PARENT BEHAVIOR IN MOTHERS WITH AND WITHOUT A HISTORY OF DEPRESSION AND ADJUSTMENT IN THEIR ADOLESCENT CHILDREN

By

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Dissertation

Submitted to the Faculty of the

Graduate School of Vanderbilt University

in partial fulfillment of the requirements

for the degree of

DOCTOR OF PHILOSOPHY

in

Psychology

August, 2006

Nashville, Tennessee

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ACKNOWLEDGEMENTS

This work was made possible with the financial support from a National Research Service Award (F31 MH68049-3). I am especially grateful to my mentor, Bruce Compas, who supported me throughout my non-traditional graduate student career. In addition, I would like to acknowledge the help from the research team, especially Kristen Reeslund, Jennifer Champion, Michelle Riesing, and Casey Sherman, who were an integral part of the work.

I would also like to thank my husband, Stephen Jaser, without whose ongoing support and Sunday morning babysitting this would not have been possible. I would like to thank my parents, who have always encouraged me to set my goals high. And I want to acknowledge my son, William, who inspired me to finish my dissertation so that I could spend more time with him.

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CHAPTER I

INTRODUCTION

Parent Behavior in Mothers with and without a History of Depression and Adjustment in their Adolescent Children Depression continues to be a major public health problem, as reflected in the high rates of Major Depressive Disorder (MDD) in the general population, especially among young adult women. In the National Comorbidity Survey, Kessler et al. (1994) found the lifetime prevalence of any affective disorder to be 23.9% among females, as compared to a rate of 14.7% among males. Moreover, women are most likely to experience depression in young adulthood, during the childbearing years (Kessler et al., 1994). As a result, a significant number of mothers experience clinical depression during their children's lifetimes, and maternal depression has been strongly linked to negative outcomes in children. In a review of research on children of depressed parents, Hammen (1997) posited that, given the likelihood of recurring episodes of depression, children of depressed parents are exposed to frequent and extended periods when their parents are in depressive episodes.

Numerous studies have found that children of depressed parents have higher rates of psychological disorders than children not exposed to parental depression, including depression, anxiety, and conduct disorder. Children of depressed parents are almost five times more likely to develop a depressive disorder than children of non-depressed parents (Beardslee, Versage, & Gladstone, 1998; Hammen, 1997). Specifically, Hammen (1991) found significantly higher rates of psychiatric diagnoses among the children of unipolar depressed women compared to the children of bipolar, medically ill, and control women.

Likewise, Lee and Gotlib (1991) reported that children of women who were clinically depressed had higher levels of symptoms on the Child Behavior Checklist (Achenbach, 1991) than children whose mothers were medically ill or had other non-depressive psychological disorders. Even relatively brief maternal major depression has been shown to predict risk for depressive orders in children by age 15 (Hammen & Brennan, 2003). Finally, in a longitudinal study that followed the children of depressed parents into adulthood, Weissman, Warner, Wickramaratne, Moreau, and Olfson (1997) found that the offspring of depressed parents had increased rates of MDD, had more serious and impairing depressions, and were less likely to go for treatment than the offspring of non-depressed parents. In a review of the risk that maternal depression represents for children, Goodman and Gotlib (1999) assert "there is no question that children are adversely affected by their mothers' depression" (p. 458). Therefore, it is important that we attempt to understand the mechanisms underlying the contribution of maternal depression to child adjustment problems.

In this paper, I first provide an overview of possible mechanisms of transmission that are related to parenting in depressed mothers. I then review the observational studies that have been conducted with depressed mothers and their adolescent children. Finally, I summarize the findings on maternal depression as it relates to a stressful living environment and maladjustment in the children of depressed mothers.

Mechanisms of Transmission

The effects of parental depression on offspring are likely transmitted through multiple mechanisms, including the heritability of depression, innate dysfunctional neuroregulatory mechanisms, exposure to negative maternal cognitions, behaviors, and affect, and the stressful

context of the children's lives (Goodman & Gotlib, 1999). One of the mechanisms related to parenting is exposure to the mother's negative and/or maladaptive cognitions, behaviors, and affect. Social learning theory suggests that children may acquire behaviors and affect that resemble those exhibited by their depressed mothers through modeling (Bandura, 1977). Moreover, mother-child interactions may serve as a critical mechanism through which other risk factors (e.g., maternal negative cognitive style, family stress) affect children of depressed mothers. For example, parent-child interactions are likely to be an important context in which mothers may model maladaptive ways of thinking and coping for their children. In a study of maternal depression, Hammen (1991) found that children were most likely to associate mother's irritability with her depression, and that the more that children perceived irritability to be associated with maternal depression, the more likely they were to experience depression themselves. Therefore, if depressed mothers display higher levels of negative affect and lower levels of positive affect than non-depressed mothers during interactions with their children, their children may be at greater risk for developing depressive disorders.

A second psychosocial mechanism of transmission described by Goodman and Gotlib (1999) is exposure to a stressful family environment. For example, Adrian and Hammen (1993) reported that children of women with a history of unipolar depression experienced higher rates of family stress than children of bipolar, medically ill, or control women. More recently, Hammen, Brennan, and Shih (2004) found that adolescent children of mothers with current or past major depressive disorder or dysthymia experienced significantly greater levels of conflict and stress than children of never-depressed mothers, and that these children were more reactive to stress. That is, when exposed to similar levels of stress and conflict, the children of depressed women were more likely to be depressed than the children of non-

depressed women. Moreover, Cummings and Davies' (1994) review found that dysfunctional parenting skills displayed by depressed parents negatively affect their children; in particular, inconsistent discipline by depressed parents may be perceived as stressful and is likely to result in a negative cycle of child behavior problems. These mechanisms, in conjunction with vulnerabilities in the child, may result in childhood or adolescent depression or other disorders. Consistent with a diathesis-stress model, the combination of the stress of living with a depressed parent and children's inadequate skills for coping with this stress may result in depression in these children (Hammen, 1997). Hostile and inconsistent parenting by depressed mothers, as opposed to nurturant parenting, contributes to a chronically stressful family environment.

Parenting in Depressed Mothers

Research on the characteristics of depression suggests that depressed parents would be more likely than non-depressed parents to exhibit negative cognitions, behaviors, and affect, as well as more intrusive and withdrawn behaviors during interactions with their children (Cummings & Davies, 1994; Gelfand & Teti, 1990). In a meta-analytic review, Lovejoy, Graczyk, O'Hare, and Neuman (2000) analyzed the results of 46 observational studies of depressed mothers and their children. This meta-analysis compared depressed and non-depressed mothers and identified a moderate effect size for measures of negative/critical maternal behaviors (***d*** = .40) and disengaged maternal behaviors (***d*** = .29), both of which occurred significantly more often in depressed mothers than in non-depressed mothers. They also found a small effect size (***d*** = .16) for measures of positive maternal behavior, which occurred significantly less in depressed mothers than in non-depressed mothers. However, only

17% of the studies reviewed (8 studies) included children ages 6 or older, suggesting that further research is needed to understand the nature of interactions between depressed mothers and their older children and adolescents.

Findings seem to be the most consistent for negative or critical behaviors in depressed mothers. For example, Gordon, Burge, Hammen, and Adrian (1989) found that mothers' history of depression, current depressive symptoms, and chronic stress predicted mothers' negative remarks directed at their school-aged children, $R^2 = .37$, $p < .001$. Further, these authors found that mothers with a history of unipolar depression were more likely to make negative comments to their children than bipolar, medically ill, or control mothers, based on a five minute conflict discussion (mothers participated 3 months after discharge from inpatient treatment or admission to outpatient treatment to rule out current depression). In a study that observed currently depressed and never-depressed mothers and younger children (ages 4-6) playing together, Nolen-Hoeksema, Wolfson, Mumme, and Guskin (1995) found that mothers' current level of depressive symptoms was related to observed levels of mothers' negative affect, $r = .35$, $p < .01$. In addition, Tarullo, DeMulder, Martinez, and Radke-Yallrow (1994) found that, although there was no relationship between mothers' diagnosis of depression and critical/irritable behavior, mothers who were currently experiencing an episode of depression behaved more critically toward their adolescent daughters then mothers who were not in episode or mothers who were never depressed. Thus, in all 3 observational studies (two of which were with currently depressed mothers), mothers with a history of depression were more negative and critical than non-depressed mothers during interactions with their children.

Observational studies have also examined disengaged behaviors in depressed mothers' interactions with their children, although this behavior has been more often coded in

interactions between mothers and their young children (e.g., Hart, Jones, Field, & Lundy, 1999). For example, Gordon and colleagues (1989) found that mothers with a history of depression made significantly more off-task comments than bipolar, medically ill, or control women, which the researchers interpreted as reflecting less maternal involvement in the task. Tarullo and colleagues (1994) found that depressed mothers who had not experienced an episode of depression within the month were significantly less engaged than either never-depressed mothers or depressed mothers who were currently experiencing an episode. They also reported a significant interaction between maternal diagnosis and child gender, in that depressed mothers who were not currently in episode were less engaged with their daughters than their sons. Thus, both observational studies that examined withdrawn or disengaged behaviors found evidence for greater disengagement in mothers with a history of depression, even though they were not currently experiencing a depressive episode, than in other mothers. The authors suggested that the higher level of engagement in mothers who were currently in episode may have been a result of those mothers responding to their children's problem behaviors.

Studies have been less likely to code for warm and positive behavior in interactions with depressed mothers and their children and adolescents. Using their sequential coding system (LIFE), Hops et al. (1987) found that currently depressed women were significantly less likely than non-depressed women to display happy or caring affect toward their children over ten hours of in-home observations. Although Gordon and colleagues (1989) found that mothers with a history of depression were significantly less positive in their interactions with their children than medically ill mothers, differences between depressed and control mothers were slight and only approached statistical significance ($p < .08$). Therefore, in the two studies

that coded for positive or warm behavior, only one found significantly less of such behaviors in depressed mothers than in other mothers. It should be noted that the mothers in the Hops study were currently experiencing an episode of depression, whereas the mothers in the Gordon study only had a history of depression, so the lack of positive behavior may be evident only when mothers are currently experiencing a depressive episode.

