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DEPRESSION IN YOUTH: EXPLORING THE RELATIONSHIP
AMONG MATERNAL DEPRESSIVE SYMPTOMATOLOGY,
PERCEIVED CRITICAL MATERNAL MESSAGES,
AND THE COGNITIVE TRIAD

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AND THE COGNITIVE TRIAD

by

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This work is dedicated to my own dear mother –
if only every child would be so lucky

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Although numerous studies have empirically documented the risks to the children of depressed mothers, few studies have attempted to investigate the possible mechanisms that may be responsible for these risks. Cognitive theories of depression suggest that depressogenic cognitions have their roots in early learning experiences within the family. Empirical evidence has accumulated that both depressed mothers and the parents of depressed children tend to be more critical of their children and more negative in their interactions with them. Recent studies even indicate that highly critical family communication patterns are associated with a child's vulnerability to depression. Utilizing Beck's cognitive theory of depression, this dissertation focuses on the relationship between variables in a hypothetical model which link mother's severity of depressive symptomatology, critical maternal messages as perceived by the child, the

child's cognitive triad (view of self, world, and future), and the child's severity of depression.

Drawn from a larger research study investigating childhood emotional and behavioral disorders, the participants were 38 adolescents who were receiving services in a psychiatric residential treatment center and their mothers. The adolescents completed a clinical interview to assess depression severity and two self-report measures to assess their perceptions of maternal messages as well as their own views of self, world, and future (cognitive triad). The mothers in the study completed a self-report measure on their own psychiatric functioning. Four mediational hypotheses were tested to explore the relationships between variables in the hypothesized model summarized above. Results did not support any of the mediational hypotheses. Consistent with Beck's cognitive theory of depression, a more negative view of self, world, and future was predictive of a greater severity level of depression in adolescents. Theoretical and clinical implications are discussed, as well as the study's limitations and suggestions for future research.

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CHAPTER 1

Introduction

Prior to the early 1980s, myths abounded about depressive disorders in childhood and adolescence (Hammen & Rudolph, 1996). Children were believed to not be able to experience a clinical depression, or if they did, it was masked with other symptoms. An explosion of recent research has made significant strides into the assessment and treatment of childhood depression. However, it has been argued that existing research "raises more new questions than it answers" (Stark, Bronik, Wong, Wells, & Ostrander, 2000).

Like numerous other psychological disorders, research into childhood depression has typically involved a downward extension of adult models of etiology and treatment. It is becoming increasingly clear that a developmental perspective is needed in order to thoroughly understand depressive disorders (Garber, Weiss, & Shanley, 1993). For example, the most recent addition of the Diagnostic and Statistical Manual of Mental Disorders (APA, 1994) recognizes some developmental considerations in the diagnosis of depression during childhood and adolescence. Although most of the core symptoms are the same for diagnosing depression in adults or children, the DSM-IV recognizes that irritability may be substituted for depressed mood in children. The duration criteria of dysthymic disorder is also half that of the same disorder in adults. Research indicates that the prominence of symptom expression may change with age, for example somatic complaints are more common in children than adults (Mitchell, McCauley, Burke, &

Moss, 1988). In addition, sex ratio differences have fairly consistently been found (Gotlib & Hammen, 1992). In the elementary school years, the sex ratio for depression is about equal for males and females. However, by adulthood the ratio is two to one or three to one, with more women experiencing depressive disorders. Issues of comorbidity, or the co-occurrence of multiple disorders, appear to be especially salient with depression in youth (Hammen & Compas, 1994) with anxiety disorders and disruptive behavior disorders most likely to co-occur with depression (Kovac, 1990).

Prevalence rates for depression in children and adolescence are somewhat difficult to estimate and seem to vary depending on the study reviewed. Children aged six to 11 have lower rates of depressive diagnoses than do adolescents (Angold & Rutter, 1992). From a cognitive developmental perspective, Rutter (1986) argues that younger children are unable to experience the type of cognitions necessary for a depressive disorder. A consensus appears to be developing in the research that by age eight children's cognitive processes are adequately developed to experience the type of cognitive processes involved in depression (Stark et al., 1996).

It is well documented in the clinical and empirical literature that "depression runs in families" (Hammen, 1991). What is less clear is an understanding of the specific mechanisms involved in the intergenerational transmission of depression (Cummings & Davies, 1994; Gordon et al., 1989; Hammen, 1991; Hammen, Burge, & Adrian, 1991). Epidemiological research has suggested that genetic predispositions are a major factor in children developing depression (Gershon et al., 1982; Kashani & Sherman, 1988; Kaslow, Deering, & Racusin, 1994; Marton & Maharaj, 1993; Weissman et al., 1984).

Although clearly biological and genetic factors are important risk variables, psychosocial factors are also believed to be significant contributors to a child's vulnerability to depression (Billings & Moos, 1982; Burge & Hammen, 1991; Cummings & Davies, 1994; Gordon et al., 1989; Marton & Maharaj, 1993; Rutter & Quinton, 1984).

Maternal depression has consistently been identified in the literature as one of the major risk factors in children developing a depressive disorder (Beardslee, Bemporad, Keller, & Klerman, 1983; Downey & Coyne, 1990; Gelfand & Teti, 1990; Hammen, 1991; Hammen et al., 1987). Although numerous studies have empirically documented the risks to the children of depressed mothers, few studies have investigated the possible mechanisms that are responsible for these risks (Burbach & Borduin, 1986; Conrad & Hammen, 1989; Dodge, 1990; Downey & Coyne, 1990; Gordon et al., 1989; Hammen, Burge, & Stansbury, 1990; Jaenicke et al., 1987). Maladaptive parent-child interaction patterns have frequently been implicated in the literature as a key transmission mechanism, with the assertion that depression affects a mother's ability to effectively parent (Andrews, Brown, & Creasey, 1990; Burge & Hammen, 1991; Cummings & Davies, 1994; Downey & Coyne, 1990; Gordon et al., 1989; Kaslow et al., 1994).

Similarly, theories of depression have indicated that overly critical parenting may be a risk factor in increasing children's vulnerability to depression (Burge & Hammen, 1991; Hammen et al., 1991). Indeed, depressed mothers (Gordon et al., 1989; Hammen et al., 1987; Jaenicke et al., 1987; Swartz, Dorer, Beardslee, Lavori, & Keller, 1990; Webster-Stratton & Hammond, 1988) and the parents of depressed children (Arieti & Bemporad, 1980; Asarnow, Goldstein, Tompson, & Guthrie, 1993; Asarnow, Tompson,

Hamilton, Goldstein, & Guthrie, 1994; Burbach & Borduin, 1986; Dadds, Sanders, Morrison, & Rebgetz, 1992; Stark, Humphrey, Laurent, Livingston, & Christopher, 1993; Kashani, Venzke & Miller, 1981) have been shown to be more critical of their children. The criticism displayed by depressed mothers has been associated with depressive outcomes in children (Burge & Hamilton, 1991; Swartz et al., 1990). Furthermore, there is recent evidence which empirically associates highly critical family communication patterns with a child's cognitive vulnerability to depression (Jaenicke et al., 1987; Stark, Schmidt, & Joiner, 1996).

Utilizing Beck's cognitive theory of depression, this dissertation focuses on the relationship between variables in a hypothetical model which link mother's severity of depressive symptomatology, critical maternal messages as perceived by the child, the child's cognitive triad (view of self, world, and future), and the child's severity of depression. Although the scope of the current study does not allow causal inferences to be made, a better understanding of the relationship between these variables is hoped to be gained.

CHAPTER 2

Review of the Literature

There are undoubtedly "multiple pathways" for the development of depression in childhood (Hammen, 1992). However, empirical evidence has accumulated that there are parental behaviors which are associated with depression in children (Cole & Rehm, 1986). Research indicates that families with a depressed child are often characterized by significant marital conflict and divorce, as well as conflict between parents and children (Burbach & Borduin, 1986). Additionally, families with a depressed child experience more negative life events, including loss and child abuse and neglect (Kaslow et al., 1994). Insecure parent-child attachment patterns (Armsden, McCauley, Greenberg, Burke, & Mitchell, 1990; Blatt & Homann, 1992) have also been implicated as risk factors for children developing a depressive disorder (Downey & Coyne, 1990).

Although there are multiple risk factors in the etiology of childhood depression (Hammen, 1990; Hammen, 1992; Kashani & Sherman, 1988; Marton & Maharaj, 1993), one of the major risk factors that has consistently been identified in the clinical and empirical literature is parental psychopathology, and in particular maternal depression (Beardslee et al., 1983; Downey & Coyne, 1990; Gelfand & Teti, 1990; Hammen, 1991; Hammen et al., 1987). Maternal depression presents both an environmental and a genetic risk factor to children (Downey & Coyne, 1990; Beardslee, Keller, Lavori, Staley, & Sacks, 1993; Trad, 1987). Numerous studies have shown that the children of depressed parents have significantly elevated rates of depression (Beardslee, Keller, & Klerman,

1985; Beardslee et al., 1993; Cytryn, McKnew, Bartko, Lamour, & Hamovitt, 1982; Hammen, 1991; Hammen, Burge, Burney, & Adrian, 1990; Klein, Clark, Dansky, & Margolis, 1988; Orvaschel, Walsh-Allis, & Ye, 1988; Welner & Rice, 1988; Welner, Welner, McCrary, & Leonard, 1977). In addition, depression in mothers has been shown to be more strongly associated with psychopathology in children than depression in fathers, which Keller and colleagues (1986) argue is consistent with developmental theories on the importance of mothers to children's psychological well-being.

Numerous studies have empirically documented the risks to children of depressed mothers; however, there are relatively few studies that have investigated the possible mechanisms which may be responsible for these risks (Burbach & Borduin, 1986; Conrad & Hammen, 1989; Dodge, 1990; Downey & Coyne, 1990; Gordon et al., 1989; Hammen et al., 1990; Jaenicke et al., 1987). Although a variety of different psychosocial mechanisms may be involved in the transmission of depression from mothers to children (Peterson et al., 1993), a key mechanism is believed to be maladaptive parent-child interaction patterns (Andrews et al., 1990; Burge & Hammen, 1991; Cummings & Davies, 1994; Downey & Coyne, 1990; Gordon et al., 1989; Kaslow et al., 1994). It is often assumed in the clinical literature that depressed children experience hostile, critical, and rejecting family environments (Sanders, Dadds, Johnson, & Cash, 1992). Similarly, theories of depression have long suspected that overly critical parenting may be a risk factor in increasing children's vulnerability to depression (Burge & Hammen, 1991; Hammen et al., 1991).

The focus of this dissertation is on the relationship between depression in mothers and their children, specifically targeting the variable of perceived maternal messages. This dissertation examines both the clinical and empirical literature on the communication processes that characterize parent-child interactions in families with a depressed child or mother. First, a theoretical background of Beck's cognitive theory of depression will be briefly discussed, as well as current etiological models of childhood depression. Then, to explore the link between depression in mothers and their children, two principle streams of literature will be examined: research on depressed mothers and their children, and research on the communication processes in the families of depressed children (Gordon et al., 1989; Kaslow et al., 1994).

2.1. Beck's Cognitive Theory of Depression

2.1.1 Beck's theoretical model of depression.

According to Beck's cognitive theory of psychopathology, and in particular the cognitive content-specificity hypothesis, different psychiatric disorders are characterized by a unique set of schemas (stable cognitive patterns) and cognitive processing errors (Beck, 1967). Depressive disorders from this perspective are believed to result from negative cognitions and faulty information processing called cognitive distortions (i.e., overgeneralization, personalization, and dichotomous thinking). The essential feature of the content of depressive disorders is the concept of the cognitive triad, or negative views of self, world, and future. (Beck, 1967; Beck, Rush, Shaw, and Emery, 1979).

According to Beck (1967), negative thoughts in the form of the cognitive triad cause one to be vulnerable to developing clinical depression:

The disturbances in depression may be viewed in terms of the activation of a set of three major cognitive patterns that force the individual to view himself, his world, and his future in an idiosyncratic way. The progressive dominance of these cognitive patterns leads to the other phenomena that are associated with the depressive state (pg. 255).

Thus, cognitions are believed to cause affect (depressed mood), although emotions may also influence thought content via a "circular feedback model".

The cognitive triad consists of three primary patterns which capture the "idiosyncratic manner" of the content of a depressed person's cognitions (Beck, Rush, Shaw, & Emery, 1979). The first component of the triad is the person's negative view of self. The self is consistently seen as "defective, inadequate, diseased, or deprived", resulting in feelings of worthlessness. The second component is a negative view of the world. This includes the person's tendency to view and interpret their life experiences in a negative manner, for example believing that the world is a horrible place and that he or she is only presented with obstacles in life. The third component of the triad is a negative view of the future. This often results in thoughts of hopelessness, with the depressed person believing that their suffering will continue without end. Beck reported that these negative cognitions tend to persevere across situations and are viewed by depressed people as being automatic and uncritically plausible (Beck, 1967). Having these types of depressogenic cognitions can activate a depressive episode if the right environmental factors are present, such as a traumatic event or chronic stress.

According to Beck, negative schemas form the foundation of the cognitive triad. These schemata are hypothesized to be created in the early stages of development (Beck, 1967). Self-concepts and perceptions about the world develop from personal experiences, from feedback from others, and from identification with attachment figures. Thus, depressogenic cognitions are believed to be formed through early learning experiences, especially those within a familial context. Once a child believes that he is not worthy, whether as a result of failure or from being told that he is worthless, he will likely filter his experiences according to this self-degrading belief. Each negative self-judgment he makes only serves to reinforce his negative self-image. Thus, "a cycle is set up: Each negative judgment fortifies the negative self-image which in turn facilitates a negative interpretation of subsequent experiences which further consolidates the negative self-concept" (Beck, 1967). Once structuralized, the depressive schemata may remain in a latent state but become active and dominant in response to stress. According to Beck, these negative cognitions about the self, the world, and the future, combined with negatively skewed information processing, are believed to be critical in the formation and maintenance of depressive disorders.

2.1.2. Empirical Investigations of Beck's Theory

A review of relevant research indicates that considerable evidence is accumulating to support Beck's cognitive theory, especially the existence of the cognitive triad in depressed individuals. Research has supported aspects of Beck's model as it applies to clinically depressed adults. Depressed adults, in comparison to non-depressed controls, are more pessimistic (Dobson & Breiter, 1981; Evans and Rush, 1984; Hamilton

& Abramson, 1983; Hollon, Kendall, & Lumry, 1986), have distorted self-concepts and lower self-esteem (Loeb Beck, Diggory 1971; Hammen & Krantz, 1976; Davis & Unrah, 1981; Krantz & Hammen, 1979; Dykman & Volpicelli, 1981; Kupier & McDonald, 1983; Wenzlaff & Grozier, 1988; Kuiper & McCabe, 1985; Strohmer, Moilanen, & Barry, 1988), have greater levels of dysfunctional attitudes and beliefs (Nelson & Craighead, 1977, Weissman & Beck, 1978; Dobson & Shaw, 1986; Eaves and Rush, 1984; Pietromonaco & Marcus, 1985) and feel more hopeless about the future (Beck, Weissman, Lester, & Trexler, 1974; Beck, Kovacs, & Weissman, 1975; Dobson & Breiter, 1983; Hammen & Krantz, 1976; Wohlford, 1966; Minkoff, Bergman, & Beck, 1973; Wetzal, 1976).

Numerous studies have also indirectly demonstrated the existence of components of the cognitive triad in depressed youth. Depressed children and adolescents have lower self-esteems (Reynold, Anderson, & Bartell, 1985; Battle, 1987), lower perceived competence (Asarnow & Bates, 1988; Aesarnow, Carlson, & Guthrie, 1987; Blechman, McEnroe, Carella, & Audette, 1986), report more negative self-evaluations (Hammen & Zupan, 1984; Kendall, Stark, & Adam, 1990), are more pessimistic (Johnson & McCutcheon, 1981; Simons & Miller (1987), have negative self-schemas (Dykman, Horowitz, Abrmason, & Usher, 1991; Hammen & Goodman-Borwn, 1990), and feel more hopeless about the future (Gotlieb, Lewinsohn, Seeley, Rohde, and Redner, 1993; Asarnow, Carlson, & Guthrie, 1987; Benfield, Palmer, Pfefferbaum, & Stowe, 1988; Kazdin, Rogers, & Colbus, 1986; McCauley, Mitchell, Burke, & Moss, 1988; Garber, Weiss, Shanley, 1993; Moilanen, 1993; Kazdin, Freunch, Unis, Esveldt-Dawson, &

Sherrick, 1983; Asarnow & Bates, 1988; Beck et al, 1974; Kashani et al, 1989; McCauley et al, 1988). Moilanen (1995) investigated the validity of Beck's cognitive theory of depression in a sample of non-referred adolescents. Greater levels of depressive symptoms, as measured by the Beck Depression Inventory, were found to be significantly associated with higher scores on both the Dysfunctional Attitudes Scale and the Hopelessness Scale. The author speculated that this suggests "some continuity between subclinical and clinical depression, at least with regard to the nature of the cognitive processes associated with such varying experiences" (Moilanen, 1995).

