative emotion expression and mothers’ overall involvement in providing guidance and setting limits for children.

First, it has been theorized and empirically shown that a combination of positive and negative affect is most beneficial for children in promoting adaptive regulation and reducing behavior problems, provided that negative expressions are not overly intense or frequent (Cole, Michel, & Teti 1994; Dunn & Brown, 1994; Fredrickson & Losada, 2005; Lunkenheimer et al., 2011). Furthermore, it is suggested that a curvilinear relation may exist between parental negative emotion expression and child adaptive functioning (Morris et al., 2007), with too little or too much negative expression being detrimental. It may be possible that a similar relation exists for positive emotion expression, with a great amount of maternal positive expression in the absence of negative expression being disadvantageous. Indeed, extreme amounts of positive emotion may not be related to better mental health (Fredrickson & Losada, 2005). Moreover, dysregulation of positive affect may be just as detrimental as intense negative affect (Cole et al., 1994), with the possibility that poorly regulated positive affect can manifest as aggressive behavior. To further this point, it has also been found that, in the presence of maternal depression, dyadic flexibility is associated with fewer child problem behaviors (especially externalizing problems), indicating that a flexible pattern of expression from mothers may benefit children rather than a fixed positive response style (Lunkenheimer et al., 2013). Thus, when mothers’ experience little stress and often respond to their child with
positive emotions, they may be depriving their child of the opportunity to experience and manage negative affective exchanges.

The second consideration with regard to mothers’ positive responding and children’s aggression concerns the mothers’ general involvement in guiding and setting limits for their child’s behavior. It is possible that mothers’ who experience their parenting stress as very low in intensity may be less involved in childcare than more stressed mothers, as parenting is generally expected to be somewhat stressful (Deater-Deckard & Scarr, 1996). For instance, aggressive children tend to engage in coercive controlling behaviors which their mothers do not oppose (Dumas et al., 1995), and it may be that mothers avoid parenting stress by “giving in” to their children and, thus, reinforce their aggressive behavior. To this point, it has been found that dyadic mutuality, characterized by responsiveness, cooperation, and reciprocity, interacts with dyadic positive expression to predict lower child externalizing problems (Deater-Deckard et al., 2004); thus, high parental involvement must accompany positive expression. This may also be in line with research which has found that maternal problem-solving responses to adolescents’ aggressive behavior is related to shorter bouts of aggression from adolescents (Sheeber, Allen, Davis, & Sorensen, 2000). In the current study, lower parenting stress may represent a tendency to avoid stressful parenting tasks associated with disciplining children’s misbehavior, and so the relation between contingent positive expression and child aggression may depend on how involved the mother is in her child’s life. Moreover, these mothers may be encouraging high exuberance in their children,
which has been associated with externalizing problem behaviors (Degnan et al., 2011), without concern for providing limits or guidance regarding appropriate behavior.

The differential interactions found for anxious/depressed and aggressive symptoms also suggest that maternal positive contingent responses and stress may be related somewhat differently for child problem behaviors along the internalizing and externalizing spectrums. For example, maternal positive contingent responses have been found to be marginally associated with fewer child problem behaviors and psychopathology; however, in this case child problems were assessed universally and separate subscales of internalizing and externalizing behaviors were not examined (Thomassin & Suveg, 2014). It may be that mothers’ positive contingent responding uniquely contributes to child symptomatology associated with internalizing and externalizing behaviors. In line with this, mother-child pairs with children that are highly aggressive tend to be more positive than pairs where the child is highly anxious (Dumas, LaFreniere, & Serketich, 1995). Findings from the current study suggest that when children are at higher risk of developing anxious depressed symptoms due to high maternal stress, maternal positive contingent expressions may be beneficial; however, when mothers’ positive contingent responses are high and parenting stress is low, children may be a risk to develop aggressive behaviors. Collectively, these findings highlight the complex nature of the dynamic emotional processes taking place in the mother-child subsystem and how they relate to the emotion socialization process. Family systems theory would suggest that the inclusion of factors that more comprehensively
describe the mother-child subsystem (e.g. mother involvement) may serve to further illuminate the emotion socialization process.

Limitations

The findings of the current study need to be considered in light of certain limitations. First, due to limitations of the available data, the influence of other family members on the mother-child subsystem could not be examined. Family systems theory posits that the family as a whole creates patterns of interaction, and so future research should consider the inclusion of fathers, siblings, and grandparents. Second, it was unfortunate that maternal negative emotion expression and contingent responses could not be included, as the study activities did not elicit frequent expression of negative emotion from mothers. Likewise, differential negative child emotions (i.e. sadness, anger, fear) could not be examined because frequencies of each individual type of emotion were low. Though, other studies have also encountered difficulty in elicitng contingent negative responses between parent and child (e.g. Thomassin & Suveg, 2014), future research should consider ways in which to include more highly negatively charged and diverse tasks in order to elicit frequent and varied expressions of negative emotion. Third, we combined contingent responses from both a positively and negatively charged task, and it may be possible that response patterns impact children’s development differentially in different contexts. Future research should investigate patterns of emotional contingent responses across various emotionally-charged situations in order to better understand the role of context in defining the impact that these interactions have on mothers and children. Finally, several measures were assessed via maternal report alone,
which may have introduced shared method variance. The inclusion of a clinical evaluation of maternal depression, as well as independent or multiple-reporter measures of children’s behavior problems should be considered for future studies.

Despite these limitations, the current study provides valuable insight into our growing understanding of the specific and moment-to-moment qualities of mother-child emotional exchanges. It provides a more nuanced and detailed interpretation of the possible dysfunctional emotion expression patterns that take place between mothers and their young children. Additionally, this study helps to identify the interaction patterns that are associated with children’s later problem behaviors. This more clearly identifies which styles of interactions may be more or less detrimental for children. A better understanding of the particulars of these interactions allows for the development of more targeted and effective intervention efforts for parents and their young children. This is especially important, as parent-child therapies often target shared positive emotion expression (e.g. Solomon, Ono, Timmer, & Goodlin-Jones, 2008), and the current study in particular sheds light on the complex relations between positive responding, stress, and child outcomes.
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Note. * p < .05, ** p < .01, *** p < .001. MP to CP = mother positive response to child positive expression; CP to MP = child positive response to mother positive expression; MP to CN = mother positive response to child negative expression; and CN to MP = child negative response to mother positive expression.
Figure 2.1. Conceptual model with associations between T1 and T2 variables and moderation by parenting stress. Child emotional and behavioral problems includes both child anxious/depressed symptoms and aggressive behavior, tested separately. Mother-child contingent responses includes mother positive responses to child positive expression and child positive responses to mother positive expression in the congruent model, as well as mother positive responses to child negative expression and child negative responses to mother positive expression in the incongruent model, each tested separately.
Figure 2.2. Congruent contingent emotional response model. Nonsignificant and covariate associations are not shown.
Figure 2.3. Interaction plot with children’s positive responses to mothers’ positive expression predicting maternal depressive symptoms moderated by maternal parenting stress.
Figure 2.4. Interaction plot with mothers’ positive responses to children’s positive expression predicting child anxious/depressed symptoms moderated by maternal parenting stress.
Figure 2.5. Interaction plot with mothers’ positive responses to children’s positive expression predicting child aggressive behavior moderated by maternal parenting stress.
Figure 2.6. Incongruent contingent emotional response model. Nonsignificant and covariate associations are not shown.
Chapter 3: A Family Therapy Intervention for Mothers Experiencing Depression and Their Young Children: Results of a Randomized Controlled Trial

Depression is a common mental disorder that poses serious risks to both family functioning and the public health of our society (Cummings, Keller, & Davies, 2005; Lepine & Briley, 2011). Depression is especially prevalent among parents (England & Sim, 2009) and mothers in particular. This is in part because depression is much more common among women, as they experience 1.5- to 3-fold higher rates than men (American Psychiatric Association, 2013). It is also notable that children of depressed mothers are at risk to experience a host of poor outcomes (Goodman, 2007). In particular, children are more likely to experience deficits in their emotional development and competence when their mothers are depressed (Luoma et al., 2001; Silk, Shaw, Skuban, Oland, & Kovacs, 2006). Emotion socialization consists of mothers’ practices that inform children about emotions, including their expression and regulation (Eisenberg, Cumberland, Sprinrad, 1998), and the emotion socialization that depressed mothers provide tends to be less consistent and appropriate (Lovejoy, Graczyk, O’Hare, & Neuman, 2000; Shaw et al., 2006; Silk et al., 2011). Thus, it is not surprising that there have been calls for greater development of preventative intervention programs designed to address the risk that children of depressed mother experience (e.g. Beardslee, Gladstone, O’Connor, 2011), especially ones which target specific parenting practices.
associated with emotion socialization (Brennan, Brocque, & Hammen, 2003). Moreover, there has been a call for interventions that incorporate both the mother and child rather than just targeting one member (Reiss, 2011).

**Intergenerational Transmission of Depression**

Children of depressed parents are three times as likely to develop depression themselves later in life (Williamson, Birmaher, Axelson, Ryan, & Dahl, 2004). It is also clear that the intergenerational transmission of depression from mother to child extends beyond a simple biological disposition, as this transmission has been found in genetically unrelated children (Lewis, Rice, Harold, Collishaw, & Tharpar, 2011). Therefore, when considering the process by which risk is conferred to children of depressed mothers, one suggested mechanism is maladaptive parenting practices, particularly those involved in emotion socialization (Goodman 2007; Goodman et al., 2011; Silk et al., 2011). It has also been suggested that deficits in emotion regulation, processes involved in monitoring and modifying emotional reactions to reach one’s goals (Thompson, 1994), may function as a mechanism by which family risk factors impact children’s development of depression (Yap, Allen, & Sheeber, 2007). Moreover, children of depressed mothers may lack competence in certain other emotion-related skills, namely their emotional knowledge (Raikes & Thompson, 2005). This term refers to the accurate understanding of how emotions are expressed and how they function (Izard et al., 2011). Taken together, this indicates that maternal depression may impair parenting practices involved in children’s emotion socialization, which in turn negatively impacts children’s emotional skill development, which may ultimately predispose children to develop depression.
Supporting this conceptualization, mothers with a history of depression tend to respond less supportively to their children’s emotions, and they tend to respond more unsupportively, by neglecting or punishing their children’s expressions (Silk et al., 2011). A review of maternal depression and parenting practices found that depressed mothers tend to engage in more negative maternal behavior (e.g. negative expression, hostility), and less positive behavior (e.g. positive expression, affection, engagement), and are more likely to disengage from their children (Lovejoy et al., 2000). Maternal depression tends to be associated with less maternal warmth and greater psychological control when children are kindergarten age (Cummings et al., 2005). Moreover, maternal depression is also associated with diminished facial emotion expression in their children, and this association is mediated by mothers’ lowered emotional support (Dix, Meunier, Lusk, & Perfect, 2012). Therefore, children of depressed mothers may be less adept at communicating their emotions to others, and this is in part because mothers are less emotionally supportive. The finding that depression negatively impacts mothers’ emotion socialization parenting practices has been fairly consistent, as depressed mothers tend to be less responsive to their young children’s expressions of distress (Shaw et al., 2006) and positive expression (Feng, Shaw, Skuban, & Lane, 2007).

Maternal depression also has been consistently found to be associated with deficits in children’s emotional competence, including regulation of their positive and negative emotions (Goodman et al., 2011; Maughan, Cicchetti, Toth, & Rogosch, 2007). More specifically, children of depressed mothers are more likely to express less positive affect, and this trend continues from infancy through middle childhood (Olino et al.,
2010). These children also tend to use less adaptive and active emotion regulation strategies (Feng et al., 2008; Silk, Shaw, Skuban, Oland, & Kovacs, 2006). Moreover, the use of more adaptive emotion regulation strategies by young children has been shown to moderate the relation between maternal depression and child internalizing symptoms (Silk, Shaw, Forbes, Lane, & Kovacs, 2006). However, less adaptive child emotion expression and regulation in the presence of negative parenting practices (i.e. high psychological control and low acceptance) is related to children’s development of depressive symptoms (Feng et al., 2009). In addition, children’s emotion regulation abilities tend to be related to their emotion knowledge skills (Eisenberg, Sadovsky, & Spinrad, 2005), and increased emotion knowledge is related to improvements in emotion regulation (Izard et al., 2008). Furthermore, like emotion regulation, children of depressed mothers tend to have poorer emotion knowledge (Raikes & Thompson, 2005).

Although depressed mothers tend to use less appropriate emotion socialization practices (e.g. Silk et. al, 2011) leading to deficits in children’s emotional competence (e.g. Silk, Shaw, Skuban, et al., 2006), there is reason to believe that improvements in these practices and skills may alleviate some of the risk that children face. For instance, when mothers model emotion expression appropriately and engage in emotionally supportive parenting practices, their children tend to have better emotion regulation abilities (Denham, Bassett, & Wyatt, 2007; Morris, Silk, Steinberg, Myers, & Robinson, 2007). In addition, when mothers express more positive emotion, support their children’s emotions, and value emotional teaching, their children have greater emotion knowledge (Denham & Kochanoff, 2002). Furthermore, when children have better emotion
regulation skills and greater emotion knowledge, they are at lower risk for developing internalizing and externalizing problems (Denham et al., 2003; Eisenberg, Losoya, et al., 2001) and future psychopathology (Cole & Hall, 2008). Overall, this indicates that the promotion of beneficial maternal emotion socialization practices and greater child emotional competence may protect against the risk which children of depressed mothers experience.

In addition, certain developmental periods may be especially susceptible to both negative and positive influences regarding the impact of maternal depression on children. In particular, early childhood and the entry to school age period have been identified as opportune times to intervene with parents and their children (Dishion et al., 2008; Reid, 1993) and to intervene with maternal parenting practices (Landry, Smith, Swank, Assel, & Vellet, 2001). Early childhood represents a time when mothers are both especially engaged in their children’s socialization and optimistic about the potential for therapy to improve the mother-child relationship (Dishion & Patterson, 1992; Shaw, Dishion, Supplee, Gardner, & Arnds, 2006). It is also a time when children are going through rapid and critical changes in their emotional development (Eisenberg & Morris, 2003; Cole et al., 2011). In addition, entry into school is already a time when families are transitioning, and family systems theory would suggest that family processes may be more malleable to treatment during this period (Cox & Paley, 1997). Finally, because this is a sensitive period associated with a lot of changes, families in which the mother is depressed may find it especially stressful and may be in need of support.

Existing Interventions
Efforts have been made to understand the intergenerational transmission of depression and to develop preventative interventions; however, they vary widely (Beardslee et al., 2011). One review noted that many interventions targeting children who have a mentally ill parent lack a theoretical basis and provide limited evidence of effectiveness (Fraser, James, Anderson, Llyod, & Judd, 2006). A more recent and rigorous systematic review of interventions targeting mentally ill parents (primarily experiencing depression) and their children identified 13 randomized controlled trials; however, among these only 4 were family-based as opposed to solely targeting either the parents or children (Siegenthaler, Munder, Egger, 2012). Moreover, none of the family-based interventions included children under the age of 7 years old (ages ranged from 7 to 16), and many included only one or two sessions that involved both parent and child (e.g. Beardslee, Gladstone, Wright, & Cooper, 2003). This draws attention to the fact that although interventions have targeted adolescent children of depressed parents, with both individual (Clarke et al., 2001) and family based (Compas et al., 2009; Riley et al., 2008) approaches, few have targeted younger children. Most interventions which are designed for families with younger children (age 6 and younger) only include mothers or parents and do not involve children in the intervention (e.g. Forman et al., 2007; Verduyn, Barrowclough, Roberts, Tarrier, & Harrington, 2003).

Important questions with regard to intervening when a parent experiences depression are which family member(s) to include in the treatment and what type of treatment to provide. One suggested approach would be to treat mothers’ depression early on or attempt to reduce their risk of developing depression. However, whereas it
has been suggested that treating maternal depression alone will benefit children (e.g. Gunlicks & Weissman, 2008), it has also been argued that an intervention would be more effective by targeting maternal depression as well as parenting (Beardslee et al., 2011). Moreover, it may be most beneficial to go beyond parenting practices and target the mother-child relationship and relational dynamics. For example, with regard to postpartum depression, there is evidence that treating depression alone is not enough to mitigate the risk to children, and rather an intervention that targets the mother-child relationship is needed (Forman et al., 2007). Thus, to be most effective, a treatment may need to include both mother and child, while focusing on improving their relationship. In particular, a treatment should focus on those aspects related to emotion socialization and children’s emotional development, as these have been identified as mechanisms in the intergenerational transmission of depression (Goodman, 2011; Silk et al., 2006).

