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Parental Depression in Remission:

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PARENTAL DEPRESSION IN REMISSION:
ASSOCIATIONS OF A PAST EPISODE AND RESIDUAL SYMPTOMS WITH
YOUTH EXTERNALIZING BEHAVIOR AND THE ROLE OF PARENTING

A Dissertation Presented

by

Nicole L. Coffelt

to

The Faculty of the Graduate College

of

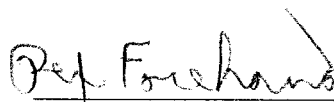
The University of Vermont

**In Partial Fulfillment of the Requirements
For the Degree of Doctor of Philosophy,
Specializing in Clinical Psychology**


February, 2008

Accepted by the Faculty of the Graduate College, The University of Vermont, in partial fulfillment of the requirements for the degree of Doctor of Philosophy, specializing in Clinical Psychology.

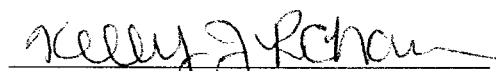
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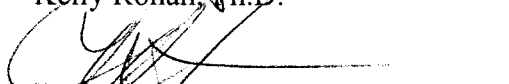
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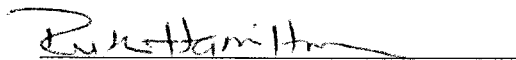
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Abstract

This study was designed to increase our understanding of remitted major depressive disorder among parents and how it relates to child externalizing problems. Specifically, various facets that may differentiate one remitted clinical depressive presentation from another were investigated: past depression severity, past depression chronicity, and residual or current levels of depressive symptoms. Relations of these characteristics of parent depression with youth externalizing symptomatology, as well as the mediating role of negative parenting, were studied among 118 parent-child dyads across two sites. Specifically, three hypotheses were tested: (1) all three indicators of parental depression would have a significant relationship with adolescent externalizing problems when examined individually; (2) when examined simultaneously, past depression chronicity and current depressive symptoms, but not past depression severity, would each have a unique association with young adolescent externalizing outcomes; and (3) negative parenting would partially mediate the relationship of each of the three indicators (i.e., current parental symptoms, past depression chronicity, past depression severity) with child externalizing behavior. Results revealed that residual parent depressive symptoms were most salient in their association with youth externalizing behavior. Further, negative parenting mediated this relationship for parent, but not child, report of child problem behavior. Findings highlight the importance of further research to investigate remitted clinical depression in parent populations, and the impact on child behavioral adjustment. As well, implications for preventive and other intervention efforts are considered.

Dedication

This paper is dedicated to
my endlessly supportive and encouraging family members
and friends, you know who you are, without whom a
project of this magnitude would never have been possible.
You have each, at one time or another,
inspired me to keep on going.

This project marks the end, as well as a new beginning,
of what I view as a lifelong journey of
learning, sheer joy, and intense gratitude
for the opportunity to be part of
a field that stimulates and inspires me
in a novel way almost every day.

Finally, to all of the children and families
that have been gracious and courageous enough
to allow me into their lives over the years,
either through research or clinical intervention,
without whom the pride that I feel at this moment
would not be as great.

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but will always be remembered and will, assuredly,
continue to inspire my work for years to come.

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Parental Depression in Remission:
Associations of a Past Episode and Residual Symptoms with
Youth Externalizing Behavior and the Role of Parenting

Scope of the Problem: Increasing Rates of Adult Depression

Data provided by the National Institute of Mental Health (NIMH, 2001) indicate that approximately 19 million adults in the United States in any given year will experience some form of depression (NIMH, 2001). Some have described the current era in which we reside as the “age of misery” (Grof, 1997, p. 361), with epidemiological data surfacing that indicate consistently increasing depression rates among adults in the U.S., as well as a number of other Westernized countries (Cross-National Collaborative Group, 1992; Grof, 1997; Hagnell et al., 1982; Klerman & Weissman, 1989; Reiger et al., 1988; Robins & Regier, 1991). In addition, cohort data have suggested increasing prevalence rates among children born in the latter half of this century, as well as earlier ages of onset of depressive symptoms (Lewinsohn, Hops, Roberts, Seeley, & Andrews, 1993). It has been estimated that by the year 2010, depression will be the *second most costly of all illnesses worldwide*, compared to its ranking as fourth in 1990 (Keller & Boland, 1998). As such, depression represents an area of significant public health concern and one for which further research, particularly studies with preventative implications, is clearly needed.

Not everyone appears to be equally at risk for depression; for example, it is particularly common among women during childbearing years (NIMH, 2000). In fact, it

has been estimated that as many as 20 percent of women in the United States will experience at least one episode of clinical depression at some point in their lives, with the postpartum period representing a time of particularly elevated risk for the development of clinical depression among women (NIMH, 2000). Taken together, these findings pose a question of the potentially deleterious impact of parent depression on offspring. Toward this end, the current research examined the relationship between parental depression and externalizing outcomes among children in the 9 to 16 year age range, as much of this developmental period has been established as a time marked by significant “storm and stress.” (see Arnett, 1999, for a review).

Parent Depressive Symptoms, Clinical Depression, and Child Problem Behavior

The overarching construct of parent depression has primarily been conceptualized and measured in the literature in two different ways: (1) self-reported depressive symptoms (e.g., depressed mood, suicidal ideation; e.g., Beck Depression Inventory (BDI-II); Beck, Steer, & Brown, 1996) and (2) a diagnosable clinical disorder (i.e., Major Depressive Disorder; APA, 1994), in which depression is most often assessed via structured clinical interviewing and a diagnosis is made when a predetermined number of diagnostic criteria are positively endorsed (see Downey & Coyne, 1990, for a review). Although the last few decades of research have illuminated significant associations between parental clinical depression, as well as depressive symptoms, and numerous deleterious child outcomes from the postpartum period through adolescence, this review will focus specifically on child externalizing outcomes. Child externalizing problems

represent a particularly important area of study, as they place the developing child at significant risk for comorbid difficulties such as early pregnancy, substance abuse, deviant peer affiliations, academic failure, school dropout, and suicide (e.g., Cairns, Peterson, & Neckerman, 1988; Keenan, Loeber, & Green, 1999; Pajer, 1998; Thornberry, 1998), and more serious problem behavior later on, including delinquency and antisocial/criminal behavior in adulthood (see Hinshaw & Lee, 2003, for a review).

Finally, it is important to acknowledge that externalizing problems can originate from sources other than parent depression. Consistent with Ecological Systems Theory (Bronfenbrenner, 1979), factors both inside and outside of the home have been identified as salient predictors of child conduct problems. These include: family factors, such as parent psychopathology and parenting; the peer group (e.g., Laird, Jordan, Dodge, Pettit, & Bates, 2001); time spent in daycare (e.g., NICHD Early Child Care Research Network, 2003); and cultural group (e.g., Deater-Deckard, Atzaba-Poria, & Pike, 2004). Thus, parent depression/depressive symptoms are not the sole determinants of maladaptive child outcome; however, they warrant considerable attention because of their prominent position in our current cultural climate. The relationship of current parental depressive symptoms and parental clinical depression to child externalizing behavior problems will be summarized in the next two subsections.

Current Parental Depressive Symptoms and Child Externalizing Behavior.

Cross-sectional and prospective data have provided evidence for a significant positive association between parental depressive symptomatology and child externalizing problems in both community and clinical populations (e.g., Boyle & Pickles, 1997;

Embry & Dawson, 2002; Hubbs-Tait et al., 1996; Klein, Forehand, Armistead & Long, 1997; Lyons-Ruth, Easterbrooks, & Cibelli, 1997; Pevalin, Wade, & Brannigan, 2003; Qi & Kaiser, 2003; Walker, Ortiz-Valdes, & Newbrough, 1989). This association has been noted for maternal-reported child behavior problems (e.g., Lyons-Ruth, Easterbrooks, & Cibelli, 1997), and has been corroborated with paternal (e.g., Garstein & Fagot, 2003), teacher (e.g., Alpern & Lyons-Ruth, 1993), and child (e.g., Conger, Patterson, & Ge, 1995) reports. Furthermore, the relationship between these two variables has been demonstrated among preschool (Albright & Tamis-LeMonda, 2002; Alpern & Lyons-Ruth, 1993; Embry & Dawson, 2002; Garstein & Fagot, 2003; Leadbeater, Bishop, & Raver, 1996; Shaw, Gilliom, Ingoldsby, & Nagin, 2003), school (Cummings, Keller, & Davies, 2005; Spieker, Larson, Lewis, Keller, & Gilchrist, 1999), and adolescent (Jaser, 2005; Malcarne, Hamilton, Ingram, & Taylor, 2000; Pevalin, Wade, & Brannigan, 2003) aged children.

Parent Clinical Depression and Child Externalizing Behavior. Substantial research has found that children of clinically depressed parents are more vulnerable than controls (i.e., children of nondepressed women) to a myriad of adjustment problems and psychological disorders, including disruptive behavior problems (e.g., Beardslee, Bemporad, Keller, & Klerman, 1983; Childs, Schneider, & Dula, 2001; Cummings & Davies, 1994; Downey & Coyne, 1990; Hammen, Adrian, Gordon, Burge, Jaenicke, & Hiroto, 1987; Nolen-Hoeksema, Wolfson, Mumme, & Guskin, 1994; Weissman et al., 1987; Zuckerman, Amaro, & Beardslee, 1987). In particular, behavior problems among offspring of clinically depressed parents are estimated to be two to five times more likely

than among nondepressed populations (see Cummings & Davies, 1994, for a review; see also Jaser, 2005), and are evident as early as age three and continue through adolescence (e.g., Cicchetti, Rogosch, & Toth, 1998; Dawson et al., 2003; Downey & Coyne, 1990; Goodman, Adamson, Riniti, & Cole, 1994; Goodman & Gotlib, 1999; 2002). Moreover, this association has been noted for maternal-reported child behavior problems (e.g., Billings & Moos, 1983) and has been corroborated with paternal (e.g., Cicchetti, Rogosch, & Toth, 1998), teacher (e.g., Richters & Pelligrini, 1989), and child (e.g., Breslau, Davis & Prabucki, 1988) reports. Prospective data have been used to lend support to the directionality of this relationship, with early assessments of parent depression predicting conduct problems later in childhood (e.g., Schultz & Shaw, 2003).

Beyond the Diagnosis: The Roles of Chronicity and Severity of Clinical Depression

Clinical depression among adults is typically not a single, time-limited event. It has been estimated that as many as 25% of cases of Major Depressive Disorder (APA; 1994) are chronic in nature (Depue & Monroe, 1986). Moreover, depression is a recurrent disorder: over 80% of depressed patients have more than one episode (Belsher & Costello, 1988; Mueller et al., 1996); more than 50% relapse within two years of recovery (e.g., Keller & Shapiro, 1981; Mueller et al., 1996); and individuals with three or more previous episodes of depression may have a relapse rate as high as 40% within only 12 to 15 weeks after recovery (Keller, Shapiro, Lavori, & Wolfe, 1982; Keller et al., 1992). As a consequence, few children are exposed to only one episode of parental depression, and yet the majority of researchers in this area fail to assess and/or report the number and duration of episodes to which the child has been exposed (see Hammen &

Brennan, 2003, for an exception). Thus, studies that rely solely on a dichotomous conceptualization of depressed versus nondepressed may mask important within-group differences for parents who have experienced clinical depression. It is important at this juncture to move to a phase of investigation that addresses some of these differences. Two aspects of parental depression that contribute to within-group variation are the duration (i.e., chronicity) and severity of the disorder. Both chronicity and severity have received some, albeit limited, attention in the literature with respect to their relations with child externalizing problems. These studies are reviewed below.

Chronicity. Chronicity has been defined and measured in several different ways; however, most commonly, it has been a categorical construct comparing parents with clinically significant elevations on self-report depressive symptom inventories over time (defined as chronic) to parents without consistently elevated scores (“nonchronic”) (e.g., Zahn-Waxler Iannotti, Cummings, & Denham, 1990). Six of seven studies, with Billings and Moos (1985) being the exception, found that children of more chronically depressed parents exhibited higher levels of conduct problems than those of parents who were depressed for shorter intervals (Alpern & Lyons-Ruth, 1993; Fergusson & Lynskey, 1993; Keller et al., 1986; Lyons-Ruth, 1992; Richters & Pelligrini, 1989; Zahn-Waxler Iannotti et al., 1990). For example, Lyons-Ruth (1992) found that children of parents who showed evidence of chronic (i.e., clinically significant elevations of depressive symptoms over time) depression across the five-year study period exhibited the greatest level of hostile-aggressive behavior at age five, when compared to those whose parents were either never depressed or depressed intermittently. Similarly, Fergusson and

Lynskey (1993) found long-term maternal past depression chronicity to predict early adolescent externalizing diagnoses.