In 1987, Giles and Shaw were the first to simultaneously investigate all three components of the cognitive triad (negative view of self, world, and future) in a clinically depressed adult population. Support was found for the validity and specificity of the cognitive triad and its generalizability across social situations. Overall, depressed individuals demonstrated a decidedly more negative bias concerning themselves, their world, and their future. Distortions were found in both a social task (Means-Ends Problem Solving task) and non-social task (card sorting). Interestingly, results of the study also indicated a positive bias of normal subjects. Other data has also suggested that a positively distorted bias may be typical of cognitive processing of people without psychiatric disorders (Lewisohn & Chaplin, 1980; Alloy & Abramson, 1979).

In 1986, Beckham, Leber, Watkins, Boyer, & Cook designed The Cognitive Triad Inventory (CTI), a self-report instrument which systematically measures all three aspects of the cognitive triad. The CTI has demonstrated high correlations with the Beck Depression Inventory, indicating the relationship between depressive symptomatology

and negative views of self, world and future. In 1992, Kaslow, Stark, Printz, Livingston, and Tsai made a downward extension of the CTI for children, the Cognitive Triad Inventory for Children (CTI-C). In a study utilizing the CTI-C, depressed children reported a more negative view of self, world, and future than anxious and control children (Kaslow, Stark, Printz, Livingston, and Tsai, 1992). In addition, 62 % of the children could be accurately classified according to diagnostic group based solely on their CTI-C scores. Thus, this study provides direct support for the existence of the cognitive triad in depressed youngsters.

Data is also accumulating in support of the cognitive specificity hypothesis in adults (Beck, Brown, Steer, Eidelson, & Riskind, 1987; Clark, Beck, & Brown, 1989; Clark, Beck, and Stewart, 1990; Alford, Lester, Patel, Buchanan, & Giunta, 1995). In addition, Laurent & Stark, (1993) conducted a study which provides some support for Beck's cognitive specificity-hypothesis in children. Utilizing the Cognitive Triad Inventory for Children, depressed youth reported significantly fewer positive cognitions than anxious children. No differences between the two groups (depressed and anxious) were noted in negative cognitions. Thus, the results indicated that it was the valence of the depressive cognitions which played a role in distinguishing between the anxious group from the depressed and comorbid groups.

The etiologic role of cognitions in depression remains unclear (Coyne & Gotlib, 1983). Limited research has attempted to entangle the etiologic role of faulty information processing in depression. Studies which have examined this hypothesis have typically re-tested individuals on cognitive measures after their depression had remitted (short-term

longitudinal designs) in order to ascertain whether cognitive biases still operated or tested a cross-sectional sample of depressed individuals, non-depressed individuals, and controls. The stability of the cognitive bias over time is questionable (Tems, Stewart, Skinner, Hughes, and Emslie, 1993). Several studies failed to demonstrate that remitted depressives adults (Fennell & Campbell, 1984; Gotlib & Cane, 1987; Rohde et al., 1990; McCauley, Mitchell, Burke, & Moss, 1988), and children and adolescents (Tems, Stewart, Skinner, Hughes, and Emslie, 1993; Gotlieb, Lewinsohn, Seeley, Rohde, and Redner, 1993) exhibit more negative and problematic cognitive functioning, which suggests that the distorted information processing of depressives is state-dependent. However, other studies have indicated that cognitive functioning after a depressive episode remains problematic (Eaves & Rush, 1984; Gotlieb, Lewinsohn, Seeley, Rhode, and Redner, 1993). Some have even argued that failing to find negative schemata in individuals with remitted depression is consistent with Beck's hypothesis in that these negative cognitions and errors are relatively inactive during non-depressed periods. In addition, it is possible that these negative patterns could be more trait-like and entrenched if repeatedly activated over time, especially in the case of children (Tems, Stewart, Skinner, Hughes, and Emslie, 1993).

There is a scarcity of research to data which has evaluated the potential role the cognitive triad may play in the future development of depressive disorders (Stark, Napolitano, Swearer, Schmidt, Jaramillo, & Hoyle, 1996). A study by Alford, Lester, Patel, Buchanan, & Giunta (1995) investigated whether one component of the triad, negative view of future, precedes later development of depression in adults (Rholes,

Riskind, & Neville, 1985). Hopelessness predicted future depression severity scores, but not anxiety scores, for males. A significant relationship for females was not found. These results suggest that at least one part of the negative cognitive triad (hopelessness) may be a precursor of depressive symptoms, although there may be gender differences.

In summary, an accumulation of research across child, adolescent, and adult populations supports the existence of the cognitive triad in depressed individuals. Depressive symptomatology is associated with having a more negative view of self, world, and future. However, an understanding of the etiological role of the cognitive triad in the development and maintenance of depressive disorders is unclear and awaits further testing.

2.1.3 Current Integrative Models of Childhood Depression

Childhood depression is considered to be a disorder that is characterized by numerous affective, cognitive, motivational, and physical symptoms (Stark, 1990). Current etiological models of childhood depression are comprehensive and multidimensional, stressing the mutual impact of cognitive, behavioral, biochemical, and interpersonal factors (Hammen, 1992; Billings & Moos, 1982; Cummings & Davies, 1994; Stark, Rouse, and Livingston, 1991). Recent evidence indicates the importance of a multivariate approach to understanding the relationship of psychosocial factors to depression (Robbins & Block, 1989). For example, accurate etiological models need to take into account numerous factors, including biology, stress, coping skills, social support, and environmental conditions.

Stark and colleagues (1991) have proposed an empirically-based model of childhood depression which emphasizes the development of the core schemata involved in information processing. More specifically, the model asserts that a child's view of self, world, and future likely develops as a result of early learning experience, especially those within the family context. According to this model, children can develop depressive cognitions about the self, the world, and the future as a result of negative and critical statements directed at them by their parents and from interactions that communicate rejection, such as punitive parenting practices. Due to temperamental and genetic factors, the child is also an active participant in the family milieu. This model suggests a mechanism through which childhood depression may originate in a family context (Stark et al., 1991). Empirical evidence is accumulating in support of this model. As noted above, the existence of the cognitive triad in depressed children has been documented. In addition, there is recent evidence linking communicated parental messages with depressive cognitions in children (Jaenicke et al., 1987; Stark, Schmidt, & Joiner, 1996).

2.2 Research on Depressed Mothers and their Children

Studies have shown that at any given time approximately 8% of mothers are clinically depressed (Weissman, Leaf, & Bruce, 1987). For mothers who have recently given birth, this rate is slightly increased (O'Hara, 1986). Non-working mothers of pre-school children have been shown to have the highest rate of depression, as high as 40% (Puckering, 1989). Thus, many children are exposed to maternal depression (Downey & Coyne, 1990; Puckering, 1989). Maternal depression which is chronic in nature (Keller

et al., 1986) and has an earlier onset (Weissman & Wichramaratne, 1984) provides an even greater risk to children.

Numerous studies have shown a negative relationship between parental depressive disorder and child functioning (Anderson & Hammen, 1993; Billings & Moos, 1983; Billings & Moos, 1985; Cox, Puckering, Pound, & Mills, 1987; Forehand & McCombs, 1988; Forehand, McCombs, & Brody, 1987; Hammen et al., 1987; Hirsch, Moos, & Reischl, 1985; Lee & Gotlib, 1989; Weissman et al., 1987; Weissman et al., 1984). Forehand and colleagues concluded in a review of 34 studies that 55% of the time a negative relationship existed between depression in parents and child functioning in the areas of internalizing problems, externalizing problems, prosocial behavior, and cognitive functioning (Forehand et al., 1987). Additionally, the effects that parental depression may have on children may partly depend on the age at which they are first exposed to depression (Puckering, 1989). Findings also suggest that the ongoing level of parental impairment is the most important factor of parent psychopathology that impacts the functioning of children (Harder, Kokes, Fisher, & Strauss, 1980).

2.2.1 The nature of the relationship.

Although most investigators have assumed a unidirectional causal relationship between maternal depression and poor child functioning (Beardslee, et al., 1983), few studies have attempted to untangle the direction of the relationship (Forehand & McCombs, 1988; Puckering, 1989). In addition, causal interpretations are not possible due to the correlational nature of the studies (Burbach & Borduin, 1986; Downey & Coyne, 1990). Cummings and Davies (1994) assert:

The finding of an association between parental depression and child maladjustment is not adequate justification to conclude that depression in mothers "causes" child psychopathology. Diagnostic status does not directly influence development, and is no more than a marker variable for the actual processes behind associations (p. 74).

Similarly, most current models of childhood depression emphasize the bi-directional and reciprocal, interpersonal context of depression (Cummings & Davies, 1994; Hammen, 1990; Hammen et al., 1991; Hops, 1992; Keitner & Miller, 1990; Stark et al., 1991; Teichman, 1989). Mothers and children are viewed as having a mutual impact on each other (Hammen, 1990). Gordon and colleagues emphasize that a complete model for understanding the risk to the children of depressed parents must include the impact of the parent and child on each other (Gordon et al., 1989). Thus, rather than viewing depressed mothers as exhibiting defects that directly lead to children's risk, it is helpful to conceive of the mother and child as caught in a "viscous cycle" of interpersonal and environmental circumstances which impair the mother's ability to function adaptively with her children (Burge and Hammen; 1991; Hammen, Burge, & Adrian, 1991). Patterson even proposed that rather than maternal depression causing negative outcomes in children, poor functioning in children may lead to maternal depression (1980).

There is some empirical support for the contention that maternal depression leads to poorer functioning in children. Hammen et al. (1988), utilizing a structural equation procedure from which causal inferences can be drawn, reported that maternal functioning "causes" children's outcomes. However, the best model of the data also showed that children's interactions and those of the mother have a reciprocal effect on each other (Hammen et al., 1988). A similar study by Forehand and McCombs (1988) which

examined the sequential relationship between maternal depression and poor adolescent functioning, reported that the results indicate that maternal depression appears to be an antecedent for adolescent functioning. Additionally, support for the effect of maternal depression on child functioning is seen in that even after the alleviation of maternal depressive symptomatology, children continue to display adjustment difficulties within the first year after the mother's recovery (Lee & Gotlib, 1991).

In summary, although research has shown a negative relationship between maternal depression and child functioning (Anderson & Hammen, 1993; Billings & Moos, 1983; Billings & Moos, 1985; Cox, et al., 1987; Forehand & McCombs, 1988; Forehand et al., 1987; Hammen et al., 1987; Hirsch et al., 1985; Lee & Gotlib, 1989; Weissman et al., 1987; Weissman et al., 1984) there is less evidence on the direction of this relationship (Burbach & Borduin, 1986; Downey & Coyne, 1990; Forehand & McCombs, 1988; Puckering, 1989). While most investigators have assumed a unidirectional causal relationship between maternal depression and poor child functioning (Beardslee et al., 1983), most current theories of depression stress the mutual impact that children and mothers have on each other (Cummings & Davies, 1994; Hammen, 1990; Hammen et al., 1991; Hops, 1992; Keitner & Miller, 1990; Stark et al., 1991; Teichman, 1989). Although most research designs utilized do not allow causal interpretations to be made (Burbach & Borduin, 1986; Downey & Coyne, 1990), there is limited evidence that suggests that maternal depression causes poor child functioning (Forehand & McCombs, 1988; Hammen et al., 1988; Lee & Gotlib, 1991).

2.2.2 The relationship between maternal depression and children's psychological health.

Early studies on the children of depressed parents utilized this population as controls in high-risk research on the children of schizophrenics (Downey & Coyne, 1990). Results from these early studies found that the children of depressed parents were just as disturbed as the children of schizophrenics (Downey & Coyne, 1990; Hammen, 1991). A review by Beardslee and colleagues (1983) of this early research concluded that the children of depressed parents were at a significant risk for a variety of psychiatric disorders, including depression.

More recent studies directly examining maternal depression have shown that the only diagnosable disorder that poses a significantly heightened risk for the children of depressed mothers is depression (Downey & Coyne, 1990). Downey and Coyne concluded in their review of the research in 1990 that children with a clinically depressed parent are six times more likely to develop major depression than are normal controls. Hammen and colleagues (1987), in a longitudinal study of a high-risk sample with multiple control groups, found a lifetime clinical depression rate of 47% for the offspring of unipolar depressed mothers; the highest rates of depression were found in the offspring of depressed mothers (Hammen et al., 1990; Hammen et al., 1987). This is similar to the diagnosable disorder rate that Beardslee and colleagues reported (1983) in an earlier review (40%). Not only do the children of parents with affective disorders experience a higher rate of major depression than children whose parents are psychologically healthy, but their disorders are longer in duration and they have an earlier age of onset (Beardslee et al., 1992; Weissman et al., 1987). The risk to children is significantly higher if both

parents are depressed (Gershon et al., 1982), which is likely to be common since it has been demonstrated that a type of assortive mating frequently occurs with people with a history of psychiatric problems, which results in parental concordance for affective disorders (Merikangas, Prusoff, & Weissman, 1988). Additionally, research has shown that the severity and chronicity of maternal depression is significantly related to the magnitude of the risk to the child (Keller et al., 1986).

Most studies have focused on the effects of maternal depression rather than depression in fathers primarily because mothers are more willing to participate in research (Phares, 1992) and because of the greater prevalence of depression in women (Hops, 1992). Andrews et al. (1990) in a study on the intergenerational links between disorders in mothers and daughters, found that the disorders of daughters are associated with the disorders of their mother if the mother's disorder was chronic or recurrent throughout the daughter's lifetime. Additionally, there is support that mothers' depressive symptoms are temporally related to depressive symptoms in children. Radke-Yarrow, Nottelmann, Belmont, and Welsh (1993) observed clinically depressed mothers and nondepressed mothers and their young children and found that depressed mothers' and their daughters' periods of negative affect were correlated, but that this was not true for mothers and sons. Similarly, Hops (1992) in two longitudinal studies, found a relationship between depressive symptoms in mothers and adolescent daughters. A study by Hammen and colleagues (1991) found that actual episodes of major depression in children are temporally associated with depressive episodes in mothers, in that the majority of episodes in children occurred in close proximity to maternal episodes.

Although these studies do not identify the mechanism accounting for the temporal association between depressive symptomatology in mothers and children, they are consistent with the theoretical stance that maternal depression affects the quality of interaction with children (Hammen et al., 1991).

In summary, an abundance of empirical findings have concluded that the children of depressed parents are significantly at risk for developing a major depressive disorder (Beardslee et al., 1993; Beardslee et al., 1985; Cytryn et al., 1982; Hammen, 1991; Hammen et al., 1990; Keller et al., 1986; Klein et al., 1988; McKnew et al., 1979; Orvaschel et al., 1988; Welner & Rice, 1988; Welner et al., 1977). Additionally, a temporal relationship exists between mother's depressive symptoms and children's depressive symptoms (Hammen et al., 1991; Hops, 1992; Radke-Yarrow, et al., 1993).

2.2.3 Depressed mothers' perceptions of their children's behavior.

Depressed mothers perceive themselves more negatively as mothers (Bromet & Cornely, 1984), report experiencing more helplessness in working with their children (Kochanska, Radke-Yarrow, Kuczynski, & Friedman, 1987), and have more punitive attitudes towards parenting as well as lacking appropriate knowledge of child development (Reis, 1987).