Finally, some researchers have looked for evidence of intrusive behavior in depressed parents. For example, Nolen-Hoeksema and colleagues (1995) coded mothers who were currently depressed or never depressed for intrusive behaviors and comments while completing puzzles with their children. However, they failed to find a significant relationship between mothers' level of depressive symptoms and intrusiveness, r =.14, n.s., and mothers' intrusiveness was related to only 1 out of 6 child outcomes (teachers' ratings of competence, r = -.30, $p < .01$). There is clearly a need for more research examining intrusiveness in depressed mothers before conclusions may be drawn.

More recently, researchers have examined the role of Expressed Emotion (EE) as a measure of parenting in depressed parents. EE is thought to reflect the negative emotional atmosphere of the family, and it has been traditionally used as a predictor of relapse in schizophrenia. A mother is asked to talk about her child and how they get along together, and this speech sample is coded for Expressed Emotion (EE), a construct which includes critical comments and statements that suggest emotional overinvolvement. In one study that coded for EE, Goodman, Adamson, Riniti, and Cole (1994) found that mothers with a history of depression were more likely than non-depressed mothers to exhibit critical EE; specifically, mothers with a history of depression were significantly more likely than non-depressed mothers to make critical/hostile comments regarding their children. Researchers have also compared

depressed and non-depressed mothers on a subtype of E emotional overinvolvement, which is similar to intrusiveness, and may belinked specifically to internalizing symptoms in children. Emotional overinvolvement is coded for statements that suggest that the mother is involved in behaviors that are age or developmentally inappropriate, such as dressing an eight-year-old child. Goodman and colleagues (1994) found that mothers with a history of depression were significantly more likely than non-depressed mothers to make comments that suggested overinvolvement in a five minute speech sample. However, more recent findings have not supported this claim. For example, Brennan, Le Brocque, and Hammen's (2003) study of mothers who had experienced an episode of depression within the first 10 years of their child's life found that emotional overinvolvement was significantly *negatively* related to maternal criticism, $r = -.08$, $p = .02$, and psychological control, $r = -.09$, $p < .01$. However, the magnitude of these correlations is quite small, suggesting that the association between maternal overinvolvement is unclear and needs clarification in further research.

It is important to note that EE differs from the other measures of parenting in that it consists of observed speech, but not observed interactions between mothers and their children. To address this issue, a recent study examined the relationship between critical and emotionally overinvolved EE and observed maternal behaviors (McCartny, Lau, Valerie, & Weisz, 2004). They found that parents' critical attitudes as coded in EE manifested themselves in observable behaviors, but that emotional overinvolvement was not linked to observable behaviors. The findings of this study indicate that critical EE is more predictive of actual parenting than EE emotional overinvolvement, and suggest the need for caution when interpreting findings related to EE emotional overinvolvement.

Behavioral Observation Coding Systems

Researchers have increasingly used direct observations of parent-child interactions to assess parenting processes. Objective observations of behavior circumvent some of the problems inherent in questionnaire data. For example, children may under-endorse problems or respond randomly to questionnaires (Garber & Kaminski, 2000). Moreover, there is no clear way to handle the discrepancies that are typically found between child and parent reports of child's behavior (Achenbach, McCanaughy, & Howell, 1987). Observational methods allow researchers to obtain information independent of self- and other-reports and unaffected by reporting biases that influence the reports of parents and children (Kerig, 2001). Parent-child interactions also allow researchers to assess variables that cannot be captured by questionnaires, such as parental responsiveness to the child. Furthermore, direct observational methods allow researchers to study relationships between individuals, rather than simply separate characteristics of individuals (Kerig, 2001). As noted by Rutter (1988), "the properties of a family as a whole derive from the properties of relationships between the individuals in the family" (p. 333).

On the other hand, there are some limitations to using direct observations. For example, there is some question as to the representativeness and generalizability of behavior in the laboratory to behavior in the natural environment. One potential limitation to using direct observations is the phenomenon of reactivity, in which the process of being observed affects the participants' behavior, thereby limiting the gereralizability of the data (Aspland & Gardner, 2003). However, it has been demonstrated that behavior that is elicited in the lab still differentiates distressed from non-distressed families (Prinz, Foster, Kent, & O'Leary, 1979). There may also be some behaviors that are less likely to be captured in a structured laboratory

task, such as withdrawal, making the lab task less representative of the participants' true behavior. Finally, a problem that arises with the use of observational research involves the challenges in minimizing observer (rater) bias and maximizing inter-observer agreement to increase reliability. Extensive and intensive training is required to insure adherence to the coding system being used and to protect against rater drift over time. Because of these issues, the optimal method of obtaining information about parenting may be the combination of observed and self-report data.

There are two broad types of coding systems designed for family interactions: micro-systems and macro-systems. Micro-systems focus on the frequency of specific behaviors within a designated time frame and the sequencing of these behaviors, whereas macro-systems are designed to capture the quality and context of behaviors. One example of a macro, global coding system is the Iowa Family Interaction Rating Scales (IFIRS, Melby et al., 1998), which our research group has used because this approach best captures the family dynamics in which we are interested (e.g., Dausch, Compas, McKinnon, & Wood, 2001). Rather than focusing on the frequency of specific behaviors within a designated time frame, the IFIRS is designed to capture the quality and context of the behavior. For example, coding the number of times a subject laughs in one minute does not account for whether the subject's laughter is expressing anxiety, derisive mocking, or positive mood. Using a global coding system, such as the IFIRS, may provide data that reflect the broader, more trait-like aspects of family members' behavior, and their general style of interaction (Melby & Conger, 2001).

The tasks used in observational research have varied widely across parent-child interaction studies. One of the most commonly used methods with depressed mothers and their children is the *revealed differences task* or *problem-solving interaction*, in which the parent and

child separately complete an issues checklist that contains potential sources of conflict (Prinz et al., 1979). The parent and child then discuss a topic that they agreed was a source of conflict and try to come to a resolution of the problem. Research with depressed mothers and their children has less often used tasks that pull for positive interactions. However, it has been shown that the types of behaviors exhibited are related to the interaction task used. For example, Melby, Ge, Conger, and Warner (1995) found that couples were more likely to exhibit warmth in a positive discussion about their marriage than in a problem-solving task. In terms of parent-child interactions, Donenburg and Weisz (1995) found a main effect for type of task, in that parents and children were more nurturing/protecting, joyfully connecting, and trusting/relying in the (positive) planning task, and more belittling/blaming, sulking/appeasing, affirming/understanding, walling off/distancing in the conflict task. Thus, it seems that the optimal method for behavioral observations may be to include both a positive task and a conflict task to increase the likelihood of capturing both positive and negative parenting behaviors.

Stress and Parenting

Research has demonstrated that stress is strongly related to depression. For example, in a review of the literature, Hammen (2003) demonstrated that interpersonal stressful experiences were both causes and consequences of depression. She reviewed four life domains in which levels of stress affected and were affected by women's depression: parenting, romantic/marital relationships, generation of stressful events, and enduring social dysfunction. In the area of parenting, she noted that the symptoms of depression (e.g., fatigue, irritability, anhedonia) may

contribute to maladaptive parenting behaviors, as well as the overwhelming stress experienced by depressed women.

Observational studies further support the hypothesis that stress is an important factor to consider in parent-child interactions. For example, Simons, Lorenz, Wu, and Conger (1993) used the Iowa Family Interaction Rating Scales to examine communication between depressed parents and their seventh-grade children. They found an indirect effect of stress (economic pressure) on supportive parenting (a compilation code of Warmth/Support, Quality Time, and Positive Reinforcement), mediated by parental depressive symptoms. Hammen's research group has also examined the role of stress in interactions between depressed mothers and their children. For example, Gordon and colleagues (1989) found that current maternal depressed mood and chronic stress were stronger predictors of negative parent-child interaction style than mothers' psychiatric history. As noted by Hammen, Shih, and Brennan (2004), "Parenting quality, especially if perceived as being negative by the child, is itself stressful…" (p. 512). It may be that parent-child interactions represent a crucial pathway for the transmission of depression through family stress and negative maternal cognitions.

Our research group has previously used the IFIRS system to code direct observations of parent-child interactions in our research on the effects of various types of stressors on child and adolescent adjustment. For example, in a sample of 36 adolescent and young adult daughters at risk for breast cancer and their mothers, maternal supportive communication during a 15-minute stressful interaction was negatively correlated with daughters' reports of symptoms of anxiety and depression ($r = -.39$, $p < .01$) and maternal avoidant communication was positively correlated with daughters' reports of anxiety and depression ($r = .40$, $p < .01$) (Dausch et al., 2001). Similarly, in a sample of 35 children with recurrent abdominal pain and their mothers,

Morrow et al. (2005) found an index of overall positive parenting behaviors during a 15 minute stressful interaction was negatively correlated with parents' reports of their children's symptoms of anxiety and depression (r = -.55, p < .01). These studies further demonstrate the relationship between stress and parent-child interactions in a variety of domains.

Effects of Parenting of Depressed Mothers on Children

Research also suggests that mothers' parenting behaviors predict child psychological outcomes. For example, a follow-up study of children of depressed, bipolar, medically ill, and control mothers found that maternal interaction style significantly predicted children's affective symptoms six months later, R^2 = .20 (Burge & Hammen, 1991). Moreover, the child's behavior during the interaction, which was related to mother's interaction style, significantly predicted later symptoms of affective disorders, in that children who exhibited critical behaviors were more likely to have affective symptoms 6 months later (Hamilton, Hammen, Minasian, & Jones, 1993). In a more recent study, distinct gender differences were found in the outcomes related to the ways that adolescent boys and girls responded to depressive parental behaviors (parents did not have to meet the criteria for Major Depressive Disorder) during problem-solving interactions (Davis, Sheeber, Hops, & Tildesley, 2000). Specifically, female adolescents who displayed facilitative behavior toward their mothers (happy or caring affect or positive statements) in response to whining or withdrawal by fathers had significantly higher levels of depressive symptoms 13 months later. For males, responding to mothers' whining or withdrawal with aggressive behavior was related to significantly higher levels of depressive symptoms at follow up. Thus, it seems that the ways in which children respond to their mothers' parenting behaviors are related to depressive symptoms in children.