Severity. Depression severity has typically been defined as the extent or magnitude of elevated levels of depressive symptomatology within a discrete time period (e.g., Nelson, Hammen, Brennan, & Ullman, 2003) or, alternatively, it has been represented along a continuum, whereby researchers have attempted to differentiate among various [more to less severe] presentations of clinical depression (e.g., Hammen et al., 1987). Four studies have directly examined relations between severity of parental clinical depression and child externalizing problems and, although severity was conceptualized and measured in slightly different ways across studies, similar results have been attained (Fergusson & Lynskey, 1993; Hammen et al., 1987; Keller et al., 1986; Nelson et al., 2003). Specifically, both cross-sectional (e.g., Hammen et al., 1987) and prospective (e.g., Nelson et al., 2003) data support an association between depression severity and child externalizing symptoms across a range of developmental periods and in both community and clinical samples.

Limitations of Studies Examining Chronicity and Severity. A number of limitations are evident among studies examining depression chronicity and severity. For example, in the chronicity literature, only one study (Keller et al., 1986) included a complete clinical history and employed a continuous measure of chronicity. As a consequence, our understanding of the role of chronicity of parental depression on child externalizing problems is limited. Furthermore, studies have often failed to examine the independent contributions of severity and chronicity. For example, a recent study (Frye

& Garber, 2005) utilized a measure that combined severity and chronicity, preventing the identification of the role of each variable in the development and/or maintenance of child problem behavior. Thus, although existing data provide tentative support for a meaningful relationship of both maternal depression chronicity and severity to child/adolescent externalizing symptoms, further work is needed to address the separate contributions of these two characteristics of parent depression to child behavior problems.

Chronicity versus Severity. Two studies, conducted by the same research group (Brennan et al., 2000; Hammen & Brennan, 2003), have attempted to separate and investigate the *independent* effects of chronicity and severity of parental depression on child outcomes using a longitudinal design. Brennan et al. (2000) examined a large cohort of five year old children (n = 4,953 mother-child dyads); major findings included (1) severity and chronicity of parent depressive symptoms were independently related to child behavior problems, and (2) the interaction of severity and chronicity of parent depressive symptoms was significantly related to child behavior problems. In contrast, Hammen and Brennan (2003) found that parent depression severity was not a significant predictor of disruptive behavior disorders among adolescents (n = 246 mother-child dyads); however, there was a marginally significant contribution of chronicity (i.e., maternal duration of depression) to youth externalizing diagnostic outcomes. The interaction of chronicity and severity was not significant. Potential reasons for the discrepant findings between the two studies include: (a) different developmental periods examined (i.e., different ages of children studied); (b) different outcome measures utilized (i.e., self reported symptoms versus clinical diagnoses); (c) severity and

chronicity were measured in various ways (categorical versus continuous), and (d) disparate sample sizes.

In sum, there are research findings to suggest a positive association between parental depression chronicity and child externalizing outcomes as well as a relationship between parental depression severity and child externalizing behavior problems. However, with two exceptions (Brennan et al., 2000; Hammen & Brennan, 2003), which yielded contradictory findings, studies have failed to examine the independent and combined contributions of depression chronicity and severity to child externalizing behavior. Further work is needed to clarify the independent and unique roles of maternal depression chronicity and severity in relation to child externalizing outcomes.

Parental Depression in Remission and Residual Depressive Symptoms

Beyond severity and chronicity of parental depression, the episodic nature of this disorder further complicates our understanding of its impact on offspring. Many adults vacillate from periods of mild depressive symptoms to “full blown” clinical depression to periods in which they are asymptomatic. As a consequence of such a cyclical presentation, it is important to differentiate among the various “stages” of depression when examining problem behaviors of their offspring. Two issues related to this episodic presentation have received limited attention: (1) do child problem behaviors persist when parental depression remits, and (2) during remission, is the history of the clinical depression itself or the current level of depressive symptomatology more integral to our understanding of child externalizing problems?

Four studies have examined whether child problem behaviors persist when a parent's clinical depression remits. Relative to children of nondepressed parents, both Jaser (2005) and Richters and Pelligrini (1989) found that children of remitted depressed parents had higher levels of externalizing problems. In contrast, relative to children whose parents are actively depressed, the evidence for children whose parents are in remission is mixed: Richters and Pelligrini (1989) found no differences between the two groups, whereas Weissman et al. (2006) and Timko, Cronkite, Berg, and Moos (2002) found greater child behavior problems when parents were actively depressed than when they were remitted. Overall, these findings suggest that child externalizing problems *do* persist when parental depression remits, yet they *may* be at lower levels than when a parent's depression is active.

Four studies have examined whether, during remission, it is the history of clinical depression or current levels of depressive symptomatology that is a better predictor of child behavior problems. Both Jaser (2005) and Hammen et al. (1987) found that current parental depressive symptoms were more strongly associated with young adolescents' externalizing behavior than a past history of clinical depression. This is consistent with the Weissman et al. (2006) study findings cited above. In contrast, findings by Fergusson and Lynskey (1993) suggest that past difficulties are more important: the association between current parental depressive symptoms and child behavior problems was generally weaker and statistically *nonsignificant* once a past history of depressive symptoms was taken into account. The findings across these four studies, although not consistent, suggest that during remission, current depressive symptoms are more strongly

associated with child externalizing problem behavior than is past depression. However, the literature is limited to four studies, consistent findings have not emerged, and the history of a parent's depression has not been well specified (i.e., severity versus chronicity).

Overall Conclusions. Current levels of depressive symptoms, as well as a history of clinical depression, among parents have been associated with child externalizing behavior. As the field of research continues to progress in this arena, individual differences among parents with a history of clinical depression have begun to emerge. Specifically, preliminary data suggest that both severity and chronicity of clinical depression warrant further exploration; however, the independent contribution of these two variables has rarely been examined. Furthermore, the relative roles of the history of clinical depression (i.e., severity and chronicity) and the current level of depressive symptoms in cases of remitted parental depression have, for the most part, been neglected in the literature. An examination of such individual differences in the clinical history of depression and in current depressive symptom levels, during times of remission, is critical for understanding child adjustment (including level of externalizing problems) in these families.

Mechanisms of Transmission: Risk Conferred from Depressed Parent to Child

Relative to the research that has documented a relationship between parental depression and child externalizing outcomes, much less attention has been directed toward identifying those mechanisms that would explain the transmission of risk from parent to child. Despite significant advances over the last few decades, the field remains

in a nascent stage of understanding of why these children are at elevated risk for so many maladaptive outcomes, including child externalizing behavior.

In their seminal review of the literature regarding identified mechanisms of transmission, Goodman and Gotlib (1999) proposed an integrative and developmentally sensitive model for the transmission of psychopathology to children as a function of parental depression. This model incorporates (1) heritability of depression, (2) dysfunctional early neuroregulatory mechanisms, (3) exposure to negative parental cognitions, behaviors, and affect, and (4) increased exposure to environmental or contextual stressors. Although this theoretical model is broad-based and would account for the transmission of a number of negative child outcomes as a function of parental depression, it provides a useful framework for considering those processes that may account for externalizing problems among children of depressed parents. The third category is of particular relevance to a discussion of psychosocial mechanisms accounting for the relationship between parental depression and child externalizing behavior.

Specifically, significant empirical support exists documenting inadequate parenting as a function of parental depression, which, in turn, is hypothesized to lead to child behavior problems and other psychopathology. Conceptually, parenting may be one of the most potent explanatory mechanisms when considering child externalizing outcomes, due to the well established link between these two variables (see McMahon, Wells, & Kotler, 2006, for a review). Moreover, research has identified parenting as a highly malleable set of behaviors in most cases (i.e., with improvements in parenting

leading directly to reductions in child problem behavior; see McMahon & Forehand, 2003; Patterson, DeGarmo, & Forgatch, 2004 for a more thorough discussion), thus rendering it a salient target for preventing and intervening with child and adolescent externalizing behavior. Therefore, consistent with the literature, the current study formally examined impaired parenting as a potential explanatory mechanism for the association between various indicators of parental depression and young adolescent externalizing behavior.

Integrated Theoretical Framework and Conceptual Model

Significant relationships between parental depression, both a diagnostic history (severity and chronicity) and elevated levels of current symptoms, and child behavior problems (see path C in model on page 15) were hypothesized. Although several mechanisms have been proposed to account for the aforementioned relationship (see Goodman & Gotlib, 1999, for a review), negative parenting has received some of the strongest support through separate literatures on the links between (1) parenting and child externalizing problems and (2) parental depression and parenting, both of which are reviewed in greater detail in subsequent sections.

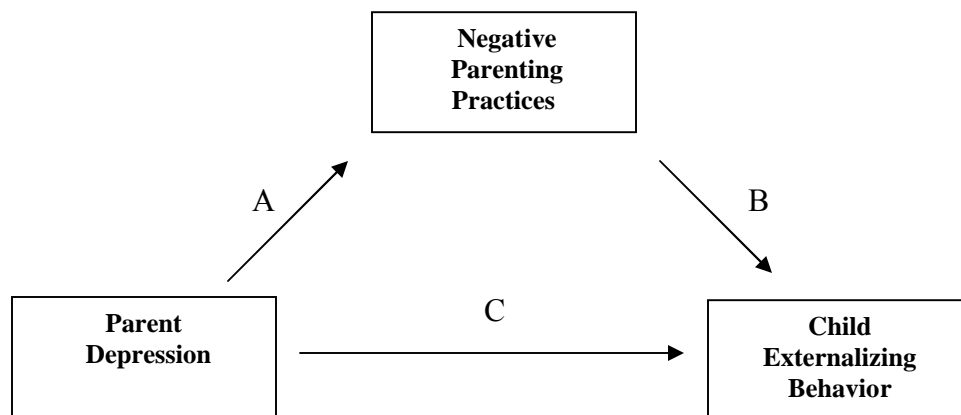
The link between negative parenting and adolescent externalizing behavior is well established (see path B in model on page 15) and is thought to operate primarily through a coercive parent-child interaction process. Patterson's Coercion Theory (1982) outlines a process by which coercive parenting practices reinforce child externalizing behavior and vice versa, a process that is likely exaggerated during adolescence, a time when parent-child conflict significantly escalates (Arnett, 1999; Baumrind, 1991). Moreover,

parental depression has been linked in the literature to a number of negative parenting processes (see path A in model on page 15); most notably, it is characterized by negative/coercive and disengaged parenting, coupled with low levels of positive parenting behavior (see Lovejoy, Graczyk, O'Hare, & Neuman, 2000, for a review).

Family Stress Theory (Conger & Conger, 2002; Margolin, 1981) conceptualizes parental depression as a stressor that would be associated with negative experiences in the home environment. More specifically, the stress of depression may result in an increasingly chaotic home environment in which effective parenting diminishes, including: structure and routine deterioration; decreases in consistent parental discipline and monitoring; and lower levels of parental warmth. These changes in parenting are associated with increases in child externalizing problems. Furthermore, the depression and increased stress may distract the mother or father, rendering him/her less emotionally available to the child, allowing for further demonstration of negative behavior, which children may use to recapture parental attention (McMahon & Forehand, 2003). As a consequence, the lax discipline and coercive parenting behavior that are frequently exhibited by the depressed parent further perpetuate the coercive cycle outlined by Patterson (1982), aiding in the reinforcement and maintenance of child externalizing behavior. Due to the stable nature of aggression and conduct problems (e.g., Farrington, 1992; Frick & Loney, 1999; Loeber, 1982; Olweus, 1979) once they have developed, these difficulties are likely to persist long after the parent's depression remits.

When viewed within an ecological framework (Bronfenbrenner, 1979), parental depression can be regarded as the distal process through which the more proximal

variable, negative parenting, operates to relate to adolescent externalizing behavioral outcomes (as depicted in the model below). Indeed, evidence demonstrating the mediating role of negative parenting in the relationship between parental depression and child externalizing outcomes is consistent with this conceptual model and are reviewed below, along with empirical support for each of the pathways in the model.



Parent Depression and Parenting

Current Parental Depressive Symptoms and Impaired Parenting. Elevated levels of parental depressive symptoms have been shown to have a significant association with negative parenting behavior, with the majority of the work using community samples and preschool children (e.g., Albright & Tamis-LeMonda, 2002; Bor & Sanders, 2004; Cunningham, Benness, & Siegel, 1988; Dumas, Gibson, & Albin, 1989; Forehand, Lautenschlager, Faust, & Graziano, 1986). Specifically, higher self-reported depressive scores were associated with greater insensitivity and disengagement and lower levels of affection (Albright & Tamis-LeMonda, 2002), coercive parenting practices (Bor &

Sanders, 2004), inconsistent/harsh discipline and decreased parental involvement (Lyons-Ruth, Wolfe, Lyubchik, & Steinguard, 2002), lower levels of warmth and higher psychological coercion (Cummings, Keller, & Davies, 2005), and an increased use of directives (Forehand et al., 1986) among parents. Along a similar vein, reductions in parental depressive symptoms have been associated with improved parenting and reduced child problem behaviors (Patterson et al., 2004).

Unfortunately, studies examining the relationship between parent depressive symptoms and preadolescent or adolescent outcomes have been less prevalent; however, there is tentative evidence to suggest similar parenting deficits with this age group. Specifically, two studies have found parental depressive symptoms to relate to hostile parenting, including parental rejection, withdrawal, coercive behavior and inconsistency (Parke et al., 2004) with preadolescent children, and greater levels of negative affect and intrusive/withdrawn parenting behaviors with adolescents (Jaser, 2005).