A major assertion of cognitive theories of depression is that depressed individuals are more negative in their thinking patterns (Beck, 1967). Brody and Forehand (1986) argue that this pessimism can extend to how a parent perceives his or her child's behavior and overall functioning. Patterson (1982) proposes that parental mood influences the beliefs parents have about their children, which then influences parental behavior, which

in turn affects child behavior. Several studies provide evidence that depressed mothers view their children's behavior more negatively than nondepressed mothers (Hammen, 1990). A number of studies have shown that this negative perception pattern of depressed mothers exists independent of the child's objective characteristics, or when observations fail to notice behavioral differences between children of depressed mothers and control group children (Forehand, Wells, McMahon, Griest & Rogers, 1982; Ferguson, Lynsky & Horwood, 1993; Rogers & Forehand, 1983; Griest, Forehand, Wells, & McMahon, 1980; Griest, Wells, & Forehand, 1979; Panaccione & Wahler, 1986; Webster-Stratton & Hammond, 1988). Several studies have also shown that the more depressed a mother is, the more adversely she perceives her child's behavior to be (Friedlander, Weiss, & Traylor, 1986; Griest et al., 1979; Panaccione & Wahler, 1986). Panaccione and Wahler (1986) found that the best predictor of negative perceptions of children's behavior is maternal depression. Forehand suggests that this is possibly due to depression making mothers more critical and less tolerant (Forehand et al., 1982). Thus, it appears as though depressed mothers exaggerate their children's behavioral difficulties and show a tendency to over-report child behavior problems (Ferguson et al., 1993; Forehand et al., 1982). Hammen (1990) contends that these findings support the assertion that depressed mothers have more critical and negative attitudes toward their children than non-depressed mothers.

While it is apparent that depressed mothers exaggerate the amount of their children's misbehavior, it appears as though both maternal depression and the child's behavior contribute to the mother's perception of their child's behaviors as inappropriate

(Brody & Forehand, 1986; Conrad & Hammen, 1989; Lee & Gotlib, 1989; Lovejoy, 1991). Results of a study by Conrad and Hammen (1989) suggest that rather than depressed mothers exaggerating their children's behavior difficulties, depressed mothers more accurately perceive their child's symptomatology compared to non-depressed women. They found that mothers who were depressed accurately differentiated symptomatology in their children, rating their symptomatic children as having significantly more difficulties. In contrast, non-depressed mothers did not make this distinction between symptomatic and non-symptomatic children. Thus, depressed women were more accurate in their perceptions of their children's functioning. This is similar to results reported by Lovejoy (1991) which indicated that depressed mothers recall more negative behavior by their children, but that this is an accurate perception. However, a study utilizing path analysis to analyze the relationship between maternal depression, mothers' perceptions of their children, and child behavior found that maternal mood has a direct effect on the mother's perception of child behavior, but only an indirect effect on child behavior through parenting behavior (Forehand, Lautenschlager, Faust, and Graziano, 1986). Depressed mood directly impacts the way in which mothers perceive their children. However, depressed mood only affects children's behavior in that it affects the way a mother parents, which in turn affects children's behavior. The addition of a path between child behavior and maternal perceptions of child maladjustment did not improve the model. Similarly, Griest et al. (1979) found that although maternal depression is a significant predictor of parents' perceptions of

maladjustment in their clinic-referred children, child behavior is not a significant predictor of parental perceptions of clinic-referred children's adjustment.

In summary, there is ample evidence to suggest that depressed mothers perceive their children's behavior more negatively than non-depressed mothers (Conrad & Hammen, 1989; Ferguson et al., 1993; Forehand et al., 1982; Griest et al., 1980; Griest et al., 1979; Lovejoy, 1991; Panaccione & Wahler, 1986; Rogers & Forehand, 1983; Webster-Stratton & Hammond, 1988). What is not clear is whether these negative perceptions are exaggerated or accurate, as there is empirical evidence to support both views.

2.2.4 Depressed mothers interactions with their children.

Interpersonal difficulties are known to often occur with depression (Downey & Coyne, 1990; Weissman & Paykel, 1974). Thus, it is not surprising that depressed mothers have been shown to experience difficulty effectively parenting their children (Weissman, Paykel, & Klerman, 1972). Weissman and colleagues were the first in 1972 to examine maternal role performance of acutely depressed women. They concluded that depressed women are significantly more impaired mothers, exhibiting diminished emotional involvement, impaired communication, disaffection, and increased hostility and resentment. Depressed mothers have more conflicts with their children, show less affection towards their children, and have difficulty communicating with their children (Weissman & Paykel, 1974; Weissman et al., 1972). Since this earliest study, numerous studies have demonstrated that depressed mothers have difficulty parenting effectively and have more dysfunctional and negative interactions with their children (Cox,

Puckering, Pound, & Mills, 1987; Gordon et al., 1989; Hops, 1992; Lovejoy, 1991; Marton & Maharaj, 1993; Weissman & Paykel, 1974). Thus, the quality of maternal care is impaired by a mother being depressed (Weissman & Paykel, 1974). Forehand et al. (1987) found that depressed parents respond less positively and less quickly to their children. In their review of the observation literature in 1990, Downey and Coyne conclude that depressed mothers differ in at least two respects from control mothers in interactions with their children:

First, their behavior and affective expression is constricted and their speech is flat as compared with other mothers. They respond less positively, less frequently, and less quickly to their children's efforts to engage their attention. Second, they show heightened levels of child directed hostility and negativity, and their attempts to control child behavior are marked by coercion rather than by negotiation (p. 63).

Additionally, Weissman and colleagues have demonstrated that the disturbances in parenting evidenced by depressed mothers vary with respect to the family life cycle (Weissman & Paykel, 1974; Weissman et al., 1972). Although these studies provide detailed accounts of how depressed mothers differ from normal controls, these studies are cross-sectional and primarily correlational and do not allow us to make causal inferences on the result in child functioning (Downey & Coyne, 1990).

Several studies have shown that depressed mothers are more critical and show less positive affect during interactions with their children (Gordon et al., 1989; Hammen, Gordon, Burge, Adrian, & Jaenicke, 1987; Jaenicke et al., 1987; Webster-Stratton & Hammond, 1988). Gordon and colleagues (1989) observed the communication patterns of women in a conflict discussion task and found that the

mothers with recurrent unipolar depression were especially likely to display more negative and critical behavior. They were also less positive, made more off-task comments, and fewer task-productive comments. The criticalness of a mother's comments were significantly associated with her mood. In general, mothers who are depressed expressed much more negative affect towards their children (Gorden et al., 1989; Hamilton, Jones, & Hammen, 1993; Inoff-Germain, Nottelmann, & Radke-Yarrow, 1992; Radke-Yarrow et al., 1993). Similarly, Burge and Hammen (1991) found that negative or critical interaction quality and low maternal task involvement were predictive of children's depressive symptomatology and maladaptive school behavior at a six month follow-up. This study provides indirect evidence that maternal interaction behavior contributes to children's depressive outcomes. Thus, the concern for the offspring of depressed parents is two-fold due to both the increased genetic risk to children and to the impairment in parenting which is associated with affective disorders (Beardslee et al., 1993).

It has been hypothesized that a depressed mother's negative beliefs extend to interacting with her children; negative beliefs influence her behavior by making her hypercritical of her child's misbehavior (Parke & Tinsley, 1987). A study by Schwartz and colleagues (1990) studied expressed emotion in depressed mothers. Expressed emotion refers to critical and hostile attitudes, and extreme emotional overinvolvement. The study used the Camberwell Family Interview as an index of emotional attitudes towards a patient. Criticism, hostility, warmth, positive remarks, dissatisfaction, tension, and irritability were rated during an interview while the depressed mother talked about a

particular person. Maternal critical expressed emotion was found to be correlated with parental psychopathology, primarily depressive disorders. Mothers from families where at least one parent had a history of affective illness displayed higher levels of criticism. A higher degree of maternal expressed emotion was associated with a three-fold increase in a child's risk for having depression, substance abuse, or conduct disorder. The authors found that this risk acts in addition to the increased risk for child diagnosis associated with parental affective illness. These findings are similar to findings in a study by Hamilton, Hammen, Minasian, and Jones (1993). They found that depressed mothers' negative affective style is a stronger predictor of the child's coping style than either child or maternal diagnosis.

In summary, the literature clearly shows that depressed mothers not only perceive their children more negatively, but they have more negative interactions with their children (Cox et al., 1987; Gordon et al., 1989; Hops, 1992; Lovejoy, 1991; Marton & Maharaj, 1993; Weissman & Paykel, 1974). Depressed mothers have been shown to be more critical of their children (Gordon et al., 1989; Hammen et al., 1987; Jaenicke et al., 1987; Schwartz et al., 1990; Webster-Stratton & Hammond, 1988) and to express more negative affect towards their children when interacting with them (Gorden et al., 1989; Hamilton et al., 1993; Inoff-Germain et al., 1992; Radke-Yarrow et al., 1993). Maternal criticism associated with depression in mothers has also been associated with depressive outcomes in children (Burge and Hamilton in 1991; Schwartz et al., 1990).

2.3. Research on the Families of Depressed Children

Attempts have been made to investigate the role of parent-child relationships in the etiology of childhood depression, examining the hypothesis that specific patterns of parent-child interaction places a child at an increased risk of developing depression (Burbach & Borduin, 1986). Although there are relatively few empirical studies on families with a depressed child (Dadds et al., 1992; Kaslow, Rehm, Pollack, & Seigel, 1990), evidence from both clinical impressions and empirical investigations support the idea that disturbances in family relations and interactions are associated with depression during childhood (Cole and Rehm, 1986; Magnussen, 1991; Puig-Antich et al., 1993; Puig-Antich et al., 1985; Stark, 1990). It has been shown that depressed children perceive their families more negatively than non-depressed children (Kaslow et al., 1990; Stark, Humphrey, Crook, & Lewis, 1990). One area that has been studied is the communication patterns which characterize parent-child interactions in families with a depressed child.

2.3.1 Familial communication patterns

It is often assumed in the clinical literature that depressed children experience hostile, critical, and rejecting family environments (Sanders et al., 1992). Similarly, theories of depression hypothesize that overly critical parenting may be a risk factor in increasing a children's vulnerability to depression (Burge & Hammen, 1991; Hammen et al., 1991). Although numerous theories emphasize the role of the family in the development and maintenance of childhood psychopathology, there are relatively few research studies evaluating the relationship between family interactions and childhood

depression (Stark, 1990). Results of the investigations that have been done support the clinical impressions that disturbances in family relations and communication are associated with depression during childhood.

Clinical impressions emphasize the distressed nature of families with a depressed child. On the basis of their clinical work, Arieti and Bemporad (1980) concluded that one parent is usually dominant in the families of a depressed child. This dominant parent is usually highly critical of the child and has little tolerance for behavior that deviates from his or her rules. Similarly, Kashani and colleagues (1981) found that parents of depressed children who were hospitalized were excessively critical of their children, frequently finding fault with them. Poznanski and Zrull (1970) report that the parents of depressed children are often angry, punitive, and belittling. They do not know how to control their anger and frequently have temper outbursts. The parents of depressed children often use severe, punitive disciplinary techniques that result in abuse, neglect, and rejection, including overt statements of rejection. Thus, based only on clinical impressions and observations, clinician-researchers have "paint(ed) a disturbing picture of the interactions of families with a depressed child" (Stark, 1990, p. 53).

Stark and colleagues (1993) empirically examined the cognitive, behavioral, and family environment variables that differentiate depressive and anxiety disorders in children. With respect to family variables, children's perceptions of the messages they receive about themselves, their world, and the future from both parents, the quality of their relationships with their family, and their parents' style of managing their families all helped to differentiate the two diagnostic groups. Significant disturbances have been

found in the perceived family environments of depressed children to the extent that the diagnostic status of the children (depression versus anxiety) could be validly predicted based on children's perceptions of their family environment (Stark et al., 1990). Families with a depressed child are seen by the child as less cohesive, more conflictual, and less open to expression than families of non-depressed children. These results lend possible empirical support to Stark's multidimensional model of childhood depression by suggesting a mechanism that may contribute to the disturbances in depressed children's information processing (Stark et al., 1991). More specifically, the messages that are communicated to children help to differentiate the diagnostic groups. Depressed children perceive their parents as communicating more negative messages concerning the self, world, and future.

One main avenue of research on parental communication styles related to depression is through the empirical literature on interaction patterns in families with a depressed child. Several studies have shown that dysfunctional parenting characterized by increased negativity and criticism and lack of involvement have been shown to be associated with depressive outcomes in children (Burbach & Borduin, 1986; Dadds et al., 1992). Puig-Antich and colleagues (1985) found that depressed children and their mothers had poorer communication and less affectionate relations than control families. The mother's affective tone was characterized as hostile, tense, and punitive. Generally, it appears that mothers of depressed children have greater difficulty communicating with their children than normal controls (1985) and that they think more negatively about their families than mothers of comparison children (Sanders et al., 1992).

Although many studies have focused on the increased amount of negative communication by mothers in families of a depressed child, few have studied positive parental communication in these families. By observing families in a family interaction task, Cole and Rehm (1986) found that the mothers of depressed children affectively rewarded their children at much lower rates than other mothers. Although the mothers of depressed children and the mothers of non-clinic children both set high standards for their child's performance, the mothers of a depressed child expressed positive affect only when their child met these high standards.

Little is known regarding environmental variables that predict child outcome in depressed children (Asarnow et al., 1993). Parental communication has recently been explored in terms of predicting future child outcomes in depressed children. Numerous studies have shown that children who suffer from a depressive episode are at continued risk for subsequent episodes (Asarnow, et al., 1993). Expressed emotion is a family environment variable that has been demonstrated to be associated with the outcomes of depressed adults, with high levels of expressed emotion by family members being a risk factor for relapse once hospitalized depressed adults return home (Hooley & Teasdale, 1989). Expressed emotion refers to the extent to which family members of psychiatric patients express critical, hostile, or emotionally overinvolved attitudes towards the patient (Asarnow et al., 1994; Hooley and Teasdale, 1989). Criticism has been shown to be the most important aspect of expressed emotion that predicts relapse in adult unipolar depressives (Hooley & Teasdale, 1989). Two recent studies have extended the concept of the predictive value of expressed emotion to depressed children (Asarnow, et al., 1993;

Asarnow et al., 1994). Asarnow and colleagues (1993) used a brief interview procedure to assess expressed emotion attitudes in parents of psychiatric in-patients. Results showed that children returning to homes with parents exhibiting high expressed emotions were unlikely to recover during the year following hospitalization. An additional study found that parental criticism, in particular, was significantly higher among the parents of depressed children compared to normal controls. The authors suggest that depressed children who are prone to perceive themselves negatively might be particularly sensitive to criticisms in the home which likely further reinforce their own tendencies towards self-criticism.

Burge and Hammen (1991) emphasize that most of the research to date does not address the causal nature of the relationship between parental behavior and child depressive outcomes. Longitudinal studies are necessary in order to identify the causal mechanisms underlying the etiology of childhood depression, which is especially important taking into account the reciprocal nature of parent-child interactions (Burge & Hammen, 1991).

In summary, clinical and empirical evidence indicates that the parents of depressed children are more critical in their interactions with their children than the parents of nondepressed children (Arieti & Bemporad, 1980; Asarnow, et al., 1993; Asarnow et. al., 1994; Burbach & Borduin, 1986; Dadds et al., 1992; Kashani, Venzke & Miller, 1981; Stark et al. 1993). Expressed emotion, a family environment variable measuring critical, hostile, and emotionally overinvolved attitudes of parents towards their children, has been shown to be predictive of depressed children's outcomes

(Asarnow, et al., 1993; Asarnow et al., 1994). Not only do the mothers of depressed children verbally respond more negatively to their children, they also affectively reward their children at much lower rates than other mothers (Cole and Rehm, 1986).

2.4 Cognitive Vulnerability in the Children of Depressed Mothers

Depressogenic cognitions in the form of negative views of self, world, and future have been shown to be related to a child's severity of depression (Stark et al., 1996). Similarly, Hammen (1988) tested whether cognitions about the self indicate vulnerability to psychopathology. Results indicate that a relationship exists between relatively lower self-concept in children and subsequent depressive episodes. Thus, these findings are consistent with theoretical views that negative interpretations of self, world, and future are indicative of depression vulnerability in children (Hammen, 1988). Although empirical evidence suggests that disturbances in information processing are associated with depression, there is a scarcity of research examining the possible mechanisms underlying the development of the cognitive disturbances that are associated with depression in childhood (Jaenicke et al., 1987; Stark et al., 1996). Numerous authors of varying theoretical background have hypothesized that family communication patterns play an important role in the development of depressive cognitions, especially in regard to children's views of self, world, and future (Jaenicke et al., 1987; Stark et al., 1991; Stark et al., 1996). Kashani and colleagues (1981) argue that the excessive critical nature of parent-child interactions of families with a depressed child or parent could likely send the child the message that he or she is inadequate, which if internalized, would lead to a

negative sense of self. Stark and colleagues (1991) contend that based on Beck's cognitive theory of depression and on their own model, it is likely that critical messages directed to the child concerning him/herself, the world, and the future, provide experiences that lead to the development of the negative cognitive triad.