Most existing interventions that target maternal emotion socialization or children’s emotional development include some of these aspects. This includes interventions for postpartum depression that have been shown to reduce depressive symptoms and improve the mother-infant relationship (Dennis & Creedy, 2007; Nylen, Moran, Franklin, & O’Hara, 2006; Poobalan et al., 2007) and interventions that focus solely on mothers and their emotional parenting practices (Havighurst et al., 2009), as well as interventions aimed at children and improving their social and emotional development (Denham & Burton, 1996; Durlak, Dymnicki, Taylor, Weisberg, & Schellinger, 2011; Izard, Trentacosta, King, & Mostow, 2004; Riggs, Greenberg, Kusché, & Pentz, 2006). Finally, many interventions have targeted more general parenting and
how improving parenting practices broadly can lead to better behavioral outcomes for
children (e.g. Elizur, Somach, & Vinokur, 2017; Hogstrom, Olofsson, Ozdemir,
Enebrink, & Stattin, 2017; Moss et al., 2011; Sanders, 2008; Topham, Wampler, Titus, &
Rolling, 2011).

Less common are interventions that directly target families with a depressed
parent and include both depressed mothers and their children. For example, one
intervention utilizing cognitive restructuring therapy found that adolescents tended to
decrease in depressive symptoms, but only involved adolescents and not parents in the
treatment (Clarke et al., 2001). A similar intervention that involved both the parents and
adolescents found that internalizing problems decreased for adolescents; however, the
majority of their sessions were conducted separately, with only one family meeting
(Beardlee et al., 2003). In contrast, a different intervention involved both the parents and
adolescent children in the treatment and found not only reductions in the treatment group
adolescents’ depressive symptoms, but also in their parents’ symptoms (Compas et al.,
2009, 2011). Finally, in an intervention study involving both depressed parents and their
preschool aged children, it was found that a brief intervention utilizing individualized
parenting consultations and motivational interviewing increased positive parenting
practices within the treatment group (Dishion et al., 2008). Moreover, follow-up
assessments revealed improvements in children’s problem behaviors and maternal
depression (Shaw, Connell, Dishion, Wilson, & Gardner, 2009).

The number of family-based interventions is growing (e.g. Kaslow, Broth, Smith,
& Collins, 2012; Lucksted, McFarlane, Downing, Dixon, & Adams, 2012), and many
interventions that involve multiple family members are grounded in family systems theory (e.g. Elizur, Somech, & Vinokur, 2017; Wharff, Ginnis, & Ross, 2012); however, few if any interventions have directly taken a family therapy approach to addressing the emotional relationships and issues faced by depressed mothers and their young children. Recognizing this need, Beach (2002) argued that family-based and family therapy interventions are especially necessary to address the cycle that develops between parental depression and child problems. Whereas many interventions targeting this population tend to involve 8-15 sessions of treatment (e.g. Clarke et al., 2001; Compas et. al. 2009), Dishion and colleagues’ (2008) work suggests that, when involving the parent-child subsystem, a brief and focused intervention may be enough to promote significant change, though later follow-up sessions may be needed in order to have lasting change. Thus, the current study presents the findings from a brief, family therapy, randomized-controlled pilot trial of an intervention targeting depressed mothers and their young children. The intervention targets the mother-child subsystem of the family because this has been identified as integral to the emotion socialization process and a promising area for intervention. Therefore, the current intervention was considered as family-based because it involved multiple family members and applied a family therapy approach.

**Family Systems Theory and Family Therapy**

Family systems theory views individual family members as interconnected, with each member influencing the others and the overall family system (Minuchin, 1974). Thus, this theory has often been applied to the issue of intervening with families in order to produce more desirable outcomes for the family and society. Likewise, a family
systems perspective on the emotion socialization of children has many implications for possible interventions. For example, it has recently been acknowledged that there is a bidirectional influence of maternal depression on children, meaning that, although, mothers’ symptoms may impact children, children also impact mothers’ symptoms (Beardslee, Gladstone, & O’Connor, 2011; Forbes et al., 2008; Gross, Shaw, & Moilanen, 2008). Thus, family systems theory would suggest a family therapy approach to intervening with mothers experiencing depression and their children.

The current intervention is informed by and utilizes family systems theory concepts and family therapy approaches (Minuchin, 1974), while focusing on narrative therapy concepts and techniques for working with children and families (Freedman & Combs, 1996; Freeman, Epston, & Lobovits, 1997; White & Epston, 1990; White & Morgan, 2006) in addressing emotional processes and socialization between mother and child. In relatively recent reviews of family therapy conducted with children, Carr (2009, 2014) highlighted several areas in which family therapy has demonstrated positive child outcomes. In particular, family therapy has proven effective when working with issues related to parenting and emotions, including problems with attachment, abuse, child conduct problems, anxiety, depression, grief, bipolar disorder, and self-harm. Furthermore, considering narrative family therapy theory and process, externalization of the problem has been demonstrated as occurring progressively across narrative therapy sessions with children (Ramey, Tarulli, Frijters, & Fisher, 2009). Individual narrative therapy has also been shown to reduce depressive symptoms and improve interpersonal relations in adults (Vromans & Schweitzer, 2011). Moreover, in a case study, a narrative
family therapy preventative intervention for children of parents with affective disorders was shown to help develop shared meanings and understandings of the affective disorder (Focht & Beardslee, 1996). These studies highlight the potential that narrative family therapy has to intervene with depressed mothers and their young children.

Narrative family therapy emphasizes how meaning becomes attached to experiences and affects individuals’ and families’ interpretations of those experiences (Freedman & Combs, 1996; Zimmerman & Dickerson, 1994). These meanings, however, are subjective and so they can be examined and rewritten if they become problematic for the family (Freedman & Combs, 1996). Because the emotion socialization of children within the family involves a process by which members create and impart meaning around the experience, expression, and regulation of emotion through their emotion-related behaviors and interactions (Eisenberg et al., 1998; Eisenberg, Gershoff et al., 2001), this process lends itself to systemic, relational intervention. In particular, narrative family therapy is well suited for working with young children because it explores the meanings attached to feelings and behaviors in ways that are clear and explicit. Moreover, it presents the opportunity for mothers and their children to explore these meanings and attach new significance to situations and emotions.

Current Study

The current study presents the results of a brief family therapy, emotion-centered intervention for depressed mothers and their young children (see Figure 3.1 for study design). It builds upon and integrates previous efforts to address the risk experienced by
young children of depressed mothers by targeting emotional processes and skills using a family systems, narrative family therapy informed approach. The intervention utilized narrative family therapy techniques for working with children (Freeman et al., 1997; White & Morgan, 2006), and it targeted emotion socialization processes (Eisenberg et al., 1998) associated with children’s emotion regulation and knowledge. It drew from research on family therapy interventions that target child disorders (Kaslow et al., 2012) and utilize family psychoeducation when a family member is experiencing a serious mental illness (Lucksted et al., 2012). It was also intentionally brief and individualized in order to target specific processes associated with the intergenerational transmission of depression without unnecessarily burdening participant families (e.g. Dishion et al., 2008).

The study utilized a randomized-controlled design, with one group receiving the treatment and the other serving as control. It focused on assessing the intervention’s primary outcomes of concern. These included the general feasibility of implementing the intervention, as well as the intervention’s acceptability by participants. This was evaluated by examining participation and drop-out rates among the treatment group, in addition to client and therapist working alliance scores and participant ratings of an individualized problem identified during the treatment. Primary outcomes of interest also included assessing mothers’ emotion socialization practices and her understanding of emotions, as well as children’s emotion regulation abilities and emotion knowledge.

It was hypothesized that mothers and children randomized to receive the treatment would improve in several areas of emotional parenting and functioning;
whereas the families randomized to the control condition would remain stable. For treatment families it was expected that 1) mothers would improve in their understanding and regulation of their own emotions; 2) mothers would improve in their emotion socialization practices, including increased positive expression, sensitivity, supportive responses, and emotion coaching, and decreased negative expression, unsupportive responses, and controlling behaviors; 3) children would improve in their emotion regulation abilities, including increased positive expression and decreased negative expression, comfort seeking, and expressed discouragement; and 4) children would improve in their emotion knowledge.

Methods

Participants

Seventy mother-child dyads were enrolled in the study, and 47 returned for a follow-up assessment (67.14% retention). One child that had been randomized to the treatment condition was later diagnosed with autism after completing the study and was retroactively excluded, leaving the final sample at 69 participant pairs (46 at follow-up). Participants were recruited from the community through flyers posted online and sent to community centers and schools. Participants were also recruited from a separate longitudinal study investigating child development and maternal depression. To be eligible to participate, mothers had to 1) be at least 21 years old, 2) score at or above the clinical cutoff on the Center for Epidemiological Studies Scale (CES-D; Radloff, 1977), and 3) have a child that was between the ages of 5 and 6 years old. Mothers were also eligible to participate if they had participated in the longitudinal study and had
demonstrated a history of elevated depressive symptoms when their children were 3 and/or 4 years old as assessed by the CES-D. Families were excluded from participation if 1) mothers had been diagnosed with a comorbid mental illness other than anxiety (e.g. schizophrenia, personality disorder), 2) children had been diagnosed with an ongoing developmental delay or disorder (e.g. autism), 3) English was not the primary language spoken at home, or 4) either the mother or child were currently involved in therapy or counseling or planned to start within the duration of the study (i.e. about five months). The demographic characteristics of the study sample are presented for the treatment and control groups in Table 3.1.

**Procedures**

See Figure 3.1 for an overview of the study and intervention program. Once mothers contacted the study, they were screened to assess for eligibility. This involved completing a screening questionnaire over the phone, including the CES-D. Once it was determined that they met eligibility requirements, participant families were scheduled for a 2.5 hours baseline assessment. Mothers also completed an online survey during the assessment or in the week prior. This survey contained various questionnaires, one of which asked about the families’ demographic characteristics and another which pertained to the mothers’ responses to their children’s negative emotions. At this assessment, families were randomized to either the treatment or control conditions. Assignments to the treatment or control conditions had been randomly generated and placed into sealed envelopes. During the baseline assessment, an experimenter opened an envelope and informed the family of their assigned condition. Mothers and children who were
randomized to the treatment condition were assigned to meet with a couple and family therapist for 3 weekly 2-hour sessions. These sessions took place within 6 weeks of the baseline assessment.

All participants returned for a 2-hour follow-up assessment that took place 6 weeks after the baseline assessment; however, due to illness or scheduling conflicts some families completed the follow-up assessment later than this. The average time between baseline and follow-up was 8.49 weeks ($SD = 2.92$). All therapy sessions and assessments took place in a couple and family therapy clinic located on a university campus. Visits for assessments and treatment were scheduled around the participants’ schedules, with availability for evening and weekend appointments. Participants were compensated with gift cards for their participation in the study, which included a $50 gift card at each assessment and a $20 gift card at each therapy session. The gift cards were for local grocery and department stores. At the follow-up assessment, experimenters were blind to whether the participants were in the treatment or control conditions.

**Therapists, Clinical Training, and Supervision**

Three masters level PhD students in a couple and family therapy program provided the therapy intervention. One therapist was only able to complete therapy with one participant family before she needed to leave the project due to reasons unrelated to the study. She and one of the other therapists were White and non-Hispanic. The other therapist was Asian and an international student. All therapists were female. Therapist experience ranged from 1 to 4 years. Therapist training included readings, in addition to the therapy manual. All therapists also met with the first author to receive training on
specific intervention procedures. Ongoing, bi-weekly supervision was provided by an AAMFT-approved supervisor. Supervision included reviewing video-recorded therapy sessions, as well as discussing adherence to the intervention protocol and specific case consultation.

_Treatment Fidelity_

A coding system was developed in order to ensure consistent and competent adherence to the intervention protocol. The coding system was adapted from an existing protocol (Slesnick, 2000) for use with the current intervention treatment. Each code was rated on two scales, 1) whether the intervention procedure occurred (yes/no) and 2) the competency with which it was delivered by the therapist (rated on a 7-point Likert scale). The coding system included 5 codes which applied to every session, and each session had 2 additional codes which were unique to it. An example of a general code is “Does the therapist examine the mother and child’s emotions? If yes, how effectively?” An example of a code unique to session 3 is “Does the therapist identify and discuss a unique outcome or a hypothetical unique outcome? If yes, how effectively?” A graduate student who was not a project therapist rated 10% of the intervention session videos. Before beginning, the student met with the first author to train on the intervention and coding procedures. Videos were randomly selected to be scored, and an equal number of session 1, session 2, and session 3 videos were rated. A zero score was assigned if the procedure did not occur, and if it did occur, the effectiveness of the procedure was rated on a 7-point scale. Very good adherence was observed, as 7 out of 7 procedures were rated as occurring for all sessions. In addition, good therapist competence was also observed.
Session 1 received an average rating of 5.19 ($SD = .22$, range = 5.00 – 5.43), session 2 received as average rating of 5.47 ($SD = .44$, range = 5.00 – 5.86), and session 3’s average rating was 5.38 ($SD = .73$, range = 4.57 – 6.00).

**Intervention**

The intervention included the mother and child attending three, 2-hour meetings with a family therapist. All families met consistently with the same family therapist across the course of the three sessions. Each session focused on exploring the mother and child’s experiences and expressions of emotions, and throughout the sessions mothers were also provided with information concerning their role in their child’s emotional development. The narrative therapy technique of externalization (White & Epston, 1990) was also employed throughout the intervention sessions. This included the mother and child working with the therapist to define and name an emotional, relational issue that they faced together. This issue was then externalized and goals were developed for it. This externalized problem was used in order to focus on an immediate, personalized, and specific emotion-related issue that existed within the mother-child subsystem. The process of defining and externalizing this problem was ultimately generalized to other possible problematic emotional dynamics that the mother and child encounter together. The specific structure and goals for each session were outlined in the intervention manual. Overall, the sessions were designed to broaden and expand the mother and child’s “story” related to their emotions and emotional interactions.

The initial session consisted of engaging the mother and child in the therapy process, while conducting an individualized assessment and setting goals with regard to
improving their emotional interactions. Special focus was paid to the mother’s understanding of her own emotions and her emotional experiences within her current parenting role, her past, and her family-of-origin. The mother’s emotional experiences were explored first in order to model this process for her child and to engage the mother in the therapy process, as her active involvement was considered integral. Mothers and children also engaged in a narrative story telling task together designed by Oppenheim, Nir, Warren, and Emde, (1997) in order to observe how a mother and child would handle emotional events together. Finally, both mother and child were involved in identifying and naming an emotion-related problem that they faced together, as well as defining what goals they both had for it.

The second session focused on working with the mother and child to explore and understand the child’s emotion expression and awareness in relation to the mother’s understanding and support of her child’s emotions. The therapist also engaged the mother and child in an exploration of how emotions are generally expressed by others and what types of situations may elicit certain emotions. This was meant to guide the mother and child in practicing how to understand and support other’s emotions. During this session, they also viewed the video of the narrative story-telling task from the previous session. While viewing the video, the therapist discussed with the mother and child ways in which they were interacting together during the activity, with a focus on how emotions were discussed and managed. Throughout the session, the identified problem was further externalized, and the therapist began to identify unique outcomes related to the problem goals.
The final session involved working on re-organizing emotional exchanges between the mother and child based on their broadened understandings of how emotions function within their relationship and their ideas of emotional competence. They were again reminded of the externalized problem identified in the first session, as well as the specified goals for therapy. The therapist worked with the mother and child to identify and explore a unique outcome associated with the problem. This was then related to their goals and used to expand their narrative around the problem. Finally, the process of identifying, naming, and setting goals for a problem was used to discuss how these practices could be generalized to other emotion-related issues and utilized in the future. The mother and child were also asked to more broadly consider how the information and issues discussed in therapy could be utilized or explored in the future.

