

Maternal Depression and Child Development

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Introduction

Children of depressed parents are at increased risk for the development of psychopathology (Beardslee, Bemporad, Keller & Klerman, 1983; Downey & Coyne, 1990; Orvaschel, 1983). They are found to be two to five times more likely to develop behavior problems than children of normal parents (Welsh-Allis & Ye, 1988; Weissman *et al.*, 1984), with even higher rates of disorder reported in some studies (Fendrich, Warner & Weissman, 1990; Hammen, Burge & Stansbury, 1990; Weintraub, Winters & Neale, 1986).

Until recently, research focused on discovering the genetic and biological causes, under the assumption that biological structures contained within the individual largely accounted for the transmission of psychopathology from one generation to the next (Mullan & Murray, 1989). Twin and adoption studies provide evidence of genetically-based risk (Akiskal & McKinney, 1975; Cadoret, 1978; Kashani *et al.*, 1981; Nolen-Hoeksema, 1987; Tsuang, 1978). Also suggestive are findings that as early as the neonatal period children of depressed parents more often have difficult temperaments (Weissman *et al.*, 1986; Zuckerman & Beardslee, 1987), exhibited by social unresponsiveness, low activity, negative emotion, irritability and hypersensitivity (Field, 1992; Garrison & Earls, 1986; Sameroff, Seifer & Zax, 1982).

However, biological models can only partially explain the association between depression in parents and maladjustment in children (Cadoret, O'Gorman, Heywood & Troughten, 1985; Cohn, Matias, Tronick, Connell & Lyons-Ruth, 1986; Reiss, Plomin & Hetherington, 1991). For example, children of depressed parents are not only at specific risk for clinical depression, but are at increased risk for a full range of problems of adjustment, including externalizing as well as internalizing problems (Downey & Coyne, 1990). Moreover, little that is specific and conclusive is known of the biological transmission of depression from mother to child (Field, 1992). For example, no single gene or polygenic site responsible for inheritance has been identified.

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Early-appearing difficult temperaments, alternatively, could reflect prenatal or perinatal correlates of maternal depression, such as elevated intrauterine hormones (e.g. catecholamines), alcoholism, drug abuse, inadequate weight gain and birth complications (Dodge, 1990; Field, Healy, Goldstein & Guthertz, 1990; Zuckerman & Beardslee, 1987). More complex explanations than simply a biological model are required to account for children's risk in families with parental depression.

The study of contextual and environmental risk factors associated with depression in families is an important, emerging direction in research (Dodge, 1990; Downey & Coyne, 1990; Reiss *et al.*, 1991; Rutter, 1990). Instead of focusing on biological and intrapersonal factors, environmental approaches place emphasis on identifying interactional and interpersonal mechanisms linked with parental depression. Consistent with the growing interest in environmental perspectives, this review will emphasize familial factors and processes implicated in relations between parental depression and child psychopathology, recognizing that biological factors, which are beyond the scope of the present paper to review, are also elemental to a complete explanation.

This review updates this literature, and articulates some directions for future research. While the focus is on mothers' depression, consistent with the research in the area, this is not to exclude the importance of fathers' depression. A gap that can be identified at the outset is the need for more studies of fathers' depression (Downey & Coyne, 1990).

The Family as a Context

Research comparing rates of global, diagnostic disorders in children of depressed parents versus rates in children from other, including normal, groups, congenitally documents the increased risk for psychopathology in children of depressed parents (LaRoche, 1989). However, the finding of an association between parental depression and child maladjustment is not adequate justification to conclude that depression in parents "causes" child psychopathology. Diagnostic status does not directly influence development, and is no more than a marker variable for the actual processes behind associations.

Notably, children of depressed parents may develop psychopathology or, alternatively, become well- or even high-functioning individuals. While children of depressed parents are *at risk* for maladaptive outcomes in a probabilistic sense, a concern with psychopathology should not obscure the fact that many children from at-risk environments develop adaptively and competently (Garnezy & Masten, 1991), and the full range of outcomes needs to be accounted for in a complete model of family effects.

The notion that depressed families present a homogeneous environment to the child is of limited value to the prediction of child outcomes, and, relatedly, does not constitute a sophisticated picture of clinically-relevant processes and trajectories. Thus, Rutter and Quinton (1984, p. 866) state "for the most part, parental mental disorder does not give rise to an increased risk for the children that is independent of the family's psychosocial circumstances as a whole. Rather it should be seen as one of several psychosocial risk factors that are more damaging in combination than in isolation."