Hammen (1991) believes that the critical component of Beck's cognitive triad is a negative view of the self. Although cross-sectional research designs cannot assess how these cognitions are formed, there are three likely sources of the development of negative cognitions of self: the mother-child relationship, exposure to on-going stress, and from observing a depressed mother (Burge and Hammen, 1991; Hammen, 1991; Jaenicke et al., 1987). Hammen (1991) argues that one of the most likely possibilities is that an individual's view of self is shaped by the mother-child relationship. In particular, critical messages communicated by parents may help form negative self-schemas in children that create a vulnerability to depression (Hammen et al., 1987). A study utilizing an interaction task with depressed mothers and their children found that an observed higher proportion of maternal criticism was associated with more negative cognitions about the self and more self-critical remarks in the child (Jaenicke et al., 1987). Although an argument can be made that negative cognitions about the self are merely concomitants of current depression in the children, Jaenicke and colleagues (1987) contend that maternal criticism might be a possible mechanism leading to cognitive vulnerability to depression in children.

Similar findings on the relationship between family communication disturbances and maladaptive information processing were found by Stark and colleagues (1996). The

results of the study, using 133 school children in grades 4 to 7, indicate that children's perceptions of the messages communicated to them by their parents about self, world, and future are associated with their own level of depression, as well as their own views of self, world, and future. Additional analyses indicated that the association between perceived parental messages and children's cognitive triad was not due to children's depressive symptoms. The authors contend that the study demonstrates that children's cognitive triads mediate the relationship between perceived parental messages and severity of depression. Stark and colleagues conclude that these findings suggest a possible mechanism through which interactions with parents may be associated with the development of depressogenic cognitions, and ultimately the formation of depression in children (1996). This study demonstrates a relationship between perceived parental messages and children's thoughts on self, world, and future, suggesting that children's views are related to their perceptions of verbal communications from their parents regarding themselves, the world, and the future (Stark et al., 1996). It is also possible that the messages that parents communicate to their children are more related to other variables instead of the parent's own cognitive triad. Thus, there is evidence that depressogenic cognitions in children are associated with the criticalness of messages communicated by mothers to their children (Hammen, 1991; Jaenicke et al., 1987; Stark et al., 1996).

Another possible mechanism through which children may acquire negative thinking patterns is through observing a model with negativistic thinking about themselves, the world, and the future (Jaenicke et al., 1987). Empirical evidence to

support this hypothesis is contradictory. Hammen (1991) did not find support for the development of depressogenic cognitions from observing a mother who is depressed. During an observational task, an insignificant relationship was found between mothers and their children's tendencies to make self-blaming remarks (Hammen, 1991; Jaenicke et al., 1987). However, Stark et al. (1996) found a relationship between mother's cognitive triad and children's cognitive triad, which is a more direct investigation of the possibility of observational learning as the mode through which children learn a depressogenic style of thinking.

In summary, although there is theoretical and empirical evidence that depressogenic thinking patterns are associated with depression in childhood, there is a scarcity of empirical work investigating the possible mechanisms responsible for the development of these negative cognitions (Hammen, 1991; Jaenicke et al., 1987; Kaslow et al., 1992; Stark et al., 1996). Theoretically, critical family communication patterns are believed to be associated with the development of depressogenic cognitions in childhood (Hammen et al., 1987; Jaenicke et al., 1987; Stark et al., 1996). Furthermore, there is recent empirical evidence which empirically associates critical family communication patterns with a child's cognitive vulnerability to depression (Jaenicke et al., 1987; Stark et al., 1996). Further work needs to discern whether maternal depression affects the child's cognitions about self, world and future, and how such cognitions may be related to critical messages directed at the child about the self, world, and future (Jaenicke et al., 1987).

2.5 Conclusions

Although there are multiple pathways to the development of childhood psychopathology (Hammen, 1990; Hammen, 1992; Kashani & Sherman, 1988; Marton & Maharaj, 1993), maternal depression has been identified as a primary risk factor in children who develop depression (Beardslee, et al., 1983; Beardslee et al., 1985; Beardslee et al., 1993; Cytryn et al., 1982; Downey & Coyne, 1990; Gelfand & Teti, 1990; Hammen, 1991; Hammen et al., 1990; Hammen et al., 1987; Klein et al., 1988; Keller et al., 1986; McKnew et al., 1979; Orvaschel et al., 1988; Welner & Rice, 1988; Welner et al., 1977). While numerous studies have documented the risks to the children of depressed mothers, there is a scarcity of research investigating the possible mechanisms that are responsible for these risks (Burbach & Borduin, 1986; Conrad & Hammen, 1989; Dodge, 1990; Cummings & Davies, 1994; Downey & Coyne, 1990; Gordon et al., 1989; Hammen, 1991; Hammen et al., 1991; Hammen et al., 1990; Jaenicke et al., 1987).

Maladaptive parent-child interaction patterns have been theorized to be involved in the intergenerational transmission of depression (Andrews et al., 1990; Burge & Hammem, 1991; Cummings & Davies, 1994; Gordon et al., 1989; Kaslow et al., 1994). Although there is theoretical and empirical evidence that depressogenic thinking patterns are associated with depression in childhood, there is little empirical work investigating the possible mechanisms responsible for the development of these negative cognitions (Hammen, 1988; Hammen, 1991; Jaenicke et al., 1987; Kaslow et al., 1992; Stark et al., 1996). Theories of depression hypothesize that overly critical parenting may be a risk

factor in increasing children's vulnerability to depression by contributing to the development of depressogenic cognitions (Burge & Hammen, 1991; Hammen et al., 1991; Hammen et al., 1987; Jaenicke et al., 1987; Sanders et al., 1992; Stark et al., 1991; Stark et al., 1996).

The findings on the nature of parent-child communication patterns in families with a depressed child or mother appear to be quite consistent across the theoretical, clinical, and empirical literature (Orvaschel, Weissman, & Kid, 1980). Although the correlational nature of the research does not allow us to make causal interpretations (Burbach & Borduin, 1986; Downey & Coyne, 1990), diverse studies have shown that parent-child communication patterns in families with a depressed child or mother are characterized by significantly more negativity and criticism (Arieti & Bemporad, 1980; Asarnow, et al., 1993; Asarnow et. al., 1994; Burbach & Borduin, 1986; Dadds et al., 1992; Gordon et al., 1989; Hammen et al., 1987; Jaenicke et al., 1987; Kashani et al., 1981; Orvaschel, et al., 1980; Stark et al. 1993; Schwartz et al., 1990; Webster-Stratton & Hammond, 1988; Weissman, & Kid, 1980). Maternal criticism has also been associated with depressive outcomes in children (Burge and Hamilton 1991; Schwartz et al., 1990).

Although there is considerable evidence to suggest that depressed mothers perceive their children's behavior more negatively than non-depressed mothers, it is not clear whether these negative perceptions are exaggerated due to depressive symptomatology or whether they accurately describe the behavior of the children of depressed mothers (Conrad & Hammen, 1989; Ferguson et al., 1993; Forehand et al.,

1982; Griest et al., 1979; Griest et al., 1980; Lovejoy, 1991; Paccione & Wahler, 1986; Rogers & Forehand, 1983; Webster-Stratton & Hammond, 1988). Rather than assuming a unidirectional causal relationship between maternal depression and poor child functioning (Beardslee et al., 1983), most current models of childhood depression emphasize the bi-directional and reciprocal impact that mothers and children have on each other (Cummings & Davies, 1994; Gordon et al., 1989; Hammen, 1990; Hammen et al., 1991; Hops, 1992; Keitner & Miller, 1990; Stark et al., 1991; Teichman, 1989).

There is recent empirical evidence that associates critical family communication patterns with a child's cognitive vulnerability to depression (Jaenicke et al., 1987; Stark et al., 1996). A study by Jaenicke and colleagues (1987) found that maternal criticism was associated with more negative cognitions about the self and more self-critical remarks in the child. Similarly, Stark and colleagues (1996) found that children's cognitive triads mediate the relationship between perceived parental messages and severity of depression. Thus, empirical evidence associates critical maternal messages with the child's cognitive triad, and ultimately to his or her level of depression.

Further work is needed to specify more precisely how maternal depression affects the child's cognitions about self, world and future, and how such cognitions may result in depression (Jaenicke et al., 1987). Future research will also need to clarify the antecedents of negative maternal interaction, addressing the role of the child's behavior in eliciting negative maternal interaction (Gordon et al., 1989; Jaenicke et al., 1987). The next step in disentangling the possible mechanism by which children develop depressogenic cognitions is to determine whether critical maternal messages mediate the

relationship between depression in mothers and their children. If so, this would provide some support for a hypothetical mechanism by which depressed mother-child interactions (critical maternal messages) are associated with depressive cognitions in their children.

2.6 Statement of the Problem

While numerous studies have demonstrated that the children of depressed mothers have significantly elevated rates of depression (Beardslee et al., 1985; Beardslee et al., 1993; Cytryn et al., 1982; Downey & Coyne, 1990; Hammen, 1991; Hammen et al., 1990; Klein et al., 1988; Orvaschel et al., 1988; Welner & Rice, 1988; Welner et al., 1977), few studies have investigated the possible mechanisms that are responsible for this risk (Burbach & Borduin, 1986; Conrad & Hammen, 1989; Cummings & Davies, 1994; Dodge, 1990; Downey & Coyne, 1990; Gordon et al., 1989; Hammen, 1991; Hammen et al., 1991; Hammen et al., 1990; Jaenicke et al., 1987). Theoretically it is believed that overly critical parenting behaviors may contribute to a child developing depression by contributing to the development of depressogenic cognitions (Beck, 1967; Burge & Hammen, 1991; Hammen et al., 1991; Jaenicke et al., 1987; Sanders et al., 1992; Stark et al., 1996; Stark et al., 1991; Hammen et al., 1987). Indeed, recent empirical evidence associates critical family communication patterns with a child's cognitive vulnerability to depression (Jaenicke et al., 1987; Stark et al., 1996). Additionally, depressed mothers have been shown to be more critical and negative in their interactions with their children (Gordon et al., 1989; Hammen et al., 1987; Jaenicke et al., 1987; Swartz et al., 1990; Webster-Stratton & Hammond, 1988), and the maternal criticism associated with

maternal depression has been associated with depressive outcomes in children (Burge and Hamilton in 1991; Swartz et al., 1990).

A recent study by Stark and colleagues (1996) demonstrated that the child's cognitive triad mediated the relationship between perceived parental messages and the child's severity of depression. In a sample of 133 children in grades 4 to 7, the predictive effect of perceived critical maternal messages on the severity of the child's depressive symptoms was substantially reduced after controlling for the effect of the child's view of self, world, and future. Utilizing Beck's cognitive theory of depression, this study attempted to replicate and extend the work by Stark and colleagues with the introduction of the variable of maternal depressive symptomatology.

The current study is an exploratory investigation that seeks to examine the relationship between variables in a hypothetical model which link mother's severity of depressive symptomatology, critical maternal messages as perceived by the child, the child's cognitive triad (view of self, world, and future), and child's severity of depression (Figure 1). The reader is cautioned that the study is not an attempt to investigate the validity of this model. Only a longitudinal analysis utilizing advanced statistical techniques with a large sample size would allow for this type of causal inferences. However, this hypothetical model is described in order to provide information regarding a possible mechanism, grounded in theory and research, which may ultimately be involved in the intergenerational transmission of depression. Thus, this model is being delineated in order to provide the reader with an understanding of the importance of

exploring the relationship between variables in the model, which is the intent of the current study.

The hypothetical model asserts that a depressed mother is more likely to communicate negative messages to her child about the self, world, and future. The child, in turn internalizes these messages, which results in the formation of the cognitive triad. Having negative thoughts about the self, world, and future, is then a vulnerability factor for the child in developing depression. For example, consider the impact of hearing negative messages about the self. If a mother repeatedly makes statements such as "You are a failure" or "You can't do anything right" the child may begin to have a negative view of the self and to believe, "I am a failure. I can't do anything right." According to Beck (1967), it is these types of thoughts that place a child at risk for developing a depressive disorder.

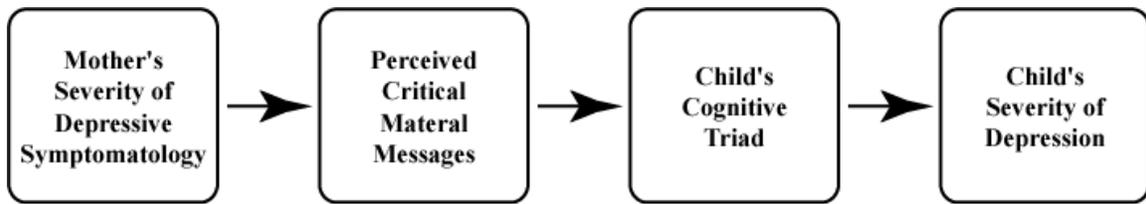


Figure 1. Hypothetical links between maternal depression and childhood depression, via communicated critical maternal messages as perceived by the child.
CAUTION: The current study is not an attempt to establish causal relationships in this model.

Relationships in this hypothesized model are explored in the current study by the computation of four mediational analyses. According to Baron and Kenny (1986), "a given variable may be said to function as a mediator to the extent that it accounts for the relation between the predictor and criterion" (p. 1176). To test for mediation, Baron and Kenny (1986) recommend that a series of regression equations should be estimated: first, the mediator should be regressed on the independent variable; second, the dependent variable should be regressed on the independent variable; and third, the dependent variable should be regressed on the mediator.

As with most social science research, there are numerous factors associated with each construct in this model; thus any relationships demonstrated are likely to be only partial mediations (Baron & Kenny, 1986). It is important to note that this study is only an exploratory investigation of the relationships of the variables in this hypothetical model. Any complete model to account for the relationship between depression in mothers and their children must take into account the reciprocal nature of depression in families (Cummings & Davies, 1994; Gordon et al., 1989; Hammen, 1990; Hammen et

al., 1991; Hops, 1992; Keitner & Miller, 1990; Stark et al., 1991; Teichman, 1989), as well as a host of additional psychosocial and biological variables.

2.7. Hypotheses

This study examines four primary research questions. Since each question involves the computation of a mediational analysis, separate hypotheses are given for each step of the analysis.

2.7.1. Question 1: Does the child's cognitive triad (view of self, world, and future) partially mediate the relationship between perceived critical maternal messages about the self, world, and future and the child's severity of depressive symptomatology?

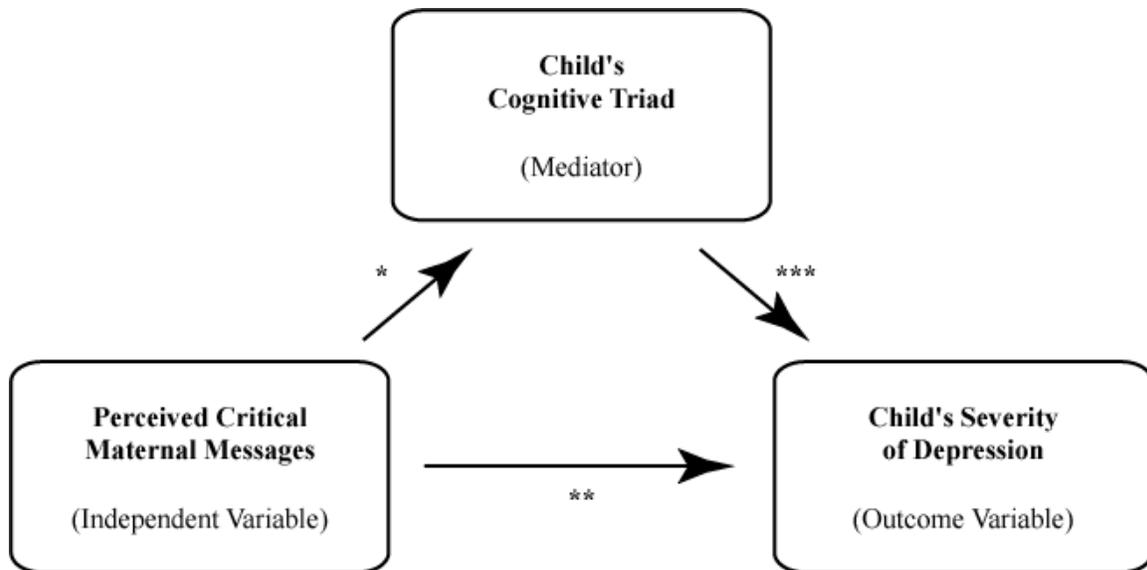


Figure 2. Proposed mediational relationship between critical maternal messages and child's depression by the child's cognitive triad. (Relationship established by Stark et al., 1996).