Control

Families randomized to the control condition did not participate in the intervention or receive another form of treatment. Rather, they were given the option of completing the intervention therapy sessions once they had completed the follow-up assessment. Control participants were followed from baseline to follow-up, and did not complete any study activities in the interim. Currently, there is no standard of care for mothers experiencing depression and their young children so it was deemed appropriate to utilize a waitlist control.

Measures

Mothers’ responses to children’s negative emotions were measured using the Coping with Children’s Negative Emotions Scale (CCNES; Fabes, Eisenberg,
Bernzweig, 1990) at the baseline and follow-up assessments. This is a maternal-report instrument that includes 12 scenarios describing situations/events when children experience negative emotions and how mothers might respond (e.g. “If my child loses some prized possession and reacts with tears, I would”). Mothers are asked to rate how likely they are to act in 6 different ways which represent different response styles (e.g. “tell my child that he/she is over-reacting”). Mothers rate the likelihood that they would respond in this way on a 7-point scale, from 1-very unlikely to 7-very likely. The types of maternal response styles include distress, punitive, expressive encouragement, emotion-focused, problem-focused, and minimizing responses. The distress, punitive, and minimizing responses were combined to create an overall unsupportive subscale; whereas, the expressive encouragement, emotion-focused, and problem-focused responses created a supportive subscale. This measure demonstrated good reliability at both assessment points (Baseline: Supportive $\alpha = .91$, Unsupportive $\alpha = .91$; Follow-up: Supportive $\alpha = .91$; Unsupportive $\alpha = .91$).

Mothers’ meta-emotion philosophy was assessed using the Parent Meta-Emotion Interview (Katz & Gottman, 2008) at baseline and follow-up. Mothers’ meta-emotion philosophy refers to an organized set of feelings and thoughts that they have about their own emotions and those of their children. The semi-structured interview consists of questions broken down into three emotions, sadness, anger, and fear. During the interview, mothers’ answered questions concerning the experience of each of these emotions for herself and her child. These interviews were administered by graduate and undergraduate students. Their training included listening to recordings of interviews
conducted by the creators of the instrument, as well as instruction in specific interview
techniques and role-plays. Coders also listened to and coded 6 interviews, comparing
their scores with a standard set of established codes for the interviews, and all coders
were shown to be reliable before starting to code (ICC > .70).

Audio recordings of the interviews were coded according to the PMEI Coding
Manual (Hunter, Hessler, Katz, Hooven, & Mittman, 2006). This coding system rates the
mothers’ responses on a 5-point scale from “strongly agree” to “strongly disagree”. The
coding system is divided into several subscales that broadly assess components of the
mothers’ and children’s experience of these emotions, coded separately for mother and
child and for sadness, anger, and fear. These subscales include the mothers’ acceptance,
expressivity, remediation, and regulation of their emotions (for sadness, anger, and fear).
They also include their acceptance of these emotions in their children, as well as their
emotion coaching and the behavioral strategies that they use with their children. Finally,
mothers reported on their children’s regulation abilities for each emotion.

Approximately 25% of the interviews were double-coded in order to assess and
maintain reliability. In addition, all coders met weekly to review reliability with one
another and discuss specific interviews. Inter-class correlations conducted with double-
coded interviews are shown in Table 3.2, and all subscales demonstrated good reliability.
For the purposes of the current study, the subscales were first combined across emotions
(e.g. acceptance of sadness, anger, and fear). The mothers’ acceptance, expressivity, and
remediation subscales were found to correlated with one another and so were combined
to generate an overall acceptance score for their own emotions ($r = .36 - .52$). Likewise,
the child emotion acceptance, coaching, and behavioral strategy subscales were found to correlate with one another and so were combined to create an overall coaching subscale ($r = .24 - .65$).

*The Puzzle Task* was used to measure mother-child emotion expression and regulation behaviors at baseline and follow-up. During this task, the mother and child were asked to complete three puzzles which progressed in difficulty. Before working on the puzzles, the mother and child were told that the child would be timed and that the mother could assist her child, but that she should not complete the puzzle for her child. During the completion period for each puzzle, an experimenter announced the time remaining at 30 second intervals. This was done in order to make the task more stressful for the mother and child, and to see how they would respond to working in a tense situation together. The task generally lasted between 7 to 10 minutes.

This task was video recorded and coded, including the period when it was being explained, the timed periods for each puzzle, and the periods between puzzles. This was done in order to observe the mother and child’s individual and shared reactions to learning about the task and working on the puzzles, as well as their reactions to running out of time or completing the puzzles. The videos were coded at the micro level for the mother and child’s second-by-second expressions of positive emotion, as well as globally for their overall levels of negative emotional arousal throughout the task. *Positive expression* was coded at the micro level because these types of expressions were generally more overt and expressive, making them easier to capture moment-to-moment. Negative emotions, however, were expressed in less obvious, distinct expressions.
Therefore, *negative emotional arousal* was coded on a global scale and was generally characterized by a pervasive and low-level degree of tension, anxiety, or frustration rather than by obvious and discrete demonstrations of emotion expression. However, this does not mean that clear expressions of negative emotion did not occur; rather, they were much less common than positive emotion expression and were therefore less likely to accurately characterize the emotional tone of the interaction. In addition to emotion expression and arousal, the mother and child’s statements and behaviors were also coded as they related to interacting with each other and the task. Coders included graduate and undergraduate students, and separate coders were assigned to mother emotion expression, child emotion expression, mother behavior, or child behavior for each video. Coders met weekly to discuss questions and issues related to individual videos and general issues related to reliability. Approximately, 25% of the videos were double-coded to assess reliability.

Mothers’ and children’s expressions of positive emotion were coded using a coding system that had been adapted from previous studies (Jabson, Dishion, Gardner, & Burton, 2002; Silk, 2004; Shaw et al., 2006) in order to capture moment-to-moment expressions. Codes were based on participants’ facial expressions (e.g. smiling), vocal indicators (e.g. laughter), statements (e.g. “Yay!”), and behaviors (e.g. jumping up and down). Periods of expression were coded for duration and then summed and divided by the total duration of the task. This number was then multiplied by 100 to generate a percentage of time spent expressing positive emotion score. Both mothers’ and
children’s positive emotion expression coding was shown to be reliable (mother: baseline kappa = .84, follow-up kappa = .77; child: baseline kappa = .78, follow-up kappa = .80).

The criteria for determining negative emotional arousal was similar to that for determining positive expression, though it was meant to be evaluated on a more subtle and ongoing scale. For example, the conditions for rating negative emotional arousal included slight and persistent indicators in the participants’ posture and gestures (e.g. leaning in close, quick or sudden movements), tone (e.g. strained voice), and statements (e.g. statements about needing to hurry or the difficulty of the task). Negative emotional arousal was rated on a 7-point scale, with lower scores representing less arousal. This coding was shown to be reliable at baseline (mother kappa = .95, child kappa = .87) and follow-up (mother kappa = .93, child kappa = .88).

Mothers’ and children’s behaviors during the puzzle task were coded on a second-by-second basis similar to that for positive expression. These behaviors included both statements and actions, and were evaluated within the context of how the mother and child interacted with each other and the task. Mothers’ behaviors included comforting their children (e.g. hugging), providing approval (e.g. “Good job!”), reframing the situation (e.g. “You’ll do better on the next one now that you know how”), engaging in emotional talk (e.g. “Are you feeling frustrated?”), giving direct commands (e.g. “put the red piece there”), criticizing their children (e.g. “You’re not listening!”), and completing the task for their children (e.g. putting pieces on the puzzle without providing instruction while doing so). These behaviors were coded for duration, and an overall percent of time spent engaging in the behavior was generated. The comforting, approval, reframing, and
emotional talk codes were then combined to create an overall maternal sensitivity code, as these behaviors are theoretically associated with mothers’ sensitive support of children’s emotions and were found to be related ($r = .20 - .36$). Likewise, the direct command, critical, and completing task codes were combined to create a maternal controlling behavior score, as they are related to undermining and intrusive maternal behaviors and were found to be related ($r = .18 - .25$). These codes demonstrated good reliability at both baseline and follow-up (see Table 3.3).

Children’s behaviors were also coded during the puzzle task. Child codes included their comfort seeking (e.g. reaching to hold mother’s hand) and self-soothing (e.g. “I can do this one”) behaviors, as well as their behaviors that expressed discouragement (e.g. “It’s too hard”) or were disruptive (e.g. throwing puzzle pieces). The comfort seeking and self-soothing codes were combined to generate an overall comfort seeking code, as these behaviors dealt with the child’s attempts to soothe their emotional state or get assurances and were related ($r = .16 - .20$). Similarly, the discouragement and disruptive behavior codes were combined, as children were generally disruptive in response to their frustration with or inability to complete the task and these codes were related ($r = .32 - .41$). Each of these codes was revealed to be reliable (see Table 3.3).

Children’s emotion knowledge was measured using the Assessment of Children’s Emotion Skills (ACES; Schultz & Izard, & Bear, 2004) at baseline and follow-up. This measure has three sections, including facial expressions, social behaviors, and social situations. The facial expressions section includes 26 photographs of preschool through
elementary-aged children displaying facial expressions that are prototypically happy, sad, angry, and scared. After viewing each photograph, the child answers whether the person is feeling happy, sad, mad, or scared. The social behaviors and social situations sections each contain 15 scenarios, and children are asked to label the protagonists’ feeling by choosing happy, sad, mad, scared, or no feeling. An overall total accuracy score was created by combining the expression, situation, and behavior accuracy subscales. In order to improve the reliability of this measure, one item was removed at both baseline and follow-up. This was a situation item which asked about how a child would feel if another child took his candy bar. The item was scored as “Mad,” but was more often labelled as “Sad” by children. With this item removed the reliability score at baseline was $\alpha = .63$ and at follow-up it was $\alpha = .61$.

An emotion-related problem was defined and assessed by the mothers and children randomized to the treatment group. During their therapy sessions, they worked with the therapist to describe and name a relational, emotional issue that they faced on a regular basis. At the end of each session, the mother rated the problem on how frequently it occurred and how difficult it was to manage. The frequency scale ranged from 5 “always” to 1 “seldom”, and the difficulty scale ranged from 5 “extremely difficult” to 1 “not difficult”.

Therapeutic working alliance was assessed using the Working Alliance Inventory short form (WAI; Horvath & Greenberg, 1989). The client WAI consists of 12 items and the therapist WAI includes 10 items. Each question assesses the therapeutic alliance between client and therapist by asking about task agreement, goal agreement, and bond
development. Both the therapist and client completed the form immediately following each therapy session. An overall therapeutic alliance score was created for client and therapist for each session. The measure demonstrated good reliability for both the client (session 1 $\alpha = .91$; session 2 $\alpha = .92$; session 3 $\alpha = .92$) and therapist (session 1 $\alpha = .69$; session 2 $\alpha = .81$; session 3 $\alpha = .82$) versions.

**Analyses**

All analyses were conducted using SPSS (v. 24; IBM Corp., 2016). Initially, demographic variables were examined to determine if group differences existed. No differences were found, and so demographic variables were not included as covariates in later analyses. Additionally, descriptive statistics for the outcome variables were examined, and several of the micro-coded puzzle task variables were found to be non-normally distributed. This included the mother and child positive expression codes, as well as the mother controlling, child comfort seeking, and child discouragement codes. They were transformed using their natural log. Missingness at follow-up was also examined, and values were found to be missing completely at random (Little’s MCAR test $\chi^2(169) = 178.07, p = .301$). All analyses were intent-to-treat, and participants were analyzed within their randomized group regardless of their completion of the therapy sessions.

Initial evaluations of the acceptability and impact of the treatment were assessed by considering the mothers’ problem rating scores and the mother and therapist’s working alliance scores. Additionally, client attrition from the therapy sessions was considered in order to evaluate the participants’ engagement with the treatment. The
types of problems that were identified and their change in frequency and difficulty were
compared between sessions for each participant completing the intervention treatment.
The number of participants who increased or decreased in their ratings were examined.
Therapist and mother working alliance scores were also assessed to evaluate whether
scores tended to differ between therapists. Change in these scores across the course of
treatment was examined in order to evaluate how the treatment impacted the therapeutic
alliance and its growth throughout the sessions.

Finally, repeated-measure ANOVA (RMANOVA) tests were conducted in order
to examine differences within and between the treatment and control groups from the
baseline to follow-up assessments. These analyses were conducted using a multilevel
modeling approach in order to estimate missing values. In this case, restricted maximum
likelihood estimation was utilized in order to account for the small sample size
(Raudenbush & Bryk, 2002). In the RMANOVAs, group assignment (treatment or
control) was included as the between-subject factor and time (baseline or follow-up) was
included as the within-subject factor, with the repeatedly measured outcomes (maternal
and child) included as dependent variables. T-tests were conducted in order to test
between-group differences at assessment points and within-group change from baseline
to follow-up. In addition, Cohen’s $d$ values were calculated to better assess the clinical
significance of the treatment on maternal and child outcomes.

**Results**

**Preliminary Results**
Demographic information for the treatment and control groups is shown in Table 3.1. The two groups were found not to differ on any of these variables. The descriptive statistics of outcomes variables are shown in Table 3.4.

**Treatment Results**

Of the 38 participants randomized to the treatment condition, 34 completed at least one therapy session (89.47%), 29 completed at least two (76.32%), and 27 completed all three sessions (71.05%). Among the families that completed some, but not all, of the therapy sessions, 2 reported that they did not have time to complete the sessions, 1 reported that she lived too far away, 2 reported that they were not interested in completing the sessions, and 2 did not provide a reason. Three of the mothers who did not complete any of the therapy sessions did not provide reasoning for not participating and were unable to be reached for follow-up. One mother randomized to the treatment condition reported that she could not participate in the therapy or follow-up assessments due to a recent family crisis. The mothers who did not complete the treatment or only completed one or two sessions did not differ from the mothers who completed all sessions on maternal or child age, child sex, maternal race, mothers’ baseline depressive symptoms score, maternal education, family income, or mothers’ marital status.

During the first session, the mother and child worked with the therapist to identify, describe, and name an emotional problem that they were currently facing together. Of the mothers who attended at least one therapy session, 3 did not rate the difficulty or frequency of the problem. Among the 31 mothers that did rate the problem, from session 1 to 3, 18 (58.06%) mothers rated the problem as decreasing in frequency, 7
(22.58%) rated it as staying the same, and 1 (3.23%) rated it as increasing (missing = 5, 16.13%). On average the frequency score from session 1 to 3 decreased by 1.08 points ($SD = 1.16$). Likewise, the difficulty score tended to decrease from session 1 to 3 ($M = -.83$, $SD = 1.09$), with 14 (45.16%) mothers reporting a decrease in difficulty, 11 (35.48%) reporting that it stayed the same, and 1 (3.23%) reporting that it had increased (missing = 5, 16.13%).

In order to better understand the clients and therapists’ connection and experience of therapy, their working alliance was assessed after each session. Between the three therapists, a significant difference in alliance scores was only found for therapist total alliance at session 1 ($\chi^2(26) = 55.00$, $p = .001$), and no difference was found for client rating at any of the sessions. Additionally, no significant difference was found in either the clients’ or therapists’ alliance scores at session 2 or 3. Moreover, both the therapist and client tended to feel more allied as therapy progressed. The average client alliance score increased by 5.11 ($SD = 4.53$) points from session 1 to session 3 ($t(26) = 5.86$, $p < .001$), and the average therapist rating increase 7.14 ($SD = 4.25$) points ($t(27) = 8.90$, $p < .001$).

**Repeated-Measures ANOVA**

Repeated-measures ANOVA were conducted for each of the maternal and child outcomes, comparing between the baseline and follow-up assessments for the control and treatment groups (Table 3.5).

*Mothers’ acceptance of their emotions and emotion regulation.* With regard to mothers’ acceptance of their emotions, both group [$F(1, 67.94) = 5.55$, $p = .021$] and time
by group \([F(1, 54.77) = 4.45, p = .039]\) effects were found; however time was not significant in the model. The treatment group tended to increase between baseline and follow-up; whereas, the control group tended to decrease, though neither condition showed significant within group change and the time effect was not significant for either group (see Table 3.4 for means over time). Additionally, at baseline the treatment group mothers were significantly lower on acceptance \([t(98.94) = -3.47, p = .001]\), and they did not differ at follow-up. Considering mothers’ regulation abilities, no group, time, or time by group effects were found.