Studies of maternal speech samples that code for Expressed Emotion (EE) have yielded mixed findings in terms of children's adjustment. Nelson, Hammen, Brennan, and Ullman (2003) used structural equation modeling to demonstrate that critical EE mediated the relationship between maternal history of depression and adolescents' externalizing symptoms and impaired functioning, χ^2 (75, N = 370) = 95.70, $p > .05$; CFI = .976; RMSEA = .027. However, within this model they found that adolescents' internalizing symptoms were significantly related only to mothers' history of depression (not EE), $\beta = .27$. Goodman and colleagues (1994) also examined the relationship between negative EE and children's adjustment, and found that negative EE was significantly related to lower self-esteem in children. Similarly, Frye and Garber (2005) found that both severity/chronicity of mothers' depression and critical EE predicted adolescents' internalizing and externalizing symptoms. Interestingly, critical EE failed to mediate the relationship between maternal depressive history and adolescents' symptoms in this study; in contrast, adolescents' externalizing symptoms mediated the relationship between maternal depressive history and negative EE. More research is needed to determine the direction of effects for critical EE and children's adjustment.

Researchers have also measured the effects of EE emotional overinvolvement on adolescent children. A recent study found that mothers' psychological control, as reported by their children, and observed levels of EE emotional overinvolvement were related to lower levels of child resilience, defined as no current Axis I diagnosis or history of depressive disorder diagnoses, no current internalizing problems, and no indication of current social functioning problems (Brennan et al., 2003). In contrast, the authors found that mothers' warmth and acceptance, per child report, was related to higher levels of children's resilience. However, in a study using the same sample, Nelson and colleagues (2003) reported that EE

emotional overinvolvement had a non-significant relationship with both child internalizing and externalizing symptoms. Thus, no clear conclusions may be drawn regarding the relationship of critical EE or EE emotional overinvolvement and child outcomes.

The current study is part of a larger ongoing series of studies in our research laboratory concerned with stress, coping, and self-regulation processes in children of depressed mothers and fathers (Compas, Langrock, Keller, Merchant, & Copeland, 2002; Jaser et al., 2005; Langrock, Compas, Keller, & Merchant, 2002). Our past research using questionnaire data has indicated that parents with a history of depression report that they are frequently intrusive and withdrawn with their children, and that these ratings were related to higher parent- and self-reported symptoms of children's anxiety/depression and aggression (*r*'s ranged from .24-.36, all $p < .01$, Jaser et al., 2005) Our research group is currently piloting a preventive intervention for families in which one or both parents are depressed to prevent depression in their children (Compas et al., 2002). This cognitive-behavioral intervention consists of teaching the children more adaptive coping skills and teaching the parents more adaptive parenting skills. The current study will help to inform this intervention by indicating which parenting styles need to be targeted and measured during the prevention trial.

Current Study

The current study compares women with and without a history of depression and their adolescent children on parent behaviors and symptom variables. To better understand the mechanisms underlying stressful parent-child interactions, the current study uses a global coding system (IFIRS) to compare videotaped interactions between mothers with and without a history of depression and their adolescent children. I chose the IFIRS system because it best

measures the family dynamics in which I am interested, including several parenting codes. Several of these codes will also allow for further clarification of the role of specific parental behaviors in mothers with and without a history of depression (e.g., parental withdrawal and intrusiveness). The methodology of the current study consists of two videotaped interaction tasks, one regarding a pleasant activity in which the mother-child dyad has recently participated, and the other focused on a mutually agreed-upon stressor related to parent behavior. By including both a positive task and a stressful task, I hoped to capture positive and negative parenting behaviors. The women in our sample with a history of depression were not currently in episode, as I am interested in examining the effects of the chronic stress related to living with a depressed mother, rather than acute stress related to living with a mother who is experiencing an episode of depression. Research has shown that depressed women continue to experience interpersonal impairment, including impaired parenting, even when not in episode (Hammen, 2003), and that maternal stress and parenting mediate the relationship between maternal and child depression, even for formerly depressed mothers (Hammen, Shih, & Brennan, 2004) This study builds on past observational research (Lovejoy et al., 2000) with depressed mothers and children by examining more specific parent behaviors, as well as the relationship between observed and perceived parent behaviors and adolescents' adjustment.

The current study is a mixed factorial design with one between-subjects factor (maternal diagnostic history) and one within-subjects factor (type of task). The first goal of the study was to replicate and extend past findings, in that I expected the mothers with a history of depression to exhibit more critical/negative behavior, less warmth/positive behavior, more disengagement, and more intrusiveness than mothers with no history of depression.

Second, to extend the findings of previous studies, parent behaviors were examined across both a positive and a stressful interaction task. I expected to find a main effect for the type of interaction task, in that mothers would exhibit fewer negative behaviors and more positive behaviors in the pleasant activity task, and they would display more negative behaviors and fewer positive behaviors in the stressful task. In addition, I expected to find an interaction of Task x Group; that is, I hypothesized that mothers with a history of depression would be less likely than mothers with no history of depression to exhibit positive behavior in the pleasant activity task.

Third, I expected to find that observed maternal behaviors were related to maternal reports of current depressive symptoms (BDI-II scores), as well as maternal and child reports of stress related to intrusive and withdrawn parent behaviors on the RSQ. Specifically, I expected to show that observed negative maternal affect across the interactions would be a good reflection of mothers' current depressive symptoms and their behavior outside of the laboratory setting.

Fourth, I expected that the children of mothers with a history of depression would experience greater symptoms of emotional and behavioral problems than the children of mothers with no history of depression, and that observed maternal behaviors would mediate the relationship between maternal diagnostic history and adolescents' adjustment. In addition, I expected that observed maternal behaviors would also mediate the relationship between current maternal depressive symptoms and adolescents' adjustment. That is, higher levels of observed negative affect and hostile parenting would be related to poorer adjustment in adolescents, and higher levels of observed positive affect and nurturant/involved parenting

would be related to better adjustment in adolescents (i.e., lower levels of symptoms on the CDI, CBCL, and YSR).

CHAPTER II

METHOD

Participants

The current sample consists of 72 women (35 with a history of depression and 37 with no history of depression) and their adolescent children (36 girls and 36 boys; mean age 12.2; *SD* = 1.07) from Nashville, TN. Mothers with a history of depression were recruited from the roster of a completed study, conducted by Richard Shelton, M.D. at the Department of Psychiatry at Vanderbilt University, as well as through an email advertisement of the study at the Vanderbilt Medical Center. Mothers without a history of depression were recruited through the same email advertisement of the study. Attempts were made to achieve group-level matching for mothers with and without a history of depression in terms of SES, ethnicity, age and gender of child, and marital status. When mothers had multiple children in the desired age range, one child was randomly selected by the researcher to participate. Children ages 11-14 were included in the proposed research because this developmental period is associated with increasing rates for depression, as well as increasingly stressful parent-child interactions (Hankin & Abramson, 2001). These children represent early adolescents, following the guidelines set by Lerner and Steinberg (2004) defining adolescence as the second decade of life. Mothers and children were offered $25 each in monetary compensation for their time.

Out of the 115 women who were screened, 36 did not participate. Seven women were not eligible because they were currently experiencing an episode of depression, and six women were not eligible because they had another principle DSM-IV diagnosis (4 reported anxiety

disorders and 1 reported an eating disorder)). In addition, 16 of the eligible families failed to show for a scheduled appointment, and 7 families who were eligible were not interested in participating. Seventy nine families participated in the study, but six families were excluded from the current sample due to substantial missing data (they either did not complete the questionnaires or they failed to complete both interactions) and one family was excluded when it became evident that the child did not live with his mother. Thus, the current sample consists of 72 mother-adolescent dyads.

Mothers' mean age was 41.7 (*SD* = 5.13), median mothers' education was 16 years (4 year college degree), and median occupation level on the Hollingshead scale was 6 (e.g., technicians, office managers). The sample was 82% Caucasian, 14% African American, 3% Asian-American, and 1% Other, which is representative of the region in which the study was conducted. Of the mothers in the study, 68% were married, 28% were divorced, and 4% were single. Mothers did not differ by group on age, race, education, occupational level, or marital status. Of the mothers with a history of depression, time since last episode ranged from 1 to 120 months, with a mean of 31 months. The number of depressive symptoms endorsed for the last episode ranged from 5 to 9, with a mean of 6.9. Seventy four percent of the women with a history of depression (n = 26) reported taking medication for their depression, and 34% (n = 12) reported being in counseling.

Procedure

All potential participating mothers were screened with a diagnostic phone interview to assess symptoms of Major Depressive Disorder (MDD) and Dysthymia (DYS) using rules for deriving diagnoses using the MDD section of the Structured Clinical Diagnostic Interview

(SCID, First, Spitzer, Gibbon, & Williams, 2001). Our research group has used this method successfully in recruiting depressed parents in previous research (e.g., Compas, Connor-Smith, Saltzman, Thomsen, & Wadsworth, 2001; Langrock et al., 2002). Women were asked if they had ever felt depressed, and if it was determined that they had experienced an episode of depression during the lifetime of their child, they were screened for current depression. In addition, women were screened for bipolar disorder, psychotic symptoms, and any other primary Axis I disorder they considered more serious than depression. Women without a history of depression were excluded if they had experienced any Axis I disorder during the lifetime of the child. Upon enrollment in the study, mothers and adolescents were asked to complete questionnaires and participate in a videotaped interaction. Families completed the questionnaires in the laboratory prior to the videotaping. In addition to providing demographic data, mothers were asked to complete a measure of their current depressive symptoms, a measure of their child's coping responses for stress related to parent behaviors, a measure of parenting style, and a measure of their child's functioning. Adolescents were asked to complete measures of their own depressive symptoms and functioning, a measure of their coping responses for stress related to parent behaviors, and a measure of their perception of their mother's parenting.