(* Hypothesis 1a: Link hypothesized by Beck, 1967; Burge & Hammen, 1991; Stark et al., 1991; Hammen et al., 1991; Link established by Stark et al., 1996); (** Hypothesis 1b: Link established by Asarnow, et al., 1993; Asarnow et. al., 1994; Burbach & Borduin, 1986; Dadds et al., 1992; Kashani, et al., 1981; Stark et al. 1993; Stark et al., 1996); (***)Link established by Asarnow et al., 1987; Kaslow et al., 1992; Hammen, 1988; Stark et al., 1996).

Hypothesis 1a: Perceived critical maternal messages, as measured by the FMM-M Total Score, will significantly predict the child's cognitive triad, as measured by the Total Score on the CTI-C.

Hypothesis 1b: Perceived critical maternal messages, as measured by the FMM-M Total Score, will significantly predict the child's severity of depression, as assessed by the child's report on the Schedule for Affective Disorders and Schizophrenia for School-Age Children - Present Episode Version (K-SADS-P).

Hypothesis 1c: The child's cognitive triad, as measured by the CTI-C Total Score, will significantly predict the child's severity of depression, as assessed by the K-SADS-P.

Hypothesis 1d: The predictive effect of perceived critical maternal messages, as measured by the FMM-M, on the child's severity of depression, as measured by the K-SADS, will substantially decrease when the effects of the child's cognitive triad, as measured by the CTI-C, are controlled.

Thus, HYPOTHESIS 1: The child's cognitive triad, as measured by the CTI-C, will partially mediate the relationship between perceived critical maternal messages, as measured by the FMM-M, and child's severity of depressive symptomatology, as assessed by the K-SADS-P.

Rationale: As stated above, Beck and others have hypothesized that the depressogenic cognitions associated with depression (negative view of self, world, and future) are created through early learning experiences, especially those within the family (Beck, 1967; Burge & Hammen, 1991; Hammen et al., 1987; Hammen et al., 1991; Jaenicke et al., 1987; Sanders et al., 1992; Stark et al., 1996; Stark et al., 1991). Clinical and empirical evidence supports the contention that the parents of depressed children are more critical in their interactions with their children than the parents of nondepressed

children (Arieti & Bemporad, 1980; Asarnow, et al., 1993; Asarnow et. al., 1994; Burbach & Borduin, 1986; Dadds et al., 1992; Kashani et al., 1981; Stark et al. 1993). Additionally, it has been shown that depressed children think more negatively about themselves, the world, and the future (Asarnow et al., 1987; Hammen, 1988; Kaslow et al., 1992; Stark et al., 1996). Stark and colleagues (1996) report that the child's views of self, world, and future mediates the relationship between perceived parental messages and child's severity of depression in a sample of school children. In Stark's study, perceived maternal messages predicted child's views ($pr = .42, p < .001$) and child's severity of depression ($pr = -.23, p < .05$) and the child's cognitive triad predicted child's severity of depression beyond the effects of perceived messages ($pr = -.48, p < .0001$). Thus, this research question is being asked in an attempt to replicate previous findings and to ascertain whether this relationship exists between adolescents seeking residential psychiatric treatment and their mothers.

2.7.2. Question 2: Do perceived critical maternal messages about the self, world, and future partially mediate the relationship between the severity of depressive symptomatology in mothers and their adolescent children?

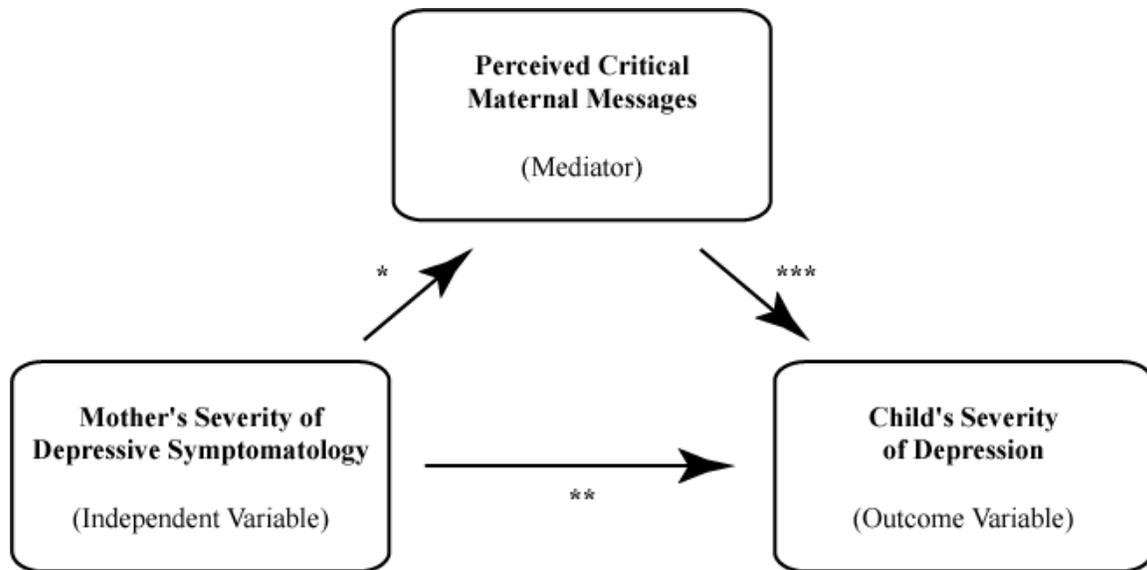


Figure 3. Proposed mediational relationship between mother's severity of depressive symptomatology and child's severity of depression via perceived critical maternal messages.

(*Hypothesis 2a: Link established by Gordon et al., 1989; Hammen et al., 1987; Jaenicke et al., 1987; Swartz et al., 1990; Webster-Stratton & Hammon, 1988); (** Hypothesis 2b: Link established by Beardslee et al., 1985; Beardslee et al., 1993; Cytryn et al., 1982; Downey & Coyne, 1990; Hammen, 1991; Hammen et al., 1990; Klein et al., 1988; Orvaschel et al., 1988; Welner & Rice, 1988; Welner et al., 1977); (***) Link established by Asarnow, et al., 1992; Kashani, et al., 1981; Stark et al., 1993; Stark et al., 1996).

Hypothesis 2a: Mother's severity of depressive symptomatology, as assessed by the Depression Dimension on the SCL-90, will significantly predict perceived critical maternal messages, as measured by the FMM-M.

Hypothesis 2b: Mother's severity of depressive symptomatology, as assessed by the SCL-90, will significantly predict child's severity of depression, as assessed by K-SADS.

Hypothesis 2c: Perceived critical maternal messages, as measured by the FMM-M, will significantly predict child's severity of depression, as assessed by the K-SADS.

Hypothesis 2d: The predictive effect of mother's severity of depressive symptomatology, as assessed by the SCL-90, on child's severity of depression, as assessed by the K-SADS, will substantially decrease when the effects of perceived critical maternal messages, as measured by the FMM-M, are controlled.

Thus, HYPOTHESIS 2: Perceived critical maternal messages, as assessed by the total score on the FMM-M, will partially mediate the relationship between severity of depressive symptomatology in mothers, as measured by the SCL-90, and the severity of depressive symptoms in their children, as assessed by the K-SADS.

Rationale: Although the children of depressed mothers have significantly elevated rates of depression (Beardslee et al., 1985; Beardslee et al., 1993; Cytryn et al., 1982; Downey & Coyne, 1990; Hammen, 1991; Hammen et al., 1990; Klein et al., 1988; Orvaschel et al., 1988; Welner & Rice, 1988; Welner et al., 1977), there is little research investigating possible mechanisms responsible for this risk (Dodge, 1990; Downey & Coyne, 1990; Gordon et al., 1989; Burbach & Borduin, 1986; Conrad & Hammen, 1989; Hammen, Burge, & Stansbury, 1990; Jaenicke et al., 1987; Hammen, 1991; Cummings & Davies, 1994; Hammen, Burge, & Adrian, 1991; Gordon et al., 1989). As stated previously, diverse studies have shown that parent-child communication patterns in families with a

depressed child or mother are characterized by significantly more negativity and criticism (Arieti & Bemporad, 1980; Asarnow, et al., 1993; Asarnow et. al., 1994; Burbach & Borduin, 1986; Dadds et al., 1992; Gordon et al., 1989; Hammen et al., 1987; Jaenicke et al., 1987; Kashani et al., 1981; Orvaschel, et al., 1980; Stark et al. 1993; Schwartz et al., 1990; Webster-Stratton & Hammond, 1988; Weissman, & Kid, 1980). The maternal criticism of depressed mothers has been associated with depressive outcomes in children (Burge and Hamilton 1991; Schwartz et al., 1990). Thus, it is possible that critical maternal messages partially mediate the relationship between depression in mothers and their children.

2.7.3. Question 3: Do perceived critical maternal messages partially mediate the relationship between mother's severity of depressive symptomatology and the child's cognitive triad (views of self, world, and future)?

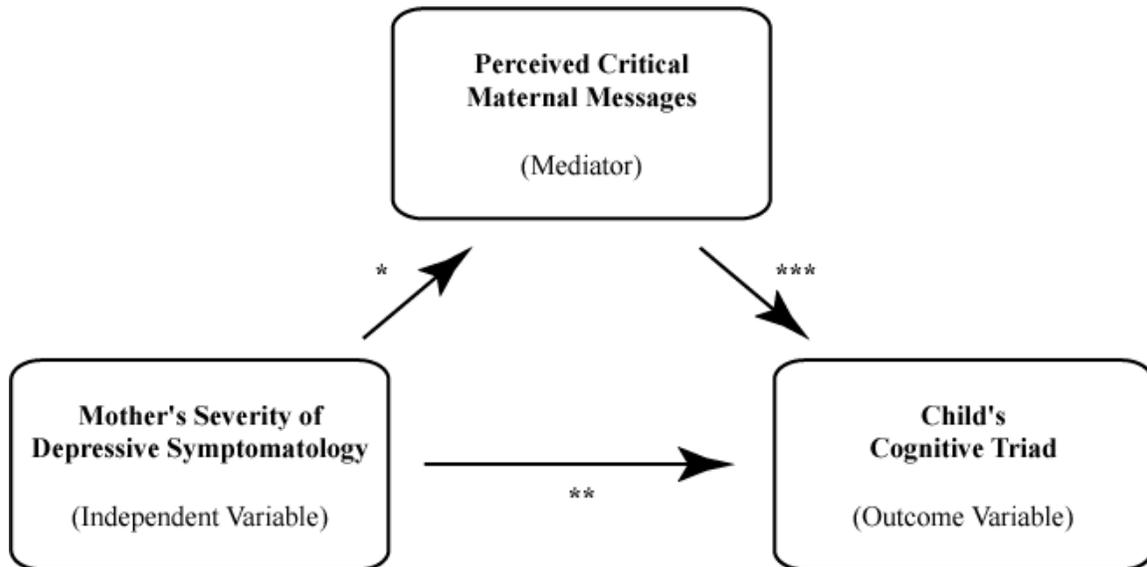


Figure 4. Proposed mediational relationship between mother's severity of depressive symptomatology and child's cognitive triad via perceived critical maternal messages.

(* Hypothesis 3a: Link established by Gordon et al., 1989; Hammen et al., 1987; Jaenicke et al., 1987; Swartz et al., 1990; Webster-Stratton & Hammon, 1988); (** Hypothesis 3b: link hypothesized by Hammen et. al., 1987 & Jaenicke et al., 1987); (***)Hypothesis 3c: Link hypothesized by Beck, 1967; Burge & Hammen, 1991; Stark et al., 1991; Hammen et al., 1991; Link established by Stark et al., 1996).

Hypothesis 3a: Mother's severity of depressive symptomatology, as measured by the SCL-90, will significantly predict perceived critical maternal messages, as measured by the Total Score on the FMM-M (same as Hypothesis 2a).

Hypothesis 3b: Mother's severity of depressive symptomatology, as measured by the SCL-90, will significantly predict the child's cognitive triad (views of self, world, and future), as assessed by the Total Score on the CTI-C.

Hypothesis 3c: Perceived critical maternal messages, as measured by the FMM-M Total Score, will significantly predict the child's cognitive triad, as assessed by the Total Score on the CTI-C (same as hypothesis 1c).

Hypothesis 3d: The predictive effect of mother's severity of depressive symptomatology, as measured by the SCL-90, on the child's cognitive triad (views of self, world, and future), as measured by the CTI-C Total Score, will substantially decrease when the effects of perceived critical maternal messages, as measured by the FMM-M Total Score, are controlled.

Thus, HYPOTHESIS 3: Perceived critical maternal messages, as measured by the FMM-M Total Score, will partially mediate the relationship between mother's severity of depressive symptomatology, as measured by the SCL-90, and child's cognitive triad (views of self, world, and future), as assessed by the Total Score on the CTI-C.

Rationale: Beck believed that depressogenic cognitions are primarily formed through familial experiences which communicate to the child that he or she is not worthy (Beck, 1967). Evidence is accumulating that depressogenic cognitions in children are associated with the criticalness of messages communicated by mothers to their children (Hammen, 1991; Jaenicke et al., 1987; Stark et al., 1996). Studies have also shown that depressed mothers are more critical and show less positive affect during interactions with their children (Gordon et. al, 1989; Hammen, Gordon, Burge, Adrian, & Jaenicke, 1987; Jaenicke et al., 1987; Webster-Stratton & Hammond, 1988). Thus, it is possible that maternal depression is associated with depressogenic cognitions in children based upon the types of messages communicated by these mothers. If depressed mothers

communicate more negative messages about self, world, and future to their children, their children may internalize these thoughts about themselves, the world, and their futures. Thus, the child's cognitive triad may partially mediate the relationship between mother's severity of depressive symptomatology and the child's cognitive triad.

2.7.4. Question 4: Does the child's cognitive triad (view of self, world, and future) partially mediate the relationship between mother's severity of depressive symptomatology and the child's severity of depression?

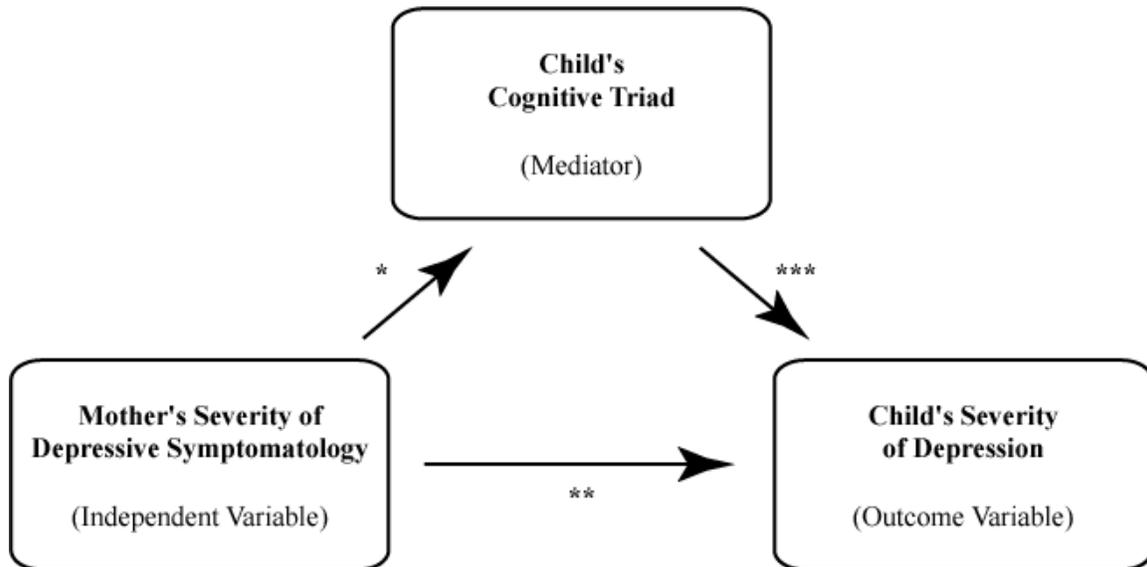


Figure 5. Proposed mediational relationship between mother's severity of depressive symptomatology and child's severity of depression via the child's cognitive triad.