**Mothers’ emotion socialization practices.** On the stressful puzzle task, a time by group effect was found for maternal positive expression \([F(1, 57.83) = 5.27, p = .025]\).

Here, the mothers in the control group showed significantly less positive expression at follow-up than they did at baseline \([t(54.84) = -2.62, p = .011]\), and the treatment group did not show significant within group decreases. The control group mothers’ decreases in positive expression had a medium effect size \((d = -0.53)\). Moreover, the control group expressed significantly more positive expression at baseline than the treatment group did \([t(100.59) = -2.21, p = .029]\), though the groups did not differ at follow-up. When considering maternal sensitivity during the puzzle task, group \([F(1, 70.12) = 4.79, p = .032]\), time \([F(1, 54.88) = 9.31, p = .004]\), and group by time \([F(1, 54.88) = 10.39, p = .002]\) effects were found. Mothers in the control group tended to show less sensitivity at follow-up than they did at baseline representing a medium to large effect \([t(52.43) = -4.48, p < .001, d = -.76]\); however, the treatment group did not change. In addition, mothers in the control group showed more sensitivity toward their children at baseline.
than mothers in the treatment group \[t(94.64) = -3.88, p < .001\], but the groups did not differ at follow-up. With regard to mothers’ supportive responses to children’s negative emotions, no time, group, or time by group effects were found. For mothers’ MEI coaching behaviors, there was also a group effect \[F(1, 67.64) = 7.41, p = .008\], but no time or group by time effect. Here, neither condition demonstrated within group change; however, the treatment group was significantly lower than the control group in coaching behaviors at baseline \[t(96.11) = -2.46, p = .016\] and follow-up \[t(109.03) = -2.09, p = .039\].

Mothers’ negative emotion socialization practices were also compared. Concerning mothers’ negative emotional arousal, a marginal time by group interaction effect was found during the puzzle task \[F(1, 59.57) = 3.82, p = .055\]. Here, the control group mothers tended to increase in their negative emotional arousal at follow-up, and the treatment mothers tended to decrease; however, neither group demonstrated significant within group change. Alternatively, no group difference, time, or time by group effects were found for mothers unsupportive responses to children’s negative emotions and controlling behaviors during the puzzle task.

*Children’s emotion regulation and emotion knowledge.* A time effect was found for children’s positive emotion expression during the puzzle task \[F(1, 54.87) = 5.77, p = .020\]. It was revealed that children in the control group expressed less positivity at follow-up than they did at baseline \[t(52.26) = -2.31, p = .025, d = -.470\], but the treatment group children did not change. This represented a close to medium effect for the control group children’s decrease in positive expression. Conversely, a marginally
significant time effect was found for children’s negative emotional arousal during the task \([F(1, 53.32) = 3.94, p = .052]\). In this case, the treatment group tended to decrease from baseline to follow-up, though the significance was marginal and the effect was small \([t(55.79) = -1.81, p = .075, d = -.35]\). Conversely, no group, time, or group by time effect was found for children’s comfort seeking behaviors during the puzzle task. However, a marginal time effect was found children’s expressions of discouragement \([F(1, 54.24) = 2.98, p = .090]\). Specifically, children in the treatment group tended to become less discouraged during the task from baseline to follow-up \([t(56.66) = -1.73, p = .090]\), though the children in the control group did not change. Additionally, although the significance was marginal, the treatment group’s decrease in discouragement had a small but substantial effect size \((d = -.30)\). Likewise, a marginal time by group effect was found for children’s regulation abilities reported by mothers during the MEI \([F(1, 50.64) = 4.00, p = .051]\). Children in the treatment group significantly increased in mother-reported emotion regulation abilities between the baseline and follow-up assessments \([t(87.85) = -2.69, p = .008]\); whereas, the children in the control group did not change. The increase in the treatment group children’s regulation abilities represented a small effect \((d = .28)\).

Regarding children’s emotion knowledge, a difference across time effect was found \([F(1, 44.50) = 5.31, p = .026]\). More specifically, a marginally significant difference was found for the treatment group between baseline and follow-up, with the children tending to display greater emotion knowledge \([t(45.60) = 1.80, p = .079]\). Here
again, although the significance was marginal, the effect size was small but substantial ($d = .290$).

**Discussion**

The intergenerational transmission of depression from mother to child represents a serious public health concern considering the negative impact that depression can have on individual functioning and society. Existing interventions have tended to target depressed mothers or their children separately, and, when they do intervene in the family system, it tends to be when children are older. The current study presents preliminary evidence that a brief, family therapy intervention utilizing narrative family therapy techniques can intervene when children are young to mitigate some of the risk experienced by this population. Findings suggest that the intervention may interrupt the negative trajectory of mother-child emotional interactions which have been shown to contribute to children’s risk. Additionally, they indicate that families, and especially children, participating in the intervention improved in skills related to healthy emotional development, while decreasing in behaviors associated with developmental risks.

The majority of families randomized to the treatment condition completed some, and generally all, of the family therapy sessions (89.47%). It has been suggested that allowing for flexible appointments around the participants’ schedule, as well as tailoring the treatment to meet the individualized needs of each participant family will improve the rates of retention during family-based interventions (Prinz et al., 2001). This approach may have also contributed to the tendency for both client and therapist alliance scores to increase across the course of treatment, and for the mothers’ frequency and difficulty
ratings of their externalized problem to decrease. The process of externalizing a problem with a family is understood to both remove the “cause” of the problem from any individual member, while also scaffolding for the family how to discuss and address this and similar problems they may face together (White, 2007; White & Morgan, 2006).

Differences from baseline and follow-up were found between the treatment and control groups on several maternal emotion-related outcomes. When compared to the control group, mothers in the treatment group tended to increase in the acceptance of their own emotions, as demonstrated through their discussion of their acceptance, expressivity, and remediation of sadness, anger, and fear. It is possible that the therapists’ open and nonjudgement discussion of these emotions with the mothers and their children promoted their understanding and acceptance. This collaborative and inquisitive therapist role is outlined as fundamental to narrative family therapy (Freedman & Colmbs, 1996; White & Epton 1990). At follow-up, both mothers and children completing the intervention also tended to display less negative emotional arousal when compared to the control families, during the stressful puzzle task. This indicates that not only did treatment mothers’ beliefs about their negative emotions change, but their actual expression with their child also tended to differ from that of the control mothers. Moreover, children in the treatment group decreased in their negative emotion expression from baseline to follow-up. Family systems theory (Cox & Paley, 1997; Minuchin, 1974) would argue that this may indicate a change in the mother-child subsystem, as it demonstrates that both members were impacted and may be influencing one another’s change.
Several child outcomes related to emotional development improved for the treatment group, but not for the control group. First, during their meta-emotion interview, treatment mothers reported that their children tended to have better emotion regulation. It is possible that this may only represent the mothers’ perception or awareness of their children’s abilities, as the therapy explored these issues; however, differences were also found in children’s observed expressions of discouragement and general negative emotions during a stressful task. Generally, focusing on the negative aspect of a task is considered to indicate deficits in emotion regulation abilities and is associated with maternal depression (Silk, Shaw, Skuban, et al., 2006). Taken together, these results suggest that not only did mothers in the treatment group recognize that their children had improved emotion regulation skills, but that their children were able to overtly display these skills when interacting with their mothers in a stressful situation. These children also tended to display greater emotion knowledge during an assessment task with an experimenter. This is perhaps not surprising since emotion regulation and emotion knowledge are found to be interrelated (Eisenberg, Sadovsky, & Sprinrad, 2005; Linsey & Colwell, 2003; Schultz, Izard, Ackerman, & Youngstrom, 2001). Although the effect sizes of these differences may have been small, it is possible that by targeting this early developmental period they may translate into longer term benefits. This would be expected if children’s emotion regulation and knowledge continue to improve, as these factors are related to later social competence and academic success (Eisenberg et al., 2005; Schultz et al., 2001).
Although it was expected that the treatment would increase mothers’ and children’s positive expression and mothers’ sensitivity during the puzzle task, it was found instead that the treatment group remained stable on these measures and the control group decreased. Depressed mothers tend to utilize less positive parenting practices and to be more disengaged and less responsive to both their children’s positive and negative emotion expressions than nondepressed mothers (Lovejoy et al., 2000; Shaw et al., 2006). Thus, it is possible that although the treatment did not lead to improvements in mothers’ sensitive parenting, it did interrupt the negative trajectory of parenting that was observed in the control group of mothers. Implications may be similar for mothers’ and children’s positive expression during the task, as depression is found to be negatively related to mothers’ positive expression, and mothers’ positive expression tends to be related to children’s positive expression (Feng et al., 2007). The finding that both mothers and children in the control group tended to decline in positive expression, whereas the treatment group remained stable, also supports the notion that the treatment intervened systemically with the mother-child subsystem, rather than just at the individual level. This highlights how mothers’ and children’s emotion expression is interrelated and shows concurrent change or stability.

It is also important to note that the two study condition groups differed at the baseline assessment on certain measures. These measures each concerned mothers’ behaviors, and included mothers’ emotion coaching (MEI), as well as positive expression and sensitivity (Puzzle). Though random assignment would be expected to balance the two condition groups and no differences were found between them on their family
demographic variables, the groups were slightly unbalanced with regard to income. Though differences were not significant, the treatment group tended to have lower family income than the control group. It has been found that low income tends to exacerbate the negative effects of maternal depression (Goodman et al., 2011), and so this may help to explain baseline differences between the groups.

Though unexpected, there were also several areas in which neither the control or treatment groups showed significant differences or change. However, given that this is an intervention involving young children it may be the case that, though they are at risk, certain families are not already displaying negative parenting practices or child behaviors. For example, although maternal depressions tends to be associated with more intrusive and controlling parenting behaviors (Foster, Garber, & Durlak, 2008; Field, Hernandez-Reif, & Diego, 2006), among mothers with an anxiety disorder, maternal controlling behavior tends to be more associated with children’s behavior and mental health than with mothers’ mental health (Becker, Gisnburg, Domingues, & Tein, 2010; Moore, Whaley, & Sigman, 2004). It is possible that this distinction also extends to maternal depression. In which case, this suggests that mothers may become more controlling in response to their children’s emerging symptoms or problem behaviors, which may not be pervasive enough in the current sample of young children. It is also possible that the follow-up period was not long enough to capture certain changes in mothers or children’s behaviors. For example, many studies intervening with this population (e.g. Compas et al., 2009; Dishion et al., 2008) or with children’s behaviors or mothers’ parenting (e.g. Havighurst et al., 2015; Izard et al., 2004) tend to observe changes further out. Of course,
there is also the possibility that a greater dosage or booster sessions would be necessary in order to observe these changes. Future intervention efforts should incorporate longer follow-up periods in order to assess possible delayed effects.

**Limitations**

The findings from this study need to be considered in light of its limitations. First, though the intervention was grounded in family systems and family therapy theory, it only included the mother-child subsystem. In the current study this was considered a family-based intervention because it included multiple family members, but a truly family-based intervention would include more than the mother-child subsystem. Future intervention efforts may benefit from including the entire family system in order to initiate and sustain positive changes within the broader system. This could involve including partners/husbands/fathers, siblings, and grandparents. Second, only two assessment points, baseline and immediate follow-up, were utilized in the current study, and so this study is unable to speak to the presence of lasting changes in the sample. Moreover, the treatment was delivered across a brief period, and there is some evidence to suggest that booster sessions delivered later on may reinforce positive changes with this population (Compas, et al., 2009; Dishion et al., 2008).

Third, limitations of measurement need to be considered. This includes the fact that mothers’ responses to children’s negative emotions were only assessed by maternal report. It is possible that mothers’ responses did not represent an accurate account of her actual parenting behaviors; however, the inclusion of other observational measures certainly strengthened the conclusions that could be drawn from the findings.
Additionally, the ACES child emotion knowledge measure was revealed to have relatively low reliability. This may have been due to the fairly young age of the children, as this measure has shown similarly low reliability with this age group (e.g. Domitrovich, Cortes, & Greenberg, 2007), but slightly higher reliability ($\alpha = .69 - .71$) with child in first or second grade (Schultz, Izard, & Bear, 2004; Trentacosta, Izard, Mostow, & Fine, 2006).

Fourth, this study did not include a clinical sample. The mothers did not receive a formal diagnosis of depression, and were rather only assessed for levels of depressive symptoms. Therefore it is impossible to say whether these findings would generalize mothers who had been diagnosed with depression. Moreover, it seems that despite randomly assigning the participants to either the treatment or control conditions, the two groups may have been somewhat unbalanced. This makes it more difficult to compare outcomes in the treatment and control groups when they differed on certain measures at baseline. Given a larger sample size, it is more likely that the condition groups would be balanced or the issue could be addressed by controlling for covariate variables that are known to be related to differences in the baseline measures. Therefore, future research should consider including a larger sample.

Fifth, the retention rate at follow-up was somewhat low (67.14%), and so the conclusions which were drawn from the study findings need to be considered in light of this. Although missing data at follow-up were found to be missing completely at random, it is possible that participant attrition was related to a dislike of the study or worsening symptoms in the mother or child. Therefore, it is possible that the participants assessed at
follow-up represented those families who considered the study and intervention to be more valuable or who were experiencing better functioning at the time of assessment and so found it easier to participate in study activities. A lower retention rate also impacts the power available to detect changes, and so future research should consider ways in which to promote greater retention.

Sixth, the sample size was small and there are potential demographic characteristics of the sample that the study did not take into account. The inclusion of only one child from each family in a specific age range did not account for the child’s birth order, and so the degree of the mothers’ experience with parenting was not considered. Families in which this was the first born child had mothers with less parenting experience, and this may have impacted their parenting practices and the impact of the intervention. In addition, race and culture have been shown to impact mothers’ emotion-related parenting practices (e.g. Nelson et al., 2013). Although the treatment and control groups did not differ on race in the current study, given the possible racial, ethnic, or cultural differences in maternal emotion socialization practices, future intervention efforts should take these factors into account. The control and treatment groups also showed certain trend differences which may affect the generalizability of the study findings. In particular, the treatment group tended to have more graduate or professional degrees, but lower income. It is possible that the close proximity to a university may have resulted in a slightly biased sample.

Finally, this study did not include a comparison treatment, and so is unable to distinguish whether unique aspects of this intervention were related to differences in the
treatment and control groups or whether this was due to common factors associated with receiving any form of therapy. However, given the pilot nature of this project, this was to be expected and only represents the first stages in evaluating its efficacy. Additionally, many of the findings are promising and suggest further evaluation.

Conclusions and Future Directions

This study evaluated a pilot randomized-controlled trial testing the outcomes of a family therapy based, emotion-centered, brief intervention for mothers experiencing depressive symptoms and their young children. The results are promising, with several differences being found between the treatment and control conditions. Notably, children in the treatment group tended to show the greatest improvements in emotion-related skills; whereas, mothers in this group tended to remain stable on measures of emotion expression and socialization, while the control mothers tended to decline on these measures. Additionally, the treatment and control conditions tended to differ across time on measures related to mothers’ negative emotion acceptance and expression. Moreover, the implications of these findings are strengthened by the study’s use of multiple assessment methods, including observational, interview, experimenter implemented, and self-report measures. Finally, the positive changes found for the treatment group of families provides preliminary evidence that a brief and emotionally targeted intervention can intervene with this at-risk population. The study also lends empirical support to the use of family therapy, in particular narrative family therapy, approaches to intervening with families at risk.
Table 3.1. Demographic characteristics of the treatment and control condition groups.

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<td>Disruptive behavior</td>
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Table 3.4. Descriptive statistics for the treatment and control condition groups.