Rutter and Quinton (1984) also articulate several of the possible pathways relating parental depression to child disturbance. In addition to genetic transmission, additional pathways include: (a) depression exerts its adverse impact on child functioning indirectly through disturbances in parent-child relations; (b) parental depression leads to family disruption (e.g. foster care placement; break-up of the family), and these difficulties, in turn, lead to child psychopathology; and (c) marital discord, a correlate of depression, causes psychological problems.

The impact of parental depression thus must be considered within a larger family context of interdependent elements and processes. There have been increasing calls for more complex, process-oriented studies of the effects of family depression on children (e.g. Coyne, Downey & Boergers, 1992; Hammen, 1992a; Rutter, 1986a,b). For example, a whole section of the January 1990 *Developmental Psychology* issue was devoted to possible mechanisms underlying the link between parental depression and child psychopathology. As Dodge (1990, p. 3) noted "Whereas numerous studies have empirically documented the risks accruing to these children, relatively few studies have focused on building a theory of the processes and mechanisms that are responsible." Beardslee (1986, p. 190) echoed this emphasis ". . . there is much to be learned in studying dimensions besides the presence or absence of diagnoses in these children. The study of adaptation is one such dimension . . .".

The present review considers several major categories of specific influences in families with parental depression and their interrelations. The review is organized within a conceptual framework, which is illustrated in Fig. 1. The model proposes that family-related influences of maternal depression on children include: (a) parental characteristics; (b) parent-child relations; and (c) marital functioning, with each of these factors, in turn, affecting the others, and with certain extra-familial factors (e.g. SES) also affecting the family system. In addition, the child's own characteristics are seen as important, with a bi-directional pattern of influence between the child and the broader family system. In particular, child characteristics have possible effects on the mothers' mental state. Further, we propose that these factors influence the child through the operation of certain specific processes and mechanisms, with these processes in some cases being multiply determined. As the figure illustrates, child development outcomes are seen as a product of interactions between child characteristics and family influences. The treatment of topics in this review closely follows this outline. Finally, in closing, some methodological and conceptual directions for future research are mapped out.

Depression and Parental Characteristics

Parental depression might impact on children as a result of how the depression affects the behavior, cognitions and/or emotions of the parent. With regard to models of causal process within families with depression, this is the most direct and unambiguous pathway through which parental characteristics associated with mental health disturbances of depression can exercise influence on child development. As shown in Fig. 1, parental characteristics of depression might directly impact children, for example, through the emotional unavailability and thinking processes of depression.

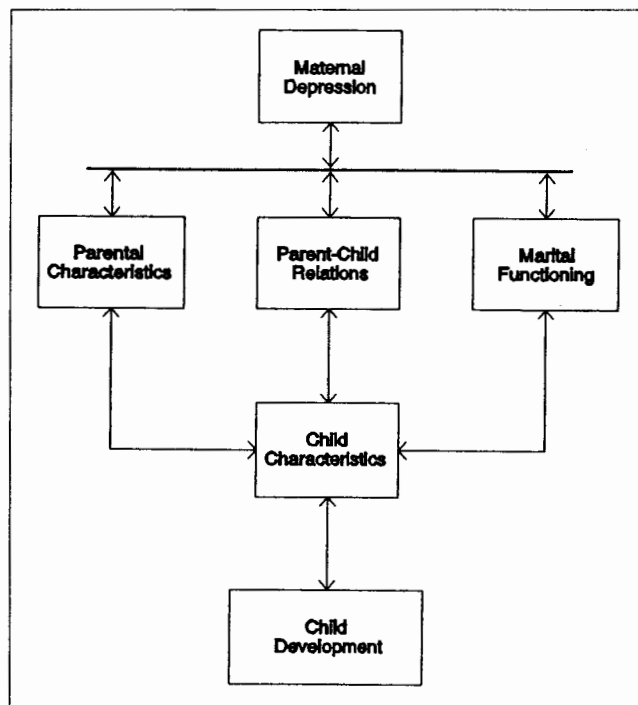


Fig. 1.

More indirectly, parental characteristics of depression might affect children by altering patterns of parent-child interaction (e.g. child-rearing practices, quality of attachment), or by increasing marital discord, which has been shown to have, in itself, potentially negative effects on child development (e.g. Emery, 1982; Grych & Fincham, 1990).

Behavioral and emotional patterns of depression

Depressed persons evidence distinctive patterns of emotional and behavioral expressions (e.g. Beck, 1976). Depressed parents' symptomatology may carry over into their behavior in the presence of or interaction with their children, although here, as elsewhere, the link is probabilistic rather than certain, with some depressed parents evidencing little or no disruption in behavior towards their children.