Following the protocol we developed and used successfully in previous research (Dausch et al., 2001; Morrow et al., 2005), the parent-child interactions were conducted in a private laboratory space, including comfortable chairs and a video camera. Parents and adolescents participated in two 15-minute interactions. The length of the interactions was chosen because the coding system being used (IFIRS) was designed for use with 15-minute interactions (Melby & Conger, 2001). The first interaction gave the mother and adolescent an

opportunity to discuss a recent positive experience, while becoming acclimated to the lab setting and increasing their comfort with the experience of being videotaped.

For the first interaction, the dyad was instructed to spend 15 minutes discussing a recent pleasant activity in which they participated (e.g., a family outing or holiday). A cue card with stems for standardized prompting questions was given to the family to guide the interaction (e.g., What happened when we [went camping]? How did we feel when we [went camping]? What prevents us from doing activities together that we like? How could we do more pleasant activities?). These questions were chosen to generate positive affect and behavior and to give the interaction a problem-solving component, which has been included in the majority of research using the IFIRS system (Melby & Conger, 2001). After providing these instructions, the experimenter started the video camera and left the room. The experimenter returned after 15 minutes, stopped the camera, and began the second interaction.

In preparation for the second interaction, mothers and adolescents were each asked to identify stressful issues that occur in their family by completing a standardized checklist. The twelve items on the list were taken from the parental depression version of the Responses to Stress Questionnaire (Connor-Smith, Compas, Wadsworth, Thomsen, & Saltzman, 2000; Langrock et al., 2002), and were tailored to reflect areas of parent behavior previous research has shown to be affected by parental depression: parental withdrawal, parental intrusiveness, and marital conflict (Cummings & Davies, 1994; Gelfand & Teti, 1990; Hammen et al., 2004). These items have been found to be predictive of increased levels of internalizing and externalizing symptoms in children of depressed parents (Jaser et al., 2005; Langrock et al., 2002). An example of an item for parental withdrawal is, “My child wishes that I would spend more time with her;” for parental intrusiveness, “My child thinks I worry about bad things

happening to him;" and for marital conflict, "My child hears her parents shouting at each other." Respondents were asked to report on the recent (i.e., past 6 months) occurrence of each of the stressors on a five-point Likert scale (0 = never, 1 = hardly ever, 2 = sometimes, 3 = quite often, and 4 = all the time), and to rank the top three stressors. Parallel versions of the stressors related to parent behaviors have been developed for the adolescents' self-report and parents' report of their adolescents' responses (e.g., My mom does not listen to me, or pay attention to events in my life/My child thinks I does not listen or pay attention to events in her life). Although these items were chosen to reflect stressors associated with living with a depressed parent, many of them generalize to families without depression.

The experimenter determined a common stressor by comparing the top three stressors ranked by the mother and child. In the event that the mother and child did not rank one of the same stressors, the experimenter summed the rating scores and chose the issue that rated the highest. The dyad was given a second cue card with standardized questions to prompt discussion on this topic (e.g., What happened the last time [Mom was upset or tense]? When [Mom gets upset or tense,] what usually happens? What kind of feelings or emotions do we usually have when [Mom is upset or tense]? What can we do to reduce this stress?). After the second 15-minute interaction, the experimenter returned, turned off the camera, and debriefed the participants.

Measures

Demographics

Demographic information was obtained from the mother in a questionnaire asking for her birth date and the birth date of her child, parents' levels of education, parents' occupation, ethnicity, and marital/partner status.

Maternal Diagnosis

Maternal diagnosis was determined by the screening interview, which was used to assess symptoms of Major Depressive Disorder (MDD) and Dysthymia (DYS) using rules for deriving diagnoses using the MDD and DYS sections of the Structured Clinical Diagnostic Interview (SCID, First et al., 2001). This screening interview was used regardless of the source/method of recruitment, allowing us to determine which women met the criteria of Major Depressive Disorder during the life of the child and to rule out women who were currently in episode, who met the criteria for bipolar disorder or psychotic symptoms, or who reported another primary Axis I disorder that they considered more serious than their depression.

Maternal Depressive Symptoms

The Beck Depression Inventory II (BDI-II, Beck, Steer, & Brown, 1996) was administered to all of the women, regardless of diagnostic history, to determine current levels of depressive symptoms. The BDI-II has been widely used to assess the typical attitudes and symptoms presented by depressed individuals. The BDI has been shown to have excellent

reliability, with internal consistency of $\alpha = .91$ and test-retest reliability of $r = .93$ (Beck, Steer, Ball, & Ranieri, 1996).

Children's Emotional and Behavioral Problems

The Child Behavior Checklist (CBCL, Achenbach, 1991) was given to the mother for her perception of the child's internalizing and externalizing problems over the past six months. Adolescents completed the Youth Self Report (YSR, Achenbach, 1991) to provide their own perceptions of their functioning. The Achenbach System of Empirically Based Assessment has strong test-retest reliability (.79-.95), and criterion-related validity has been established, as referred young adults consistently score significantly higher than non-referred young adults on problem scales (Achenbach & Rescorla, 2001). The scales are based on factor analyses of data from 4,994 clinically referred children and were normed on 1,753 children from a nationally representative sample. Normalized *T* scores allow an individual's data to be compared to norms for the same age and sex in the general population. *T* scores of greater than or equal to 65 ($\geq 93^{rd}$ percentile) for DSM-based scales (affective disorders and conduct disorder), and *T* Scores of greater than or equal to 60 ($\geq 84^{th}$ percentile) for Broadband Scales (internalizing and externalizing problems) are in the borderline clinical range. *T* scores of greater than 69 ($>97^{th}$ percentile) for DSM-based Scales and greater than 63 ($> 90^{th}$ percentile) for Broadband Scales are in the clinical range. These cutoffs are based on scores that best differentiate referred versus non-referred children and adolescents (Achenbach & Rescorla, 2001).

Child Depressive Symptoms

Adolescents completed the Child Depression Inventory (CDI, Kovacks, 1980) as a measure of current depressive symptoms. The CDI has been widely used in studies of clinically referred and non-referred children and adolescents. Internal consistency is adequate (e.g., $\alpha = .80$) and meets criteria for test-retest reliability and stability over time (Smucker, Craighead, Craighead, & Green, 1986).

Stress Related to Parent Behaviors

The parental depression version of the Responses to Stress Questionnaire (Connor-Smith et al., 2000; Langrock et al., 2002) was used to assess how often in the last six months adolescents were exposed to stressors related to parent behaviors associated with depression. Twelve stressful events were selected to provide examples of three areas which research has shown to be affected by parental depression: marital conflict, parental withdrawal (or disengagement) and parental intrusiveness (see above for description of items). Based on previous analyses that indicated the marital conflict items were not related to child adjustment, these items were dropped from the present analyses (Langrock et al., 2002). Prior research with this measure has found good internal consistency (Chronbach's alphas ranged from $\propto$ = .49 to .67) and good test-retest reliability over a 3 month period (*r*'s ranged from .57 - .80, all $p < .01$) (Jaser et al., 2005).

Observed Behaviors

The Iowa Family Interaction Rating Scales (IFIRS, Melby et al., 1998) was chosen to code the observational data for several reasons. First, the IFIRS system is a global, or

macrolevel, system designed to measure behavioral and emotional characteristics of individuals, as well as attributes regarding overall family processes. This type of system is best suited to studying an ongoing dynamic system and its patterns of behaviors (Melby & Conger, 2001). Second, the validity of the IFIRS system has been established against reports from self and other family members using correlational and confirmatory factor analyses (Melby & Conger, 2001). Finally, although the IFIRS system was designed to study rural, Midwestern families, it has been used to produce valid results across diverse samples, including studies with African Americans (e.g., Melby, Hoyt, & Bryant, 2003).

In the IFIRS coding system, behaviors are coded at two levels: Individual Characteristics scales (e.g., Sadness), which measure each participant on specific behaviors, regardless of the other participant, and Dyadic Interaction scales (e.g., Hostility), which measure the behavior of each participant *toward* the other participant. A subset of the Dyadic Interactions scales is the Parenting Codes (e.g., Inconsistent Discipline) that rate parents' observed and reported childrearing behaviors during the interaction. Frequency of behaviors, context and affect, as well as intensity and proportion are all considered when scoring each subject on the level of "characteristicness" of the scale. Each behavior is scored on a scale from 1-9, with 1 being "not at all characteristic" of the subject during the 15-minute interaction, and 9 being "mainly characteristic" of the subject during the interaction. The following Individual Characteristic scales were coded: Sadness, Anxiety, Externalized Negative, and Positive Mood. Several dyadic scales were also coded: Hostility, Angry Coercion, Denial, Antisocial, Prosocial, Warmth/Support, Listener Responsiveness, Communication, and Avoidance. We also coded for the following IFIRS parenting codes: Positive Reinforcement, Indulgent/Permissive, Child Monitoring, Quality Time, Inconsistent

Discipline, Intrusiveness, Parental Influence, Sensitive/Child Centered, Neglecting/Distancing and Lecture/Moralize for a total of 13 codes for each child and 23 codes for each mother. These codes were selected to capture both the negative aspects of parenting (i.e., neglect/distancing) and the lack of positive parenting (i.e., quality time spent together) typical of depressed mothers. Previous researchers have used compilation codes for Hostile Parenting, consisting of the Hostility, Antisocial, and Angry Coercion codes (e.g., Ge, Conger, & Elder, 1996; Melby & Conger, 1996), and for Nurturant/Involved Parenting, consisting of the Warmth/Support, Positive Reinforcement, Child Monitoring, and Parental Influence codes (e.g., Melby, Conger, Conger, & Lorenz, 1993).