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<td>Baseline</td>
<td>Follow-up</td>
<td>Baseline</td>
<td>Follow-up</td>
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<tr>
<td></td>
<td>N = 38</td>
<td>N = 22</td>
<td>N = 31</td>
<td>N = 24</td>
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<td>Maternal acceptance</td>
<td>154.66 (11.04)</td>
<td>157.36 (12.16)</td>
<td>163.87 (9.99)</td>
<td>160.35 (11.01)</td>
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<td>66.48 (5.79)</td>
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<td>Maternal positive</td>
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<td>6.08 (6.41)</td>
<td>8.60 (6.88)</td>
<td>4.91 (5.22)</td>
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<td>Maternal sensitivity</td>
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<td>4.28 (3.08)</td>
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<td>7.98 (10.44)</td>
<td>8.78 (10.16)</td>
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<tr>
<td>Maternal negative</td>
<td>2.05 (1.09)</td>
<td>1.68 (1.04)</td>
<td>1.77 (1.12)</td>
<td>2.17 (1.24)</td>
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<td>emotional arousal</td>
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<td>6.44 (6.06)</td>
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<td>17.18 (1.71)</td>
<td>16.95 (2.13)</td>
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<td>9.31 (2.02)</td>
<td>8.84 (2.53)</td>
<td>9.69 (2.62)</td>
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<td>Child emotion</td>
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<td>24.91 (4.29)</td>
<td>24.00 (4.18)</td>
<td>25.04 (3.80)</td>
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Table 3.5. Results of repeated-measures ANOVA.

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<th>Time df</th>
<th>Time F</th>
<th>Group X Time df</th>
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<tr>
<td>Maternal acceptance</td>
<td>1, 67.94</td>
<td>5.55*</td>
<td>1, 54.77</td>
<td>.12</td>
<td>1, 54.77</td>
<td>4.45*</td>
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<tr>
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<td>1, 67.64</td>
<td>7.41**</td>
<td>1, 53.01</td>
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<td>1, 47.05</td>
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<td>1, 47.05</td>
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<td>1, 50.64</td>
<td>.74</td>
<td>1, 50.64</td>
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<td>1, 57.83</td>
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<td>1, 54.87</td>
<td>5.77*</td>
<td>1, 54.87</td>
<td>.69</td>
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<td>Child discouragement</td>
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<td>1, 54.24</td>
<td>2.98‡</td>
<td>1, 54.24</td>
<td>.541</td>
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<td>.20</td>
<td>1, 55.22</td>
<td>.01</td>
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<td>Child negative emotional arousal</td>
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<td>.65</td>
<td>1, 53.32</td>
<td>3.94†</td>
<td>1, 53.32</td>
<td>.36</td>
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<td>Maternal supportive responses</td>
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<td>1, 43.71</td>
<td>.05</td>
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<td>Maternal unsupportive responses</td>
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<td>1, 44.50</td>
<td>5.31*</td>
<td>1, 44.50</td>
<td>.05</td>
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Note. CCNES = Coping with Children’s Negative Emotions Scale; MEI = Meta-Emotion Philosophy; ACES = Assessment of Children’s Emotion Skills. †p < .10, *p < .05, **p < .01.
Figure 3.1. Overview of study recruitment, randomization, intervention, and assessment protocol.
Chapter 4: A Family Therapy Intervention for Mothers Experiencing Depression and their Young Children: Effects on Maternal Mental Health and Child Problem Behaviors

Children of depressed mothers are at risk to experience a number of negative outcomes (Goodman, 2007; Luoma, 2001; Timko, Cronkite, Swindle, Robinson, & Moos, 2009), and they are 3 times as likely to develop depression later in life (Williamson, Birmaher, Axelson, Ryan, & Dahl, 2004). Depression itself is one of the most common psychiatric disorders in the United States, with more than 16% of the population experiencing a major depressive episode in their lifetime (Kessler et al., 2003). Depression is also more likely to affect women, and it often emerges when individuals are in their mid-twenties and lasts through middle age (American Psychiatric Association, 2013; Kessler et al., 2003). Thus, women who are bearing and raising children are also most likely to be experiencing depression. Unfortunately, this exposes children to a variety of risks (Goodman et al., 2011), including the development of internalizing and externalizing disorders (Luoma, 2001; Silk, Shaw, Forbes, Lane, & Kovacs, 2006). Therefore, it is especially important and necessary to develop family-based interventions that address this process and which may be able to alleviate some of the risk that both mothers and children experience. The current study presents the results of a randomized-controlled trial that evaluates the efficacy of pilot family therapy, emotion-centered, brief intervention designed for mothers experiencing depression and their young children.
**Intergenerational Transmission of Depression**

Because one of the strongest risk factors for developing depression is having a depressed parent (Beardslee, Gladstone, & O’Connor, 2011; England & Sim, 2009), it is especially necessary to understand how this risk is conferred in order to better intervene. Although there are many possible mechanisms related to the intergenerational transmission of depression (e.g., heritability), one that has been identified as a target for intervention involves mothers’ parenting practices and the mother-child relationship (Beardslee et al., 2011; Goodman & Gotlib, 1999; Goodman, 2007). In particular, several studies have identified maternal parenting practices related to children’s emotion socialization and emotional development as an area for intervention (Brennan, Brocque, & Hammen, 2003; Reiss, 2011). For example, depressed mothers tend to engage in less warm and emotionally supportive parenting, while also tending to be harsher, more disengaged, and emotionally unsupportive (Cummings, Keller, & Davies, 2005; Hoffman, Crnic, & Baker, 2006; Lovejoy, Graczyk, O’Hare, & Neuman, 2000; Silk et al., 2011). Therefore, the current intervention targets mothers’ and children’s emotional experiences, skills, and interactions as a way to intervene in the intergenerational transmission of depression and alleviate child risk.

Though maternal depression is related to long-term negative outcomes for children (Brennan et al., 2003; Campbell et al., 2009), in early childhood the effects are often observed in the form of children’s internalizing and externalizing problems (Campbell et al., 2007; Silk, Shaw, Forbes, et al., 2006). This may be because maternal depression tends to be associated with deficits in parenting, which are in turn associated with children’s problem behaviors (Cummings, Keller, & Davies, 2005; Feng, Shaw,
Many of these parenting practices concern supporting children’s emotions and their emotional development (Eiseberg, Fabes, Shepard, Guthrie, Murphy, & Reiser, 1999). For example, poor mutual emotion regulation and discussion of emotions between mothers and their children are associated with child externalizing problems (Cole et al., 2003; Eisenberg, Losoya, et al., 2001). While this association has been found to be more consistent for externalizing problems, it also appears to be present in the development of internalizing problems (Eisenberg et al., 2010; Zeman, Shipman, & Suveg, 2002), with depressed mothers tendency to respond less supportively and more unsupportively (e.g. neglecting or punishing) to their children’s emotions being related to the increased development of internalizing symptoms in their children (Silk et al., 2011).

Considering these associations, deficits in children’s emotional competence have been found to be associated with child internalizing and externalizing problems (Eisenberg et al., 2010), suggesting that improving these skills may mitigate children’s risk. Moreover, children’s emotion regulation has been found to mediate the relationship between parent expressivity (positive and negative) and child internalizing and externalizing problems (Eisenberg, Gershoff, et al., 2001; Eisenberg et al., 2003). Thus, improvements in mothers’ emotion socialization and children’s emotional competence would be expected to be associated with fewer later problem behaviors. Furthermore, negative child and maternal factors may be interrelated and interdependent. Therefore, improvements in the emotion socialization process would also be expected to be associated with reductions in mothers’ mental health problems.

Although the primary focus of the current study is the intergenerational transmission of depression, it is also necessary to acknowledge factors related to maternal
mental health that often co-occur with depression. Specifically, there is a high comorbidity between depression and anxiety disorders (American Psychiatric Association, 2013), and similar intergenerational patterns have been found for anxiety disorders occurring within families (Beidel & Turner, 1997; McClure, Brennan, Hammen, & Le Bocque, 2001). Like depression, maternal anxiety is also associated with deficits in maternal parenting practices, and these are suggested as mechanisms for the transmission of risk to children. Specifically, anxious mothers tend to be more critical and controlling, while also displaying less warmth and positivity (Moore, Whaley, & Sigman, 2004; Whaley, Pinto, & Sigman, 1999). In addition, anxious parents tend to be more withdrawn and less engaged with their children; however, they tend to be over-controlling when their children display negative emotions (Woodruff-Borden, Morrow, Bourland, & Cambron, 2002). In addition to anxiety parenting stress tends to be related to greater depressive symptoms in mothers, and it tends to prolong and worsen depressive symptoms (Hammen, 2005; Tennant, 2002). Exposure to stress and a stressful environment is another proposed mechanism in the transmission of depression from mother to child (Goodman, 2007; Goodman & Gotlib, 1999), and parenting stress tends to be related to poorer parenting practices and difficulties in the mother-child relationship (Crnic et al., 2005). Because anxiety and parenting stress are interrelated with maternal depression, parenting practices, and children’s outcomes, they were also evaluated as outcomes of the intervention.

There is also reason to believe that improvements in the mother-child relationship and maternal parenting practices may be related to later benefits with regard to mothers’ mental health and functioning (Kaminski, Valle, Filene, & Boyle, 2008). This is in part
because a reduction in child problem behaviors due to improved parenting practices would be expected to be related to reductions in maternal depressive symptoms, as children’s problem behaviors and maternal depression have been found to be reciprocally related (Gross, Shaw, & Moilanen, 2008). Specifically, reductions in children’s internalizing problems are related over time to reductions in maternal distress (Ciciolla, Gerstein, & Crnic, 2014). However, it may also be that improvements in maternal parenting practices alone would be related to reduced maternal depression, as well as related issues like parenting stress and anxiety (McCart, Priester, Davies, & Azen, 2006; Tonge et al., 2006). For example, improvements in parenting associated with parent training programs have been shown to be related to fewer feelings of parental helplessness (Weinblatt & Omer, 2008). This is in part because improving parental self-efficacy is expected to be related to improvements in parents’ mental health and stress (Jones & Prinz, 2005). More specifically, improvements in parenting are associated with reductions in mothers’ depressive symptoms (Hutchings, Appleton, Smith, Lane, & Nash, 2002; Shaw, Connell, Dishion, Wilson, & Gardner, 2009). Furthermore, there is reason to believe that improving the mother-child relationship will lead to reductions in maternal depression. For instance, when children are more compliant and contingently responsive when interacting with their mothers, this tends to be related over time with lower levels of maternal depression (Gross, Shaw, Burwell, & Nagin, 2009; Leadbeater, Bishop, & Raver, 1996). More broadly, children’s social competence in general is related to later decreases in maternal stress (Barbot, Crossman, Hunter, Grigorenko, & Luthar, 2014); whereas, maternal perceptions of their infants anger is positively related to her stress five years later (Pesonen et al., 2008). Considered together, these findings suggest that
improvements in the mother-child subsystem, especially related to parenting and emotions, may be related to improvements in mothers’ well-being.

There is also evidence to show that intervening early with mothers and children may be most effective. For example, the negative effects of maternal depression on child outcomes may be strongest when children are younger (Goodman et al., 2011). However, although the presence of maternal depression when children are young strongly predicts negative child outcomes, there is some evidence to show that if maternal depressive symptoms decrease early in children’s lives then this risk is lessoned (Campbell, Morgan-Lopez, Cox, & McLoyd, 2009). In addition, the preschool and transition to school age period has been identified as an opportune time to intervene in the mother-child subsystem (Dishion et al., 2008). This is because it represents a time when mothers are highly involved in children’s lives and children are going through rapid and significant changes in their emotional development (Eisenberg, Cumberland, & Spinrad, 1998; Eisenberg & Morris 2003). Therefore, the current intervention is designed for mothers and young children as they are transitioning into school.

Existing Interventions

The risk that children of depressed mothers experience has been recognized in the past, and efforts have been made to intervene with this population. There is a broad variety of existing types of interventions that may address the risk that children of depressed mothers experience. For example, various prevention and intervention efforts have been made to intervene with mothers experiencing postpartum depression (for review see Dennis & Dowswell, 2013). However, it has been argued that treating mothers’ depression is not enough, and rather addressing mothers’ parenting and the
mother-child relationship is necessary to alleviate risk to children (Beardslee et al., 2011; Forman et al., 2007). Many interventions that target general depression or depressive symptoms in mothers have taken this route (for reviews see Beardslee et al., 2011; Fraser, James, Anderson, Lloyd, & Judd, 2006; Siegenthaler, Munder, & Eggar, 2012).

However, many of the existing treatments include only parents or their children or they do not involve both the parent and child together in the treatment sessions (e.g. Beardslee et al., 2003; Clarke et al., 2001; Riley et al., 2008). Alternatively, an intervention that does include parents and young children together has shown promising and lasting results in promoting positive parenting and in reducing children’s problem behavior and maternal depressive symptoms (Dishion et al., 2008, 2014; Shaw, Connell, Dishion, Wilson, & Gardner, 2009). Given that the mother-child relationship and parenting practices that promote a stronger and healthier bond between mother and child may be integral to addressing the risk which children of depressed mothers experience, it seems that a family-based intervention which involves mothers and children together may be best suited for this population.

Another area in which existing interventions seem to vary is in the intervention or therapy method that they utilize. For example, several interventions designed for adolescent children of depressed parents and their families deliver approximately 6 to 15 sessions of cognitive behavioral therapy, with or without follow-up booster sessions (Clarke, et al., 2001; Compas et al., 2009, 2011). Another type of intervention has conducted group sessions in order to share experiences and build support for families with a depressed parent, while incorporating cognitive behavioral therapy techniques (Riley et al., 2008). Others that have included both young children and older adolescents
focus on individualized family assessments, including parenting practices, and deliver feedback and psychoeducation to the families (Beardslee, Gladstone, Wright, & Cooper, 2003; Dishion et al., 2008). This psychoeducation tends to focus on the depression, including the ways that it affects individual family members and ways in which they can support one another. These interventions are shown to promote positive parenting and reduce children’s behavior problems or related symptoms (e.g. Compas et al., 2009; Dishion et al., 2003). However, interventions designed for depressed mothers and their children do not seem to directly target emotions and emotional family processes.

This is not to say that existing interventions that target families with a depressed parent do not address emotions or incorporate elements that focus on the emotional dynamics of the family, just that this does not tend to be their primary emphasis. There are, however, both parent (e.g. Havighurst et al., 2015; Lauw et al., 2014) and child interventions (e.g. Domitrovich; Cortes, & Greenberg, 2007; Greenberg, Kusche, Cook, & Quamma, 1995; Izard, Trentacosta, King, & Mostow, 2004; Schonert-Reichl, Smith, Zaidman-Zait, & Hertzman, 2012) that are designed specifically to promote parental emotion socialization practices and children’s emotional competence. These programs have also demonstrated reductions in children’s problem behaviors, as well as increased positive and supportive emotional parenting practices. Thus, because mothers’ emotion socialization practices and children’s emotional development have been identified as mechanisms by which children of depressed parents experience risk (e.g. Shaw et al., 2006; Silk et al., 2011; Silk, Shaw, Skuban, et al., 2006), the current intervention is specifically designed to target these areas.

**Family Systems and Family Therapy**

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Family systems theory is grounded in the concept that family members are interconnected and together define the processes and functioning of the family system (Minuchin, 1974). Family systems theory also provides the basis for family therapy theories and techniques (Cox & Paley, 1997; Haley, 1967; Minuchin, 1974; Minuchin, 1985; Skrowron, van Epps, & Cipriano-Essel, 2014). Applying this approach to the intergenerational transmission of depression and children’s emotion socialization, family systems theory would argue that the mother-child subsystem develops functional yet maladaptive emotional processes due to the presence of mothers’ depressive symptoms. Furthermore, both mothers and children are participants in and drive these processes, as bidirectional influences exist between maternal depression and children’s problem behaviors, with both impacting and exacerbating the other (Beardslee, Gladstone, & O’Connor, 2011; Forbes et al., 2008; Gross, Shaw, & Moilanen, 2008).