Parental Clinical Depression and Impaired Parenting. Research examining parents with a history of clinical depression has provided evidence of disturbed parenting at all developmental stages (see Gotlib & Goodman, 1999, for a review), with the most impaired parenting evident in infancy (e.g., Cohn et al., 1986; Field, 1995) and adolescence (Weissman & Paykel, 1974). Specific parenting difficulties, evident among parents with either a current or past diagnosis of depression when compared to controls, have included increased hostility and more negative and fewer positive parent-child interactions (Goodman & Brumley, 1990; Lovejoy, 1991; Jacob & Johnson, 1997), less responsiveness toward the child (Cohn, Campbell, Matias, & Hopkins, 1990), and

decreased effectiveness with communication (Gordon et al., 1989). There is also evidence to suggest that a current diagnosis may be more strongly associated with deficient parenting than a past clinical depression (see Lovejoy et al., 2000, for a review); however, most of these studies have been limited to younger samples (see Lovejoy et al., 2000) and/or collapsed across both diagnostic categories in their investigations (e.g., Hammen, Shih, & Brennan, 2004), rendering such a claim tentative at best at this stage of investigation.

Turning to individual difference variables that may help to illuminate depression as it manifests itself as a clinical disorder, research has not been conducted examining the association between depression severity and parenting. Two studies have examined depression chronicity, and suggest that chronically depressed parents have more frequent negative interactions and/or demonstrate lower levels of positive parenting with their infants than do those with intermittent or shorter periods of depression (Campbell et al., 1995; NICHD Early Child Care Research Network, 1999). Three studies have examined relations between parenting behavior and remitted clinical depression among parents. Tarullo and colleagues (1994) found parents with remitted depression to be more disengaged with their children than either nondepressed or actively depressed parents. Jaser (2005) found that mothers whose depression had remitted were both more disengaged and hostile when parenting their adolescents, compared to nondepressed women. Finally, Hammen, Shih, and Brennan (2004) found that clinically depressed parents continue to demonstrate impaired parenting (e.g., low warmth, hostility) when not in episode.

Conclusions. Both parental clinical depression and higher levels of depressive symptoms have been associated with compromised parenting (i.e., negativity, coercive behavior, harsh discipline, lax/inconsistent discipline, and low warmth/involvement); however, further work examining older children is needed as the majority of studies have been conducted with younger children. As well, two infant studies have been published (Campbell et al., 1995; NICHD Early Child Care Research Network, 1999), which tentatively indicate that parenting varies as a function of depressive chronicity, while no research exists to inform our knowledge of the relationship between depression severity and parenting. Finally, clinically depressed parents continue to demonstrate parenting deficits even when not in episode (e.g., Jaser, 2005). Additional research is needed to specifically examine parents with remitted depression, and to further illuminate relationships between parental depression severity, chronicity, residual depressive symptoms, and parenting behavior.

Parenting and Child Externalizing Outcomes

Authoritative parenting, which includes consistent expectations, reasonable demands, and the expression of warmth and affection, has long been established as integral for optimal child functioning and psychosocial adjustment (e.g., Baumrind, 1966; 1978; Brody & Flor, 1998; Conger et al., 1992), and is associated with low levels of child conduct and aggressive behavior problems (see Kotchick & Forehand, 2002, for a review). Conversely, parenting that lacks these key aspects (i.e., characterized by inconsistency, poor monitoring, harsh/inappropriate discipline, low warmth) has been consistently associated with greater levels of child behavior problems at various

developmental stages (e.g., Baumrind, 1978; Ge, Best, Conger, & Simons, 1996; Wasserman, Miller, Pinner, & Jaramillo, 1996). More recent research has additionally documented the importance of parental monitoring in preventing externalizing problems among school age (Patterson, 1982) and adolescent children (see Dishion & McMahon, 1998, for a review).

Accordingly, the literature now widely recognizes the concept of *negative parenting* (e.g., Campbell, Shaw & Gilliom, 2000; Lansford, Criss, Pettit, Dodge, & Bates, 2003; Rhule, McMahon, & Spieker, 2004; Silver, Measelle, Armstrong, & Essex, 2005) to denote some combination of inconsistent discipline, poor parental monitoring, harsh or inappropriate discipline, and/or low levels of warmth directed at the child. Negative parenting has been associated with a number of child problems including internalizing and other adjustment problems (see Berg-Nielsen, Vikan, & Dahl, 2002 for a review), but the link between negative parenting and child/adolescent *externalizing* outcomes has received the strongest support in the literature (e.g., Ehrensaft, Wasserman, Verdelli, Greenwald, Miller, & Davies, 2003; Garstein & Fagot, 2003; Patterson, Capaldi, & Bank, 1991; Wootton, Frick, Shelton, & Silverthorn, 1997).

Negative parenting plays a key role in the developmental trajectory of externalizing problems from early childhood through adolescence (see Forehand & Wierson, 1993; McMahon & Forehand, 2003, for reviews). Specifically, coercive parent-child interchanges emerge through increased negative coercive parenting and, during adolescence (i.e., a high risk time for externalizing problems), youth problem behaviors accelerate through deviant peer affiliations (see McMahon, Wells, & Kotler, 2006, for a

review). Accordingly, monitoring emerges as an important parenting strategy during this developmental period (see Dishion & McMahon, 1998, for a review) and in combination with consistent discipline and warmth and involvement (Dishion & Bullock, 2002; Masten & Coatsworth, 1998) from earlier developmental periods can protect children from externalizing problems. Low levels or an absence of these behaviors constitute negative parenting during adolescence and place youth at risk for developing behavior problems.

Parental Depression and Child Behavior Problems: Parenting as a Mediator

Seven studies (Burt et al., 2005; Conger, Patterson, & Ge, 1995; Cummings, Keller, & Davies, 2005; Davies & Windle, 1997; Forehand et al., 1986; Harnish, Dodge, Valente, & CPPRG, 1995; Jaser, 2005; Spieker, et al., 1999) have examined negative parenting as a mediator of the relation between current parental depressive symptoms and child externalizing symptomatology. Four of these studies examined negative parenting as a mediator among preschool and elementary school age children. Two studies (Forehand et al., 1986; Spieker et al., 1999) found support for negative parenting as a mediator, one study (Harnish et al., 1995) found evidence of partial mediation, and one study (Cummings et al., 2005) failed to find support for parenting as a mediator. Three additional studies have examined older children and/or adolescents. One study found parenting to be a mediator (Conger et al., 1995); the second study found support for girls but not boys (Davies & Windle, 1997); and the third study (Jaser, 2005) failed to find evidence for the mediating role of parenting. As an example of a study in support of mediation, Conger and colleagues (1995) found that, among young adolescent boys,

elevated maternal current depressive symptoms were related to deviant child behavioral outcomes through disruptive discipline practices (i.e., harsh/inconsistent discipline, aversive behavior toward child). In summary, five of seven studies found some support for negative parenting as a mediator of the association between parental depressive symptoms and child externalizing problems.

In contrast to literature examining parental depressive *symptoms*, only one study has investigated the mediating role of parenting in the relation between a past history of parental clinical depression and child externalizing symptoms. Consistent with her findings regarding current maternal depressive symptoms, Jaser (2005) found no evidence for negative parenting as a mediator between a history of maternal depression and children externalizing problems among women whose clinical depression was in remission. Finally, depression chronicity and severity have not been examined in studies investigating the mediating role of negative parenting.

Tying it Together: Integration of the Literature and Conceptual Model Reviewed

Despite decades of research establishing the deleterious impact of parent depression on child adjustment, we remain in a nascent stage of understanding major differences evident among a heterogeneous group of individuals: depressed parents. Some of these differences, specifically chronicity, severity, and residual or current depressive symptoms, appear to relate to child externalizing behavior; however, few studies have examined the association of these variables with one of the primary mechanisms hypothesized to influence child behavior problems: negative parenting. Moreover, there is currently *no* research that has formally tested parenting as a mediator

of the potential links between parental depression severity and chronicity and problematic child behavior.

Some research exists demonstrating that current parental depressive symptoms relate to child externalizing problems and that negative parenting mediates this relationship; however, the role of current depressive symptoms warrants additional attention for two reasons: (1) Previous research has generally not examined the role of current depressive symptoms relative to a past history of clinical depression on child behavior in *clinical* populations of depressed parents in remission; and (2) the contribution of current parental depressive symptoms *above and beyond* past indicators of depression such as severity and chronicity in predicting young adolescent externalizing behavior has yet to be examined. Further research is needed to examine potential mechanisms that would explain the associations of parental depression severity, chronicity, and current depressive symptoms with child externalizing problems in clinical samples of parents with remitted depression.

The proposed mediational process can be conceptualized within the context of coercive parent-child interactions, which were delineated above. Specifically, based on Patterson's (1982) Coercion Theory, as the duration of a parent's clinical depression extends over a longer period of time (i.e., depression chronicity), the coercive parent-child exchanges will have the opportunity to develop, maintain, and, based on the developmental trajectory of externalizing problems (Forehand & Wierson, 1993), escalate to a level that is not likely to remit when the adult's depression remits. Thus, greater duration of major depression (or chronicity) may lead to greater exposure to

negative parenting for the child, the escalation of the coercive parent-child interaction process, and child externalizing problem behavior.

Past depression severity is expected to work in a similar fashion; however, instead of prolonged exposure to negative parenting, the child would be exposed to greater levels of parental functional impairment, and thus, to more severe parenting deficits. Although this process may develop over a more abbreviated time frame, it is expected that increasingly severe parental depression, based on the Family Stress Model (Conger & Conger, 2002; Margolin, 1981), would be associated with increasingly disrupted parenting behavior (e.g., an increasingly chaotic home environment in which structure and routine deteriorate) and child externalizing problem behavior, which then accelerates on a pathway toward increasingly severe child conduct problems (e.g., Farrington, 1992; Frick & Loney, 1999; Loeber, 1982; Olweus, 1979).

Finally, parents whose depression has remitted may continue to experience depressive symptoms even while not meeting criteria for a diagnosis of major depression. These symptoms, in turn, are likely associated with parenting deficits, based on previous literature that has found associations between current depressive symptoms in community samples and impaired parenting (e.g., Lyons-Ruth et al., 2002). This process is hypothesized to operate in the same coercive fashion as outline above.

The Role of Gender and Age of Child

The extant literature suggests that, although boys tend to demonstrate greater levels of externalizing problems in pre-adolescence than girls (e.g., Coie & Dodge, 1998; Keenan & Shaw, 1997), rates tend to converge in the adolescent years (see McMahon,

Wells, & Kotler, 2006, for a review). When the relationship between parent depression and child/adolescent externalizing problems is considered, the literature yields an inconsistent picture about the role of child gender, as some studies have found no difference in the strength of the relationship for boys and girls (e.g., Harnish, et al., 1995; Thomas, Forehand, & Neighbors, 1995). In other studies, stronger relationships have emerged for boys than girls (e.g., Gross, Conrad, Fogg, Willis, & Garvey, 1995; Murray, Fiori-Cowley, Hooper, & Cooper, 1996), whereas in still other studies, a stronger relationship has emerged for girls than boys (e.g., Davies & Windle, 1997; Essex, Klein, Miech, & Smider, 2001).

Age of the child may also be an important variable to consider, alone or in combination with child gender, when examining the parental depression—child externalizing relationship. Whereas boys appear at greater risk for externalizing problems when faced with family stress (e.g., marital discord) in pre-adolescence (e.g., Murray et al., 1996), girls are more at risk in the adolescent years (e.g., Davies & Lindsay, 2001; Windle, 1992). When parental depressive symptoms *specifically* have been studied, some research suggests that such symptoms predict externalizing problems of girls but not boys (Davies & Windle, 1997).

Discrepant findings across these studies fail to yield a consistent picture regarding the role of child gender and age. Nevertheless, these findings suggest that if age and gender are significant correlates of any of the primary variables of interest, they need to be controlled for when examining child externalizing problems.

Study Aims and Hypotheses

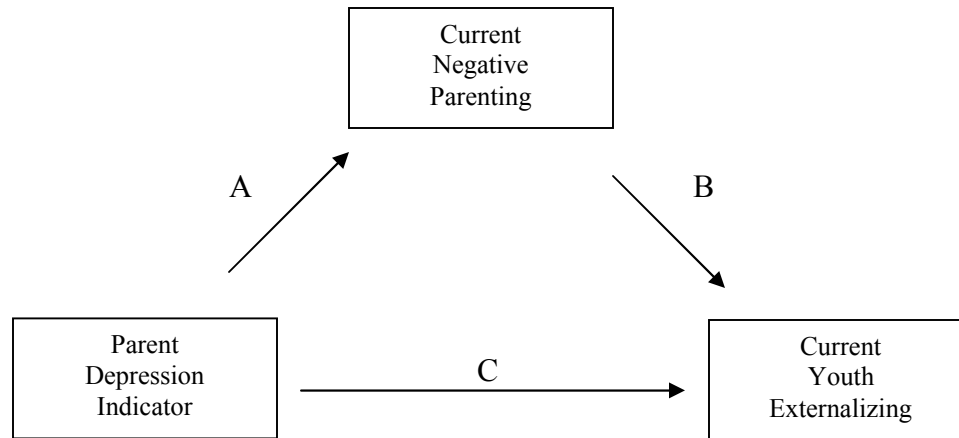
The current study was designed to address several gaps in the literature by replicating and extending previous research findings. The specific aims of the current study were threefold.