Depressed parents have been reported to be more negative, unsupportive and intrusive with their children when compared to both well parents and groups of medically ill control parents (Field *et al.*, 1990; Gordon *et al.*, 1989; Tronick, 1989; Zajicek & DeSalis, 1979). For example, Cox, Puckering, Pound and Mills (1987) found that, in comparison to nondepressed mothers, depressed mothers of 2-year-olds exhibited greater criticism, disengagement, lack of responsivity to the child's cues, and less warmth. As another example, Stein *et al.* (1991) reported that maternal depression during the first year post-partum was linked with subsequent maternal difficulties in communicating and listening to the child at 19 months of age.

While an "internalizing" profile is characteristic of depression, depressive symptomatology is, in fact, heterogeneous. High levels of irritability and aggression are also manifested during depressive episodes (Weissman & Paykel, 1974). Thus, depressed mothers are more likely to be critical, including scolding and nagging, and physically abusive than nondepressed mothers (Burbach & Borduin, 1986; Panaccione & Wahler, 1986; Webster-Stratton & Hammond, 1988). Cox *et al.* (1987) reported that depressed mothers more often engaged in escalating cycles of coercion, and were less likely to use explanations, persuasion and reasoning in their attempts to manage their children.

Particularly intriguing are studies that directly demonstrate the impact on children of the affective behavior associated with depressive symptomatology in parents. For instance, in face-to-face interactions maternal displays of negativity, intrusiveness and withdrawal have been shown to elicit responses of anger, reduced activity, dysphoria and social withdrawal from infants (Cohn & Campbell, 1992; Cohn & Tronick 1983; Field *et al.*, 1990; Zekoski, O'Hara & Wils, 1987). Prolonged exposure to such interactions has been linked with the development of depressive behavioral styles observed in contexts outside of mother-infant interactions (Cohn, Campbell, Matias & Hopkins, 1990; Field *et al.*, 1988).

Emotional insensitivity by the parents has been linked with behavior problems in children, including externalizing disorders of aggression and acting out (Olweus, 1980, 1984; Parke & Slaby, 1983; Patterson, 1982, 1983; Rohner & Rohner, 1980), and internalizing disorders of withdrawal, anxiety and passivity (LaFreniere & Dumas, 1992; Petit & Bates, 1989; Rohner & Rohner, 1980). Further, some investigators have proposed explicit pathways whereby parental depression leads to parental rejection and hostility toward the child, which in turn, results over time in increased risk for depression in children (e.g. Hammen, 1988).

The impact of parental behaviors on children's affective functioning is an issue of particular interest, given that depression is, in part, a disorder of affect regulation and control. The impact of parental emotional insensitivity and unavailability may be especially great in infancy. Insensitive parental behavior induces anger, distress, high activity, physiological arousal, and other indicators of affective dysregulation in infants (Field, 1987). Tronick (1989) argues that the parent's behavior in interaction with the child in the first couple of years importantly influences the child's emerging capacities to regulate emotion and arousal. Warm, responsive and sensitive behavior by parents in interaction with infants provides an optimal context within which infants can learn to effectively regulate their arousal. On the other hand, intrusive, hostile and insensitive parental behavior is excessively challenging and negatively arousing for children, interfering with children's emerging capacities to modulate and regulate arousal.

Cummings and Cicchetti (1990) have speculated that over time exposure to such parental behaviors may result in more general effects, such as children learning to perceive their parents and even the larger social world as a threat to their own emotional and behavioral well-being, with one possible consequence being that their arousal systems become sensitized to some or all potentially stressful or challenging social contexts. In fact, links have been demonstrated between maternal depression, aversive mother-child interactions, and infant sympathetic arousal and lower vagal tone (see

Field, 1989). However, the specific processes whereby repeated arousal might lead to sensitization are not well understood as yet (see a discussion and review in Cummings & Zahn-Waxler, 1992).

Alternatively, but also pertinent to issues of children's development of patterns of affect expression and regulation, children of depressed parents may resort to social withdrawal to avoid an aversive state of dysregulation associated with insensitive or unresponsive parenting. Due to the successful dampening effect on the arousal system of withdrawal, children may come to rely exclusively and inflexibly on social withdrawal in almost any social context (Tronick & Gianino, 1986). Sensitization may again be a key process, but in this instance children may resort to a coping strategy of "internalization" rather than "externalization" (Field, 1989). Over time this style of coping could contribute to a broader pattern of dysphoria and social unresponsiveness in children that places them at risk for developing a constellation of symptoms linked with depression and other internalizing disorders.