The current intervention applied family systems theory using a family therapy approach. It also drew upon narrative family therapy techniques for working with children and their families (Freedman & Combs, 1996; Freeman, Epston, & Lobovits, 1997; White & Epston, 1990; White & Morgan, 2006), while focusing on emotions and emotional processes in the mother-child subsystem. Family therapy has been shown to be effective in addressing specific and individualized childhood problems (for reviews see Carr, 2009, 2014). In addition, narrative family therapy is particularly suited to working with children and their mothers around emotion-related issues and concerns (Freeman et al., 1997; White & Morgan, 2006). The mother-child subsystem of the family was targeted because this has been identified as crucial to the emotion socialization process and a promising area for intervention. Thus, the current study
considers this a family-based intervention because it involves multiple family members and applies a family therapy approach.

**Current Study**

The current study presents the results of a brief, family therapy, emotion-centered intervention designed for mothers experiencing depression and their young children (see Figure 4.1 for study design). The intervention targets emotional experiences and processes taking place in the mother-child subsystem. This is because depressed mothers’ emotional parenting and support of children’s emotional competence may be a mechanism by which risk is transferred (Feng et al., 2007; Lovejoy et al., 2000). Therefore, the current intervention is emotion-centered and targets mothers’ and children’s emotional skills and interaction patterns. The results presented here concern mothers depressive symptoms, anxiety, and stress, and well as children’s internalizing and externalizing behaviors. It was expected that intervening with mothers’ and children’s emotions and emotional interactions would alleviate both maternal and child symptoms which have been shown to be associated with or negatively impacted by maternal depression.

The study utilized a randomized-controlled design, with participant families randomly assigned to receive either the treatment or to serve as controls. The treatment involved both mother and child attending therapy sessions together with a family therapist, and each family received individual therapy sessions. All families were assessed at baseline and at two follow-up time points. It was hypothesized that mothers in the treatment group would decline in depressive symptoms, anxiety symptoms, and parenting stress from their baseline to follow-up assessments; whereas, changes would
not be observed among the control mothers. It was also hypothesized that children in the treatment group would decline in internalizing and externalizing problem behaviors from the baseline to the follow-up assessments, and the control group children would not change on these measures.

**Methods**

**Participants**

Mother and child participants were recruited from the community. For an outline of study see Figure 4.1. Seventy families enrolled in the study and completed the baseline assessment. Participants also attended two follow-up assessments at 6 weeks (F1) and 4 and a half months (F2) post-baseline. Of the 70 mother-child pairs enrolled, 48 returned for F1 (68.57% retention) and 41 returned for F2 (58.57% retention). One child that had been randomized to the treatment condition was later diagnosed with autism and so was excluded from analyses. This left the final sample at 69 families. Participants were recruited through flyers posted online and in community centers and schools. Participants were also recruited from an ongoing longitudinal study in which maternal depressive symptoms and children’s development were assessed. Mothers were eligible for the current study if they were 21 years old or older, had a child between the ages of 5 and 6, and had scored above the clinical cutoff score on the Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977) or had demonstrated a history of elevated depressive symptoms as part of the ongoing longitudinal study. Exclusion criteria included if the mother had been diagnosed with another mental illness (other than anxiety), if the child had been diagnosed with a developmental delay or disorder, and if English was not their primary language. Families were also ineligible if
either the mother or child was currently attending any type of counseling or therapy or planned to start during the duration of the study. The demographic characteristics of the sample at baseline are presented in Table 4.1.

**Procedures**

Mothers contacting the study were first screened over the phone to assess their eligibility. At this point they also completed the CES-D in order to determine their level of depressive symptoms. Families that met eligibility were then scheduled for a 2.5-hour baseline assessment that took place in a laboratory setting on a university campus. Participants who were part of the larger longitudinal project were approached about the study at a study visit that they attended when their child was 5 years old, and this served as their baseline assessment. Mothers also completed an online survey at this time which contained questionnaires pertaining to the families’ demographic characteristics, as well as to the mothers’ mental health and stress and the child’s problem behaviors. All families were randomized to either a control or treatment condition at their initial assessment. Sealed envelopes had been prepared with randomly generated assignments to either the treatment or control conditions, and at the initial assessment an experimenter opened an envelope and informed the family of their assignment. The families that were randomized to the treatment condition were assigned a family therapist to meet with and attended 3, 2-hour weekly therapy sessions. The sessions took place within 6 weeks of the baseline assessment and before their F1 assessment. This window was established in order to accommodate the families’ schedules. The assessments and therapy sessions each took place in a university couple and family therapy clinic, and participants were compensated with gift cards for their participation in the study. The gift cards were for
local grocery and department stores, and included a $50 gift card at the initial and follow-up assessments and a $20 gift card at each therapy session. At each follow-up assessment (F1 6 weeks post-baseline, F2 4.5 months post-baseline), the mother again completed a survey containing various questionnaires.

**Therapists, Clinical Training, and Supervision**

The therapists who involved in the study were three female masters-level couple and family therapy PhD students. Their therapy experience ranged from 1 to 4 years. Two of the therapists were White and non-Hispanic, and the third was Asian and an international graduate student. Their training for the intervention included readings, and they each met with the first author to receive training on the therapy manual and specific intervention procedures. In addition, bi-weekly supervision meetings were provided by an AAMFT-approved supervisor. This supervision, as well as supervision provided by the first author, involved review video-recorded therapy sessions, in addition to discussing aspects of the therapy manual and specific case consultation.

**Treatment Fidelity**

Adherence to the intervention protocol was assessed by a PhD graduate student who was not one of the therapists on the study. A fidelity coding system was adapted from an existing protocol (Slesnick, 2000) and was designed to be used with the current intervention treatment manual. The fidelity coder watched a random selection of the video-recorded therapy sessions and rated 1) whether an intervention procedure occurred (yes/no) and 2) how competently the therapist delivered the intervention procedure (7-point Likert scale). Five of the fidelity codes pertained to all of the therapy sessions, and each session was also rated on two codes unique to that session. Examples of codes
include, “Does the therapist link the mother and child’s emotional responses? If yes, how effectively?” (general code) and “Does the therapist spend time working with the child on how they know about other’s feelings? If yes, how effectively” (unique to session 2).

Prior to beginning the fidelity assessment, the coder met with the first author to review the intervention procedures and coding system. Ten percent of the therapy sessions were coded for fidelity and an equal number of session 1, 2, and 3 videos were rated. A score of zero was assigned to videos if a procedure did not occur (yes/no), and if the procedure did occur it was rated for effectiveness (1 to 7) with higher scores representing greater effectiveness. Based on this coding, it was revealed that therapist adherence occurred throughout the treatment, as 7 out of 7 procedures were rated as occurring for all sessions. Moreover, therapists were also rated highly on their level of competence in administering the procedures. The average rating for session 1 was 5.19 (SD = .22, range = 5.00 – 5.43), it was 5.47 (SD = .44, range = 5.00 – 5.86) for session 2, and the average rating was 5.38 (SD = .73, range = 4.57 – 6.00) for session 3. Therapists did not differ in their fidelity ratings ($\chi^2(6) = 9.00, p = .174$).

Intervention

The intervention was conducted across 3, 2-hour therapy sessions which took place within 1 to 2 weeks of each other. Each family met with the same family therapist across the course of the intervention sessions. During the sessions, a couple and family therapist met with the mother and child to discuss their experiences of emotions. This included how they internally experienced emotions and expressed them with one another, as well as how their emotions were understood by each other and the responses that they elicited. Therapists also discussed with the mothers their role in socializing their child’s
emotional understanding and regulation. In the initial session, the mother emotional experiences were the focus of discussion, and this included the child’s role in understanding and influencing these emotions. During this session, the mother and child also engaged in a video-recorded narrative, story-telling play task which was designed to provide an opportunity to explore and discuss emotions (Oppenheim, Nir, Warren, & Emde, 1997). Also during this session, the mother and child were asked to think of and name an emotional and relational problem that they faced together. This problem was then discussed and externalized by the therapist. The mother and child were asked to describe their emotion experience of the problem and their goals for how they would wish it to be different.

The second session was focused on the child’s understanding and experience of emotions. This included how the child understood others emotion expressions and emotional experiences. Also during this session, the mother and child watched a video of their narrative play task from the first session along with the therapist. This was done in order for the therapist to discuss with the mother and child how they tended to interact and handle emotional situations together. The session also included a discussion of the externalized problem and their goals for it.

Finally, the third intervention session was focused on broadening both the mother’s and child’s understanding of how their emotions functioned within their relationship. The externalized problem was again discussed, and a unique outcome related to the problem was identified and explored. The process of naming the problem and exploring unique outcomes related to it was then generalized to other emotional situations which tended to arise between the mother and child. Additionally, the
mother’s role in her child’s emotion socialization was discussed and explored. This was also related back to the externalized problem and the unique outcomes related to it. Ultimately, the mother and child were asked to reflect on how what they had identified and discussed throughout the sessions could be applied to future situations and problems that they may face together.

Control

Those families that were randomized to the control condition did not participate in the intervention or receive another form of treatment. Control participants were followed from baseline to the two follow-up assessments, and did not complete any study activities other than these three assessments. Currently, there is no standard of care for mothers experiencing depressive symptoms and their young children; therefore, control participants were offered the opportunity to complete the intervention once they had completed their follow-up assessments.

Measures

*Maternal depressive symptoms* were assessed using the Beck Depression Inventory (BDI-II; Beck, Steer, Ball, & Ranieri, 1996) at baseline, as well as at F1 and F2. This is a self-report questionnaire which contains 21 questions asking about the mothers’ current depressive symptoms experienced over the past 2 weeks. The questions are rated on a 4-point scale and a total composite scores with a possible range from 0 to 63 is generated, with higher scores representing greater depressive symptoms. This scale demonstrated good internal reliability at baseline (α = .91), F1 (α = .92), and F2 (α = .93).

*Maternal state anxiety* was using the State-Trait Anxiety Inventory (STAI; Spielberger et al., 1983) at baseline, F1, and F2. This is a self-report measure that
contains 40 questions rated on a 4-point scale from 1-almost never to 4-almost always. Twenty of these questions ask about the mothers’ state anxiety, or how she feels right now at this moment. A total score was then calculated with a possible range from 20 to 80, and with higher scores representing greater state anxiety symptoms. This scale demonstrated good reliability baseline (α = .94), F1 (α = .92), and F2 (α = .90).

*Mothers’ parenting stress* was measured using the Parenting Daily Hassle questionnaire (PDH; Crnic & Greenberg, 1990) at baseline, F1, and F2. This self-report instrument assesses typical everyday events that parents encounter with children. The PDH contains 40 questions pertaining to 20 stressful events that mothers may experience. Twenty of the questions assess the intensity of the stress that the mother experiences due to the events, and the mother rates the intensity on a 5-point scale from 0-low to 4-high. Two subscales are calculated from these questions. The parenting tasks subscale is comprised of 8 questions that concern stress associated with everyday parenting activities. The challenging behavior subscale includes 7 questions related to typical events that involve children and childcare. Both subscales demonstrated good reliability (parenting tasks: baseline α = .84, F1 α = .83, F2 α = .84; challenging behavior: baseline α = .83, F1 α = .78, F2 α = .81).

*Children’s internalizing and externalizing problems* were assessed using the Child Behavioral Checklist (CBCL; Achenbach & Rescorla, 2001) at baseline, F1, and F2. This maternal-report measure assesses children’s behaviors associated with their emotion expression, social functioning, and general development. The questionnaire is comprised of 99 questions rated by mothers on a 3-point scale from 0-not true to 2-very true of their child. Higher scores indicate more severe problems. The measure contains
two subscales representing children’s internalizing and externalizing problem behaviors. Both subscales revealed good reliability at all assessment points (internalizing problems: baseline $\alpha = .88$, F1 $\alpha = .87$, F2 $\alpha = .88$; externalizing problems: baseline $\alpha = .94$, F1 $\alpha = .92$, F2 $\alpha = .93$).

**Analyses**

Analyses included repeated measures ANOVA tests that utilized a multilevel modeling approach in order to estimate missing values at the follow-up points. In these analyses, randomized group assignment (i.e. treatment or control) was included as the between-subject factor (group) and assessment point (i.e. baseline, F1, F2) was included as the within-subject factor (time). The repeatedly measured mother and child outcomes were included as dependent variables. To test within group change between assessment points, paired t-tests were conducted. In addition, Cohen’s $d$ values were calculated in order to assess the size of these effects. All analyses were conducted using SPSS (v. 24; IBM Corp., 2016).

To assess differences in the two groups on demographic variables, chi-square analyses were conducted. Because the groups did not significantly differ on any of these variables, they were not included in the ANOVAs as covariates. Missingness was assessed across the 3 time points and data were found to be missing completely at random (Little’s MCAR test $\chi^2(78) = 90.52, p = .16$). In addition, an intent-to-treat approach was used, with participants analyzed within their randomized group regardless of their completion of the intervention. Restricted maximum likelihood estimation was utilized to estimate missing values at F1 and F2 and to better account for the small sample size (Raudenbush & Bryk, 2002).
Results

Preliminary Results

Means and standard deviations for both intervention conditions across the 3 assessment points are presented in Table 4.2. The treatment and control groups were also compared on various demographic factors, and they were not found to differ significantly on any of these characteristics (Table 4.1). Thirty-four of the 38 mothers randomized to the treatment condition completed at least one therapy session (89.47%). Of these, 29 completed at least 2 sessions (76.32%), and 27 completed the full treatment intervention (71.05%). Participants who did not complete any or all of the treatment reported that this was due to time constraints, family stressors, or disinterest in the sessions. The participants who did not complete all therapy intervention sessions did not differ from those who did on child or mother’s age, child’s sex, family income, or maternal race, education, baseline depressive symptom score, or marital status.

Repeated-Measures ANOVA

Maternal distress. Table 4.3 shows the results of the repeated-measures ANOVA tests. No between group difference or time by group interaction was observed for maternal depressive symptoms; however, a significant effect was found for time \( [F(2, 86.71) = 5.24, p = .007] \). Univariate tests revealed that the treatment group demonstrated a significant overall decrease in depressive symptoms \( [F(2, 88.89) = 4.04, p = .021] \); whereas, the control group did not significantly decrease. Specifically, the treatment group decreased from baseline to F2 on depressive symptoms (see Table 4.2 for means over time), which represented significant change with a medium effect size \( [t(90.18) = -2.69, p = .008, d = -.50] \). Conversely, the change between baseline and F1 and F2 was
not significant for the control group. Like depressive symptoms, maternal state anxiety also did not demonstrate a significant between group or time by group interaction effect, though a significant effect was found for time \( F(2, 83.80) = 3.87, p = .025 \). In case of maternal anxiety, the overall change was significant for the treatment \( F(2, 86.38) = 3.36, p = .039 \), but not the control group. Additionally, the treatment group decreased significantly between baseline and F1 \( t(87.13) = -2.69, p = .008, d = -.39 \), as well as between baseline and F2 \( t(87.85) = -2.69, p = .008, d = -.40 \), with these changes representing small to medium sized effects. Here again, change in the control group from baseline to F1 and F2 was not significant.

When considering parenting stress, a similar effect was found for maternal stress associated with children’s challenging behavior. There were no between group or treatment by group effects, but a marginally significant effect was found for time \( F(2, 84.84) = 2.83, p = .064 \). Here, the overall change in challenging behavior parenting stress was marginally significant for the therapy group \( F(2, 86.07) = 2.91, p = .060 \), but nonsignificant for the control group. In this case, the change in the treatment group’s stress levels was significant from baseline to F1, and this decrease in parenting stress represented a small effect size \( t(86.56) = -2.02, p = .046, d = -.32 \). Unlike the treatment group, the control group did not significantly decrease from baseline to either follow-up. With regard to parenting stress associated with parenting tasks, no effects were found for group, time, or group by time.

*Child problem behaviors.* When considering child problem behaviors, effects were found for both child internalizing and externalizing problems. A significant time by group interaction effect was found for child internalizing problems \( F(2, 88.26) = 3.27, p \)
= .043], as well as a marginally significant effect for time \([F(2, 88.26) = 2.34, p = .058]\). Specifically, the overall change in child internalizing problems was significant for the treatment, but not the control, group \([F(2, 89.72) = 6.10, p = .003]\). Here, the treatment group significantly decreased from baseline to F2 \([t(90.71) = -3.46, p = .001]\); whereas, the control group did not significantly change. Moreover, the decrease in child internalizing problems had a moderate effect \((d = -0.54)\). Concerning externalizing problems, no group difference or group by treatment interaction effects were found, although a marginally significant effect was revealed for time \([F(2, 83.67) = 2.62, p = .079]\). In this case, the overall decrease in externalizing problems for the treatment group was significant \([F(2, 84.60) = 4.65, p = .012]\), and the control group did not change. In particular, child externalizing problems in the treatment group decreased from baseline to F2 \([t(85.27) = -3.03, p = .003]\), with the change in problems representing a close to medium effect \((d = -0.48)\). Again, the control group did not show significant change.