(* Hypothesis 4a: Link hypothesized by Hammen et al., 1987 & Jaenicke et al., 1987)
 (** Hypothesis 4b: Link established by Beardslee et al., 1985; Beardslee et al., 1993; Cytryn et al., 1982; Downey & Coyne, 1990; Hammen, 1991; Hammen et al., 1990; Klein et al., 1988; Orvaschel et al., 1988; Welner & Rice, 1988; Welner et al., 1977);
 (***)Link established by Asarnow et al., 1987; Kaslow et al., 1992; Hammen, 1988; Stark et al., 1996).

Hypothesis 4a: Mother's severity of depressive symptomatology, as measured by the SCL-90, will significantly predict the child's cognitive triad, as measured by the Total Score on the CTI-C (same as hypothesis 3b).

Hypothesis 4b: Mother's severity of depressive symptomatology, as measured by the SCL-90, will significantly predict the child's severity of depression, as assessed by

the child's report on the Schedule for Affective Disorders and Schizophrenia for School-Age Children - Present Episode Version (K-SADS-P) (same as hypothesis 2b).

Hypothesis 4c: The child's cognitive triad, as measured by the CTI-C Total Score, will significantly predict the child's severity of depression, as assessed by the K-SADS-P (same as hypothesis 1c).

Hypothesis 4d: The predictive effect of maternal depressive symptomatology, as measured by SCL-90, on the child's severity of depression, as measured by the K-SADS, will substantially decrease when the effects of the child's cognitive triad, as measured by the CTI-C, are controlled.

Thus, HYPOTHESIS 4: The child's cognitive triad, as measured by the CTI-C, will partially mediate the relationship between maternal depressive symptomatology, as measured by the SCL-90, and the child's severity of depressive symptomatology, as assessed by the K-SADS-P.

Rationale: Although research clearly indicates that the children of depressed mothers have significantly elevated rates of depression (Beardslee et al., 1985; Beardslee et al., 1993; Cytryn et al., 1982; Downey & Coyne, 1990; Hammen, 1991; Hammen et al., 1990; Klein et al., 1988; Orvaschel et al., 1988; Welner & Rice, 1988; Welner et al., 1977), there is a scarcity of research investigating possible mechanisms responsible for this risk (Dodge, 1990; Downey & Coyne, 1990; Gordon et al., 1989; Burbach & Borduin, 1986; Conrad & Hammen, 1989; Hammen, Burge, & Stansbury, 1990; Jaenicke et al., 1987; Hammen, 1991; Cummings & Davies, 1994; Hammen, Burge, & Adrian, 1991; Gordon et al., 1989). Since depressogenic cognitions in the form of negative views

of self, world and future have been shown to be related to a child's severity of depression (Stark et. al, 1996 & Hammen, 1988), it is possible that the child's cognitive triad partially mediates the relationship between maternal depression and child depression.

CHAPTER 3

Method

3.1 Overview

Participants were drawn from a larger research project investigating cognitive, behavioral, and family factors related to the development and maintenance of psychopathology in children and adolescents. This large scale research project included a comprehensive assessment of children and adolescents through the use of interviews, projective measures, and self-report questionnaires; and of their families through the use of self-report measures. The primary research site was a residential psychiatric treatment facility for children and adolescents. Participants in the present study consisted of mother-child pairs.

3.2 Participants

Participants for this study were 38 adolescents who were receiving psychological services at a residential treatment center and their mothers. In the current sample, the adolescents ranged in age from 12 to 17 years ($M = 14.63$, $SD = 1.28$). More than half of the participants were female (60.5%). The majority of adolescents were Caucasian (94.7%) and most of them were living with their biological mothers (81.6%). The participants were in grades 6 to 12 ($M = 9.16$, $SD = 1.6$). Information obtained from educational records indicates that most participants (73.8%) qualified to receive special

education services due to a disability. Specific demographic characteristics of the sample appear in Table 1.

The sample size of the present study was significantly hindered by the poor return rate of the SCL-90 by the mothers of participants. Of the larger research project which met all other qualifications for the present study, 49 participants could not be included in the present study due to the SCL-90 not being completed by the parent. Two additional subjects had to be excluded due to the father having completed the SCL-90 rather than the mother.

Table 1
Description of Demographic Characteristics of the Sample

	Frequency	Percent
Age in years		
12	2	5.3
13	6	15.8
14	8	21.1
15	12	31.6
16	8	21.1
17	2	5.3
Total	38	100.0
Gender		
Male	15	39.5
Female	23	60.5
Race/Culture		
Caucasian	36	94.7
African American	1	2.6
Other	1	2.6

Table 1, continued
Description of Demographic Characteristics of the Sample

	Frequency	Percent
Grade		
6	2	5.3
7	4	10.5
8	8	21.1
9	7	18.4
10	8	21.1
11	7	18.4
12	2	5.3
Educational Status		
General Education	10	26.3
<i>Special Education:</i>		
Learning Disability (LD)	2	5.3
Emotional Disturbance (ED)	24	63.2
LD & ED	2	5.3
Living Arrangement		
Both Biological Parents	10	26.3
Biological Mother	7	18.4
Biological Mother and Step-Father	14	36.8
Biological Father and Step-Mom	2	5.3
Grandparents	2	5.3
Adopted	3	7.9

Based on information obtained through the larger research project, the current sample presented with a complex psychiatric diagnostic picture, which is not surprising given the high rate of co-morbidity among children and adolescents with depression (Hammen et al., 1990). The majority of the sample (76.3%) presented with a combination of internalizing (mood disorders and anxiety disorders) and externalizing disorders (disruptive behavior disorders). On average, participants had more than two DSM-IV Axis I Disorders ($M = 2.63$, $SD = .913$). The majority of the sample (81.6%) had a primary diagnosis of a mood disorder, with 65.8% of the sample having a primary diagnosis of Major Depressive Disorder. Table 2 presents psychiatric diagnostic information for the sample.

Table 2
Description of Psychiatric Characteristics of the Sample

	Frequency	Percent
Number of DSM-IV Axis I Diagnoses		
1	5	13.2
2	10	26.3
3	17	44.7
4	6	15.8
Primary DSM-IV Diagnosis		
Major Depressive Disorder	25	65.8
Dysthymic Disorder	2	5.3
Depressive Disorder NOS	3	7.9
Bipolar Disorder	1	2.6
Conduct Disorder	3	7.9
Oppositional Defiant Disorder	2	5.3
Post Traumatic Stress Disorder	1	2.6
Polysubstance Abuse	1	2.6
Co-morbidity		
Internalizing Only (I)	7	18.4
Externalizing Only (E)	2	5.3
Combination of I and E	29	76.3

3.3 Instrumentation

For all of the following measures a higher score is associated with more distress or pathology.

3.3.1 Diagnostic Interview: The Schedule for Affective Disorders and Schizophrenia for School-Aged Children (6-18 years) (K-SADS, Puig-Antich & Ryan, 1986)

The K-SADS is a semi-structured clinical interview that is designed to be administered to the child as well as his or her parent(s) and yields a measure of the presence, absence, and severity of symptoms of depression and other disorders. The interview yields DSM-IV diagnoses. The Present Episode version of the interview is used to rate the severity of current depressive symptomatology. Each depressive symptom is rated on a 0 to 5 or 0 to 7 severity scale. The ratings for each symptom can then be added to compute a total severity score reflecting current depressive symptomatology. This study utilized the child's report in order to assess current severity of depressive symptomatology. The K-SADS has acceptable interrater reliability; kappas ranging from .63 to 1.00 have been reported (Curry & Craighead, 1990). The depression scales have also shown adequate test-retest reliability ($r > .67$) and internal consistency ($r > .68$) (Chambers, Puig-Antich, Hirsch, Paez, Amrosini, Tabrizi, & Davies, 1985).

3.3.2 Measures Completed by Child

3.3.2.1 The Cognitive Triad Inventory for Children (CTI-C; Kaslow et al., 1992; see Appendix A)

The CTI-C is a downward extension of the CTI (Beckham et al., 1986) to assess the child's cognitive triad. The 36 item measure assesses the child's view of self (e.g., "I do well at many different things"), the world (e.g., "The world is a very mean place"),

and the future (e.g., “My problems and worries will never go away”). The items are rated on a 3-point likert scale, with half of the items worded positively and half worded negatively. The measure yields scores on three scales: view of the self, view of the world, and view of the future. A total score is obtained by summing the three subscale scores. This study utilizes the Total Score on the CTI-C in order to assess all three components of the child’s cognitive triad (view of self, world, and future). The CTI-C has been shown to have acceptable internal consistency reliability ($r=.92$) and adequate concurrent validity (Kaslow, Stark, Printz, Livingston, & Tsai, 1992). The View of Self subscale has been shown to correlate strongly ($r=.69$, $p<.001$) with The Coopersmith Self-Esteem Inventory and the View of Future subscale has been shown to correlate strongly ($r=-.68$, $p<.001$) with the Hopelessness Scale for Children. The CTI –C was used to create the Family Messages Measure, which was also used in this study and is described below (Lux, 1990). With the present sample, internal consistency reliability using coefficient alpha was .86 for the CTI-C total score.

3.3.2.2 The Family Messages Measure-Mother (FMM-M; Stark et al., 1996; Lux, 1990; See Appendix B)

The FMM-M is a 36 item instrument, derived from the CTI, which assesses the child's perceptions of the frequency of adaptive and maladaptive messages communicated by his or her mother. The items comprise three scales which measure the child’s perceptions of the message received from his or her mother regarding the child’s self (e.g., “My mother tells me that I can’t do anything right”), the world (e.g., “My mother believes that most people are friendly and helpful”) and the future (e.g., “My mother tells

me that things aren't going to get better"). Each message is rated by the child on a 3 point Likert-type format. A total score reflecting the total negative messages can be computed by summing the three scale scores. The total score on the FMM-M was utilized in this study as a measure of the construct of critical maternal messages as perceived by the child. The FMM-M has demonstrated acceptable internal consistency reliability ($r = .88$) (Stark et al., 1996). With the present sample, internal consistency reliability using coefficient alpha was .94 for the FMM-M total score.

3.3.3 Measure completed by mother

3.3.3.1 The Symptom Checklist 90-R (SCL-90R; Derogatis, 1994)

The SCL-90R is a brief, multidimensional self-report inventory designed to screen for a broad range of psychological problems and symptoms of psychopathology. The scale assesses severity of psychological symptoms across nine symptom dimensions, including Somatization, Obsessive-Compulsive, Interpersonal Sensitivity, Depression, Anxiety, Hostility, Phobic Anxiety, Paranoid Ideation, and Psychoticism. Only the primary symptom dimension of Depression is utilized in this study. This dimension consists of 13 questions which assess a representative range of depressive symptomatology (e.g., "Feeling Blue", "Feeling no interest in things", "Feelings of worthlessness"). Each symptom is scored on a 5 point likert-type scale. Raw scores are converted to standard (normalized) T scores using the Adult Non-patient Norm group. The measure has demonstrated acceptable internal consistency ($r = .90$) and test-retest reliability ($r = .82$) (Derogatis, Rickets & Rock, 1976). In addition, acceptable construct validity (Derogatis & Cleary, 1977), convergent-discriminant validity (Crown & Crisp,

1979; Derogatis, Rickels, & Rock, 1976), and concurrent validity (Peveler & Fairburn, 1990) have been reported. For example, high correlations have been shown between the Depression dimension of the SCL-90-R and two unidimensional depression instruments, the Beck Depression Inventory and the Asberg Rating Scale (Peveler & Fairburn, 1990). Correlations were .80 and .81, respectively.

3.4 Procedures

Upon admission to the residential treatment center, each adolescent and his or her parent was informed about the nature of the research project and invited to participate in the study. During intake, parental consent (see Appendix C) and child assent (see Appendix D) forms were reviewed and signed by those participants who voluntarily chose to participate. Specified procedures for research involving human subjects were carefully followed. Participants were told that they could discontinue the study at any time without any type of repercussion. Only mothers and children who both give their written permission were allowed to participate in the study. For those families interested in participating, the parent was given a copy of the SCL-90 during the admission process. The mother either completed the measure at the facility or was instructed to mail the completed measure back to the facility in an addressed, stamped envelope to the treatment center. Due to the relatively low response rate of maternal participation, research procedures were modified after the initiation of the study. During the K-SADS telephone interview with the parent, if the parent had not completed the SCL-90 previously, the measure was administered verbally to the mothers.

3.4.1 Diagnostic Interviewing

Within one week of admission, the child was interviewed regarding his or her psychiatric functioning with the K-SADS. All interviewers were blind to the child's psychiatric diagnosis. As part of the larger research project, mothers were also interviewed via telephone regarding the child's functioning. The diagnosis that was achieved through the K-SADS interview was compared to the psychiatric diagnosis that the child received upon admission. If differences arose between the in-take diagnosis and the K-SADS diagnosis, the interviewer discussed this discrepancy with the admitting psychiatrist and a consensus diagnosis was achieved. For the purposes of this study, only the child's severity ratings for depression symptoms were utilized. Prior to conducting actual interviews, interviewers were trained through didactic instruction, observation, and role playing until they reach a criterion of 90% agreement on symptom ratings. The interviews were audiotaped and one fourth of them were randomly selected and re-rated by graduate-level research assistants to ensure adequate inter-rater reliability.

3.4.2 Administration of Self-Report Measures

Within the week following admission to the residential treatment facility each adolescent completed, in counterbalanced order, a battery of self-report measures that included the CTI-C and the FMM-M. Mothers were requested to complete the SCL-90 at the time of their child's admission. A research assistant was present during the administration of all self-report measures to answer questions and to monitor the completion of the measures.

3.5 Statistical Methodology

As noted above, according to Baron and Kenny (1986) to establish mediation a series of regression models should be estimated. The following conditions must be true to establish the presence of a mediating variable:

First, the independent variable must affect the mediator in the first equation; second, the independent variable must be shown to affect the dependent variable in the second equation; and third, the mediator must affect the dependent variable in the third equation. If these conditions all hold in the predicted direction, then the effect of the independent variable on the dependent variable must be less in the third equation than the second. Perfect mediation holds in the independent variable has no effect when the mediator is controlled (pg. 1177).

Following this description of testing for mediation, the following steps were followed to test each hypothesis for the presence of a mediating variable.

Hypothesis a: Initially a linear regression equation was calculated which regressed the mediating variable on the independent variable. If this finding was significant ($p < .05$), hypothesis b was tested.

Hypothesis b: A second linear regression equation was calculated which regressed the outcome variable on the independent variable. If this finding was significant ($p < .05$), hypothesis c was tested.

Hypothesis c: A third regression equation was calculated which regressed the outcome variable on the mediating variable. For mediation to be possible, the mediating variable must significantly predict the outcome variable ($p < .05$).

Hypothesis d: If the conditions of hypothesis 1a, 1b, and 1c all hold in the predicted direction, then the child's score on the independent variable may be added to the

regression model. The effect of the independent variable must be substantially less in hypothesis c than hypothesis b.

If the above statistical analyses are significant in the predicted direction, then the results indicate the presence of a mediating variable.

Chapter 4

Statistical Analysis and Results

The purpose for the current study was to analyze the relationship between variables in a hypothetical model which links maternal depressive symptomatology and adolescent depressive symptomatology via perceived maternal messages and the child's view of self, world, and future. The results of the current study involved the computation of four mediational analyses as described by Baron and Kenny (1986). Mediational analyses allow for the examination of whether a variable is a mediator between an independent and dependent variable. According to Baron and Kenny (1986), "a given variable may be said to function as a mediator to the extent that it accounts for the relation between the predictor and criterion" (p. 1176). Mediation is tested by estimating a series of regression equations. A full mediator is a variable that is the underlying or intervening mechanism that is responsible for the relationship between the independent and the dependent variable. Full mediation is rare in the social sciences due to most phenomena having multiple mediating factors.