Finally, mimicry or imitation of the depressed mothers' dysphoria, hostility and withdrawal may also contribute to the development of infant affective disturbances if these behaviors over time become a consistent style or pattern of expression (Cicchetti & White, 1988; Cummings & Cicchetti, 1990; Field, 1987, 1989). Alternatively, children may develop externalizing disorders through modeling processes by imitating the hostile and irritable behaviors of depressed parents (Downey & Coyne, 1990).

Cognitive Patterns of Depression

Differences in cognitive and social-cognitive patterns in comparison to nondepressed individuals are also defining features of depression. Negative social cognitions, altered appraisal processes, lowered self-esteem, reduced sense of control, and unrealistic expectations, in particular, typify the depressed individuals' thinking processes (e.g. Beck, 1976; Peterson & Seligman, 1984; Seligman *et al.*, 1988). Within the family the negative social-cognitive processes of depressed parents may shape and organize their responses to child behavior. As a general point, parents who hold relatively negative perceptions, thoughts and interpretations of themselves and their children are at increased risk for responding in a maladaptive way to their children's behavior (see Dix, 1991; Dix & Lochman, 1990; Dix, Ruble & Zambarano, 1989). With regard to maternal depression, research indicates direct links between maternal depression, negative cognitions and parenting impairments (Christensen, Phillips, Glasgow & Johnson, 1983; Sameroff, Seifer & Elias, 1982; Wolkind & DeSalis, 1982).

Parental appraisals of child behavior. For example, there is evidence of relations between maternal depression, negative maternal perceptions and disturbances in the parent-child relationship (Forehand, Lautenschlager, Faust & Graziano, 1986). Relative to nondepressed mothers, depressed mothers make more negative appraisals of their children's behaviors which, in turn, are linked with maladaptive parenting styles (Griest, Wells & Forehand, 1979; Rickard, Forehand, Wells, Griest & McMahan, 1981; Schaughency & Lahey, 1985). To account for such findings, Lahey, Conger, Atkeson and Trieber (1984) argued that emotional distress, somatic problems, and other symptoms of depression lowered parental tolerance for negative child behaviors. This increased sensitivity to problematic behaviors, in turn, was posited to result in

negative perceptions of their children and the display of hostile caregiving practices. Consistent with this view, Brody & Forehand (1986) reported that parental depression in concert with aversive child behavior best predicted negative parental perceptions of child behavior. Further, in a sample of clinic-referred children, Webster-Stratton & Hammond (1988) reported that depressed mothers viewed their children as having significantly more behavior problems than either their spouses or nondepressed mothers. These negative appraisals, in turn, predicted critical, coercive parenting practices.

While the link between maternal depression and negative parental appraisals is well documented, it is still not clear whether these appraisals are relatively biased or accurate (Field, 1992; Hammen, 1992b; Richters, 1992). For example, recent studies have found that nondepressed parents exaggerate positive attributes of child conduct and minimize children's negative characteristics, whereas depressed parents are more accurate reporters of actual child misbehaviors (Conrad & Hammen, 1989; Lovejoy, 1991; Richters & Pellegrini, 1989). In contrast, Field (1992) reported that depressed mothers were negatively biased in their perceptions of infants' behaviors, relative to ratings of objective observers. More research on this topic is clearly warranted (see Field, 1992, for methodological issues).

Parental self-efficacy and sense of control. The depressive symptomatology of lowered self-esteem and perceived lack of control over events may influence parental responses to child behavior. Depressed mothers have relatively little confidence in their caregiving abilities (Anthony, 1983; Kochanska, Kuczynski, Radke-Yarrow & Welsh, 1987) and low levels of perceived parental efficacy (Jaenicke *et al.*, 1987; Webster-Stratton & Hammond, 1988). Low levels of self-efficacy, in turn, have been associated with parenting impairments. In a sample of depressed mothers, Teti, Gelfand & Pompa (1990) reported that diminished self-efficacy was a primary mediator in the link between parenting impairments and exposure to familial and environmental stressors. Relatedly, Bugental and colleagues (Bugental, Blue & Cruzcosa, 1989; Bugental & Cortez, 1988; Bugental, Mantyla & Lewis, 1989; Bugental & Shennum, 1984) reported that, in comparison to parents with high perceived competence, parents with low perceived competence reacted to unresponsive and uncontrollable children with substantially higher levels of withdrawal, unassertiveness, negativity and physiological arousal; no differences were found in response to well-behaved children. In sum, a reduced sense of efficacy, which is common among depressed parents, may place depressed parents at increased risk for responding maladaptively to the problem behaviors of their children.