First, based on the literature reviewed, it was hypothesized that all three indicators of parental depression would have a significant relationship with adolescent externalizing problems when examined individually. This hypothesis was based on several independent lines of previous research, which have documented significant relationships between current parent depressive symptoms and child externalizing problems (e.g., Garstein & Fagot, 2003), past depression chronicity and child externalizing problems (e.g., Alpern & Lyons-Ruth, 1993; Brennan et al., 2000), and past depression severity and child externalizing problems (e.g., Nelson et al., 2003). However, of the two studies that have specifically attempted to disentangle severity and chronicity, one study found severity to relate to child problem behavior (Brennan et al., 2000), while the other did not (Hammen & Brennan, 2003). Therefore, the hypothesized relationship between past parental depression severity and child externalizing problems was more tentative and exploratory in nature.

Second, it was hypothesized that, when examined simultaneously, past depression chronicity and current depressive symptoms, but not past depression severity, would each have a unique association with young adolescent externalizing outcomes. Severity was not hypothesized to have a unique association with child behavior problems, primarily

due to its weaker support in the literature in general, as well as those findings reported by Hammen and Brennan (2003), which documented a significant relationship between maternal depression chronicity, but not severity, and adolescent externalizing problems. In essence, it was proposed that there would be lingering “effects” of a history of chronic parental depression that were unique from those associated with current parent depressive symptoms, which would also contribute uniquely to child externalizing problems.

Finally, and in line with the hypothesized *individual* contribution of each of the parental depression indicators to adolescent externalizing problems, the third aim of the current study was to investigate the potentially mediating role of negative parenting in the relationship of each of the three indicators (i.e., current parental symptoms, past depression chronicity, past depression severity) to child externalizing behavior. This aim was explored by way of three separate mediation models. The model for current maternal symptoms is presented below; past depression chronicity and past depression severity were each tested in models identical to this one. Mediation was tested by the procedures proposed by Baron and Kenny (1986), which are described in greater detail in the results section, below. Based on the literature reviewed, it was hypothesized that, for each of the three indicators of parental depression considered individually, negative parenting would serve as a mediator of the parent depression--adolescent externalizing problem behavior relationship.



As was noted, gender and/or age of the child are important variables to consider when testing the proposed relationships. Levels of all variables of interest in the mediation models may vary as a function of child age and/or gender. Furthermore, these two variables may moderate any findings that emerge. However, in order to test a mediation model that is moderated by one or more variables, a substantial sample size would be necessary. As a consequence, rather than being examined in a distinct moderated-mediation model, as they were not the focus of this research, child age and gender were controlled in all primary analyses if they were found to be significant correlates of any of the outcome or mediator variables.

Methods

Overview of the RHC Randomized Control Trial

The Raising Healthy Children (RHC) project is an NIMH-funded preventive intervention designed to prevent the incidence of mental health problems among children of depressed parents. The RHC program is a randomized, controlled efficacy trial testing

an 8-week (plus 4 monthly booster sessions), family-based, cognitive behavioral preventive intervention that is comprised of the following components thought to be integral to the prevention of mental health problems in children: psychoeducation regarding the etiology and treatment of depression; child coping skills (e.g., relaxation techniques, cognitive restructuring); and parenting skills (e.g., appropriate and consistent discipline, positive reinforcement). In contrast, the active control, or “self-study” condition receives psychoeducational materials mailed to their homes, specifically regarding the nature and causes of depression. Families in each condition participate in the same assessment procedures as the preventive intervention group, at baseline, 2, 6, 12, 18, and 24-month intervals. Although the RHC project follows families over a period of two years, the current study focused only on baseline data from the project. The project recruited participants across two sites: Nashville, Tennessee and Burlington, Vermont and their surrounding areas.

Participants

Across both sites, the original cohort at the baseline assessment of the RHC intervention consisted of 122 families (i.e., 167 parent-child dyads), in which one or more parents had a past or current history of Major Depressive Disorder. In the event that more than one parent had a depressive history, the person who initiated contact was selected as the “target parent” from each household, and this person completed all measures on him/herself. All children in the household who were in the targeted age range of 9 to 15 years, 11 months, were invited to participate. This age range was specifically selected due to the documented developmental transition to adolescence as a

time of significant “storm and stress” (Arnett, 1999) and, as reviewed above, one that has been less targeted in this area of the literature.

Given that the current study focused on remitted depression only, 37 families (49 parent-child dyads) were excluded from the original cohort, due to the fact that the target parent in these cases was in an active, or current, major depressive episode at the time of assessment. Participants for the current research, therefore, consisted of 85 families, or 118 parent-child dyads, in which a parent had a past, but not current, history of Major Depressive Disorder.

Participants were recruited via mental health agencies, doctor’s offices, hospitals, and local newspaper advertisements and flyers. Attempts were made to recruit a sample that was diverse in terms of socioeconomic status, ethnicity, age, gender, and marital status. Demographic data for the current cohort are presented in Table 1.

Families were compensated a total of \$80 for their participation in the baseline phase of the study. Although both depressed mothers and fathers were recruited, the majority of families were enrolled as a result of maternal depression (i.e., 86% of participating parents were female).

The following criteria for parents were utilized for exclusion: target parent (i.e., person who expressed an interest in the study) meets diagnostic criteria (as assessed via the SCID-I) for Lifetime Bipolar-I Disorder, Lifetime Schizophrenia, or Current Substance Abuse/Dependence. For children, the exclusion criteria were: Current Major Depressive Disorder, Current Conduct Disorder, Lifetime Bipolar-I, Lifetime Schizophrenia, Lifetime Autism/Aspergers, or Current Substance Abuse/Dependence.

Table 1.
Demographic characteristics of the current sample (n = 85 families; 118 parent-child dyads)

Variable	Mean	SD	Percent
<i>Child</i>			
Age (yrs.)	11.43	2.41	
Gender (%)			
Female			47
Male			53
<i>Target Parent</i>			
Age	42.27	6.57	
Gender			
Male			14
Female			86
Marital Status			
Married/Live-in Partner			71
Widowed			3
Divorced			17
Separated			3
Single/Never married			6
Education			
Less than High School			8
H.S. Graduate/Equivalent			6
Some College			30
College Degree (4 years)			32
Graduate Education			24
Ethnicity ¹ (%)			
Caucasian ²			82
African-American			7
Latino			3
Mixed Ethnicity			1
Did not report			7
<i>Family</i>			
Income ³			
Under \$5K			2
\$5K-9,999K			4
\$10-14,999K			0
\$15-24,999K			8
\$25-39,999K			15
\$40-59,999K			22
\$60-89,999K			21
\$90-179,999K			17
Over \$180K			3
Did not report			8

1. Caucasian vs. Non-Caucasian classification utilized for analyses, due to disproportionate percentages

2. Non-Latino

3. Household annual gross income

The rationale for each specific inclusionary/exclusionary criterion was to ensure that the parents and children could actively participate in the intervention, and as the project is focused on the prevention of child problem behavior, that children were not currently meeting criteria for our selected target disorders (as assessed via the K-SADS).

Measures

Demographics

Demographic data were obtained during the course of the semi-structured interview screening and assessment process. Specific demographic information obtained included parent(s) age and gender, marital status, ethnicity (classified as Caucasian versus non-Caucasian for analytic purposes), highest education level, annual family income and child(ren)'s age and gender.

Screening Children : K-SADS-PL

The *Kiddie-Schedule for Affective Disorders and Schizophrenia, Present and Lifetime Version* (K-SADS-PL), which combines individual perspectives of the parent and child in a semi-structured interview format, was used to screen out children with specific diagnostic criteria profiles (see page 29). The K-SADS-PL has been demonstrated to have excellent internal consistency and to correlate highly with self-report measures of diagnostic categories (Kaufman et al., 1997).

Current Parental Depressive Symptomatology

The *Beck Depression Inventory, 2nd edition* (BDI-II; Beck, Steer, & Brown, 1996) was used to assess current levels of parental depressive symptomatology. The BDI-II is a 21-item, self-report inventory that assesses the presence and severity of current

depressive symptoms in adolescents and adults. Items specifically tap attitudes and symptoms associated with depression. Each item consist of four statements of varying degrees of symptom severity, and range from 0 to 3, with 0 indicating an absence of that particular symptom (e.g., “I do not feel like a failure,” “I have not experienced any change in my appetite”) and 3 indicating the most severe level of that symptom (e.g., “I feel I am a total failure as a person,” “I have no appetite at all or I crave food all the time”). Ratings from the 21 items were summed to calculate a total score, ranging from 0 to 63, with higher scores indicating more severe current depressive symptomatology. Specific content of the items relate to, for example, feelings of sadness and worthlessness, loss of interest in activities, and suicidal ideation. The BDI-II has been demonstrated to have excellent internal consistency ($\alpha = .92$) and correlates highly with other measures of depression ($r = .93$) as well (Beck, Steer, Ball, & Ranieri, 1996). Similarly, excellent internal consistency for the BDI-II was found for the current sample ($\alpha = .91$).

Past Parental Depression: Chronicity and Severity

The *Structured Clinical Interview for DSM-IV Axis I Disorders* (SCID-I; First, Spitzer, Gibbon, & Williams, 2002) is a semi-structured diagnostic interview designed to assist researchers and clinicians in making reliable DSM-IV (Axis I) diagnoses. The Affective Disorders subsection “Major Depressive Disorder” was the focus of the present study. Adequate reliability and validity have been demonstrated for the SCID. More specifically, reliabilities have been determined for each of the DSM-IV diagnoses assessed by the SCID-I, and the kappas vary considerably as a function of the disorder

being diagnosed. For Major Depression, kappas have ranged from .61 (Zanarini et al., 2000) to .93 (Skre, Onstad, Torgersen, & Kringlen, 1991). Of note, raters who are well trained, and particularly raters who train and work together, are likely to have better agreement on ratings (Ventura et al., 1998). For example, an ongoing training and quality assurance program, such as the one in place at the UCLA Research Center for Major Mental Illness, has demonstrated that a high level of reliability (i.e., Kappas of at least .75 on symptoms, and 90% accuracy in diagnosis) is maintained even as interviewers leave and new interviewers are trained. As well, the RHC study had a standardized SCID training program in effect at both of its sites.

The SCID was initially used to screen in parents with a history of past or current Major Depressive Disorder during the oldest target child's lifetime. It was also used to obtain more specific information regarding the severity and chronicity of the past clinical depression for each adult participant.

Chronicity. Information regarding the number of past episodes and duration of each episode was assessed during the baseline SCID interview with the participating parent. Although there is some disagreement in the literature about how best to define chronicity, it has been used as a measure of the total duration of depressive episodes that the individual with a history of clinical depression has experienced in one study that examined its impact separately from depression severity (Hammen & Brennan, 2003). Consistent with this literature, the current study utilized a calculation of the total number of months of major depression experienced, summed across all episodes that have met criteria for a DSM-IV-defined major depressive episode (i.e., five out of nine symptoms

for most of the day, nearly every day for at least two weeks) during the course of the lifetime of the oldest child in the target age range (i.e., 9-15.9 years).

Severity. The severity of past maternal clinical depression was assessed using the SCID as well. There also exists substantial disagreement in the literature regarding how best to measure past depression severity. Consistent with Brennan et al. (2000), severity was defined as a continuous variable and reflected the maximum number of depressive symptoms *ever* reported during a major depressive episode experienced over the lifetime of the target child (i.e., score ranging from 0 to 9).

Current Negative Parenting Behavior

The *Alabama Parenting Questionnaire* (APQ; Frick, 1991) was used to assess current levels of negative parenting strategies employed by the parents in our sample. The APQ is a 42-item questionnaire, available in both parent and child report formats, and, after deleting redundant items (Shelton, Frick, & Whooton, 1996), consists of 35 items that originally yielded five constructs related to parenting: Parental involvement, Positive parenting, Poor monitoring/supervision, Inconsistent discipline, and Corporal punishment (3 items; e.g., “How often do you spank your child with your hand when he/she has done something wrong?”). Items are rated on a 5-point scale, from 1 (never) to 5 (always), representing “typical” frequency with which specific parenting behaviors occurs in the home. The APQ has historically demonstrated adequate test-retest reliability (ranging from .66 to .89) and good construct validity, with internal consistency or alphas ranging from .67 to .80 with the exception of the Corporal punishment scale (i.e., 3 items), which is .46 (Shelton et al., 1996).

As the current study was focused on the role of negative parenting practices, the Poor monitoring/Supervision, Inconsistent Discipline, and Corporal Punishment factors were initially selected for examination, due to their relevance. However, as unacceptable alpha coefficients have repeatedly been associated with the Corporal Punishment items (e.g., Shelton et al., 1996), this scale was not included in the ensuing analyses.