4.1 Preliminary Analyses

Preliminary analyses were performed to determine if there were outliers in the data, to verify that all respondents answered all items appropriately, and to ensure that underlying assumptions of regression were met. To examine the data, the means, standard

deviations, and response frequencies were analyzed for each item and the total scores of all measures. Means and standard deviations for each variable are reported in Table 3.

Table 3
Means and Standard Deviations of Measures

	<i>m</i>	<i>SD</i>
<i>Children</i>		
Family Messages Measure-Mother	60.37	14.58
Cognitive Triad Inventory- Children	20.45	14.61
K-SADS Depression	104.11	34.33
<i>Mothers</i>		
SCL-90	16.18	11.83

The data was also screened for skewedness. The results indicated that one variable, the Cognitive Triad Inventory for Children, needed to be transformed in order to obtain a more normalized variable. An appropriate transformation was completed on the Total Score of the CTI-C (square root transformation). In addition, due to seven cells not having a value on the K-SADS (“no information”), analyses with this variable were equated by taking the summed score for each participant, divided by the sum total of valid scores for that participant (valid proportion of summed scores).

The data was also screened for differences by age or gender across measures. The child participants were divided into two age groups: early adolescence (12 to 14 years) and middle adolescence (15 to 17 years old). Means and standard deviations by age groups are reported in Table 4 and means and standard deviations by gender are reported

in Table 5. Results of t-tests indicate that there were no significant differences across measures based on age or gender ($p > .05$).

Table 4
Means and Standard Deviations of Measures by Age Groups

	<i>n</i>	<i>m</i>	<i>SD</i>
<i>Children</i>			
Family Messages Measure-Mother			
Early Adolescence	16	59.02	12.86
Middle Adolescence	22	61.31	16.05
Cognitive Triad Inventory- Children			
Early Adolescence	16	20.06	15.83
Middle Adolescence	22	20.73	14.03
K-SADS Depression			
Early Adolescence	16	38.43	10.63
Middle Adolescence	22	35.83	12.24
<i>Mothers</i>			
SCL-90			
Early Adolescence	16	16.3	10.53
Middle Adolescence	22	16.05	12.93

Table 5
Means and Standard Deviations of Measures by Gender

	<i>n</i>	<i>m</i>	<i>SD</i>
<i>Children</i>			
Family Messages Measure-Mother			
male	15	55.27	11.32
female	23	63.70	15.71
Cognitive Triad Inventory- Children			
male	15	17.98	11.22
female	23	22.09	16.49
K-SADS Depression			
male	15	34.14	7.59
female	23	38.75	13.3
<i>Mothers</i>			
SCL-90			
male	15	16.4	13.15
female	23	16.04	11.21

In order to assist in understanding the results of the study and to check for multicollinearity a table of intercorrelations between all measures is provided in Table 6. The only two variables significantly correlated are the CTI-C and K-SADS. This table also indicates the direction of the relationship between variables.

Table 6
Pearson Correlations Among All Measures

	1	2	<i>2a</i>	<i>2b</i>	<i>2c</i>	3	<i>3a</i>	<i>3b</i>	<i>3c</i>	4
1. SCL-90	--	-.082	-.096	-.065	-.070	-.015	.070	-.136	.044	.150
2. FMM-M		--	.960*	.936*	.967*	.171	.107	.192	.180	-.091
<i>2a. Self</i>			--	.835*	.887*	.166	.113	.116	.186	-.058
<i>2b. World</i>				--	.880*	.127	.065	.167	.117	-.098
<i>2c. Future</i>					--	.190	.118	.245	.199	-.111
3. CTI-C						--	.939*	.892*	.865*	.570*
<i>3a. Self</i>							--	.785*	.749*	.544*
<i>3b. World</i>								--	.785*	.403*
<i>3c. Future</i>									--	.577*
4. K-SADS										--

* $p < .001$

4.2 Major Hypotheses

4.2.1 Question 1: Does the child's cognitive triad partially mediate the relationship between perceived critical maternal messages about the self, world, and future and the child's severity of depressive symptomatology?

Data Analysis:

Hypothesis 1a: Hypothesis 1a states that perceived critical maternal messages will significantly predict the child's cognitive triad, or views of self, world, and future. A linear regression equation was calculated which regressed the child's score on the CTI-C (mediating variable) on the total score of the FMM-M (independent variable). The r squared was not significant ($r^2 = .029$, $p = .303$). Since perceived critical maternal messages did not predict the child's cognitive triad, the first step in the mediational analysis was not found. Because there was no significant relationship between the independent variable (perceived critical maternal messages) and the mediator (child's cognitive triad), the hypothesized mediational sequence in Hypothesis 1 would not occur. Thus, **HYPOTHESIS 1:** The child's cognitive triad, as measured by the CTI-C, does not mediate the relationship between perceived critical maternal messages, as assessed by the FMM-M, and the child's severity of depression, as measured by the K-SADS.

4.2.2 Question 2: Do perceived critical maternal messages about the self, world, and future, partially mediate the relationship between the severity of depressive symptomatology in mothers and their children?

Data Analysis:

Hypothesis 2a: Hypothesis 2a states that mother's severity of depression will significantly predict perceived critical maternal messages. A linear regression equation was calculated which regressed the child's total score on the FMM-M (mediating variable) on the depression score of the SCL-90 (independent variable). The r squared was not significant ($r^2 = .007$, $p=.623$). Since mother's severity of depression did not predict perceived critical maternal messages, the first step in the mediational analysis was not found. Because there was no significant relationship between the independent variable (mother's severity of depression) and the mediator (perceived critical maternal messages), the hypothesized mediational sequence in Hypothesis 2 would not occur. Thus, **HYPOTHESIS 2:** Perceived critical maternal messages, as assessed by the FMM-M, does not mediate the relationship between severity of depressive symptoms in mothers, as assessed by the SCL-90, and severity of depressive symptoms in children, as assessed by the K-SADS.

4.2.3 **Question 3:** Do perceived critical maternal messages partially mediate the relationship between mother's severity of depressive symptomatology and the child's cognitive triad (views of self, world, and future)?

Data Analysis:

Hypothesis 3a: Hypothesis 3a states that mother's severity of depressive symptomatology will significantly predict perceived critical maternal messages. This is the same hypothesis as 2a. As noted above, when a linear regression equation was calculated which regressed the FMM-M (mediating variable) on the depression score of the SCL-90 (independent variable) the results were not significant ($r^2 = .007$, $p = .623$). Because there was no significant relationship between the independent variable (mother's severity of depression) and the mediator (perceived critical maternal messages), the hypothesized mediational sequence in Hypothesis 3 would not occur.

Thus, **HYPOTHESIS 3:** Perceived critical maternal messages, as assessed by the FMM-M, does not mediate the relationship between severity of depressive symptoms in mothers, as assessed by the SCL-90, and the child's cognitive triad, as assessed by the CTI-C.

4.2.4. **Question 4:** Does the child's cognitive triad (view of self, world, and future) partially mediate the relationship between mother's severity of depressive symptomatology and the child's severity of depression?

Data Analysis:

Hypothesis 4a: Hypothesis 4a states that Mother's severity of depressive symptomatology, as measured by the SCL-90, will significantly predict the child's cognitive triad, as measured by the Total Score on the CTI-C. A linear regression equation was calculated which regressed the child's score on the CTI-C (mediator) on the depression score on the SCL-90 (independent variable). The r squared was not significant ($r^2 = .000$, $p = .927$). Since mother's severity of depression did not predict the child's cognitive triad, the first step in the mediational analysis was not found. Because there is no significant relationship between the independent variable (mother's severity of depressive symptomatology) and the mediator (child's cognitive triad), the hypothesized mediational sequence in Hypothesis 4 would not occur.

Thus, HYPOTHESIS 4: The child's cognitive triad, as measured by the CTI-C, does not mediate the relationship between maternal depressive symptomatology, as measured by the SCL-90, and child's severity of depressive symptomatology, as assessed by the K-SADS-P.

4.3 Secondary Hypotheses

4.3.1 Remaining Hypotheses

All remaining regression equations which were not analyzed in hypotheses 1 to 4 due to the hypothesized mediational sequences not occurring were calculated.

Hypothesis 1b, 2b, 2c, 3b, and 4b were not significant ($p > .05$). Hypothesis 1c, which is also 4c, was significant.

Hypothesis 1c (& 4c): Hypothesis 1c stated that the child's cognitive triad will significantly predict the child's severity of depression. A regression equation was calculated that regressed the child's score on the K-SADS on the child's score on the CTI-C. Child's view of self, world, and future (cognitive triad) predicted child's severity of depression ($r^2 = .325$; $\beta = 4.2$, $CI_{95\%}: 2.1, 6.2$, $p < .0001$). Thus, the child's cognitive triad accounted for variance in the child's severity of depression score. A more negative view of self, world, and future, as defined by higher scores on the CTI-C, predict greater level of depression symptoms, as measured by the K-SADS.

4.3.2 Step-wise regression model

Due to the exploratory nature of the current study, a backwards regression model was tested to predict the child's severity of depressive symptomatology from all three predictor variables (maternal depressive symptomatology based on the SCL-90, perceived maternal messages based on the FMM-M, and the child's views of self, world, and future based on the CTI-C). The model this procedure supported indicated a one variable model of the Cognitive Triad Inventory for Children to predict severity of

depression based on the K-SADS ($\beta=4.2$, $CI_{95\%}$: 2.1,6.2, $p<.0001$). The SCL-90 and the FMM-M were removed because they did not add predictive power to the model. Thus, a more negative view of self, world, and future, as defined by higher scores on the CTI-C, predict a greater level of depression symptoms, as measured by the K-SADS. This finding is the equivalent of Hypothesis 1c noted above.

Chapter 5

Discussion

Utilizing mediational analysis this exploratory study investigated the relationship between variables in a hypothesized model associated with depression in mothers and their children. In this chapter the results of the current study are summarized. Each hypothesis is reviewed and the theoretical and clinical relevance of the study are discussed. Finally, the limitations of the study are discussed and proposals are made for future research.

5.1 Summary of Findings

The results of the current study did not demonstrate the proposed mediational relationships between variables in a hypothesized sequential model linking mother's severity of depressive symptomatology, critical maternal messages as perceived by the child, the child's cognitive triad (view of self, world, and future), and the child's severity of depressive symptomatology. Consistent with both Beck's (1967) cognitive theory of depression and previous research (Kaslow et. al, 1992; Stark, Schmidt, and Joiner, 1996), adolescents ratings of their views of self, world, and future (cognitive triad) were predictive of their severity of depressive symptoms. More negative views of self, world, and future predicted greater depression symptoms in adolescents. Other variables in the model, maternal depressive symptomatology and perceived critical maternal messages, were not predictive of depressive symptoms. In general, there was a relatively low level

of maternal depressive symptomatology endorsed by the mothers in the study. This is in sharp contrast to the relatively high level of depressive symptoms endorsed by the adolescents. Due to the limitations of the study which will be discussed below these results must be examined with caution.

5.2 Discussion of the findings of each hypothesis

This section describes the results of each hypothesis which was tested.

5.2.1. Hypothesis 1

The child's cognitive triad was not found to mediate the relationship between perceived critical maternal messages and the child's severity of depressive symptomatology. At odds with the criteria for both partial and complete mediation, perceived critical maternal messages were not predictive of either the child's cognitive triad or the child's severity of depression. As stated above, results did support that the cognitive triad is predictive of depression severity. More negative views of self, world, and future were predictive of more severe depression symptoms in adolescents.

Although the small sample size of the purely depressed group prohibited any statistical analyses between diagnostic groups, a review of the data does indicate that the highest CTI scores obtained in the sample were that of purely depressed youth.

Results of this hypothesis did not replicate previous research (Stark, Schmidt, & Joiner, 1996) which demonstrated that the cognitive triad fully mediated the relationship between perceived maternal messages and the child's severity of depression. It is important to note that the study completed by Stark and colleagues used a very different

sample: 133 school children in grades 4 to 7 who were in general education classes. In comparing the mean scores between this study and that obtained by Stark and colleagues (1996), the current sample presented with a higher level of depressed symptoms on the K-SADS (mean of 104 and 77, respectively), but relatively similar mean scores on both the CTI-C and FMM-M. Thus, it is possible that sample differences contributed to the lack of significant findings in the current study.

5.2.2. Hypothesis 2

Perceived critical maternal messages about the self, world, and future did not mediate the relationship between mother's severity of depressive symptomatology and the child's severity of depressive symptoms. At odds with the criteria for both partial and complete mediation, maternal depressive symptomatology was not predictive of either perceived critical maternal message or the child's severity of depression. A comparison of raw score means between the current study on the SCL-90 Depression Dimension and the norm groups for the measure reveal that the level of depression endorsed by the mothers in the study (1.24) was between that of the non-patient norm group (.46) and the psychiatric outpatient norm group (1.94) (Derogatis, 1994). The relatively low level of depression symptoms endorsed by the mothers is surprising given the severity of pathology endorsed by the youth in the study. As noted above, perceived critical maternal messages were also not predictive of the child's severity of depression.

5.2.3. Hypothesis 3

Perceived critical maternal messages did not mediate the relationship between mother's severity of depressive symptomatology and the child's cognitive triad. At odds with the criteria for both partial and complete mediation, mother's severity of depressive symptomatology was not predictive of either perceived critical maternal message or the child's cognitive triad. As stated above, perceived critical maternal messages about the self, world, and future were also not predictive of the child's views of self, world, and future (cognitive triad).

5.2.4. Hypothesis 4

The child's cognitive triad did not mediate the relationship between mother's severity of depressive symptomatology and the child's severity of depression. At odds with the criteria for both partial and complete mediation, mother's severity of depressive symptomatology was not predictive of either the child's cognitive triad or the child's severity of depression. In addition, as stated above, the child's cognitive triad was found to be predictive of the child's severity of depression.

5.2.5. Stepwise regression model

When all three predictor variables (maternal depressive symptomatology, perceived critical maternal messages, and the child's cognitive triad) were included in a backwards regression model to predict the child's severity of depression, the model supported included only the variable of the child's cognitive triad as an accurate predictor of the child's level of depression.

5.3 Theoretical and Clinical Implications

While numerous studies have demonstrated that the children of depressed mothers are significantly at risk for developing a depressive disorder (Beardslee et al., 1985; Beardslee et al., 1993; Cytryn et al., 1982; Downey & Coyne, 1990; Hammen, 1991; Hammen et al., 1990; Klein et al., 1988; Orvaschel et al., 1988; Welner & Rice, 1988; Welner et al., 1977), few studies have investigated the possible mechanisms which may be responsible for this risk (Burbach & Borduin, 1986; Conrad & Hammen, 1989; Cummings & Davies, 1994; Dodge, 1990; Downey & Coyne, 1990; Gordon et al., 1989;

Hammen, 1991; Hammen et al., 1991; Hammen et al., 1990; Jaenicke et al., 1987).

Depressed mothers have been shown to have more negative interaction patterns with their children (Gordon et al., 1989; Hammen et al., 1987; Jaenicke et al., 1987; Swartz et al., 1990; Webster-Stratton & Hammond, 1988) and their higher level of criticism has been associated with depressive outcomes in children (Burge and Hamilton in 1991; Swartz et al., 1990). Empirical evidence is also starting to accumulate that associates critical family communication patterns with a child's cognitive vulnerability to depression (Jaenicke et al., 1987; Stark et al., 1996).

Given the significant risks that maternal depression presents to their offspring, the current study was an exploratory investigation which sought to examine the relationship between variables in a hypothetical model linking maternal depressive symptoms with the child's level of depression via perceived communicated maternal messages and the child's cognitive triad. Although the findings did not support the hypothesized model, the importance that this type of research may ultimately have on the prevention of depression in children should not underestimated. Although the theoretical and clinical implications of the current study are limited by the lack of significant results, it is important to note that the null findings do not necessary prove that the hypothesized model does not have merit. In addition, the findings are consistent with Beck's cognitive theory of depression in that depressive symptomatology is associated with more negative views of self, world and future. This is one of the first times this relationship has been shown to exist in an in-patient psychiatric adolescent population. The current study is unable to untangle whether these pessimistic thinking patterns are an artifact of the

depressive disorder itself or whether depressogenic cognitions serve as a contributor to a child's vulnerability to depression. If the following is the case, then prevention and intervention efforts should be targeted at helping children at risk for depression to more positively evaluate themselves, the world, and the future. Similarly, if parental criticism is shown to be a risk factor in children developing depression, intervention efforts with depressed parents should focus on improving their verbal and non-verbal communication patterns with their children. Clearly family intervention is a critical treatment component of youth in psychiatric settings (Hyland, 1990)

5.4 Limitations and directions for future research

The primary limitation of the hypothetical model being investigated is that it assumes a relationship that is unidirectional in nature. Any complete model to account for the relationship between depression in mothers and their children must take into account the reciprocal nature of depression in families (Cummings & Davies, 1994; Gordon et al., 1989; Hammen, 1990; Hammen et al., 1991; Hops, 1992; Keitner & Miller, 1990; Stark et al., 1991; Teichman, 1989), as well as numerous other psychosocial and biological variables. However, only a costly observational procedure that is longitudinal in nature would be able to capture the entire systemic process involved in the intergenerational transmission of depression. Since research in this area is so limited, a natural first step was to complete the type of exploratory investigation of the current study.