The IFIRS coding system requires that each tape be viewed a total of 5 times: once to develop an overall sense of the interaction, and an additional 2 times per focal (mother and adolescent) to generate the specific codes for each participant. Coders randomly determine which focal will be coded first by flipping a coin. Each interaction was coded by the author and double-coded by another trained research assistant. Coders were blind to mothers' diagnostic status, and research assistants scored only one task (pleasant activity or family stressor) per family.

In preparation for using the IFIRS system in the proposed study, the author received intensive training from one of the authors of the IFIRS (Melby) at the Iowa Institute for Social and Behavioral Research in Ames, Iowa in January, 2002. Training consisted of in-depth studying of the manual, a written test of the scale definitions, and coding conventions. The author completed 50 hours of on-site training, including attending coding meetings with experienced observers, viewing videotaped examples of specific behaviors ("behavior spots"), and reliability testing on tapes scored by the Iowa team. Based on this model of training, the

applicant trained several graduate and undergraduate research assistants on the coding system. Successful completion of training consists of passing a written test with at least 90% correct, and achieving at least 80% reliability (perfect match or within one a one-step match on a 9-point scale) on the viewing tests. Weekly training meetings are necessary to prevent coder drift and to provide a forum in which questions about the different codes may be addressed. Coders met to reconcile any scores that were discrepant (greater than two steps apart). In addition, when inter-rater reliability was below 60%, coders independently coded the tape again for the scales that were discrepant and met to reconcile any scores that remained two steps apart.

Several compilation parenting codes, based on content of statements and nonverbal behaviors, were created for use in data analyses, and these were selected based on theoretical and statistical matches. Hostile parenting, a compilation code previously used in research with the IFIRS system, consisted of the summed scores across interactions for the codes Hostility, Angry Coercion, and Antisocial ($\propto$ = .84). Intrusive parenting consisted of the summed scores across interactions for Intrusiveness and reverse-coded Sensitive/Child Centered ($\propto$ = .69). Disengaged parenting consisted of the summed scores across interactions for Avoidance and Neglect/Distancing and reverse-coded Listener Responsiveness ($\propto$ = .72). Finally, the compilation code of Nurturant/Involved parenting used by other researchers, consisting of the codes Warmth/Support, Child Monitoring, Parental Influence, and Positive Reinforcement, had fairly low internal consistency ($\propto$ = .59). Therefore, I removed the Parental Influence code to create Positive parenting, which had better internal consistency ($\propto$ = .73). In addition, compilation codes were created for observed maternal Negative Affect, consisting of the summed scores across interactions for the codes Anxiety and Sadness ($\propto$ = .48) and observed

maternal Positive Affect, consisting of the summed scores across interactions for the codes Positive Mood and Warmth ($\propto$ = .68).

Data Analyses

Correlational Analyses

Bivariate Pearson correlations were conducted as a first step in examining relationships among variables from the IFIRS codes and the self-reported data. These included the correlations between the mothers' current depressive symptoms on the BDI-II and parenting behaviors. In addition, the relationships between mothers' current depressive symptoms and adolescents' self-reported and parent-reported symptoms on the CDI, CBCL, and YSR were examined. Correlational analyses were also used to examine the relationship between observed maternal negative affect and maternal diagnostic history, maternal current depressive symptoms, and self- and child-reported parenting behaviors on the RSQ.

Analysis of Variance

To test for main effects for group and task and a group x task interaction, I ran a 2 X 2 (group by task) multivariate analysis of variance with the compilation codes for negative affect (Sadness and Anxiety) and positive affect (Positive Mood and Warmth/Support) as the dependent variables, and task and history of depression as the independent variables. The mothers' BDI-II score was also covaried in this analysis. Planned contrasts were used to test the first hypothesis, that mothers with a history of depression would exhibit more negative affect, more disengagement, more intrusiveness, more hostile parenting, and less positive affect and positive parenting than mothers without a history of depression. Planned contrasts

were also used to test the second hypothesis, that mothers would exhibit fewer negative behaviors and more positive behaviors in the pleasant activity task, and they would display more negative behaviors and fewer positive behaviors in the stressful task.

Multiple Regression Analyses

To test for mediation I conducted a series of linear multiple regressions, with the adolescents' CDI scores and CBCL and YSR scores on the Internalizing and Externalizing scales as the dependent variables, and mothers' diagnostic history, BDI-II scores, negative affect, and hostile parenting compilation codes as predictors.

Sample Size and Power Analyses

Power analyses were conducted to determine the sample size required to address the primary research aims of this study. The current sample size provides a power of .80 ($p < .05$) to detect effects of .60 or larger. Previous findings from a meta-analysis comparing depressed and non-depressed mothers on various parenting behaviors were used to estimate the effect sizes that are likely to be found in the proposed study (Lovejoy et al., 2000). The meta-analysis reported a medium effect size for negative behaviors (***d*** = .40). Using this effect size as a guide, the current sample of 72 participants (35 mothers with a history of depression and 37 mothers with no history of depression) provided a power of .51 to detect effects of ***d*** = .40 or larger. Using the effect size reported for disengagement (***d*** = .29), a sample of 72 participants provided a power of .33 to detect effects of .29 or larger. Finally, using the effect size found for positive behavior, ***d*** = .16, a sample size of 72 provided a power of .17 to detect a small effect of .16.

Power analyses were also conducted to determine the sample size required to address the hypotheses regarding the relationship between parent behavior and adjustment. Findings from our previous research on mothers' and daughters' communication about breast cancer risk found mean correlations between communication and distress of $r = .40$. Using this effect size as a guide, a sample of 72 participants (mother-adolescent pairs) provided power of .98 to detect effects of $r = .40$ or larger. In addition, findings from our previous research on symptoms in adolescent children of depressed parents found parent-reported symptoms were about one standard deviation higher than those found in the general population ($\boldsymbol{d} = 1.0$) and self-reported symptoms were about one-half a standard deviation higher than those found in the general population ($\boldsymbol{d} = .5$). Using these effect sizes as a guide, our sample of 72 dyads provided a power of .99 to detect group differences in maternal reports of adolescents' symptoms and a power of .68 to detect group differences in self-reported symptoms. Thus, it seems that the current sample size is sufficient to detect medium to large sized effects.

Comparing the sample size of the current study to other observational studies of depressed mothers demonstrates that a sample size of 72 is comparable to or larger than the majority of observational studies with depressed mothers. Other studies of parenting in depressed mothers include the UCLA sample (e.g., Gordon et al., 1989): 16 depressed, 13 bipolar, 11 chronically ill, 26 controls (n = 66); the Hops sample (Hops et al., 1987): 27 clinically depressed mothers, 25 control mothers and their families (n = 52); the Tarullo sample(Tarullo et al., 1994): 31 depressed mothers, 22 bipolar mothers, 30 control mothers (n = 83); and the Nolen-Hoeksema sample (Nolen-Hoeksema et al., 1995): 40 currently depressed, 40 non-depressed (n = 80). Studies which used EE as the measure of parenting had larger samples, including the Frye sample (Frye & Gaber, 2005): 146 with a history of

depression, 48 with no history of depression (n = 194); and the Australian sample (e.g., Brennan et al., 2003): 812 mothers with a history of depression.

CHAPTER III

RESULTS

Preliminary Analyses

Preliminary analyses indicated an outlier on the YSR Conduct Disorder scale for a child whose mother had no history of depression (the participant's score was greater than 3 *SD* from the mean for the total sample). Therefore, this outlier was removed from analyses using the YSR Conduct Disorder and Externalizing scales. No other univariate or multivariate outliers were identified. Tests for gender differences were conducted for key variables, and the only significant differences found were for observed maternal positive affect and observed positive parenting (both $p < .01$). In both cases, mothers were more positive in the interactions with their daughters than with their sons. Further analyses indicated that there was a trend towards an interaction for gender x group, in which mothers with a history of depression were somewhat less likely to exhibit positive parenting with their daughters than with their sons. In addition, correlations were run to determine if child age was related to any key variables. The only significant relationship was between child age and child- and parent-reported stress related to withdrawn parenting on the RSQ (both $p < .02$), in that older children and their mothers reported significantly less stress related to withdrawn parent behaviors than younger children.

Parent Behaviors

Means and standard deviations for observed parent behaviors and self- and child-reported stress related to parent behaviors are reported in Table 1 by group (mothers with and without a history of depression).

Table 1

Differences between Mothers with and without a History of Depression on Observed and Reported Parent Behaviors and Current Depressive Symptoms

	Depressed		Nondepressed			
	Mean	SD	Mean	SD	*t* value	*p* value
Observed Negative Affect	17.63	4.01	15.59	3.67	2.25	.028
Observed Positive Affect	21.09	4.25	20.86	4.72	.21	.836
Hostile Parenting	18.45	7.56	15.70	5.93	1.74	.086
Intrusive Parenting	12.63	4.68	12.62	3.88	.007	.995
Disengaged Parenting	20.83	5.32	16.97	4.83	3.23	.002
Positive Parenting	26.94	5.90	26.89	6.38	.04	.972
Mom Report Intrusiveness	4.14	2.10	3.86	1.80	.60	.548
Mom Report Withdrawn	3.80	2.06	2.27	1.41	3.67	.001
Child Report Intrusiveness	4.20	2.39	3.65	2.34	.99	.325
Child Report Withdrawn	2.60	2.66	1.51	2.33	1.85	.069
BDI	13.06	9.95	6.13	6.46	3.5	.001

In terms of observed parent behaviors, there was a group difference in level of observed negative affect (sadness and anxiety) of approximately one-half standard deviation, in which mothers with a history of depression exhibited significantly greater negative affect across the

interactions than mothers with no history of depression. There was also a group difference of over one-half standard deviation for Disengagement, in which the mothers with a history of depression exhibited significantly more disengaged behavior across the interactions than the mothers with no history of depression. In addition, mothers with a history of depression exhibited somewhat more hostility toward their children than mothers with no history of depression ($p = .086$). However, there were no significant differences between the groups on observed positive affect, Positive parenting, or Intrusive parenting.