Parent-Child Relations

Another class of effects underlying relations between maternal depression and negative child development outcomes are changes in patterns of parent-child relations due to maternal depression. As shown in Fig. 1, patterns of parent-child relations could result directly from depression-related styles influencing parent-child behavior, or follow from disruptions in broader family systems (e.g. marital discord) that result from parental depression, which then interfere with parent-child relations. Depression

has frequently been associated with impairments in the parents' child management techniques, that is, the effectiveness of parents in monitoring misbehaviors and administering discipline. However, perhaps as important or even more significant to children's long-term development, maternal depression may interfere with the development of secure mother-child attachments, thereby undermining the fundamental quality of the emotional bond between parent and child (see Cummings & Cicchetti, 1990).

Depression and child management practices

Impairments in child management techniques. A diverse array of problems in child management have been linked with parental depression. On the one hand, in comparison to nondepressed parents, depressed parents are more inconsistent, lax and generally ineffective in child management and discipline (Cunningham, Bensusan & Siegel, 1988; Forehand *et al.*, 1986; Zahn-Waxler, Iannotti, Cummings & Denham, 1990); and, on the other, more likely to engage in direct, forceful control strategies (Fendrich *et al.*, 1990). Further, depressed parents tend to use the least effortful discipline and teaching strategies. Compared to nondepressed parents, depressed parents more often avoid conflict by submitting to child noncompliance, but, when not yielding to the child's demands, are also less likely to end disagreements in a compromise (Kochanska *et al.*, 1987).

How does depression, with internalizing symptomatology, so frequently result in child disturbances of acting out, aggressiveness and other externalizing disorders? Part of the answer may lie in the irritability and aggression that is also associated with depression (Weissman & Paykel, 1974). Also, the pattern of child management techniques linked with depression may contribute to the development of externalizing disorders in children. Relations are reported between inconsistent, power assertive and lax parental monitoring and children's antisocial and aggressive behaviors (Loeber & Dishion, 1984; Patterson, 1982; Patterson & Stouthamer-Loeber, 1984). Direct relations between these dimensions of parenting and children's conduct problems have been reported in path analyses (Olweus, 1980, 1984) and structural equation modeling (Dishion, 1990). However, the most convincing support for the mediating role of child management impairments in the development of externalizing behavior problems in children of depressed parents comes from a study conducted by Forehand *et al.* (1986). Using path analysis, they reported a pathway whereby parental depression led to the use of ineffective management techniques, and that these impairments in turn contributed to the development of child noncompliance.

Processes and mechanisms. There are also conceptual bases for expecting coercive but also lax and inconsistent parenting practices to increase noncompliance and aggression in children. A key process is the parents' inadvertent use of negative reinforcement during episodes of child misbehavior (Patterson, 1980; Patterson, Capaldi & Bank, 1990). Typically this occurs within the context of escalating, negative exchanges between parents and children. Thus, as the child becomes increasingly negative, the parent acts in a positive or neutral manner as a means of escaping the aversive interaction. However, escaping the negative interactions is also reinforcing for the child. The end result is the negative reinforcement of the child's aversive behavior

that preceded the parental submission. As a result, in future conflict situations, the parent will be predisposed to submit to the child, and the child will be predisposed to being aversive and antisocial (Patterson, 1982). Due to lethargy and irritability, depressed parents may be particularly inclined to fall into the negative reinforcement trap of maximizing immediate rewards (e.g. submitting to demands of children, using ineffective power assertive techniques) and also minimizing effort and energy expended in managing children (e.g. avoiding compromise with the child).

Maladaptive parenting techniques associated with maternal depression may also increase their children's difficulties with affect regulation. Zillman (1983) has argued that pairing an arousal-inducing stimulus with a negative provocation increases the individual's disposition to become over-aroused in subsequent situations. Thus, over time and with repeated exposure, the negative and emotionally arousing qualities of interactions with depressed parents could contribute to the development of children's problems with arousal-regulation.