The current sample presented with an extremely complex psychiatric diagnostic picture which is not surprising given the high rate of co-morbidity among children and adolescents with depression (Hammen et. al, 1990). The vast majority of the sample presented with both an internalizing disorder and an externalizing disorder. The effect of this level of pathology and co-morbidity on the results of the study may have contributed to the lack of significant results.

Another significant limitation of the current sample is its size. Null findings in the study may be attributable to a lack of power rather than to the hypotheses not being valid. Power analysis information suggests that a sample size of at least 100 participants would have been desirable.

Sample size was especially hindered by a poor response rate by the mothers participating in the study. Although research procedures were modified in an attempt to increase the return rate of the maternal measure, the sample size is still relatively small. It is possible that there was a bias in the return pattern of parent measures. Given the relatively low rate of depression symptoms endorsed by the mothers in the study, it is possible that mothers with depression failed to return the measure. This would not be surprising due to the effects that depressive disorders have on cognitive processes and motivational behaviors. In addition, although speculative, the ratings of depression symptoms may have been attenuated due to the effects of their children having just entered residential treatment. Since the SCL-90 measures psychiatric symptoms only within the last week, ratings on this measure might be sensitive to environmental events, especially those as significant as a child entering residential treatment. Although little

research has been done investigating the changes that occur in family systems when a member has a physical or emotional illness, theoretically it is believed that family systems change in response to crises (Olson, 1993). This may especially be true since adolescents entering psychiatric treatment are often viewed by others in their life, especially family members, as being “the problem” (Hyland, 1990). If “the problem” is removed from the family system, changes in family structure will result. Thus, it is possible that maternal depression ratings were attenuated due to the mothers feeling a sense of relief that their children were finally getting the help they needed. For example, Hyland (1990) has argued that “parents may react to their child’s admission with the feeling that they can finally relax for the first time in several weeks or months, knowing that their son or daughter is being supervised as safely as possible”. Another possibility is that some of the mothers who completed the measure may have experienced some level of resentment or insecurity due to them being asked to complete a measure on their own level of emotional functioning when they themselves were not the patient. Providing a financial incentive to mothers in the study may have been the best way to increase maternal participation. In addition, it may have been helpful if a research assistant was actually present during the child’s admittance into the treatment facility. Having personal contact with the research team may have encouraged participation.

To investigate the validity of the proposed hypothetical model linking depression in mothers and children via perceived maternal messages, future research should include a large enough sample size so that structural equations modeling would be possible. This statistical procedure would allow for the relationship among all variables in the

hypothesized model to be investigated. Given the high level of co-morbidity of the current in-patient sample, future research should test the model in a school population where there are likely more purely depressed adolescents as well as children who do not present with any psychiatric disorders. A multiple-gate assessment procedure such as the one used by Stark and colleagues (1996) would help to identify children with a wide range of depressive symptomatology. In addition, if the model was tested in a school population the effects of entering residential treatment would not be a possible contaminant to the data. Including an interaction task between mother and child, such as the one used by Jaenicke and colleagues (1987), would be a way to obtain an actual estimate of the mother's level of criticism rather than relying on a measure of perceived critical maternal messages.

Although the results of the current study did not provide evidence of hypothetical links between maternal depression and childhood depression via perceived critical maternal messages, the limitations noted above indicate that these findings do not necessarily disprove the hypothesized model. Theories have long suspected that children's depressogenic cognitions stem, in part, from negative interactions with their families. Empirical work has only recently started investigating the links between parent-child interactions and a child's cognitive vulnerability to depression. Given the number of women who are depressed and the magnitude of the risk to their children, this area of developmental psychopathology definitely deserves more study.

Appendix A

The Cognitive Triad Inventory for Children

CTI-Children

Instructions: Circle the answer which best describes your opinion. Choose only one answer for each idea. Answer the items for what you are thinking RIGHT NOW. Remember fill this out for how you feel today.

- | | | | |
|---|-----|-------|----|
| 1. I do well at many different things | Yes | Maybe | No |
| 2. Schoolwork is no fun. | Yes | Maybe | No |
| 3. Most people are friendly and helpful. | Yes | Maybe | No |
| 4. Nothing is likely to work out for me. | Yes | Maybe | No |
| 5. I am a failure. | Yes | Maybe | No |
| 6. I like to think about the good things that will happen for me in the future. | Yes | Maybe | No |
| 7. I do my schoolwork okay. | Yes | Maybe | No |
| 8. The people I know help me when I need it. | Yes | Maybe | No |
| 9. I think that things will be going very well for me a few years from now. | Yes | Maybe | No |
| 10. I have messed up almost all the best friendships I have ever had. | Yes | Maybe | No |
| 11. Lots of fun things will happen for me in the future. | Yes | Maybe | No |
| 12. The things I do everyday are fun. | Yes | Maybe | No |
| 13. I can't do anything right. | Yes | Maybe | No |
| 14. People like me. | Yes | Maybe | No |
| 15. There is nothing left in my life to look forward to. | Yes | Maybe | No |
| 16. My problems and worries will never go away. | Yes | Maybe | No |
| 17. I am as good as other people I know. | Yes | Maybe | No |
| 18. The world is a very mean place. | Yes | Maybe | No |
| 19. There is no reason for me to think that things will get better for me. | Yes | Maybe | No |
| 20. The important people in my life are helpful and nice to me. | Yes | Maybe | No |
| 21. I hate myself. | Yes | Maybe | No |
| 22. I will solve my problems. | Yes | Maybe | No |

23. Bad things happen to me a lot.	Yes	Maybe	No
24. I have a friend who is nice and helpful to me.	Yes	Maybe	No
25. I can do a lot of things well.	Yes	Maybe	No
26. My future is too bad to think about.	Yes	Maybe	No
27. My family doesn't care what happens to me.	Yes	Maybe	No
28. Things will work out okay for me in the future.	Yes	Maybe	No
29. I feel guilty for a lot of things.	Yes	Maybe	No
30. No matter what I do, other people make it hard for me to get what I need.	Yes	Maybe	No
31. I am a good person.	Yes	Maybe	No
32. There is nothing to look forward to as I get older.	Yes	Maybe	No
33. I like myself.	Yes	Maybe	No
34. I am faced with many difficulties.	Yes	Maybe	No
35. I have problems with my personality/	Yes	Maybe	No
36. I think that I will be happy as I get older.	Yes	Maybe	No

Appendix B

The Family Messages Measure – Mother

Family Message Measure - Mother

Instructions: Carefully read each item below and indicate how often you hear these kinds of messages in your home.

1. My mother tells me that I'm good at different things.	Never	Sometimes	Always
2. My mother says that schoolwork is something that must get done.	Never	Sometimes	Always
3. My mother believes that most people are friendly and helpful.	Never	Sometimes	Always
4. Nothing I do seems to satisfy my mother.	Never	Sometimes	Always
5. My mother tells me that I'm a failure.	Never	Sometimes	Always
6. When I talk with my mother about the future, it looks bright.	Never	Sometimes	Always
7. I hear my mother say that I do well at school.	Never	Sometimes	Always
8. My mother tells me that she will help me whenever I need it.	Never	Sometimes	Always
9. My mother tells me that I will do well in the future.	Never	Sometimes	Always
10. My mother wonders how anyone could be friends with me.	Never	Sometimes	Always
11. My mother tells me that being grown up is no fun.	Never	Sometimes	Always
12. My mother tells me that I can have an enjoyable future.	Never	Sometimes	Always
13. My mother tells me that I can't do anything right.	Never	Sometimes	Always
14. My mother wonders how anyone could like me.	Never	Sometimes	Always
15. My mother tells me that I have a limited future.	Never	Sometimes	Always
16. My mother tells me that my problems and worries will never go away.	Never	Sometimes	Always
17. My mother tells me that I'm as good as or better than my friends.	Never	Sometimes	Always
18. My mother tells me that the world is a very mean place.	Never	Sometimes	Always
19. My mother tells me that things aren't going to get any better.	Never	Sometimes	Always

20. My mother is helpful and nice to me.	Never	Sometimes	Always
21. My mother tells me that you shouldn't like most people who aren't good at most things.	Never	Sometimes	Always
22. My mother tells me that I am incapable of solving my own problems.	Never	Sometimes	Always
23. My mother wonders why so many bad things happen to me and nobody else.	Never	Sometimes	Always
24. My mother tells me that I have nice and helpful friends.	Never	Sometimes	Always
25. My mother tells me that I can do a lot of things well.	Never	Sometimes	Always
26. My mother tells me that unless I change, my future is bleak.	Never	Sometimes	Always
27. My mother tells me to do whatever I want because it doesn't matter to her.	Never	Sometimes	Always
28. My mother tells me that I can always work things out.	Never	Sometimes	Always
29. My mother tells me that I should be ashamed of myself for doing bad things.	Never	Sometimes	Always
30. My mother says that no matter what I do, other people will always get in the way.	Never	Sometimes	Always
31. My mother tells me that I am a good person.	Never	Sometimes	Always
32. My mother tells me that it is no fun being an adult.	Never	Sometimes	Always
33. My mother tells me that I am a likeable person.	Never	Sometimes	Always
34. My mother says that if there wasn't something wrong with me, I would have more friends.	Never	Sometimes	Always
35. My mother tells me that I have some personality problems.	Never	Sometimes	Always
36. My mother tells me that I will continue to be happy as I get older.	Never	Sometimes	Always

Appendix C
Parental Consent Form

Cognitive, Interpersonal and Family Variables in Depressive and Disruptive Behavior Disorders

Parental Consent Form

As part of our commitment to maintaining an effective treatment facility, we have begun an ongoing evaluation of the treatment program and additional studies of the relationship between thoughts, feelings, and interpersonal behaviors, and psychological disorders in children and adolescents. These studies are a collaborative effort between Meridell Achievement Center and Kevin Stark Ph.D. a researcher from The University of Texas and his Graduate Research Assistants.

You and your child are invited to participate in a study of the relationship between thoughts, feelings, interpersonal behaviors and psychological disorders in children and adolescents. We are researchers at The University of Texas at Austin, Department of Educational Psychology. You were selected as a possible participant in this study because you and your child have sought child psychological treatment services from Meridell Achievement Center. You and your child/adolescent will be one of 120 patients chosen to participate in this study.

Should you decide to participate, a researcher from the University of Texas will ask you and your child to participate in a semi-structured diagnostic interview regarding your child's feelings and behavior in order to gain a clearer understanding of the difficulties your child has been experiencing. For each of you, the interview should take, at most, an hour to complete. You and your child will also be asked to complete a number of questionnaires regarding your child, your family, and yourselves. Your child will be asked to complete a questionnaire that assesses his or her self-perceptions, things in general, and the future (Cognitive Triad Inventory), a questionnaire about thoughts he or she has (Automatic Thoughts Questionnaire), a questionnaire about his or her expectations for the future (Hopelessness Scale), a questionnaire that assesses your child's thoughts about what causes good and bad things to happen (KASTAN CASQ-R), a questionnaire about social skills (MESSY), a questionnaire about his or her perceptions about how the family works (Self-Report Measure of Family Functioning), and a questionnaire about his or her perception of messages that parents communicate about him/her, things in general, and the future (Family Messages Measure). In addition, your child will be asked to complete a story telling entitled the Thematic Apperception Test. The individual that gave you the form to read has copies of all of the materials available for your review at this time as well as any time in the future. You would be asked to complete a questionnaire about your own emotional well-being (Symptom Checklist 90-R), a questionnaire about your own thoughts about yourself, things in general, and the future (Cognitive Triad Inventory), and a questionnaire about your perceptions about the way your family functions (Self Report Measure of Family Functioning). You and your child may complete the interview and questionnaires in more than one session. In sum, it

would take you approximately 1.5 hours to complete the interview and the measures and a total of 2.0 to 2.5 hours for your child to complete the interviews and measures. The interview, questionnaires, and story telling task are common used to evaluate the emotional functioning of youths and adults. They have been completed by hundreds of individuals without any adverse effects. If your child should have a reaction to any of the measures, a trained research assistant and a member of the treatment staff at Meridell would address your child's concerns. This study will be beneficial in that it should serve to identify psychosocial factors relevant to psychological disorders in children and adolescents, an area largely unexplored to date. Any information in connection with this study that can be identified with you will remain confidential and will be disclosed only with your permission. If your child reports that he or she is being hurt by someone, is planning on hurting someone, or is going to hurt him or herself, than this information will be communicated to the proper authorities. With your permission, the research will share treatment relevant with the professional staff who are directly responsible for your child's treatment.

For research purposes, we would like your permission to audiotape the interviews. The tapes are used to determine whether the interview was administered correctly. The tapes will be kept in a locked file cabinet without any identifying information on them and they will be erased once the study has been completed.

Your decision whether or not to participate will not prejudice your future relations with the University of Texas or Meridell Achievement Center. If you decide to participate, you are free to discontinue participation at any time without prejudice. Should you decide to allow your child or adolescent, he/she will also have a chance to decide whether or not to participate.

If you have any questions, feel free to ask us now. Should you have any additional questions about you or your child's participation or the research study, feel free to contact the faculty sponsor, Dr. Kevin Stark to ask any questions you might have. Dr. Stark can be reached by telephone at 512-471-4407, or in writing: SZB 504, The University of Texas at Austin, Austin, Texas 78712.

You will be offered a copy of this form to keep.

**Cognitive, Interpersonal and Family Variables in Depressive
and Disruptive Behavior Disorders**

Parental Consent Form

You are making a decision whether or not your child may participate. Your signature indicates that you have read the information provided and have decided to participate and to allow your child to participate should (s)he chose to. By signing this form you are agreeing to participate both by completing the questionnaires and the clinical interview; you are also giving permission for the interview to be audiotaped. You may withdraw at any time without prejudice after signing this form, should you choose to discontinue participation in this study.

_____ Yes, I am giving my permission for my child and I to participate in this study.

_____ No, I am not giving my permission for my child and I to participate in this study.

_____ Yes, I am giving my permission for the research staff to share information gained through the research project which is relevant to my child's treatment with the professional staff who are directly responsible for my child's treatment.

_____ No, although I am consenting to participate in the research study and giving permission for my child to participate in the research study, I DO NOT want information gained through the research to be shared with anyone, including the professional staff directly responsible for my child's treatment.

Signature of Parent or Legal Guardian

Date

Signature of Staff or Researcher

Date

Appendix D
Child Consent Form

Child/Adolescent Assent Form

I agree to participate in a study that is interested in evaluating the relationship between thoughts, feelings, and interpersonal behaviors in children and adolescents. I understand that this study has been explained to my parent or guardian and that he or she has given permission for me to participate. I understand that I may decide at any time that I do not wish to continue the study and that it will be stopped if I say so. Information about what I say and do will not be given to anyone else unless I say so. However, I do understand if I say so, some of the information that I provide will be given to the people directly involved with my treatment at Meridell, such as my case supervisor, individual therapist, and/or family therapist.

I understand that I will be asked to complete an interview about my current feelings, behaviors, and thoughts as well as a number of questionnaires about myself and my family. I understand that by signing this form I'm giving permission for the interview to be audiotaped for research purposes and that these tapes will be erased as soon as the study is completed.

I understand that nothing bad or wrong will happen to me if I decide to stop my participation in this study at any time. When I sign my name to this page I am indicating that this page was read to me and that I am agreeing to participate in this study. I am indicating that I understand what will be required of me and that I may stop my participation at any time.

Child/Adolescent Signature

Date

Staff/Researcher Signature

Date

Check One:

Yes, I want information I give to be shared with the people responsible for my treatment at Meridell.

No, I DO NOT want information I give to be shared with the people responsible for my treatment at Meridell.

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