In terms of questionnaire data, mothers with a history of depression reported their children as experiencing more stress related to withdrawn parenting than mothers with no history of depression on the RSQ, and their children also reported more stress related to their mothers' withdrawn behaviors. However, the groups did not differ on self-reported or adolescent-reported stress related to maternal intrusive behaviors. Finally, there was a group difference of approximately one standard deviation for BDI scores (i.e., a large effect), with mothers with a history of depression reporting significantly more current depressive symptoms (M = 13.06) than mothers with no history of depression (M = 6.46).

Correlations of Maternal Current Depressive Symptoms with Parent Behaviors

Correlations were used to further test the first hypothesis regarding the relations between current maternal depressive symptoms with observed and reported parent behaviors (see Table 2). Mothers' current depressive symptoms, as reported on the BDI-II, were significantly related to observed maternal negative affect across the two interaction tasks ($r = .35$, $p = .002$) but were not significantly related to any other observed parent behaviors.

Table 2

Correlations between Current Depressive Symptoms and Observed and Reported Parent Behaviors.

CR = Child Report, MR = Mother Report + $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1. BDI	1.0											
2. CR Intrusive	.40***	1.0										
3. CR Withdraw	.34**	.50***	1.0									
4. MR Intrusive	.46***	.51***	.36**	1.0								
5. MR Withdraw	.50***	.38***	.41***	.47***	1.0							
6. Neg Affect	.35**	.49***	.31**	.32**	.38***	1.0						
7. Hostile Parenting	.19	.36**	.27*	.26*	.14	.06	1.0					
8. Diseng Parenting	.17	.23*	.34**	.19	.28*	.20+	.60***	1.0				
9. Intrus Parenting	.16	.33**	.30*	.37**	-.19	.10	.71***	.59***	1.0			
10. Pos Affect	-.05	-.22+	-.04	-.19	-.03	.04	-.34**	-.34**	-.39***	1.0		
11. Pos Parenting	-.02	-.22+	-.02	-.10	-.06	.01	-.42***	-.38***	-.39***	.86***	1.0	
12. Child Age	.00	-.01	-.31**	.08	-.28*	.09	.05	.01	-.04	-.11	-.11	1.0

However, mothers' current levels of depressive symptoms were related to higher levels of mother and child-reported levels of stress related to maternal intrusive and withdrawn behaviors on the RSQ (*r's* ranged from .34 to .50, all $p < .01$).

Test of Moderation for Maternal Diagnostic History and Current Depressive Symptoms

As a final test of the first hypothesis, a linear multiple regression analysis was conducted including the interaction term of maternal diagnostic status and BDI-II score (centered) with observed Negative Affect as the dependent variable to test for a moderating effect of current depressive symptoms on history of depression. Results indicated that the interaction term did not account for a significant amount of variance when entered along with the main effects for current BDI-II score and diagnostic status as predictors (R^2 change = .00, n.s.). Therefore, the effect of maternal diagnostic status on observed negative affect was not moderated by current depressive symptoms; i.e., the combination of a history of depression and current depressive symptoms was not related to more sad affect during the parent-child interaction.

Test of Task x Group Interaction

Multivariate analyses of variance (MANOVA) were conducted to test the second hypothesis regarding a task x group interaction for observed maternal positive and negative affect (See Table 3).

Table 3

Means and Standard Deviations for Task x Group MANOVA

Negative Affect		
Group	Pleasant Activity Task	Family Stress Task
History of Depression	8.17 (2.27)	9.46 (2.59)
No History of Depression	6.92 (2.11)	8.68 (2.79)
Positive Affect		
Group	Pleasant Activity Task	Family Stress Task
History of Depression	12.17 (2.43)	8.91 (2.79)
No History of Depression	11.35 (2.34)	9.51 (2.80)

The MANOVA for observed maternal negative affect indicated a main effect for task, $F(1, 71) = 13.80$, $p < .001$, and for group, $F(1, 71) = 6.17$, $p = .014$, in which mothers exhibited more negative affect during the stressful task than during the pleasant activity task, and mothers with a history of depression exhibited more negative affect across interactions than mothers without a history of depression. The Task x Group interaction was not significant for negative affect. The MANOVA for positive affect revealed a main effect for task ($F(1, 71) = 31.93$, $p = .000$), in which mothers exhibited more positive affect during the pleasant activity task than the stressful task. There was no main effect for diagnostic history or Task x Group interaction for positive affect. After covarying for mothers' current depressive symptoms (BDI-II scores), the main effect for task remained significant for positive and negative affect, but there was no longer an effect for group on negative affect ($F(1, 71) = 1.70$, $p = .194$). This indicates that after accounting for mothers' current depressive symptoms, maternal history of depression was no longer related to observed negative affect.

Correlations of Observed and Reported Parent Behavior

Correlations between observed maternal negative affect, current depressive symptoms, and self- and child-reports of maternal behavior are reported in Table 2. Observed negative affect was significantly and positively related to current depressive symptoms and child and parent-reported intrusive and withdrawn parent behaviors, *r*'s range from .31 to .49 (all $p < .05$), which suggests that observed negative affect is a good reflection of mothers' depressive behavior outside of the laboratory.

Test of Observed Maternal Behavior as a Mediator of Maternal Depression and Adolescents' Adjustment

Adolescent Internalizing and Externalizing Symptoms

Adolescents' current depressive symptoms and self- and parent-reported symptoms of internalizing and externalizing disorders, as well as the DSM-based scales of affective disorders and conduct disorder are reported in Table 4 by maternal diagnostic group (children of mothers with and without a history of depression). There was a significant difference between groups for parent-reported and self-reported internalizing disorders and affective disorders in adolescents and for parent-reported externalizing disorders and conduct disorder, as well as for self-reported current depressive symptoms. The mean *T* scores for the internalizing, externalizing, affective disorders and conduct disorder scales for the adolescents of mothers with a history of depression on the CBCL and the internalizing and affective disorders on the YSR are approximately .5 to 1 standard deviation higher than the scores for the adolescents of mothers with no history of depression, reflecting medium to large effects for maternal depression history. Current depressive symptoms, as reported on the CDI, in the

Table 4

Differences between the Adolescent Children of Mothers with and without a History of Depression on Emotional and Behavioral Symptoms

Borderline Clinical = T Score of ≥65 (≥93rd percentile) for DSM Scales, T Score ≥60 (≥84th percentile) for Broadband Scales
Clinical = T Score f > 69 (>97th percentile) for DSM Scales, >63 (> 90th percentile) for Broadband Scales
Outlier removed for YSR Conduct Disorder and YSR Externalizing

	History of Depression				No History of Depression					
	Mean	SD	Percent in Borderline	Percent Clinical	Mean	SD	Percent Borderline	Percent Clinical	*t* value	*p* value
CBCL Affective Disorders	57.20	8.11	17.3	11.5	52.81	3.96	0	0	2.85	.007
CBCL Conduct Disorders	56.69	7.78	25.8	8.6	53.27	5.16	5.4	2.7	2.02	.048
YSR Affective Disorders	56.06	6.85	22.9	0	53.49	4.50	2.7	0	2.08	.042
YSR Conduct Disorder	55.09	5.79	8.7	0	54.22	5.91	11.2	0	.54	.594
CBCL Internalizing	57.11	9.0	34.5	28.8	49.84	8.2	5.4	0	3.55	.001
CBCL Externalizing	54.69	10.5	34.5	25.8	47.14	9.5	10.8	8.1	3.00	.004
YSR Internalizing	55.66	9.7	43.1	23.1	50.86	9.7	18.9	16.2	2.53	.014
YSR Externalizing	52.03	9.4	16.2	8.1	49.51	9.7	25.9	8.7	1.08	.283
CDI	8.89	8.41			5.57	5.29			1.99	.051

adolescents of mothers with a history of depression were also approximately a .5 standard deviation higher than the scores for those whose mothers had no history of depression. This indicates that, as expected, the adolescents whose mothers had a history of depression were experiencing higher levels of symptoms than the adolescents whose mothers had no history of depression at an effect size of at least ***d*** = .5, or a medium-sized effect (or for CBCL about ***d*** = .8, or a large effect; (Cohen, 1988).

In addition, mothers with a history of depression reported that their adolescent children had affective and conduct disorder symptoms in the clinical range at a rate of 3 to 4 times that found in the general population, and adolescents of mothers with a history of depression reported borderline clinical symptoms of affective disorders and conduct disorder at 2 to 5 times that found in the general population. Likewise, mothers with a history of depression and their adolescent children reported internalizing symptoms in the clinical range at a rate 2 to 3 times that found in the general population, and mothers with a history of depression reported externalizing symptoms in the clinical range at a rate 2 to 3 times that found in the general population. The children of mothers with a history of depression had *T* scores on the YSR and CBCL internalizing and externalizing scales as well as the affective disorders and conduct disorder scales that were over .5 standard deviation above the mean in the general population, indicating that the adolescents of mothers with a history of depression were experiencing significant levels of emotional and behavioral problems. Moreover, mothers' current depressive symptoms were significantly and positively associated with higher levels of adolescents' current depressive symptoms, as reported on the CDI, and with higher levels of self-reported and mother-reported symptoms of internalizing and externalizing problems and affective disorders and on the YSR and CBCL (*r*'s ranged from .24 to .45, all $p < .05$).

Correlations of Parent Behaviors with Adolescent Emotional and Behavioral Problems

Correlations were used to determine the degree to which observed parent behaviors were related to adolescents' self-reported and parent-reported symptoms of emotional and behavioral problems (see Table 5).