**Discussion**

The goal of the current study was to present the results of a brief, emotion-centered family therapy intervention designed for mothers experiencing depression and their young children. Findings support expectations that the intervention would improve various areas of both maternal and child functioning. In general, the families randomized to the treatment condition tended to decline in symptoms across the course of the study; whereas, the control families did not. In addition, the greatest degree of change and difference between groups was found for child internalizing symptoms. This provides support for the primary aim of the intervention in alleviating the risk that children of depressed mothers face to develop depression themselves, as early internalizing
symptoms in children are often indicative of a tendency to develop depression later in life (Cote et al., 2009; Roza, Hofstra, Ende, & Verhulst, 2003; Rueter, Scaramella, Wallace, & Conger, 1999; Zahn-Waxler, Klimes-Dougan, & Slattery, 2000). Overall, the findings from this study provide preliminary evidence that supports the use of a family therapy approach and narrative family therapy techniques, while also employing a brief design that specifically targets emotions.

The mothers randomized to the intervention condition tended to decrease in their depressive symptoms, state anxiety, and the parenting stress that they attributed to their children’s challenging behaviors. Group differences across time were not found between the two conditions; however, the sizes of the effects for the treatment group were small to medium in size. Moreover, that these changes were reported across a variety of domains suggests that the treatment, although relatively limited in scope and focusing on emotions, was able to benefit mothers in a range of areas. For instance, despite the fact that this intervention did not directly target maternal depression, reductions were found for the treatment group of mothers. This is in line with findings from another brief interventions designed for depressed parents and their young children which targeted parenting practices; although this intervention also was not specifically aimed at depression, it found that mothers tended to have lower symptoms after completing the treatment (Shaw et al., 2009). Taken together, these findings suggest that when intervening with families with a depressed parent, depression does not necessarily need to be the main focus. The reductions in maternal anxiety also have positive implications for children in the treatment group, as parental anxiety is also highly related to child risk (Becker, Gisnburg, Domingues, & Tein, 2010). Moreover, intervening with children who
have an anxious parent has been shown to reduce child risk of developing anxiety symptoms (Ginsburg, 2009).

It is also perhaps not surprising that reductions in mothers’ depressive symptoms, state anxiety, and parenting stress would be found, considering these factors tend to be interrelated. More specifically, depression and anxiety are often found to co-occur (Hirschfeld, 2001; Lamers et al., 2011), and both depression and anxiety are related to parenting stress (Deater-Deckard, 2008; Hammen, 2005). Therefore, it is not surprising that when seeing changes in one, there would also be corresponding changes in the others. The reductions in treatment mothers’ parenting stress is similar to those found for parent training programs when children are preschool age (e.g. Elizur et al., 2017). This may suggest that the intervention improved mothers’ parenting abilities to address difficult emotional situations with their children. This possibility is also indicated by the fact that improvements were reported for parenting stress related to challenging child behaviors, but not for parenting tasks. This suggests that, although their general parenting duties remained stressful, mothers’ in the treatment group found their responsibilities related to managing difficult child behavior to be less stressful. This would be the case if mothers found children’s negative emotional expressions and experiences to be less challenging, as the treatment directly addressed these issues.

The treatment group children’s internalizing and externalizing problem behaviors were also reported by mothers to decrease. This may have been related to addressing children’s emotions and emotional skills in the treatment, as emotional competence and related abilities are associated with children’s levels of problem behaviors (Zeman, Shipman, & Suveg, 2002), in particular among children with depressed mothers (Silk,
Moreover, later antisocial behavior has been linked to early signs of callous-unemotional behavior in toddler and preschool age children, with this type of early behavior being characterized by low empathy and interpersonal emotional skills (Waller et al., 2017). This would suggest that targeting children’s socially adaptive emotional development early on may reduce the odds that they will develop more severe antisocial behaviors later in life. Alternatively, these changes in children may also be related to their mothers’ changes, as parent training programs for parents of preschoolers have been shown to lead to reductions in children’s conduct problems (Elizur, Somech, & Vinokur, 2017).

Family systems theory would suggest that the changes in mothers and children in the treatment group are interrelated, with improvements in one member contributing to improvements in the other. Because these changes occurred for both members, it would also suggest that the treatment had an impact at the mother-child subsystem level rather than just at an individual level. Family systems theory views all family members’ behavior as contributing to the functioning of the system (Minuchin, 1974), and family therapy specifically aims to improve individual functioning by altering this system (Cox & Paley, 1997; Haley, 1967; Minuchin, 1985). However, this notion needs to be taken with caution, considering that these results are based on maternal report. It is possible that mothers only perceived their children to have fewer problem behaviors due to their own improved symptoms.

Other considerations would also suggest that the changes found for the mothers and children in the treatment group were interrelated. For example, reciprocal effects have been found between mothers depressive symptoms and child externalizing problems.
In addition, when growth in child problem behavior has been reduced across the preschool age period, parental positive behavior support has increased (Dishion et al., 2008). More specifically, it was found that when children’s aggression decreased due to a parent-child intervention, children’s perceptions of their parents’ positive parenting practices increased (te Brinke, Dekovic, Stoltz, & Cillessen, 2017). This suggests that improvements in children’s externalizing behaviors may also extend to mothers’ parenting, and it highlights the bidirectional influences of the effects that an intervention can have on the mother-child subsystem.

These reciprocal relations also extend to children’s problem behaviors and mothers’ depressive symptoms. For instance, successful outcomes of interventions that target child behavior problems have also been shown to be associated with reductions in maternal depressive symptoms (Grimbos & Granic, 2009). More specifically, in a study of the effects over time of a parent training intervention, it was found that changes in children’s problem behaviors were preceded by improvements in parenting practices and later followed by reductions in maternal depression (DeGarmo, Patterson, & Forgatch, 2004; Patterson, DeGarmo, & Foragatch, 2004). Alternatively, when children experience both externalizing and internalizing symptoms reductions in maternal depressive symptoms may be necessary in order for interventions to be successful in reducing child problem behaviors (Grimbos & Granic, 2009). Likewise, reductions in children’s internalizing and externalizing problem behaviors from age 2 to 3 were mediated by changes in mothers’ depressive symptoms, and this was true when positive parenting practices were also included as a mediator (Shaw et al., 2009). Finally, in the current study the reductions in children’s behavior problems may be related to mothers’ reports
of less parenting stress associated with children’s challenging behaviors. Taken together, these results highlight the cascade of changes which can occur when intervening in a family subsystem rather than just with an individual family member.

Though the follow-up period of the current study was relatively limited, there is reason to believe that altering factors associated with the development of later antisocial behavior and conduct disorder may result in a reduced likelihood of these problems developing early on and persisting through adolescence (Aguilar, Sroufe, Egeland, & Carlson, 2000; Moore, Silberg, Roberson-Nay, & Mezuk, 2017). More specifically, when parenting, maternal depression, and child internalizing and externalizing problems have been assessed at age 2 and 3, they were found to be associated with early-onset trajectories of antisocial behavior up to age 15 (Shaw & Gross, 2008). This suggests that early reductions in these factors may lead to reduced odds that children will develop more serious negative behaviors in adolescents. In addition, though certain effects were marginally significant, the presence of small to medium effect sizes suggests that a larger sample would demonstrate significant reductions in symptoms. Finally, though treatment by time differences were not found for the majority of outcomes, this was because the control condition group tended to also decrease, but not at a significant rate. It is difficult to compare these trends to interventions also targeting this population due to differences in the treatment dosage and follow-up period; however, there seem to be indications that control families often show signs of reductions in symptoms as well, though at a slower rate than families receiving treatment (e.g. Clarke et al., 2001; Shaw et. al. 2006, 2009)

Limitations
The findings from the current study need to be considered in light of several limitations. First, issues of measurement need to be considered, as outcomes were assessed by maternal report alone. Thus, findings regarding children’s problem behaviors need to be cautiously interpreted. However, if treatment mothers perceived their children’s behaviors to be improving, this still has implications for the mother-child relationship. Also related to measurement, mothers’ depression and anxiety was not diagnosed and was rather based on their report of depressive symptoms. Therefore, the findings of the intervention may not apply to a clinical sample. Second, the follow-up assessment period following the implementation of the intervention was limited. Because of this, the study cannot speak to whether these effects may be lasting or how participation in the treatment may affect families later on. Third, although they were grounded in family therapy theory, the intervention treatment sessions did not include the entire family system. This was a targeted intervention that only addressed the mother-child subsystem, as this has been theoretically and empirically identified as significant. Although, in the current study this was considered a family-based intervention, an intervention that was more truly family-based would include all family members. Future intervention efforts may benefit from including additional family members, including fathers, siblings, or grandparents. Fourth, the retention rates for follow-up assessments were somewhat low, and this may affect the conclusions which can be drawn from the findings. Although missing data was found to be missing completely at random, it is possible that attrition rates were related to participants’ dislike of the study or worsening symptoms. Fifth, the sample size was small and it is possible that certain demographic characteristics of the sample may affect the generalizability of study findings. The
child’s birth order was not accounted for, and so some mothers may have had a greater amount of parenting experience than others. In addition, race has been shown to impact emotion socialization (e.g. Nelson et al., 2013), and this may have impacted the effect of the intervention on certain families. The treatment condition also tended to have higher education levels, but less income. It is possible that this represents a greater number of student participants, and the close proximity to a university may impact the generalizability of findings. Finally, a comparison treatment therapy was not included. Therefore, the current study cannot determine whether this intervention would benefit families more than an alternate treatment or if improvements were related to common factors. Nevertheless, given the pilot nature of this study, the results found with regard to mothers’ and children’s outcomes are promising.

Conclusions and Clinical Implications

The results of this study demonstrate that a brief, emotion-centered, family therapy intervention can lead to benefits in both maternal and child functioning when mothers are experiencing elevated depressive symptoms. This suggests that specifically targeting emotional processes in the mother-child subsystem utilizing a brief intervention provides benefits that generalize to mothers’ mental health and children’s behavior problems. Although another brief intervention designed for this population addressed many pressing issues that mothers identified (Dishion et al., 2008), the current intervention focused on only issues and concerns that related to the mother-child subsystem and were generally emotional in nature. This suggests that concentrating on the emotions and emotional processing related to concerns and focusing on these within the mother-child relationship may be especially beneficial. The study also contributes to
our growing understanding of how to intervene with families when parents are experiencing depressions, especially our limited understanding of intervening when children are preschool aged. The overall findings suggest that intervening during this sensitive age period, and including the mother and child together in the treatment may be best suited to alleviating child risk, while also reducing maternal depressive symptoms.
Table 4.1. Demographic characteristics of the treatment and control condition groups.

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<td>Maternal education</td>
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<td>High school or less</td>
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<td>7</td>
<td>22.6</td>
<td>3</td>
<td>.97</td>
<td>.809</td>
</tr>
<tr>
<td>Some college/Associate’s</td>
<td>17</td>
<td>44.7</td>
<td>16</td>
<td>51.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>College</td>
<td>8</td>
<td>21.1</td>
<td>6</td>
<td>19.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graduate/Professional</td>
<td>5</td>
<td>13.2</td>
<td>2</td>
<td>6.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual family income</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than $10,000</td>
<td>11</td>
<td>28.9</td>
<td>4</td>
<td>13.3</td>
<td>3</td>
<td>6.52</td>
<td>.089</td>
</tr>
<tr>
<td>$10,000 - $29,000</td>
<td>13</td>
<td>34.2</td>
<td>6</td>
<td>20.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$30,000 - $59,000</td>
<td>8</td>
<td>21.1</td>
<td>9</td>
<td>30.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$60,000 or more</td>
<td>6</td>
<td>15.8</td>
<td>11</td>
<td>36.7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maternal marital status</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>14</td>
<td>36.8</td>
<td>8</td>
<td>25.8</td>
<td>3</td>
<td>.84</td>
<td>.840</td>
</tr>
<tr>
<td>Living with partner</td>
<td>2</td>
<td>5.3</td>
<td>2</td>
<td>6.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>16</td>
<td>42.1</td>
<td>14</td>
<td>45.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Divorced/Widowed</td>
<td>6</td>
<td>15.8</td>
<td>6</td>
<td>19.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>25</td>
<td>65.8</td>
<td>14</td>
<td>45.2</td>
<td>1</td>
<td>2.96</td>
<td>.086</td>
</tr>
<tr>
<td>Male</td>
<td>13</td>
<td>34.2</td>
<td>17</td>
<td>54.8</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

|                          |          |          |          |          |     |    |      |
| M                        | 34.05    | 7.71     | 32.23    | 6.19     | 67  | -1.07| .29  |
| SD                       | 34.2     | 5.57     | .40      | .67      | 67  | -1.69| .10  |
Table 4.2. Descriptive statistics for the treatment and control condition groups.

<table>
<thead>
<tr>
<th></th>
<th>Treatment</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Baseline</td>
<td>Follow-up 1</td>
</tr>
<tr>
<td></td>
<td>$N = 38$</td>
<td>$N = 23$</td>
</tr>
<tr>
<td></td>
<td>$M (SD)$</td>
<td>$M (SD)$</td>
</tr>
<tr>
<td>Maternal Outcomes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depressive symptoms</td>
<td>24.18 (11.60)</td>
<td>20.52 (10.98)</td>
</tr>
<tr>
<td>State anxiety</td>
<td>52.26 (12.41)</td>
<td>48.43 (11.00)</td>
</tr>
<tr>
<td>Parenting stress:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Challenging behaviors</td>
<td>11.76 (5.23)</td>
<td>9.95 (4.26)</td>
</tr>
<tr>
<td>Parenting stress:</td>
<td>11.21 (5.90)</td>
<td>10.95 (5.07)</td>
</tr>
<tr>
<td>Parenting tasks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child Outcomes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internalizing problems</td>
<td>11.74 (9.21)</td>
<td>9.09 (6.27)</td>
</tr>
<tr>
<td>Externalizing problems</td>
<td>15.47 (9.91)</td>
<td>12.35 (8.02)</td>
</tr>
</tbody>
</table>
Table 4.3. Results of repeated-measures ANOVA.

<table>
<thead>
<tr>
<th>Maternal Outcomes</th>
<th>Group</th>
<th>F</th>
<th>Time</th>
<th>F</th>
<th>Group X Time</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depressive symptoms</td>
<td>1, 66.58</td>
<td>.33</td>
<td>2, 86.71</td>
<td>5.24**</td>
<td>2, 86.71</td>
<td>.635</td>
</tr>
<tr>
<td>State anxiety</td>
<td>1, 61.81</td>
<td>.17</td>
<td>2, 83.80</td>
<td>3.87*</td>
<td>2, 83.80</td>
<td>1.42</td>
</tr>
<tr>
<td>Parenting stress: Challenging behaviors</td>
<td>1, 67.95</td>
<td>.72</td>
<td>2, 84.84</td>
<td>2.83†</td>
<td>2, 84.84</td>
<td>.602</td>
</tr>
<tr>
<td>Parenting stress: Parenting tasks</td>
<td>1, 67.89</td>
<td>.025</td>
<td>2, 83.26</td>
<td>1.34</td>
<td>2, 83.26</td>
<td>1.41</td>
</tr>
<tr>
<td>Child Outcomes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internalizing problems</td>
<td>1, 69.71</td>
<td>.03</td>
<td>2, 88.26</td>
<td>2.94†</td>
<td>2, 88.26</td>
<td>3.27*</td>
</tr>
<tr>
<td>Externalizing problems</td>
<td>1, 67.91</td>
<td>.00</td>
<td>2, 83.67</td>
<td>2.62†</td>
<td>2, 83.67</td>
<td>2.16</td>
</tr>
</tbody>
</table>

Note. †p < .10, *p < .05, **p < .01.
Figure 4.1. Study recruitment and design.
Chapter 5: Conclusions

Maternal depression represents a clear and significant risk to children’s development and later functioning and mental health (Campbell et al., 2009; Goodman et al., 2011). Despite an established recognition of this risk, our understanding of how it is conferred and how best to intervene is still developing. What we do know suggests that early mother-child emotional processes are related to the degree of the negative impact on children (Silk et al., 2011; Silk, Shaw, Forbes, Lane, & Kovacs, 2006). It is also clear that the relation between maternal depression and child outcomes is complex, as it is impacted by a host of other factors. Some of these include mothers’ stress, maternal parenting practices, the mother-child relationship, and children’s emotional competence and problem behaviors (Barker, Copelan, Maughan, Jaffee, & Uher, 2012; Hooper, Feng, Christian, & Slesnick, 2015; Silk et al., 2011). Finally, it is apparent that the associations between maternal depression and child behavior are not unidirectional; rather, it is evident that just as mothers impact their children, children also play an active role in determining mothers’ levels of depression (Gross, Shaw, & Moilanen, 2008; Gross, Shaw, Moilanen, Dishion, & Wilson, 2008). The current dissertation contributed to our growing knowledge of the intergenerational transmission of depression and how to intervene to improve family functioning and reduce the risk to children. It specifically focused on emotional processes taking place in the mother-child subsystem in order to
add to our understanding of how these play a role in defining the risk that children experience.