Both parent and child report of parenting were collected and utilized. Although the use of child-reported parenting has raised some concern among younger samples in the literature (Shelton et al., 1996), child report questionnaires have been consistently utilized in studies that examine older children, particularly preadolescents and adolescents, and are generally regarded as a reliable measure of parenting behavior when older children are studied (e.g., Brennan, LeBroque, Hammen, 2003; Jacob, Moser, Windle, Loeber, & Stouthamer-Loeber, 2000; Schaefer, 1965). Child-reported negative parenting also has been shown to have good predictive validity, for example, with child adjustment outcomes (e.g. Macie, & Stolberg, 2003), including externalizing behavior (e.g., Jacob et al., 2000). Moreover, cross informant comparisons of parenting inventories have yielded moderate correlations between child and parent (e.g., Jacob et al., 2000). For the current sample, adequate internal consistency was demonstrated for both negative parenting scales (i.e., poor monitoring/supervision, inconsistent discipline), for both the parent ($\alpha = .72$, $\alpha = .79$, respectively) *and* child ($\alpha = .78$, $\alpha = .64$, respectively) report versions of the instrument.

A negative parenting composite score, consisting of 16 items completed by the parent and also by the child, was created independently for parent report and then child

report, standardized for each reporter, and summed. Such an approach assumes that the perceptions of both parent and child are of equal importance and both integral to a more accurate appraisal of parenting practices in the home. Previous studies have documented the utility of combining APQ data across assessment formats (e.g., Frick, Christian, & Wootton, 1999).

Youth Externalizing Behavior

Youth externalizing symptoms were assessed from the perspective of both the parent and child. These two reports were examined separately in subsequent analyses, as agreement between parent and child report has typically been low to moderate (Achenbach, McConaughy, & Howell, 1987; Yeh & Weisz, 2001).

The *Child Behavior Checklist for Ages 6-18* (CBCL/6-18; Achenbach & Rescorla, 2001) is a 118-item, parent report measure that assesses child behavioral and emotional problems over the last six months. Parents rate the extent to which each item is generally true (i.e., within the last six months) for his/her child, using the following scale: 0 (not true), 1 (somewhat or sometimes true), 2 (very or often true). Sample items include “cruel to animals,” “too fearful or anxious,” “fears going to school,” and inattentive or easily distracted.” The CBCL/6-18 yields two broad-based factors: Internalizing and Externalizing (which also form a composite “Total Problems” score) and additionally breaks down into eight empirically-based problem scale scores (i.e., aggressive behavior, anxious/depressed, attention problems, rule-breaking behavior, social problems, somatic complaints, thought problems, withdrawn/depressed), and six DSM-oriented scales (i.e., affective problems, anxiety problems, somatic problems, attention-deficit/hyperactivity

problems, oppositional defiant problems, conduct problems). The Externalizing broadband scaled score served as the outcome measure for the current study.

The CBCL/6-18 has been thoroughly researched and has demonstrated excellent internal consistency ($\alpha = .97$ for total problems; $\alpha = .94$ for externalizing) and correlates highly with other measures (i.e., Behavioral Assessment System for Children (BASC)) of broader-band externalizing and total problems scales ($r = .74$ to $.89$) (Achenbach & Rescorla, 2001). The alpha coefficient for the current sample on the parent-report Externalizing broadband scale was $.88$.

The child-report equivalent of the CBCL/6-18, the *Youth Self Report Form* (YSR/11-18; Achenbach & Rescorla, 2001), is a 112-item measure, which includes items that are similar to those in the parent-report form. Youth rate themselves for how true each item is for him/her in the past six months, using the same three-point response scale (0, 1, or 2) as the CBCL/6-18. The YSR has demonstrated excellent internal consistency ($\alpha = .95$ for total problems; $\alpha = .90$ for externalizing) and correlates highly with other self-report measures of broader-band externalizing and total problems scales (i.e., Behavioral Assessment System for Children (BASC)) of broader-band externalizing and total problems scales ($r = .74$ to $.89$) (Achenbach & Rescorla, 2001). The alpha coefficient for the current sample on the child-report Externalizing broadband scale was $.86$.

Procedure

Families were recruited via mental health and primary care offices, as well as through local advertisements and flyers distributed around the Burlington, VT and

Nashville, TN areas. Participants were asked to contact RHC staff directly to set up a phone screen to determine whether or not they appear to meet study eligibility criteria. Once families were successfully phone screened, four-hour baseline assessment appointments were set up, at which point the family visited the laboratory to sign consent forms and complete structured interviews (i.e., parents completed SCID on their own history and K-SADS on the history of the child; children completed K-SADS regarding their own history), for the purpose of further confirming their mental health eligibility for the study. If the family was deemed eligible, the parent-child dyad then completed two 15-minute, videotaped, parent-child interaction tasks, and the parent and child were asked to complete the aforementioned computer-based questionnaires, including the BDI-II, APQ, CBCL, and YSR, at home. The target parent and child(ren) were each compensated \$40 for their time at this assessment.

Results

Sample Size Considerations

Of the 118 participants, missing data resulted in significant variation in sample size across primary variables. Specific sample sizes were as follows: current parental depressive symptoms (n = 112); past depression severity (n = 118); past depression chronicity (n = 62); negative parenting (n = 105); CBCL Externalizing Problems (n = 109); YSR Externalizing Problems (n = 112). When a participant was missing data on a given variable, he or she was not included in analyses involving that particular variable.

Missing data were generally due to participants not returning a given questionnaire, despite several prompts. There were two exceptions to this, however.

First, with respect to negative parenting, two outliers were excluded from the present sample. One parent and one child reporter (i.e., from different families) were each eliminated from the pool of APQ data (i.e., as opposed to being deleted from the sample), as the mean composite score in both cases was greater than 3 standard deviations above the mean. Further, given that the negative parenting composite score summed parent and child perceptions on the same items, if one of the parties had not completed an APQ, that dyad was eliminated from the negative parenting pool of data. Second, data regarding past depression chronicity were only collected on a subset of the current sample. Given that the total duration of depressive episodes across time is not a standard part of a SCID administration, a uniform system for collecting these data was necessary. Such a system was not implemented until after considerable data were collected.

Preliminary Analyses

Preliminary analyses were performed to first examine the distribution of all variables, which, in almost all cases, revealed normal distributions. The one exception to this was depression chronicity (i.e., total duration of depressive episodes over the age of the oldest target child). This variable was slightly positively skewed; therefore, a square root transformation was performed, which was successful in normalizing the distribution. Descriptive data (e.g., mean, standard deviation) for each of the variables of interest are presented in Table 2.

Next, correlations were computed. The correlations were weighted in order to account for the inclusion of multiple children from each family in all analyses. Specifically, correlations were computed between demographic variables and each of the

Table 2.**Descriptive Statistics for Primary Variables**

Variable	Mean	Standard Deviation	Range
Independent Variables (Target Parent)			
a. Current Depressive Symptoms ¹	12.75	9.22	0 - 46.0
b. Past Depression Chronicity ²	3.01	1.73	.5 - 8.0
c. Past Depression Severity ³	6.81	1.30	5.0 - 9.0
Mediator Variable			
a. Negative Parenting ⁴	-0.17	2.41	-5.34 - 5.41
Dependent Variables			
a. CBCL Externalizing Problems ⁵	52.08	9.68	33 - 79
b. YSR Externalizing Problems ⁶	7.91	6.40	0 - 27

1. Beck Depression Inventory (BDI); total score (possible range 0-63).
2. Total duration (months) of major depression experienced during the lifetime of the oldest target child; note that the above values represent the square root of original data. The original data (in months) were 11.98 (mean), 13.87 (standard deviation), and 0.25 – 64.0 (range).
3. Total number of DSM symptoms experienced during worst past major depressive episode (possible range 5 – 9).
4. Negative parenting practices, as assessed by the Alabama Parenting Questionnaire; note that both parent and child report were standardized and summed to form a composite score.
5. Parent report; standardized score.
6. Child Report; raw score (due to instrument not being standardized on children under the age of 11); possible range 0 – 70.

outcome and mediator variables to determine those variables that should be controlled in primary analyses. The findings, which are reported in Table 3, indicated that negative parenting was associated with annual household income ($r = -.30, p < .05$), parent ethnicity ($r = .24, p < .05$), and child age ($r = .48, p < .01$). These demographic variables were controlled in primary analyses where negative parenting served as the dependent variable. There were no significant correlates of parent-reported youth externalizing problems; however, youth report of their own externalizing behavior was associated with parent education ($r = -.27, p < .05$). This variable was also controlled for in primary analyses where youth report of externalizing problems served as the dependent variable. Weighted correlations were also conducted among the independent, mediator, and dependent variables, and these data are also presented in Table 3. Current levels of parent depressive symptoms were significantly correlated with negative parenting ($r = .30, p < .01$) and parent-report ($r = .23, p < .05$) of youth externalizing behavior. Neither past parental depression chronicity nor severity was significantly associated with the mediator or dependent variables. Negative parenting was correlated with parent ($r = .38, p < .01$) and child ($r = .33, p < .01$) report of youth externalizing behavior problems. Finally, parent and child report of youth externalizing problems were associated with one another ($r = .35, p < .01$).

Next, participants with complete versus missing data were examined on each of the major variables of interest (i.e., parents: BDI, Chronicity, Severity, APQ- parent report, CBCL; children: APQ- child report, YSR), in order to determine whether they significantly differed on any of the following demographic variables: parent age, gender,

Table 3.**Weighted Correlations among Demographic, Independent, Mediator, and Dependent Variables**

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Parent Gender	--	-.27*	-.09	-.10	.11	.19	.04	-.02	.06	-.04	.16	-.08	-.01	.07
2. Parent Age		--	.25*	.11	.06	-.13	.31*	-.05	-.13	-.07	.09	.16	-.14	-.15
3. Parent Education			--	.52**	-.17	-.09	.00	.03	-.15	-.32*	.07	-.15	-.10	-.27*
4. Household Income				--	-.30**	-.59**	-.06	.07	-.20	-.24	.03	-.30*	-.16	-.14
5. Parent Ethnicity ¹					--	.33**	-.11	-.07	.03	.13	-.12	.24*	-.03	.02
6. Parent Marital Status						--	.00	.05	.02	.11	-.16	.19	.15	.14
7. Child Age							--	-.11	.07	-.02	.06	.48**	.01	.20
8. Child Gender								--	-.09	.04	-.07	-.05	.20	-.15
9. Current Depressive Symptoms									--	.15	-.02	.30**	.23*	-.01
10. Past Depression Chronicity										--	-.11	.14	.19	.07
11. Past Depression Severity											--	.01	.00	-.09
12. Negative Parenting												--	.38**	.33**
13. CBCL Externalizing Problems													--	.35**
14. YSR Externalizing Problems														--

p* < .05; p** < .01

1. Classified as Caucasian vs. non-Caucasian

ethnicity, education level, marital status, socioeconomic status, or child age or gender. One of two procedures, the independent samples t-test or chi square statistic, was utilized, depending upon the nature of the dependent variable [continuous (e.g., child age) or dichotomous (e.g., parent gender)]. The purpose of these analyses was to ascertain whether participants were representative of the entire sample recruited for the study (i.e., did not differ from those with missing data). Results indicated that parents with complete versus missing data were *not* significantly different on mean levels or percentages of parent age, gender, ethnicity, socioeconomic status, education level, or marital status. With respect to children, there were no differences for gender; however, there were differences for one measure when age was examined: those who were missing data on the Youth Self-Report (YSR) were significantly younger than those with complete data on this measure of externalizing behavior problems ($t(116) = -2.79, p < .01$).

Data Analytic Approach for Primary Analyses

In order to increase the sample size and, thus, power to test hypothesized effects, multiple children in the same family were utilized. The Linear Mixed Effect Models Analysis was selected in order to control for the inclusion of multiple children from a given family. This type of analysis accounts for the family correlational structure by assuming a compound symmetry covariance structure and using an iterative, or repeated measures procedure, to estimate the model's parameters. In this way, the model simultaneously accounts for the assumed correlations between parental outcome measurements on multiple children in the same family as well as between multiple children from the same family reporting on the parenting of the same parent (A. Howard,

personal communication, April, 2007; Howell, 2007). There are no fixed between-subject effects, only covariates.

Primary Analyses

Study Aim 1: Does each of the parent depression indicators (i.e., current symptoms, past chronicity, past severity) account for individual variance in adolescent externalizing behavior?

In order to address this first aim, three separate linear mixed effect models analyses were conducted (i.e., the same analyses that were conducted, when appropriate, to satisfy criterion 3 of mediation, delineated below). In each case, if there were correlated demographic variables, they were entered in Block 1 and the relevant depression indicator (i.e., past depression chronicity, past depression severity, current depressive symptoms) was entered in Block 2. The individual relationships between each indicator of maternal depression and child behavior problems are described below. Each set of analyses was first conducted examining parent report of youth externalizing problems and then repeated with child report.

The first linear mixed effect model examined the association between current parental depressive symptoms and child externalizing behavior. As there were no significantly correlated demographics to enter in this model, parent depressive symptoms were entered as the independent variable in the first block of the analysis, with parent report of child behavior problems as the dependent variable. Results indicated that current depressive symptoms were significantly associated with parent report of youth externalizing problems ($B = .23, p < .05$; see Table 4). Therefore, higher levels of current

Table 4.

Linear mixed effect model where current parental depressive symptoms served as the independent variable and parent-reported youth externalizing problems served as the dependent variable (n = 109).