Table 5

Correlations between Parent Behaviors and Adolescent Adjustment

CR = Child Report, MR = Mother Report, Affect = Affective Disorders, CD = Conduct Disorder + p < .10, * p < .05, ** p < .01, *** p < .001

	CBCL Intern	CBCL Extern	YSR Intern	YSR Extern	CDI	CBCL Affect	CBCL CD	YSR Affect	YSR CD
CR Intrusive	.20+	.45***	.40***	.62***	.43***	.20+	.47***	.46***	.41***
CR Withdrawn	.21+	.29*	.21+	.27*	.23+	.21+	.30*	.16	.17
MR Intrusive	.37***	.50***	.16	.40***	.19	.32**	.44***	.14	.30*
MR Withdrawn	.29*	.47***	.33**	.32**	.35**	.27**	.10***	.19	.22+
Negative Affect	.24*	.38***	.40***	.48***	.40***	.18	.36**	.40***	.29*
Hostile	.32**	.26*	.19	.14	.23+	.15	.23+	.13	.16
Positive	-.04	-.02	.09	.04	-.03	.05	-.07	.09	-.01
Intrusive	.21+	.15	-.02	-.02	.02	.06	.11	-.04	.05
Disengaged	.21+	.20	.06	.03	.08	.09	.14	.02	.08
Child Age	.06	.05	-.22+	.02	-.13	-.09	.16	-.08	-.03

Observed negative affect was related to higher levels of parent- and self-reported internalizing and externalizing behaviors, as well as parent- and self-reported symptoms of affective disorders and self-reported symptoms of conduct disorder (all $p < .05$). Negative affect was also related to higher levels of current depressive symptoms in adolescents, as reported on the CDI ($p < .001$). In addition, hostile parenting was related to higher levels of parent-reported internalizing and externalizing behaviors, and higher levels of current depressive symptoms and parent-reported conduct disorder. Finally, the association between

disengaged and intrusive parenting behaviors and parent-reported internalizing symptoms approached significance *(p* < .10).

Tests of Parent Behaviors as Mediator

The correlations between mothers' diagnostic history and current depressive symptoms, observed behaviors, and adolescents' symptoms met the criteria for tests of the hypothesized mediational relations among these constructs (Baron & Kenny, 1986). Specifically, maternal negative affect met the criteria as a potential mediator of the relationship between maternal diagnostic history and adolescents' symptoms. Moreover, maternal negative affect met the criteria as a possible mediator between current maternal depressive symptoms and adolescents' symptoms.

Two sets of multiple regression analyses were conducted. First, observed maternal negative affect was tested as a mediator of the relation between maternal diagnosis and adolescents' scores on the CDI, parent-reported symptoms of internalizing and externalizing problems on the CBCL, and self-reported internalizing symptoms on the YSR (see Table 6).
Observed maternal negative affect was a significant mediator of the relationship between maternal diagnosis and adolescents' current depressive symptoms, as well as maternal diagnosis and self-reported internalizing symptoms (β for maternal diagnosis decreased from .23 to .14 on the CDI after adding the mediator and β dropped from .29 to .20 on the YSR Internalizing scale). As an additional test of mediation, I conducted the Sobel test (Sobel, 1982), which indicated that negative affect was a significant mediator of the relationship between maternal depressive history and adolescents' current depressive symptoms (*t* = 1.91)

and the relationship between maternal depressive history and adolescents' self-reported internalizing symptoms ($t = 1.91$, both $p < .06$).

Table 6

Regression Equations Predicting Adolescents' Adjustment from Maternal Diagnosis and Observed Negative Affect

Equation 1 – CDI Scores		**R^2 = .15**	**F (2) = 7.31, p = .001**
1.	Mom Dx	β = .23, p = .048	R^2 change = .06, p = .048
2.	Mom Dx	β = .14, p = .217	R^2 change = .12, p = .002
	Negative Affect	β = .36, p = .002	
Equation 2 – CBCL Internalizing		**R^2 = .15**	**F (2) = 7.42, p = .001**
1.	Mom Dx	β = .40, p = .001	R^2 change = .16, p = .001
2.	Mom Dx	β = .36, p = .002	R^2 change = .02, n.s.
	Negative Affect	β = .15, p = .200	
Equation 3 – CBCL Externalizing		**R^2 = .18**	**F (2) = 8.94, p = .000**
1.	Mom Dx	β = .34, p = .003	R^2 change = .12, p = .003
2.	Mom Dx	β = .26, p = .022	R^2 change = .09 p = .007
	Negative Affect	β = .36, p = .007	
Equation 4 – YSR Internalizing		**R^2 = .17**	**F (2) = 8.38, p = .001**
1.	Mom Dx	β = .29, p = .014	R^2 change = .08, p = .014
2.	Mom Dx	β = .20, p = .079	R^2 change = .11 p = .003
	Negative Affect	β = .35, p = .003	

Next, observed maternal negative affect was tested as a mediator of the relation between maternal current depressive symptoms on the BDI and adolescents' scores on the CDI, as well as parent-reported symptoms of internalizing and externalizing problems on the CBCL and self-reported internalizing and externalizing problems on the YSR (see Table 7).

Table 7

Regression Equations Predicting Adolescents' Adjustment from Maternal Current Depressive Symptoms and Observed Negative Affect

Equation 1 – CDI Scores		**R^2 = .15**	**F (2) = 7.17, p = .001**
1.	BDI-II	β = .26, p = .029	R^2 change = .07, p = .029
2.	BDI-II	β = .14, p = .253	R^2 change = .11, p = .004
	Negative Affect	β = .35, p = .004	
Equation 2 – CBCL Internalizing		**R^2 = .08**	**F (2) = 4.11, p = .021**
1.	BDI-II	β = .29, p = .013	R^2 change = .09, p = .013
2.	BDI-II	β = .24, p = .055	R^2 change = .02, n.s.
	Negative Affect	β = .16, p = .200	
Equation 3 – CBCL Externalizing		**R^2 = .23**	**F (2) = 11.83, p = .000**
1.	BDI-II	β = .45, p = .000	R^2 change = .20, p = .000
2.	BDI-II	β = .36, p = .002	R^2 change = .06 p = .026
	Negative Affect	β = .25, p = .026	
Equation 4 – YSR Internalizing		**R^2 = .15**	**F (2) = 7.05, p = .002**
1.	BDI-II	β = .24, p = .043	R^2 change = .06, p = .043
2.	BDI-II	β = .11, p = .336	R^2 change = .11 p = .003
	Negative Affect	β = .36, p = .003	
Equation 5 – YSR Externalizing		**R^2 = .30**	**F (2) = 15.95, p = .000**
1.	BDI-II	β = .45, p = .000	R^2 change = .20, p = .000
2.	BDI-II	β = .32, p = .004	R^2 change = .12 p = .001
	Negative Affect	β = .37, p = .001	

Again, observed maternal negative affect was a significant mediator of mothers' current depressive symptoms and adolescents' current depressive symptoms as well as a mediator of mothers' current depressive symptoms and self-reported internalizing symptoms (β for BDI-II scores decreased from .26 to .14 on the CDI after adding the mediator and from .24 to .11 on the YSR Internalizing scale). In addition, observed maternal negative affect was a significant

mediator of mothers' current depressive symptoms and parent-reported internalizing symptoms (β for BDI-II scores decreased from .45 to .36 on the CBCL Internalizing scale after adding the mediator).

The Sobel test indicated that observed negative affect was a significant mediator of the relationship between maternal current depressive symptoms and adolescents' current depressive symptoms ($t = 2.37$) and the relationship between maternal current depressive symptoms and self-reported internalizing symptoms ($t = 2.38$, both $p < .02$), as well as the relationship between maternal current depressive symptoms and parent-reported internalizing symptoms ($t = 1.72$, $p < .10$).

CHAPTER III

DISCUSSION

The present study was intended to replicate and extend past observational research with depressed and non-depressed mothers and their adolescent children. By including both a positive and a negative task, this study sampled mothers' parenting behaviors in different types of interactions, which may be more representative of parenting behaviors outside of the laboratory. In addition, this study used multiple methods to assess parenting behavior, including mothers' self-reports, adolescents' reports, and observational data. Much of the previous observational research with depressed mothers and their children has focused on much younger children and infants (e.g., Hart et al., 1999) . As such, the present study represents an important extension of this research to older children and adolescents. The overall findings from this study indicate that mothers' prior history of depression and their current depressive symptoms are sources of risk for internalizing problems in children, and that these effects are mediated by the presence of negative affect in mothers' interactions with their children.

I tested the first hypothesis, that maternal history of depression and current symptoms are related to parenting, in three ways: by comparing the mothers with and without a history of depression, by examining the associations between current maternal depressive symptoms and parenting behaviors, and by testing for a moderating effect of maternal diagnosis and current depressive symptoms on observed parent behaviors. First, results indicated that mothers with a history of depression (but who were not currently in a depressive episode) exhibited more negative affect, more disengaged behaviors, and somewhat more hostile parenting behaviors

than mothers with no history of depression during positive and stressful interactions with their adolescent children. Questionnaire data also indicated that mothers with a history of depression and their adolescent children reported more stress related to withdrawn or disengaged parent behaviors than mothers without a history of depression and their children. These findings are consistent with those reported by Gordon and colleagues (1989), who also found that depressed mothers were more negative and disengaged than other mothers, and those reported by Tarullo and colleagues (1994), in which mothers with a history of depression who were not currently in episode exhibited greater disengagement than either mothers with no history of depression or currently depressed mothers. Taken together with past research, the present findings indicate that there are enduring effects on negative affect and parenting behaviors in mothers with a history of depression even when they are not in a depressive episode. This suggests that children of depressed parents are exposed to a chronically stressful family environment that may persist independent of mothers' diagnostic status.

On the other hand, the mothers with and without a history of depression in the current sample did not differ either on observed intrusive behavior or on mother- or child-reported stress related to intrusive parenting on the RSQ. This finding is consistent with findings from Nolen-Hoeksema and colleagues' observational study (1995) of depressed mothers with their children, which also failed to find a significant association between maternal depressive symptoms and intrusive parenting behaviors. Mothers may be more intrusive when they are in a depressive episode, but these negative parenting behaviors may decline when depression remits. More conclusive evidence on this issue will require direct comparisons of intrusive parenting in mothers with a history of depression who are currently vs. formerly depressed.