Depression and attachment

There has been interest, both historically (e.g. Freud, 1917; Klein, 1934; Mahler, 1966) and in recent years, with regard to disturbances in parent-child attachment as contributing to the transmission of depression within families (see Cummings & Cicchetti, 1990, for an extended discussion). There are compelling bases for postulating that parental depression contributes to the development of insecure parent-child attachment, which might, in turn, increase children's risk for the development of affective disorders. Parental emotional unavailability and psychological insensitivity are highly associated with parental depression, as we have shown; at the same time, these are among the strongest and most reliable predictors of insecure parent-child attachments (e.g. Ainsworth, Blehar, Waters & Wall, 1978; Bowlby, 1973; Egeland & Sroufe, 1981). Further, the cognitive and emotional contents of internal working models of the self and others thought to characterize children with insecure attachment relations (e.g. Bretherton, 1985; Main, Kaplan & Cassidy, 1985) bear remarkable similarities to the cognitive and emotional patterns characteristic of depression (Beck, 1976). The concept of loss figures prominently in both the attachment and depression literatures as a core construct in the functioning of disturbed individuals (e.g. Beck, 1976; Bowlby, 1980). At the very least, there is an intuitive conceptual appeal to the notion that individuals with numerous or significant insecure attachment relations would be more prone to the development of depressionogenic thought patterns and emotional dispositions.

Attachment in children of depressed parents. Parental depression has repeatedly been linked with insecure parent-child attachments (e.g. DeMulder & Radke-Yarrow, in press; Lyons-Ruth, Zoll, Connell & Grunebaum, 1986; Radke-Yarrow, Cummings, Kuczynski & Chapman, 1985; Spieker & Booth, 1988). In a particularly interesting study, Murray (1992) reported that diagnoses of maternal depression at 2 months post-partum significantly increased children's risk for developing insecure attachments with the mother 16 months later.

However, it should be noted that secure attachments are also often formed between depressed parents and children. As with other family processes, depression increases

the probability of dysfunctional outcomes, but a wide range of outcomes are found.

The severity of depressive symptoms increases the likelihood of disturbances in attachment relationships. For example, Radke-Yarrow *et al.* (1985) found that insecure attachment was positively associated with how long the mother had been ill in the child's lifetime, the severity of the illness, and the extensiveness of her treatment history. Very insecure attachments, that is, the A/C or insecure avoidant-resistant pattern, were only found in children of parents diagnosed for major depression (see also Spieker & Booth, 1988). Relations between the parents' insensitivity and psychological unavailability and insecure attachment in children of depressed mothers have been reported in several studies (Cohn *et al.*, 1986; Field, 1989; Lyons-Ruth *et al.*, 1986).

Insecure attachment patterns can be conceptualized as the children's way of coping with the discord and parenting impairments within depressed families (Cummings & Cicchetti, 1990; Field, 1989; Tronick & Gianino, 1986). The avoidance characteristic of insecure-avoidant patterns serves an adaptive function by limiting children's involvement in stressful interactions with a psychologically insensitive, unavailable or rejecting mother (Bates & Bayles, 1988; Cassidy & Kobak, 1988; Crittenden, 1988; Kobak & Sceery, 1988). Moreover, the negativity and dependency characteristic of insecure-resistant pattern attachments may be adaptive in some contexts because it interrupts and distracts parents from spousal conflict, or, alternatively, elicits the attentions of an otherwise preoccupied, depressed parent (see Davies & Cummings, 1993 for further discussion; also see Cicchetti, Cummings, Greenberg & Marvin, 1990; Cummings, Zahn-Waxler & Radke-Yarrow, 1981).

However, while possibly adaptive within depressive family systems, insecure attachments are associated with maladaptive functioning in other contexts (Crittenden, 1988; Field, 1989), and with problems of emotional dysregulation (Kobak & Sceery, 1988; Sroufe, 1983), heightened sensitivity to stress (Lewis, Feiring, McGuffog & Jaskir, 1984; Sroufe & Fleeson, 1986; Sroufe & Rutter, 1984), pervasive anxiety and distress (e.g. Grossman, Grossman, Spangler, Suess & Unzer, 1985), and problems in interpersonal relationships (Erickson, Sroufe & Egeland, 1985; Pastor, 1981; Sroufe, 1983). Further, pathways have been reported between insecure child-mother attachments and the development of internalizing (e.g. Campbell, 1987; Erickson *et al.*, 1985) and externalizing (e.g. Armsden & Greenberg, 1987; Lewis *et al.*, 1984) disorders.

Processes and mechanisms. Disruption in the functioning of the attachment system may interfere with children's developing capacities for regulating affect, behavior and arousal. Children have many of their first experiences with an entire spectrum of intense affective states, ranging from anger, fear and anxiety to security, love and happiness, in the context of their early attachment relationships (Ainsworth *et al.*, 1978; Bowlby, 1969, 1973). The frequency, duration, quality and intensity of these emotional states may depend, in part, upon the quality and functioning of the attachment relationship, which plays a key role in the provision of security and in helping children regulate their affect, especially in times of high stress. Insecurely attached children are more likely to experience fluctuating and unpredictable affective states, including intensely negative emotions (e.g. excessive anger or sadness) (Berlin, 1993; Cassidy, 1993). The primary nature of relationships with parents for young children magnifies the intensity and significance of discordant emotions and

experiences. Consistent experience with enduring and intense negative emotions may be excessively challenging for the rudimentary capacities of young children to regulate their emotions (Kopp, 1989). As a result, insecurely attached children may be more vulnerable to emotional and behavioral dysregulation, and have fewer opportunities to develop an adequate repertoire of skills for effectively regulating their emotions, which may eventually contribute to their risk for more pervasive maladjustment (Kobak & Sceery, 1988).