Block	B	SE	<i>t</i>	p
1. Parent current depressive symptoms	.23	.11	2.06	.04

parental depressive symptoms were associated with greater levels of parent-reported child externalizing problems. The aforementioned model was repeated a second time, with child report of youth externalizing problems entered as the dependent variable. Parent education served as a control variable and was entered in Block 1 and parent depressive symptoms were entered in Block 2. In this case, results failed to support a significant association between current parent depressive symptoms and child report of youth externalizing behavior ($B = -.01$, $p = .85$; see Table 5).

The second linear mixed effect model examined associations between past parental depression chronicity and child externalizing behavior. Accordingly, chronicity was entered as the independent variable in the first step of the analysis as there were no significantly correlated demographic variables. Parent report of child behavior problems served as the dependent variable. Results indicated that chronicity was *not* significantly associated with parent report of youth externalizing problems ($B = 1.32$, $p = .14$; see Table 6). This model was repeated a second time with child report of youth externalizing problems entered as the dependent variable. Parent education initially served as a control variable and was entered in Block 1; however, it was no longer significant ($p < .05$) once entered into the model. Accordingly, the model was re-run after removing parent education: chronicity was *not* significantly associated with child report of youth externalizing problems ($B = .26$, $p = .58$; see Table 7).

The third and final linear mixed effect model examined associations between past parental depression severity and child externalizing behavior. Accordingly, severity was entered as the independent variable in the first step of the analysis with parent report of

Table 5.

Linear mixed effect model where demographic variables and current parental depressive symptoms served as independent variables and child-reported youth externalizing problems served as the dependent variable (n = 108).

Block	B	SE	<i>t</i>	p
1. Parent education	-1.34	.52	-2.58	.01
2. Parent current depressive symptoms	-.01	.07	-0.19	.85

Table 6.

Linear mixed effect model where past parental depression chronicity served as the independent variable and parent-reported youth externalizing problems served as the dependent variable (n = 57).

Block	B	SE	<i>t</i>	p
1. Past parental depression chronicity	1.32	.87	1.51	.14

Table 7.

Linear mixed effect model where past parental depression chronicity served as the independent variable and child-reported youth externalizing problems served as the dependent variable (n = 60).

Block	B	SE	<i>t</i>	p
1. Past parental depression chronicity	.26	.48	0.56	.58

child behavior problems as the dependent variable. Results indicated that depression severity was *not* significantly associated with parent report of youth externalizing problems ($B = .01, p = .99$; see Table 8). The aforementioned model was repeated a second time, with child report of youth externalizing problems serving as the dependent variable. Parent education served as a control variable and was entered in Block 1. In this case, depression severity, which was entered in Block 2, was *not* significantly associated with child report of youth externalizing Problems ($B = -.37, p = .41$; see Table 9).

In summary, with respect to the first study aim, support was found only for greater levels of current or residual parental depressive symptoms being associated with greater levels of parent-reported child externalizing symptoms.

Study Aim 2: Does each of the parent depression indicators (i.e., current symptoms, past chronicity, past severity) account for unique variance, in the context of the others, in its association with adolescent externalizing behavior?

The second aim, to examine the unique contribution of each of the three indicators when considered in the context of the remaining two indicators, was also analyzed using linear mixed effect modeling. In this case, each of the three independent variables (i.e., current or residual depressive symptoms, depression chronicity, depression severity) was entered simultaneously in the model, in order to examine the unique contribution of each depression indicator. Two linear mixed effect models were conducted: one examining parent report of youth externalizing problems and one examining child report of youth externalizing. When parent report of child behavior problems served as the dependent

Table 8.

Linear mixed effect model where past parental depression severity served as the independent variable and parent-reported youth externalizing problems served as the dependent variable (n = 109).

Block	B	SE	<i>t</i>	p
1. Past parental depression severity	.01	.79	.01	.99

Table 9.

Linear mixed effect model where demographic variables and past parental depression severity served as independent variables and child-reported youth externalizing problems served as the dependent variable (n = 112).

Block	B	SE	<i>t</i>	p
1. Parent education	-1.30	.49	-2.63	.01
2. Parent past depression severity	-0.37	.45	-0.82	.41

variable, there were no significantly correlated demographics to enter in this model. Results indicated that only current depressive symptoms were found to be a unique contributor to parent-reported child behavior problems in the context of past depression chronicity and severity ($B = .35, p < .05$; see Table 10). The aforementioned model was repeated a second time, with child report of youth externalizing problems entered as the dependent variable. Parent education initially served as a control variable in Block 1, but was nonsignificant ($p > .05$) and, therefore, was removed from the model. The analysis was conducted again with the three depression indicators entered in the same block (see Table 11). None of the three indicators had a significant association with youth report of child behavior problems.

Due to the sample size difficulties noted above when depression chronicity served as an independent variable, the analyses reported thus far included only 57 participants (the sample for the chronicity measure was 62 and five additional participants were eliminated due to missing data on one of the measures being analyzed). In order to conduct a more robust test, a second model was conducted, after omitting chronicity, and the results are presented below.

In this case, each of the two independent variables (i.e., current depressive symptoms, depression severity) was entered simultaneously in the first block of the model, when parent report of child behavior problems served as the dependent variable. There were no significantly correlated demographics to enter in this model. Results revealed that current depressive symptoms were significantly associated with parent-reported child behavior problems ($B = .23, p < .05$) in the context of depression severity

Table 10.

Linear mixed effect model where current parental depressive symptoms, past parental depression chronicity, and past depression severity served as independent variables and parent-reported youth externalizing problems served as the dependent variable (n = 57).

Block	B	SE	<i>t</i>	p
1. Parent current depressive symptoms	.35	.14	2.47	.02
Past parental depression chronicity	1.16	.85	1.37	.18
Past parental depression severity	.99	1.03	0.96	.35

Table 11.

Linear mixed effect model where current parental depressive symptoms, past parental depression chronicity, and past depression severity served as independent variables and child-reported youth externalizing problems served as the dependent variable (n = 56).

Block	B	SE	<i>t</i>	p
1. Parent current depressive symptoms	.02	.08	.21	.83
Past parental depression chronicity	.15	.52	.30	.76
Past parental depression severity	-.64	.64	-1.00	.32

(see Table 12). This model was repeated, using child report of youth externalizing problems as the dependent variable. Parent education served as a control variable and was entered in Block 1. Neither indicator had a significant association with youth report of child behavior problems (see Table 13). In summary, current parent depressive symptoms was the only depression indicator, when entered in the context of the others, found to have a unique association with parent, but not child, report of youth externalizing behavior problems.

Study Aim 3: Does negative parenting mediate the link between each of the three parent depression indicators (i.e., current symptoms, past chronicity, past severity) and child externalizing behavior?

Baron and Kenny's (1986) approach for testing mediation was utilized in order to examine the extent to which negative parenting mediates the relationship between each indicator of parental depression and child externalizing behavior. This approach requires that four criteria be successfully met: a significant relationship must exist between the depression indicator and negative parenting (first criterion for mediation); between negative parenting and child externalizing behavior (second criterion for mediation); and between the depression indicator and child externalizing behavior (third criterion for mediation). If each of these criteria is successfully satisfied in sequential order, the relationship between the depression indicator and child externalizing behavior should be reduced when negative parenting is entered into the model (fourth and final criterion for mediation). A final step in testing for mediation is to demonstrate the significance of the indirect effect of the mediator (i.e., the A-B path). One procedure for testing this effect is

Table 12.

Linear mixed effect model where current parental depressive symptoms and past parental depression severity served as independent variables and parent-reported youth externalizing problems served as the dependent variable (n = 109).

Block	B	SE	<i>t</i>	p
1. Parent current depressive symptoms	.23	.11	2.05	.04
Past parental depression severity	-.02	.77	-0.02	.98

Table 13.

Linear mixed effect model where current parental depressive symptoms and past parental depression severity served as independent variables and child-reported youth externalizing problems served as the dependent variable (n = 108).

Block	B	SE	<i>t</i>	p
1. Parent education	-1.34	.52	-2.58	.01
2. Parent current depressive symptoms	-0.02	.07	-0.22	.83
Past parental depression severity	-0.35	.47	-0.76	.45

the Sobel test (MacKinnon & Dwyer, 1993), which was used in the current study.

Significant associations between both depression chronicity and depression severity and child externalizing problems (either parent report or child report) were not obtained in Study Aim 1, indicating criterion 3 of the mediational process was not satisfied. Nevertheless, for each independent variable (current depressive symptoms, past depression chronicity, past depression severity) and each dependent variable (parent and child report of youth externalizing problems), the criteria for mediation were tested in the order indicated by Baron and Kenny (1986). Once a criterion was not met, (e.g., depression chronicity was not associated with negative parenting), subsequent steps in the four-step mediation process were not conducted.

Current Depressive Symptoms.

Criterion 1: Current parental depressive symptoms are significantly associated with current negative parenting behavior. A linear mixed effect model analysis was conducted in order to test Baron and Kenny's (1986) first criterion for mediation. Preliminary correlations designated several demographic variables that were significantly associated with negative parenting, including annual household income, parent ethnicity, and child age. Therefore, these variables were entered in the first block in order to control for their influence, current parent depressive symptoms were entered in the second block, and negative parenting serving as the dependent variable. All demographic variables remained significant correlates with the exception of annual household income ($p > .05$); therefore, income was removed and the model was re-run. After controlling for child age and parent ethnicity, there was a significant relationship between current parent

depressive symptoms and negative parenting ($B = .05$, $p < .05$; see Table 14). Given that the first criterion for mediation was satisfied, it was appropriate to proceed to the next step.

Criterion 2: Negative parenting is significantly associated with child externalizing behavior. A linear mixed effect model analysis was conducted in order to test Baron and Kenny's (1986) second criterion for mediation. In the first model, negative parenting served as the independent variable, while parent report of youth externalizing behavior was entered as the dependent variable. There were no significant demographic correlates of parent-reported child externalizing behavior. A significant relationship was evident between negative parenting and parent-report of youth externalizing problems ($B = 1.30$, $p < .01$; see Table 15).

A second model examined child report of youth externalizing behavior as the dependent variable. Parent education was a significant correlate of child-reported externalizing behavior; therefore, this variable was entered in the first block. After controlling for parent education, a significant relationship was found between negative parenting and child-report of youth externalizing problems ($B = .84$, $p < .01$; see Table 16).

Given that the second criterion for mediation was satisfied for both parent and child report of youth externalizing, it was appropriate to proceed to the next step.

Criterion 3: Current parental depressive symptoms are significantly associated with child externalizing behavior. The third criterion was examined as part of Study Aim one. A significant relationship was evident between negative parenting and parent-report

Table 14.

Linear mixed effect model where demographics and current parental depressive symptoms served as independent variables and negative parenting served as the dependent variable (n = 101).

Block	B	SE	<i>t</i>	p
1. Parent ethnicity	0.80	.25	3.22	.00
Child age	0.64	.10	6.35	.00
2. Parent current depressive symptoms	0.05	.02	2.21	.03

Table 15.

Linear mixed effect model where negative parenting served as the independent variable and parent-reported youth externalizing problems served as the dependent variable (n = 103).

Block	B	SE	<i>t</i>	p
1. Negative Parenting	1.30	.38	3.44	.00

Table 16.

Linear mixed effect model where demographics and negative parenting served as independent variables and child-reported youth externalizing problems served as the dependent variable (n = 103).

Block	B	SE	<i>t</i>	p
1. Parent education	-1.14	.50	-2.31	.03
2. Negative Parenting	0.84	.25	3.38	.00

of youth externalizing problems ($B = .23, p < .05$; see Table 4). Given that this third criterion for mediation was satisfied for parent-report of youth externalizing, it was appropriate to proceed to the next step.

When child report of youth externalizing behavior served as the dependent variable, a significant relationship was *not* found to exist between current parent depressive symptoms and child-report of youth externalizing problems ($B = -.01, p = .85$; see Table 5). Given that this third criterion for mediation was *not* satisfied for child-report of youth externalizing, it was not appropriate to proceed to the fourth and final step of Baron and Kenny's (1986) criteria for testing mediation.