The findings for disengagement and intrusiveness in the present study were cross-validated by including three different methods to assess these behaviors: mothers' self-reports, children's reports of their mothers' behavior, and observations of parent-child interactions. Thus, it seems that the offspring of mothers in the present sample were exposed to disengaged parenting but not intrusive parenting, as reflected in all three of these methods of assessment. The present study differed from previous studies by testing withdrawn and intrusive parenting as separate predictors of child adjustment. For example, studies of depressed mothers with their infants have typically categorized mothers as being either intrusive or withdrawn, but these studies were conducted with currently depressed women, and a significant portion of the sample was unable to be categorized (Diego et al., 2002; Field, Healy, Goldstein, & Guthertz, 1990). The present findings suggest that it is important to examine maternal withdrawal and intrusiveness separately, both to establish their rates of occurrence and their relationship with children's emotional and behavioral problems.

In addition, mothers with a history of depression did not differ from mothers without a history of depression in the current sample on observed positive affect or positive parenting. This may be due to the fact that the mothers in our sample were not currently depressed and a lack of positive affect, or anhedonia, may be more evident in a currently depressed sample (e.g., Hops et al., 1987). Moreover, the lack of differences in positive parenting and affect may be a function of the coding system that was used, in that any positive remarks were be coded as Positive Mood, even if they were not accompanied by nonverbal behaviors (e.g., smiling or laughing). In the future, effects may be detected if the positive affect code was strictly nonverbal.

The second step of testing the relationship between maternal depression and parent behavior, examining the relationship between mothers' current depressive symptoms and observed behavior, revealed that maternal current depressive symptoms were related to higher levels of observed negative affect during the interactions but not significantly related to any other observed parenting behaviors. However, mothers' current depressive symptoms were positively related to both child and parent-reported stress related to withdrawn and intrusive parent behaviors. The lack of relationship between observed intrusive parenting and current depressive symptoms, despite the association of depressive symptoms with parent and child reports of intrusiveness, may be a function of the coding system or that the tasks used in this study did not pull for intrusive behaviors. Specifically, the definition of intrusiveness in the IFIRS coding system specifies that "the parent is over-involved in fulfilling task activities" and that "task completion appears more important than promoting the child's autonomy and allowing the child to explore and set the pace for the task" (Melby et al., 1998). This suggests that a more goal-oriented task, such as completing a puzzle, may pull for more behaviors that would be coded as intrusiveness than were evident in our discussion-based tasks.

Finally, the test for an interaction between maternal diagnostic history and current depressive symptoms on parenting behaviors yielded no significant results. This suggests that the history of depressive disorder and current depressive symptoms have separate effects on parenting behaviors. Specifically, these findings, taken together with past research, suggest that diagnostic history has a greater effect on disengaged parenting behaviors, whereas mothers' current depressive symptoms may be more strongly related to intrusive parenting. In addition, it appears that mothers' expression of negative affect is related to both maternal current depressive symptoms and depressive history.

In testing the second hypothesis, that the different tasks would be related to differences in observed behavior, I found a main effect for task on both positive and negative maternal affect, in that mothers exhibited more positive affect during the positive task and more negative affect during the stressful task. This supports the idea that different tasks pull for different behaviors. However, I failed to find the expected Task x Group interaction for observed maternal positive affect. Again, this may be a function of the coding system, in that positive remarks were coded as Positive Mood, even if they were not accompanied by nonverbal positive behaviors. Despite the lack of an interaction, it still may be important to include different types of tasks to elicit a broad range of behavior that may be more representative of parenting behaviors outside of the laboratory. However, including a different positive task, such as a puzzle task, as well as different codes for nonverbal positive behavior may be necessary to find an interaction between task and diagnostic status.

The third hypothesis, that observed negative affect would be a good reflection of current depressive symptoms and maternal behavior outside the laboratory, was supported. Correlational analyses indicated that observed negative affect was significantly related to maternal diagnostic history, current maternal depressive symptoms, and parent- and child-reported stress related to intrusive and withdrawn parent behaviors. However, observed negative affect was not significantly related to any observed parenting behaviors, except for a correlation with disengaged parenting that approached significance. Taken together, these findings suggest that observed maternal negative affect is a good representation of maternal behavior and emotions outside of the laboratory. That is, the interaction tasks used in this study provided a context in which maternal sad and anxious affect could emerge in ways that reflect mothers' current symptoms of depression. Moreover, while maternal negative affect may be

related to disengaged and withdrawn behavior, it is a separate concept that is related to but distinct from specific parenting behaviors.

The last hypothesis, that mothers' history of depression would be related to adolescents' adjustment and that this relationship would be mediated by observed maternal behaviors was supported. The children of mothers with a history of depression were experiencing significantly greater self-reported current depressive symptoms than the children of mothers without a history of depression, as well as significantly higher rates of parent-reported internalizing and externalizing problems and self-reported internalizing problems. Similarly, mothers' current depressive symptoms were also related to higher levels of current depressive symptoms in their adolescent children, as well as greater levels of parent-reported and self-reported symptoms of internalizing and externalizing problems. These results suggest that a history of depressive disorder affects current functioning of both mothers and their adolescent children even when the mothers are not currently in episode.

Finally, the tests for mediation suggest that observed maternal negative affect mediates the relationship between both maternal diagnostic history and adolescents' internalizing symptoms and maternal current depressive symptoms and adolescents' internalizing symptoms. This finding is in line with Goodman and Gotlib's (1999) hypothesized mechanism of transmission, in that mothers' observed negative affect is likely to be modeled by their children, resulting in depressive disorders. Similarly, Cummings, Goeke-Morey, and Papp (2003) found that children were more likely to experience more negative emotions and less positive emotions when their parents expressed negative emotions during marital conflict. The use of adolescents' self-reported behavior here makes this a stronger argument, as the relationship between observed maternal negative affect and adolescent adjustment was not influenced by

the possible bias of reports from mothers with a history of depression. The findings from this study suggest that the effects of both maternal depression history and current maternal depressive symptoms are more related to adolescents' internalizing symptoms, specifically depressive symptoms, than to externalizing symptoms.

In addition, the construct of negative parenting, including negative affect and hostile parenting, was found to mediate the relationship between maternal current depressive symptoms and adolescents' self-reported current depressive symptoms and parent-reported internalizing problems. Again, this supports the mechanism of adolescents' modeling their mothers' depressive behavior. These findings also support the idea that depressed mothers create a stressful environment, characterized by negative affect and hostile parenting, which is in turn related to adolescents' depressive symptoms, similar to Hammen, Shih, and Brennan's (2004) findings that the relationship between maternal and youth depression is mediated by maternal stress and parenting.

One of the pathways through which maternal depression is hypothesized to affect children is the expression of negative emotions during parent-child interactions. The present study provides some of the first data to show the mediating effects of parenting with older children and adolescents. Expression of negative affect is an important pathway through which depression manifests itself and affects the children of depressed mothers. Even when mothers with a history of depression are out of episode, they may still display negative affect, which suggests that these behaviors and emotions serve as chronic stressors for their children. Moreover, this pathway seems to be specific to depressive and internalizing symptoms in adolescents, rather than externalizing symptoms.

Limitations

This study had several limitations that should be addressed. First, it would have been useful to have more information regarding mothers' history of depression, including number of past episodes and severity of depression to understand the nature of mothers' depression (e.g., Hammen & Brennan, 2003). Moreover, the current sample, while ethnically diverse, had relatively high socio-economic status, so findings may not be generalized to a lower-SES sample. It is likely that lower-SES families are experiencing even greater levels of stress, which may exacerbate the effects of depression (e.g., Simons et al., 1993). The conclusions that may be drawn are also limited by the cross-temporal associations. Longitudinal research is needed to determine the direction of effects. For example, some research suggests that the relationship between maternal depression history and maternal criticism is mediated by child symptoms (e.g., Frye & Garber, 2005).

In addition, I failed to find effects for observed intrusive parenting, even though both mothers and adolescents' reported a greater level of stress related to intrusive parenting when mothers were experiencing greater current depressive symptoms. Additional codes or different tasks may be needed to detect intrusive parenting in observational studies. For example, researchers who conduct observational studies with anxious parents and their children have used more puzzle-type tasks to detect intrusive parenting, such as unsolvable anagrams (e.g., Woodruff-Borden, Morrow, Bourland, & Cambron, 2002). I also failed to find the expected difference between mothers with and without a history of depression on positive affect or positive parenting or a group x task interaction for positive affect. As suggested above, additional codes that look specifically at positive nonverbal behavior may be needed to find the expected effects.

Finally, a larger sample size would have allowed us to create latent variables and to detect smaller effects. Specifically, a larger sample size is needed to test whether gender or age moderate the effects of parenting on child outcomes. In testing these effects, we may be able to determine whether there are subgroups of children who are at greater risk or are more resilient to the effects of maternal depression and negative parenting.

Implications for Future Work

First, it is important to note that there were significant effects on both parenting and adolescent adjustment for mothers who had a history of depression but were not currently depressed. Thus, these families may benefit from intervention, even when mothers are "well." In particular, the findings regarding higher levels of disengagement in mothers with a history of depression may provide important clues as to what should receive attention in a preventive intervention for families with a depressed parent. For example, simply increasing families' awareness of the tendency of a mother with a history of depression to be withdrawn or disengaged from her children may decrease mothers' tendency to withdraw. Alternatively, interventions could focus specifically on engaging depressed mothers with their children. In addition, the results suggesting that mothers with a history of depression exhibit greater levels of negative affect and that this negative affect mediates the relationship between mothers' and children's depressive symptoms suggests that this is another area that should be addressed in interventions. Again, increasing awareness may help mothers to think about the message they are sending with their negative comments. However, for more enduring results, it may be important to teach positive parenting skills to replace the maladaptive parenting these mothers are exhibiting.

It is apparent that more research is needed to determine the exact mechanisms by which depression is transmitted from mothers to their adolescent children. Specifically, different tasks and codes may be needed to determine whether effects exist for positive parenting and intrusive parenting with adolescent children. Finally, a goal in this area of research is to use observational data to create latent variables of maternal depression, parenting, and adolescent outcomes over time. Children of depressed mothers represent a high-risk population, and it is evident that more research is needed in this area to clarify the role of parent behavior in the transmission of depression from mothers to their adolescent offspring.

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