**Overview and Integration of Findings**

Broadly, the three studies described in chapters 2 through 4 were concerned with gaining a better understanding of the associations between maternal depression and child risk, while also focusing on how best to intervene in this process. They were primarily interested in the emotion socialization process as a mechanism in the transmission of risk to children with depressed mothers. Chapter 2 outlined the bidirectional associations between mother-child emotional responses, maternal depressive symptoms, and child problem behaviors. The most significant implications from this study concern the differences between congruent and incongruent responses, with incongruent child emotional responses being problematic for both mothers and children; whereas, congruent positive responses were shown to have more complicated associations with later outcomes. Specifically, findings highlighted the possibility that a nonlinear association may exist between positive expression and mother and child well-being.

These results underscore something which has been demonstrated by other studies (Cole, Michel, & Teti 1994; Dunn & Brown, 1994; Fredrickson & Losada, 2005; Lunkenheimer et al., 2011), that exposure to a balance of positive and negative emotion expression may be necessary for the development of children’s emotional competence. Finally, this study highlighted the importance of considering how factors associated with maternal depression may alter the association that it has with children’s outcomes. Specifically, maternal stress was identified as an aspect of maternal functioning that should be
considered when assessing the associations between mother-child emotional interactions, maternal depression, and children’s development.

In chapter 3, the primary outcomes of a brief, emotion-centered, family therapy intervention were presented. This study provided initial evidence that focusing relationally on the mother-child subsystem while specifically targeting emotional processes can have an impact on both mothers’ emotion socialization parenting practices and children’s emotional development. Notably, increases in functioning associated with the treatment were found to be greatest for children; whereas, mothers involved in the treatment tended to remain stable in their emotion socialization, and control mothers tended to decline. This suggests that the intervention may have intervened in the trajectories that these factors would normally take, with children showing more rapid growth in emotional skills and mothers demonstrating stability in parenting practices and improvements in individual emotional functioning.

Chapter 4 went on to present the results of this intervention as they pertained to secondary outcomes of interest, including maternal mental health and child behavior problems. Although, the intervention did not directly target these areas, it was expected that improvements in the emotional functioning of the mother-child subsystem would have an impact on these more general and individual factors. This was because issues with parenting and the mother-child relationship are related to maternal mental health and children’s behavior problems (Gross, Shaw, Burwell, & Nagin, 2009; Hutchings, Appleton, Smith, Lane, & Nash, 2002). Here, improvements were found for a variety of maternal factors, with mothers improving in their depressive symptoms, anxiety, and parenting stress. Moreover, children in the treatment also tended to decrease in their
maternal reported problem behaviors. These findings have significant implications for the broad impact that an intervention that is specifically emotionally and relationally focused may have.

These studies also present unique considerations when examined together. Findings from the studies described in chapters 2 and 3, highlight the importance that emotional interactions have for both mothers’ and children’s adaptive functioning. They suggest this as both an area for further investigation and intervention. Likewise, chapters 2 and 4 underscore that emotional interactions are associated with broader factors related to both mothers’ and children’s well-being. Specifically, they each highlight how parenting stress can be interrelated with both maternal depressive symptoms and child problem behaviors; thus, indicating the importance of understanding the role of stress on the impact that maternal depression has on children’s development. In particular, findings from chapter 2 indicate that addressing maternal parenting stress may be especially significant when attempting to promote mother-child positive congruent responding. Here, it may be particularly necessary to explore under which circumstances positive responding may possibly be detrimental to either mother or child.

Taken together, the findings from chapters 3 and 4 suggest that the family therapy emotion-centered intervention may have immediate effects with regard to interrupting negative trajectories in mothers’ parenting behavior and children’s emotional development, and it may also have slightly longer term effects related to improving mothers’ mental health and children’s problem behaviors. It has been found that when parent-child interventions reduce child aggression over time, it also tends to improve maternal parenting practices (te Brinke, Dekovic, Stoltz, & Cillessen, 2017).
Additionally, maternal depression and mothers’ parenting practices are highly related (Lovejoy et al., 2000; Shaw et al., 2006), and so the mothers’ reduced depressive symptoms and children’s reduced problem behaviors may be related to later improvements in parenting practices. Thus, the lack of change in the treatment mothers’ positive parenting practices when the control group was shown to decline may represent the initial stages of improvement. It is possible that if child behavior problems continue to subside, mothers’ parenting practices will improve as well. This is in part because it would also be expected that as children’s emotional competence improves, their problem behaviors would decrease (Ozturk, 2015; Silk, Shaw, Forbes, et al., 2006; Zeman, Shipman, Suveg, 2002).

Moreover, these two studies demonstrate the importance of mother-child emotional processes and underscore this as an area for intervention. Results of a meta-analysis of parent training programs found that programs which focused on positive parent-child interactions, as well as emotional communications skills tended to find the greatest effects; moreover, it found that programs were most effective when they had parents practice parenting skills in sessions with their children (Kaminski, Valle, Filene, & Boyle, 2008). This suggests that by targeting mother-child emotional interactions, while actively engaging the mother and child in positive emotion socialization practices (e.g. openly discussing emotions, modeling emotion acceptance and regulation) in session, the intervention was able to have a greater impact on outcomes.

When considering all three studies collectively, they also have important implications for our empirical understanding of family systems theory and family therapy interventions. These studies included both individual and relational measures which
assessed mother and child functioning, as well as the manner in which mothers and children functioned and interacted together. By attempting to assess the mother-child subsystem through observations of the mother and child interacting together, the studies were able to draw more nuanced conclusions about how mothers and children impact one another. For example, in each study, maternal and child factors were either shown to have bidirectional relations or to demonstrate mutual concurrent change related to participation in the intervention. These findings add to our understanding of the complex web of associations and influences which occur within the mother-child subsystem. This is something which family systems theory has always understood theoretically (Minuchin, 1974), but is still being explored empirically and clinically.

**Limitations and Strengths**

This dissertation and each study presented here needs to be considered in light of certain overarching limitations which impact our ability to draw conclusions from the findings. First, in each of these studies maternal depression was not clinically confirmed. Mothers were only assessed for their levels of depressive symptoms, and a screening questionnaire was used to determine elevated levels. This means that these results cannot be generalized to a clinical population of mothers, who may represent a more homogenous and severely impaired group. Second, each of these studies only included mothers and their children, without including additional family members. Although each study took a family systems theory approach to understanding and assessing the mother-child subsystem and its emotional functioning, this subsystem is understood to exist within a larger family system. Family systems theory would suggest that other members of the system are just as influential in determining mothers’ and children’s outcomes, and
other family members should be considered in future research. Finally, the sample sizes for these studies were relatively small, and this limits their abilities to detect significant effects. In addition, these were convenience samples and so may not generalize to the larger population of mothers experiencing depressive symptoms with young children. Although random assignment in the intervention studies was utilized, differences between the treatment and control condition mothers on certain baseline measures were still found. A larger sample would have provided these studies with more power and would have also likely washed out the differences in the two intervention condition groups.

The studies included in this dissertation also share certain strengths which lend some weight and added significance to their findings. For example, the studies described in chapters 2 and 3 utilized observational and coded data. Because the main focus of these papers was on mother-child emotional interactions, using this type of assessment was most suitable. On the other hand, relying solely on maternal report measures would not have accounted for possible reporting bias or shared method variance. Although the study in chapter 4 only utilized maternal report measure, the conclusions drawn about the intervention from this study are strengthened when considered in light of the findings from chapter 3. The benefits of utilizing observational data are especially demonstrated in chapter 2’s study. Here, moment-to-moment coded observations were able generate probability scores for mother and child responses. This accounted for the time order of mothers’ and children’s emotional responses. A related strength of the studies is that they each used longitudinal data. Chapter 2 included sequentially coded data across a brief interaction and also data from two different time points during the period of
children’s early emotional development, when they were 3 and 4 years old. The intervention studies also assessed families at pre- and post-treatment, with chapter 4 utilizing multiple follow-up assessment points. These methods allowed for the examination of changes across time, as a primary focus of the dissertation as a whole was children’s early emotional development.

There are also notable strengths that apply to the intervention studies described in chapter 3 and 4. These studies utilized a randomized-controlled design, thus allowing for the comparison between a treatment and control condition and the ability to make inferences about the effect of the treatment on maternal and child outcomes. This is the gold standard for intervention trials (Roundsaville, Carroll, & Onken, 2001), and although a comparison treatment was not included, the initial findings presented here suggest that further evaluations of this intervention are warranted. These studies also utilized an intent-to-treat design, which allows for a better estimation of how the treatment was received by participants and its practical utility (Little & Yau, 1996). In this way, the studies were able to account for client drop-out or noncompliance, which are common in clinical practice, when evaluating the effect of the treatment. Finally, these studies also examined the clinical significance of the intervention. In chapter 3, a subjective measure of how mothers in the intervention perceived change in a specific emotional problem was reported. Though subjective and without a control comparison, this rating allowed for a more personalized and nuanced understanding of how the treatment impacted families. Both the studies in chapter 3 and 4 also reported effect sizes for change in the treatment and control groups. This allowed for an indicator of the practical significance of the intervention that was independent of the size of the sample.
(Hojat & Xu, 2004). Although some of the effects found were only marginally significant, effect size is argued to be a better indicator of clinical significance, especially among small samples, than null-hypothesis significance testing (Ferguson, 2009; Hojat & Xu, 2004). The small to medium sizes of these effects suggest that there is reason to believe that the treatment was clinically significant for families.

**Research and Clinical Implications**

The findings from this dissertation also have several important implications for research moving forward. Several of these implications have to do with how maternal emotion socialization and children’s emotional development are measured and evaluated. The results using the contingent response data in chapter 2 highlight our need to gain a better understanding of this type of data and clearly define how best to use it. It was difficult to evaluate how results found in this study compared or contrasted with findings from other studies. This is mainly because “contingent responses”, “reciprocal responding”, and “synchrony” are often used interchangeably and are poorly defined. For example, in various different studies a “response” was characterized as occurring within 2, 5, 10, or 15 seconds of the initial behavior or for an indeterminate amount of time until a response occurred (Aktar, Colonnese, de Vente, Majdandzic, & Bogels, 2016; Cole, Teti, & Zahn-Waxler, 2003; Connell, McKillop, Patton, Klostermann, & Hughes-Scalise, 2015; Lunkenheimer, Kemp, & Albrecht; Morelan, & Suveg, 2012). These extreme variations in how responding during interpersonal interactions is defined highlight the need to better define how we should utilize sequentially coded data.

The coded interactions in the studies in chapters 2 and 3 also highlight considerations for how observations are coded. Chapter 2 was not able to utilize micro-
coded maternal negative emotion expression because it happened very rarely. This was also the case for chapter 3; however, here a global rating of maternal and child negative emotional arousal was included. In both cases, mothers’ expressions of negative emotion during the tasks were very subtle and difficult to capture when coding overt and discrete expressions of emotion. It is likely that this had to do with social desirability, as these mothers may not have wanted to be seen being overtly negative with their child. However, this is not to say that their negative emotions were not detectable, just that they tended to be very subtle and pervasive throughout the interaction (e.g. tension or annoyance). Although the exact beginning and end of these expressions were difficult to distinctly identify, it was clear when watching these interactions that mothers were experiencing negative emotions. In therapeutic terms, this could be referred to as capturing process over content. We are interested in the process (e.g. how a mother and child interact together emotionally during a tense situation), but at times may focus too much on the content (e.g. labelling and quantifying overt expressions of emotion). Thus, in cases where strong and expressive negative emotions cannot be elicited, especially in adults, it may be more useful to rely on a global measure of negative emotional arousal.

Another possible option would be utilizing a more negatively charged task, though there are limits to what is ethical in this regard, or creating a coding system that accounts for very subtle expressions of emotion, though achieving reliability with this may be difficult.

The findings from chapter 2 also highlight the need to be cautious when evaluating emotion expression within the family. It is often assumed that more positive or less negative expression is best; however, this may not be the case with regard to
young children’s emotional development. It may be necessary for researchers to more closely examine the possible negative impact of positive expression and the benefits of negative expression when expressivity within the family is unbalanced. Although, this may complicate the interpretation of findings when examining emotional interactions, it may also provide a more nuanced and realistic understanding of how emotions function in families.

The results of the studies presented in chapter 2 through 4 also have important clinical and research implications with regard to interacting factors and influences which occur within the mother-child subsystem and concern emotion socialization. First, it seems necessary to consider co-occurring maternal factors, such as stress, when examining how maternal depression and mother-child emotional exchanges impact families. Second, it is clear from the results of these studies that children impact both maternal parenting practices and overall maternal well-being. Currently, few studies focus on the effect that children have on parents, and it is rare for a study to be primarily concerned with parental functioning as the outcome. Exceptions to this include recent studies which have investigated reciprocal or transactional influences between mother and child (e.g. Gross, Shaw, & Moilanen, 2008) or studies that examine how children’s developmental delays or disorders impact parents (e.g. Abbeduto et al., 2004). These represent relatively niche areas of study, and more general research on the impact that children have on parents seems necessary.

Theoretically, each of these projects highlights the usefulness of applying a family systems perspective to the understanding of family functioning. Family systems theory takes into account interacting and mutually influential individual factors and how they
impact the functioning of the family system (Cox & Paley, 1997, Minuchin, 1974). These concepts can be observed in the relations across time found in chapter 2, as well as the co-occurring changes in mothers’ and children’s emotional behaviors and skills observed as an effect of the intervention in chapters 3 and 4. Although family systems theory can be difficult to employ empirically, it seems to offer a very complete and nuanced interpretation of how families actually function. Therefore, attempts to measure and model its concepts are worthy of exploration.

Finally, there are a great deal of clinical implications suggested by the intervention studies described in chapters 3 and 4. First, they suggest that specifically focusing on emotions and emotional interactions during a family therapy intervention may both strengthen its effects and that those effects may generalize to aspects of functioning (e.g. mental health, problem behaviors) which were not a direct target of the intervention. Second, they suggest that individually tailoring the intervention to the unique needs of each participant family may assist in both promoting the therapeutic alliance and promoting change in the system. It has been suggested before that an individually tailored intervention is necessary, as depression and emotion-related parenting is associated with a variety of individually unique factors (Dishion et al., 2008). With regard to family therapy in general, these studies lend support to the utilization of relational and family-based interventions in attempting to intervene when children are at risk, especially when children are young. Moreover, they support the use of narrative family therapy techniques, as these may be uniquely suitable for use with young children (Freeman, Epston, & Lobovits, 1997; White & Morgan, 2006). Overall, each of the studies presented here underscores the importance of understanding the intergenerational
transmission of depression and how best to intervene with families. It is hoped that they will help to lead to better outcomes for children and their families.
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