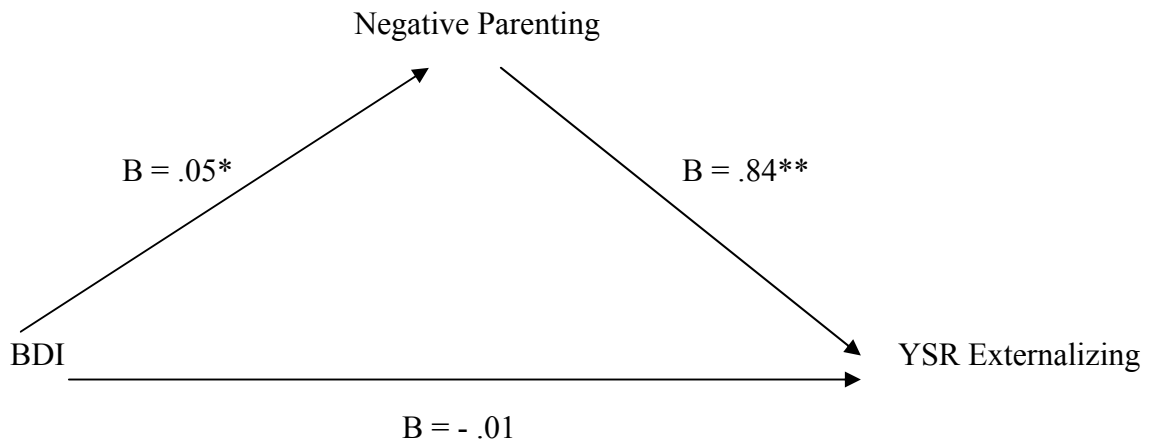
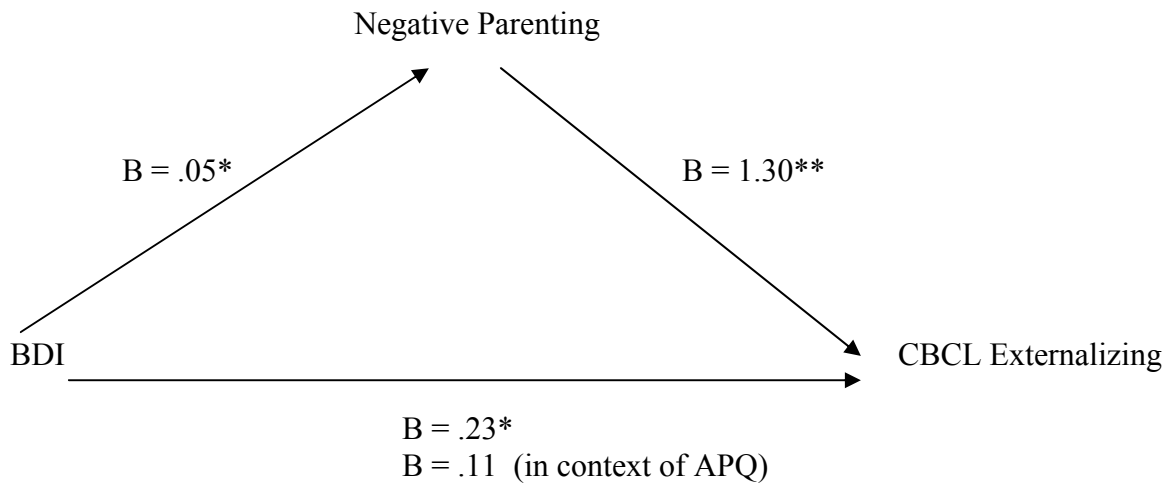
Criterion 4: Negative parenting reduces the association between current maternal depressive symptoms and child externalizing behavior. In order for mediation to be demonstrated (Baron & Kenny, 1986), it was necessary to establish that the initial link between current parental depressive symptoms and parent report of child externalizing behavior (see criterion 3, above) was significantly reduced when negative parenting was entered into the model. Accordingly, another linear mixed effect model analysis was conducted, whereby current parent depressive symptoms and negative parenting were simultaneously entered as independent variables, with parent-report of youth externalizing behavior serving as the dependent variable. The significant relationship previously demonstrated (see Table 4) between current parental depressive symptoms and parent-report of youth externalizing problems was no longer significant and was reduced (from $B = .23, p < .05$ to $B = .11, p = .33$) in the context of negative parenting. A Sobel Test indicated that the indirect effect of the mediator was statistically significant ($t =$

2.02, $p < .05$). In summary, the association between current parent depressive symptoms and parent-reported child externalizing problems was fully mediated by negative parenting. In contrast, when child report of youth externalizing problems was the dependent variable, the mediating role of negative parenting was not supported. The findings are summarized in Figure 1.

Past Depression Chronicity.

Criterion 1: Past parental depression chronicity is significantly associated with current negative parenting behavior. A linear mixed effect model analysis was conducted in order to test Baron and Kenny's (1986) first criterion for mediation. In this model, past parental depression chronicity was entered as the independent variable, with negative parenting as the dependent variable. Preliminary correlations designated several demographic variables that were significantly associated with negative parenting, including annual household income, parent ethnicity, and child age. Therefore, these variables were entered in the first block, with past depression chronicity in the second block, in order to ascertain whether significant relationships existed with negative parenting. All demographic variables remained significant correlates with the exception of parent ethnicity ($p > .05$); therefore, ethnicity was removed and the model was re-run. After controlling for child age and annual household income, past parental depression chronicity was *not* significantly associated with negative parenting ($B = -.01$, $p = .96$); In summary, negative parenting was not related to and, therefore, does not mediate, the link between past parent depression chronicity and (parent or child report of) youth externalizing behavior (see Table 17). Therefore, given that the first criterion for

Figure 1. *Mediation Models: Current Parental Depressive Symptoms*



$p^* < .05, p^{**} < .01$

Table 17.

Linear mixed effect model where demographics and past parental depression chronicity served as independent variables and negative parenting served as the dependent variable (n = 51).

Block	B	SE	<i>t</i>	p
1. Household income	-0.59	.18	-3.27	.00
Child age	0.67	.14	4.98	.00
2. Past parental depression chronicity	-0.01	.21	-0.06	.96

mediation was *not* satisfied, it was not appropriate to proceed to subsequent steps (Baron & Kenny, 1986) to test for mediation.

Past Depression Severity.

Criterion 1: Past parental depression severity is significantly associated with current negative parenting behavior. A linear mixed effect model analysis was conducted in order to test Baron and Kenny's (1986) first criterion for mediation. Preliminary correlations designated several demographic variables that were significantly associated with negative parenting, including annual household income, parent ethnicity, and child age. Therefore, these variables were entered in block 1, with past parental depression severity entered in block 2, in order to ascertain whether significant relationships existed with negative parenting. All demographic variables remained significant correlates when entered in the model. After controlling for child age, parent ethnicity, and annual household income, past parental depression severity was *not* significantly associated with negative parenting ($B = -.06$, $p = .72$; see Table 18). Therefore, given that the first criterion for mediation was *not* satisfied, it was not appropriate to proceed to subsequent steps (Baron & Kenny, 1986) to test for mediation. In summary, negative parenting was not related to and, therefore, does not mediate the link between past parent depression severity and (parent or child report of) youth externalizing behavior.

Discussion

Decades of research have established the deleterious impact of parental depression on child adjustment. Despite this amassed literature, the impact of the many

Table 18.

Linear mixed effect model where demographics and past parental depression severity served as independent variables and negative parenting served as the dependent variable (n = 99).

Block	B	SE	<i>t</i>	p
1. Household income	-0.29	.13	-2.18	.03
Child age	0.66	.10	6.33	.00
Parent ethnicity	0.64	.27	2.37	.02
2. Past parental depression severity	-0.06	.18	-0.36	.72

distinct differences that typify a heterogeneous diagnosis like adult depression (e.g., severity, chronicity) on child psychopathology outcomes has remained relatively unexamined. The few studies that *have* investigated such indicators of depression (e.g., chronicity) have found that these relate to (e.g., Brennan et al., 2000), or even predict (e.g., Hammen & Brennan, 2003), child maladjustment. The present research adds to this growing body of literature by examining relationships of such facets of parent depression as chronicity and severity with child externalizing symptomatology. Further, once a major depressive episode remits, subclinical levels of depressive symptoms as well as deficits in parenting and child adjustment typically persist (e.g., Jaser, 2005); therefore, relationships between these symptoms and child behavior problems also were examined in this investigation. Finally, the current study extends existing preliminary research by examining one mechanism through which various depression indicators (e.g., chronicity) may operate to impact child behavior: parenting. Parents whose clinical depression is in remission represent a unique, and rarely studied, population in need of further examination.

The current research, which utilized a subpopulation of parents with remitted clinical depression, aimed to extend our understanding of the aforementioned questions by way of three aims. First, what is the individual relationship of each of three indicators of remitted clinical depression (i.e., past depression chronicity, past depression severity, residual depressive symptoms) with child behavior problems? Second, which of these three indicators has a unique association (in the context of the others) with child behavior problems? Third, does impaired parenting mediate the links between a given depression

indicator and child behavior problems?

With respect to the first aim, it was hypothesized that individual associations between each of the three depression indicators (i.e., past depression chronicity, past depression severity, residual depressive symptoms) and child externalizing problems would emerge. The proposed relationship between depression severity and child externalizing, however, was more tentative and exploratory in nature because prior research examining this construct has yielded conflicting outcomes (e.g., Hammen et al., 1987; Nelson et al., 2003). Current results demonstrated that, as expected, higher levels of current parent depressive symptoms were associated with higher levels of parent-reported child externalizing problems. This finding replicates a large literature documenting that parental depressive symptoms predict, or are at least associated with, higher levels of parent perceptions of child externalizing problems in clinical (e.g., Jaser, 2005) and community samples (e.g., Hubbs-Tait et al., 1996; Lyons-Ruth et al., 1997). Therefore, findings from the current study are consistent with extant research.

In contrast, a relationship between parent depressive symptoms and child externalizing behavior was *not* established when the child reported on his/her own behavior. This finding is not consistent with a number of extant studies, which have examined relationships among these variables and found child report of youth externalizing problems to relate to current parental depressive symptoms (e.g., Fergusson & Lynskey, 1993) as well as the two available studies that have examined this relationship among women with remitted clinical depression (Hammen et al., 1987; Jaser, 2005). Two possible explanations are posited to account for the differential findings

when parent versus child report of externalizing problems for children is used.

The first pertains to a potential common reporter bias. With parents reporting on their own depressive symptoms as well as child behavior, it may be that characteristics of the parent (e.g., a general tendency to negatively perceive oneself and others) or a third variable (e.g., conflict with a spouse or partner leading to negative perceptions) inflated the relationship between the independent and dependent variable. For instance, although there is disagreement in the literature (see Biederman, Mick, & Faraone, 1998), some studies have shown that depressed mothers tend to show a negative bias when reporting on offspring maladjustment (e.g., Chilcoat & Breslau, 1997; Forehand et al., 1986). A second explanation focuses on the accuracy of the child report: parent report of child problem behavior may be accurate (Biederman et al., 1998), whereas the child failed to accurately report his or her problem behaviors. The child may have failed to see his/her behavior as problematic or perhaps chose to present him/herself in a more positive light, thereby leading to an underreporting of problems and potentially less variability in the dependent variable. Although comparisons between parent and child report of externalizing problems are difficult to make because of using standardized scores with one reporter (parent) and unstandardized with the second reporter (child), the standard deviation was smaller for the child than the parent (6.40 versus 9.66). At a minimum, however, results from the current study are consistent with the social and cognitive psychology literature, which has documented an *actor-observer bias* (e.g., Anderson, Krull, & Weiner, 1996; Jones & Nisbett, 1972): a tendency of those who observe others' actions (i.e., parents in this case) to make different judgments about those actions than do

the “actors” (i.e., children in this case). The findings also are consistent with previous clinical research indicating that parents and young adolescents differ significantly from one another on their perceptions of externalizing behavior problems (Achenbach et al, 1987; Yeh & Weisz, 2001).

In contrast to previous literature (e.g., Alpern & Lyons-Ruth, 1993; Brennan et al., 2000; Fergusson & Lynskey, 1993) and the hypothesis that past parental depression chronicity would be associated with current child externalizing problems, the results failed to support such a relationship: chronicity was *not* associated with parent or child report of child externalizing problems. There are several possible explanations to account for this unexpected result. First, the possibility of Type II error is very likely: the current study failed to yield significant findings due to insufficient power as there were only 57 participants available for testing this hypothesis. The small sample size notwithstanding, it should be noted that the correlation between depression chronicity and parent report of youth externalizing problems approached significance ($p = .14$). With additional participants, this relationship may have been significant.

A second elucidation of the disparate findings between the current study and the existing literature is that, although previous literature has consistently documented a relationship between parental depression chronicity and child externalizing symptomatology (e.g., Alpern & Lyons-Ruth, 1993; Brennan et al., 2000; Keller et al., 1986; Lyons-Ruth, 1992), the majority of these studies employed samples wherein parents with remitted and *active* (i.e., current) major depressive disorder were collapsed (e.g., Brennan et al., 2000; Keller et al., 1987). In contrast, the current study utilized

parents for whom one or more major depressive episodes had remitted. Therefore, it may be that once parents are in a state of remission, having a history of depression, including such facets of that depression as the chronicity of episodes, no longer has an association with child behavior problems.

A third and final explanation also pertains to the population being studied. Specifically, high-risk (i.e., conduct disordered) children were excluded from the current sample as participants were from the baseline phase of a larger preventive intervention study. Therefore, having excluded children with extreme externalizing scores, the range of scores was restricted, making it less likely to detect significant relationships. Alternatively, it may be that depression chronicity as a construct (i.e., exposure to depression over time) is most important in determining severe and stable behavior problems like conduct disorder symptoms (as opposed to subclinical or oppositional-defiant behavioral problems) and, due to these children being excluded from the outset, chronicity was not a significant correlate of child externalizing behavior.