Children's fundamental internal working models or representations of the self and the social world may be importantly influenced by early attachments. Parent-child attachments and their constituent internal working models are based on histories of parent-child interactions (e.g. Bowlby, 1973; Bretherton, 1985; Bretherton, Ridgeway & Cassidy, 1990; Main *et al.*, 1985). Parental warmth and responsiveness facilitate the development of secure attachments and internal working models characterized by positive self-concept and secure confidence in the availability and responsiveness of the parents and the larger social world (Cummings & Cicchetti, 1990; Zeanah & Zeanah, 1989). On the other hand, negative, insensitive styles of parenting, which are associated with depression, foster insecure parent-child attachments and internal working model in which children view their parents as unreliable and themselves as unworthy and undeserving of love and affection (Bowlby, 1973; Bretherton, 1985; Cummings & Cicchetti, 1990). A consequence may be a reduced sense of self-efficacy (White, 1959). Such negative self-cognitions are precursors (Hammen, 1988; Jaenicke *et al.*, 1987; Rose & Abramson, 1992) and symptoms of childhood depression (Asarnow & Bates, 1988; Carlson & Kashani, 1988; Kashani & Carlson, 1987).

Marital Functioning

A traditional view is that children are affected by their parents' behavior solely as a result of parent-child interaction. Similarly, a common assumption is that maternal depression affects children to the extent that it affects maternal-child interactions.

However, recent work makes clear the need for a broader systems view of family influences on children. Rutter and his colleagues, in particular, have called attention to relations between maternal depression and marital discord and to the possibly causal role of marital discord in child outcomes. Rutter and Quinton (1984, p. 876) identify three possible mechanisms: "(a) a process by which marital discord predisposes to psychiatric disorder; (b) a process by which psychiatric disorder impairs marital relationships; and (c) a process by which both are caused by prior conditions."

Further, it is now clear that children are affected not only by their own exchanges with parents, but also by their observations as bystanders to the interactions of others, especially the parents (Cummings & El-Sheikh, 1991; Cummings & Zahn-Waxler, 1992). As shown in Fig. 1, maternal depression affects children by influencing marital functioning (e.g. marital discord), and marital functioning may, in turn, affect parent-child interaction or parental behavior. In particular, marital discord may increase the likelihood of ineffective child management practices or contribute to depressive symptomatology in mothers. Thus, Rutter and Quinton (1984, p. 876) concluded based on their findings that "while parental-mental illness constituted an important

indicator of psychiatric risk for the children, the overall pattern of findings showed that in most cases the main risk did not stem from the illness itself. Rather, it derived from the associated psychosocial disturbance in the family'. Further, they found that parental mental illness was associated with child psychological disturbance indirectly through its impact on heightening marital anger and hostility.

Recent work suggests that marital discord plays a key role in mediating the effects of maternal depression on children, and may even be a more proximate predictor of certain child outcomes than maternal depression per se. Thus, Downey and Coyne (1990, p. 68) concluded based on their review published in *Psychological Bulletin* that "marital discord is a viable alternative explanation for the general adjustment difficulties of children with a depressed parent". For example, Caplan *et al.* (1989) reported links between maternal depression and marital conflict in the early years of child-rearing, with marital discord more closely related to behavior problems than parental depression. Cox *et al.* (1987) found that marital discord was associated with maternal depression six months later, and maternal depression was correlated with marital discord six months later, suggesting that interrelations were reciprocal rather than unidirectional. They found that marital discord was more closely related to disturbances in mother-child interactions than maternal depression per se.

However, while relations between maternal depression, marital discord and child outcomes have received considerable attention in recent years, the processes underlying these relations have been little investigated and are poorly understood; consequently, there have been increasing calls for more process-oriented research (e.g. Downey & Coyne, 1990; Hammen, 1992a). Accordingly, this section will attempt to extend the boundaries of this line of work by incorporating and integrating recent findings from the broader family discord literature (Davies & Cummings, 1993).