The current study also found that, contrary to the hypothesis proposed, parental past depression severity was *not* associated with parent or child report of child externalizing problems. It should be noted, however, that this question was more exploratory in nature. Although several previous studies have documented a significant relationship between severity and child behavior problems (e.g., Hammen et al., 1987; Keller et al., 1986; Nelson et al., 2003), these studies often appear to be measuring a variant of chronicity rather than severity. For example, Keller and his colleagues (1986) reported on seven different indices of “parental depression severity and chronicity” (e.g.,

number of episodes of major depression, number of times treated for major depression, duration of major depressive episodes), all of which were highly correlated. In addition, this study did not specify which of the indicators was associated with severity and which were associated with chronicity of the depressive episode. As the construct of depression chronicity, rather than severity, has been most commonly used to denote exposure to depression over time (e.g., Lyons-Ruth, 1992; NICHD Early Child Care Research Network, 1999), the number of past depression episodes is not a distinct measure of severity.

Of the two studies that have attempted to resolve the historically confounded measure of depression severity, one study found an independent effect of severity on child behavior problems (Brennan et al., 2000), while the other (Hammen & Brennan, 2003) did not find severity to be a significant predictor. As the current study differed in the conclusions reached from the Brennan et al. (2000) study, it is important to consider how the Brennan et al. (2000) and current study differed. Brennan and colleagues (2000) defined depression severity as the maximum number of depressive symptoms reported on a single administration of a depression symptom inventory. Therefore, one potential explanation for the discrepant findings between the current study and Brennan et al. (2000) may be a result of measurement differences. Although depression severity was conceptualized in terms of maximum number of depressive symptoms in both studies, in the Brennan et al. (2000) study, these symptoms were derived from the Delusions-Symptoms-States Inventory (Bedford & Foulds, 1978, as cited in Brennan et al., 2000), a self-report scale which includes seven symptoms (i.e., difficulty sleeping, feeling

depressed without knowing why, gone to bed not caring if I ever woke up, awake for lengthy periods of time doing nothing, hopeless outlook on future, anhedonia, suicidal thoughts). These symptoms deviated somewhat from the nine DSM-IV symptoms of major depressive disorder used in the present study, as well as how they were assessed (self-report questionnaire versus standardized interview in the current study). Similarly, in the Brennan et al. (2000) study, symptoms appear to have been endorsed at *any* point in the past, whereas DSM-IV criteria for major depression require that they occur during the same two-week period. These differences in definition and measurement may account for the lack of significant findings in the current study as compared to Brennan et al. (2000).

Alternatively, one additional salient difference between the Brennan et al. (2000) study and both the Hammen and Brennan (2003) and the current study was the developmental period examined: Brennan et al. (2000) examined five-year old children and their mothers, while Hammen and Brennan (2003) examined adolescents. Given that the age of the current sample of children was more similar to the latter study, which also failed to find that depression severity related to child problem behavior, the lack of significant findings for the current sample could be attributed to the developmental period being studied. Thus, it may be that an earlier developmental period represents a more critical and vulnerable time in a child's life and, therefore, is more easily impacted by such acute stressors as a severe parental depressive episode.

With respect to the second goal of the current study, it was hypothesized that, when considered in the context of all three depression indicators, current depressive

symptoms and depression chronicity would each have a *unique* association with child behavior problems. Only one study (Fergusson & Lynskey, 1993) has previously examined this specific question and found past parental depression chronicity to be a unique predictor of *child* (and teacher) *report* of conduct problems, while current depressive symptoms no longer made a unique contribution in the context of chronicity in a New Zealand sample of early adolescents and their mothers. Contrary to these findings, partial support for the current study's second hypothesis was generated: current depressive symptoms, but not past depression chronicity, were uniquely associated with *parent* report of child externalizing problems. There are several potential reasons for the failure of this study to support the hypothesis regarding chronicity and the Fergusson and Lynskey (1993) findings. First, Fergusson and Lynskey (1993) followed mothers over a four year time period and, therefore, collected ongoing information about duration of depressive episodes. As well, chronicity was confounded in their analyses, as it included aspects of severity as well [e.g., one group of mothers was defined in terms of severe symptoms (13 or more) for three or more years]. Secondly, as has already been noted, the reduced sample with chronicity data in the current study may have precluded an adequate test of the unique association between depression chronicity and child externalizing problems.

The difference in the findings of Fergusson and Lynskey (1993) and the current result also may result from sample characteristics. First, the present study examined parents with *remitted* clinical depression, which is different than the Fergusson and Lynskey (1993) study, which included a sample of participants with either a current *or*

past depressive episode. It may be that once depressed parents enter a state of remission, the duration of the *past* episode tends to have less of an impact on offspring. Moreover, parents with remitted depression may represent a population that is functionally different than parents in an active state of depression, for whom lengthy, complex histories of multiple depressive episodes may be more the standard than the exception. A second sample difference in the two studies is that the current investigation, but not the Fergusson and Lynskey (1993) study, consisted of children deemed low-risk for externalizing problems (i.e., existing conduct disordered children were ruled out), due to data being drawn from the baseline of larger preventive intervention study. Thus, it may be that duration of depression is more salient among children with more severe conduct problems. In summary, among parents with remitted depression whose children are relatively low risk for developing externalizing problems, past depression chronicity does not appear to relate to child externalizing problems in the context of current parental depressive symptoms.

As hypothesized, parental past depression severity was *not* uniquely correlated with child behavior problems in the current study. In line with the few previous studies that have been published, depression severity appears to have a weak relationship with child behavior problems (e.g., Brennan et al., 2000; Hammen & Brennan, 2003). For instance, in a longitudinal study of clinically depressed mothers and their adolescent children, depression severity (i.e., a categorical construct which depicted severe through mild or dysthymic depression) did *not* uniquely predict youth externalizing DSM-IV diagnoses above and beyond depression chronicity (Hammen & Brennan, 2003).

Although a few studies have documented a correlation between parent depression severity and child behavior problems (e.g., Hammen et al., 1987; Keller et al., 1986; Nelson et al., 2003), these studies have *not* demonstrated an independent and unique effect of depression severity, but rather have relied upon a construct that appears to be redundant with depression chronicity (i.e., is highly correlated with a measure of duration of depressive episodes over time). Therefore, the inconsistency between current findings and prior research is not surprising.

With respect to the third and final aim of the current study, negative parenting was hypothesized to mediate the relationship between each of the three depression indicators and youth externalizing symptomatology. Consistent with previous research (e.g., Conger et al., 1995; Harnish et al., 1995) and the proposed integrated theoretical framework, negative parenting *was* found to mediate the link between current parental depressive symptoms and parent report of child behavior problems. Therefore, the relationship between parent depressive symptoms and child externalizing behavior was shown to operate through negative parenting practices, which are likely to occur as a result of the withdrawn/disengaged or coercive parenting features that characterize a depressive presentation in adults (see Lovejoy, 2000, for a review). For instance, Jaser (2005) found that, among parents with remitted depression, current levels of depressive symptoms were more salient than a past diagnosis of clinical depression in terms of associations with parenting deficits. Further, previous literature has documented a well-established link between negative parenting and adolescent externalizing behavior (e.g., Ehrensaft et al., 2003; Patterson et al., 1991), which is thought to operate primarily

through a coercive parent-child interaction process (Patterson, 1982), by which coercive parenting practices negatively reinforce child externalizing behavior and vice versa.

Thus, in addition to *replicating* previous research (e.g., Conger et al., 1995), the current finding that negative parenting mediates the link between current parental depressive symptoms and parent report of child behavior problems also serves to *extend* previous literature in this area; such a question has generally been left unexamined among samples of parents with remitted depression (see Jaser, 2005, for an exception, who did not find negative parenting to mediate the aforementioned relationship).

In contrast to the finding that negative parenting served as a mediator between parental current depressive symptoms and parent-reported youth externalizing problems, relationships between the other parental depression indicators (i.e., past depression chronicity, past depression severity) and either child or parent report of youth externalizing symptoms did not emerge. As there was not a direct relationship observed between these parental depression indicators and child externalizing problems, a statistical examination of negative parenting as a mediating variable was not relevant.

The current study has a number of noteworthy strengths. Most importantly, these findings extend a number of independent lines of extant research, including a scant literature examining associations between specific characteristics of remitted parental depression and child externalizing problems. As well, these findings begin to further our understanding of the heterogeneity that exists within clinical disorders such as major depressive disorder. Toward this end, the current study disentangled constructs (i.e., various characteristics of remitted clinical depression) that most often have been

correlated (note that severity and chronicity of parental depression were not significantly correlated in the current study, $r = -.11$, $p = ns$) or combined in previous studies (see Brennan et al., 2000; Hammen and Brennan, 2003, for exceptions). Moreover, the use of structured clinical interviews offered a more detailed account of the parental depression history than the use of self-report questionnaires alone, which have been primarily used in prior studies (e.g., Alpern & Lyons-Ruth, 1993). Other strengths of this study include the use of multiple reporters in the measurement of two of the three constructs examined (i.e., parenting, child behavior), thus increasing confidence in the measurement of these constructs. Finally, previous work in the parent depression arena has historically excluded fathers (see Phares & Compas, 1992, for a review), whereas the current study recruited and examined both mothers and fathers, thereby adding to an understanding of *parental*, not simply maternal, depression and its relationship to child behavioral outcomes. A recent meta-analysis (Kane & Garber, 2004) provides evidence that the relation of paternal depression to child maladjustment appears similar to that that has been historically advanced among depressed mothers, suggesting that combining mothers and fathers is an appropriate approach to the study of parental depression.

A number of strengths notwithstanding, there were several noteworthy limitations inherent in the current research. Of primary importance, incomplete data and subsequent sample size difficulties hindered a rigorous test of certain key hypotheses. In particular, although there are data to support a relationship between past parental depression chronicity and lingering child behavior problems (e.g., Brennan et al., 2000; Hammen & Brennan, 2003), data collection regarding depression chronicity was difficult (i.e., due to

inconsistent collection across sites) and likely resulted in insufficient power to detect an effect. Similarly, other measurement issues should be noted in the current study: namely, a reliance on parent self-report regarding past depression histories (i.e., past major depressive episodes and specific characteristics of these episodes, such as duration) for a period up to 15 years. Reliance on long-term memory calls into question the accuracy of the parent's report of his or her depressive history. Similarly, the use of cross-sectional data precluded the ability to draw causal inferences from the data. The use of prospective data would have provided the opportunity to reach conclusions more consistent with causality.

Several other limitations of the current research include the population studied, which was a predominantly ethnically homogenous sample; therefore, external validity was compromised and generalization of the current findings to a more ethnically heterogeneous sample would be difficult. In addition, the children in the sample were low-risk in terms of externalizing symptomatology, with "more problematic" or conduct-disordered children ruled out from the outset, thus resulting in further difficulties with external validity. Further, as was noted above, such a participant exclusionary criterion resulted in a restricted range on the externalizing symptoms measure, thereby resulting in an internal validity issue as well. Additional potential weaknesses include the definitions of severity and chronicity of parental depression employed in this study, as well as the assumption that these variables operate similarly across a wide range of child ages (9 to 15.9 years) and both genders. Finally, participants with missing data, including demographic variables, were excluded from analyses, which not only reduced power but

also resulted in a partial sample that may have looked different than the complete sample on various measures.

Analyses conducted in alternate ways to those data analytic strategies employed in the current study may have yielded additional significant findings. For example, it may be that the interaction of past parental depression indicators (e.g., chronicity) and residual parental depressive symptoms is more strongly associated with youth externalizing problems. Similarly, residual or current parental depressive symptoms may operate as a mediator between past parental depression indicators and youth externalizing problems. The analyses employed in this study were designed to examine the specific hypotheses proposed; however, future research could explore alternative hypotheses and data analytic procedures, including those just noted.

The current findings have an important implication for intervention and preventive efforts with children living in families with a history of parental depression. Although there is some evidence that child behavior problems decrease as a function of a remission in parental clinical depression (Timko et al., 2002; Weissman et al., 2006), the literature indicates that these children continue to be at significant and *longstanding* risk for externalizing symptomatology (Goodman & Gotlieb, 1999; Timko et al., 2002). The results of the present study suggest that this risk is at least partially due to parenting deficits associated with lingering, subclinical levels of depressive symptoms. As a consequence, parents with a *past history* of clinical depression, even in cases where the depression is in full or partial remission, represent an important population to address efforts to prevent or reduce externalizing symptomatology of their children.

The literature, as well as extrapolation from the current results, suggests two points of intervention: the parent's depressive symptoms and the parent's parenting skills. In the present study, both of these variables were linked to child externalizing problems and the former appeared to operate through the latter variable; therefore, targeting both in prevention or intervention work may be the most efficacious. The literature provides some support for this conclusion. Recent work by Weissman and her colleagues (2006) indicates that treatment of parental depressive symptoms alone can result in decreases in child problem behavior. Other research indicates that targeting parenting skills is an effective intervention for child externalizing problems (see McMahon et al., 2006, for a review). Finally, there is also research to suggest that when parents participate in parenting programs and learn more effective parenting skills, parental depressive symptoms diminish as well (e.g., Forehand, Wells, & Griest, 1980; Patterson et al., 2004). Thus, parental depressive symptoms, parenting, and child externalizing problem behaviors appear to be inextricably linked. Intervening with both the parent's depressive symptoms and his/her parenting skills therefore appears to hold promise for the prevention or treatment of child externalizing pathology.

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