Maternal depression and marital conflict

Adult depression covaries with marital hostility, distress and anger (Coyne, Burchill & Stiles, 1991; Fendrich *et al.*, 1990; Gotlib & Whiffen, 1989; Hay, Zahn-Waxler, Cummings & Iannotti, 1992; Rutter & Quinton, 1984). Further, marital conflict may play a significant, even focal, role in the intergenerational transmission of psychopathology in these families (Keller *et al.*, 1986; Rutter, 1990; Rutter & Quinton, 1984). Marital discord may be the primary mediator in the transmission of difficulties from depressed parents to children (Emery, Weintraub & Neale, 1982), with concurrent depression and marital discord a better predictor of child psychopathology than either factor alone (Shaw & Emery, 1987).

Marital conflict is most consistently associated with externalizing problems in children, such as conduct disorders, delinquency and aggression (Emery, 1982), suggesting that its impact may be largely limited to this class of disorders in children of depressed parents. However, while less consistently reported, marital discord is also associated with internalizing difficulties in children (Grych & Fincham, 1990). Thus, one can entertain a model whereby marital discord contributes to the internalizing and externalizing symptomatology in children of depressed parents (see Downey & Coyne, 1990, for a comprehensive consideration of models).

Dimensions of interparental conflict

However, little is known about the precise relations between marital discord and specific child outcomes in depressed families. A critical step in the direction of greater understanding of these relations is to differentiate anger as a stimulus.

Anger is not a homogeneous stimulus but may vary on a variety of dimensions and domains. Key questions from the children's perspective are *how* anger is expressed and *whether* or not anger is resolved.

Further, the familial correlates and the symptomatology of depression suggest that children with depressed parents may be differentially exposed to particular forms and dimensions of interparental conflict (Hops *et al.*, 1987; Hops, Sherman & Biglan, 1990). What are the effects of specific dimensions of interadult and interparental anger on children? What is the potential relevance of this information to an understanding of relations between maternal depression, marital discord and child development?

Frequency. Available evidence indicates that in comparison to children of normal parents, children of depressed parents are more likely to be repeatedly exposed to interparental conflict. The comorbidity between marital conflict and parental depression (Coyne *et al.*, 1991) is, in itself, support for the notion that conflicts are more frequent in depressed marriages.

Further evidence comes from the detailed examination of the link between depression and anger (for more details, see Biglan *et al.*, 1985, Hops *et al.*, 1987). The data from these studies suggest that the dysphoric behaviors of depressed wives serve as reinforcers by reducing the length of the husbands' anger episodes. In the long run, however, depressive behaviors are associated with an increase in the frequency of conflicts. Thus, the short-term reinforcing qualities of depression in reducing interparental hostility function, in the long run, serve to promote more frequent and explosive bursts of anger between parents.

Greater exposure to conflict is associated with emotional and behavioral difficulties in children (Rutter, 1971). Children from high conflict homes are particularly vulnerable to externalizing disorders (Hershorn & Rosenbaum, 1985), but are also at risk for internalizing problems (Jouriles *et al.*, 1991), social skill deficits (Long, Forehand, Fauber & Brody, 1987), low levels of competence (Wierson, Forehand & McCombs, 1988), and academic difficulties (Emery & O'Leary, 1982).

While the mechanisms are poorly understood, recent evidence suggests that children become sensitized to conflict as a result of repeated exposure, and thereby more prone to emotional and behavioral dysregulation (Cummings & Zahn-Waxler, 1992). Using observational methods based on parent diaries of marital conflict, Cummings *et al.* (1981) found that more frequent exposure to interparental conflicts was associated with greater distress, insecurity and anger in children's responses to conflict, suggesting that repeated exposure to conflict has a sensitizing, not desensitizing, effect. Similarly, Cummings, Iannotti and Zahn-Waxler (1985) reported that repeated exposure to interadult anger in the laboratory significantly increased children's levels of distress and aggression (see also Klaczynski & Cummings, 1989). Thus, over time and with high levels of exposure, outcomes that are more enduring and intense might be expected. Eventually, this sensitizing process, in combination with other risk processes

within the family, could contribute to enduring psychopathological dispositions, particularly with regard to aggression and other problems of undercontrol.

Anger and aggression. While depression has an "internalizing" profile, this description is incomplete, since aggression and irritability are also manifested by depressed individuals (Weissman & Paykel, 1974). Further, spousal abuse and physical conflict are associated with maternal depression (Merikangas, Prusoff, Kupfer & Frank, 1985; Webster-Stratton & Hammond, 1988).

Interparental aggression is linked with child maladjustment (Emery, 1989). Children from maritally violent homes are four times more likely to exhibit psychopathology than children from nonviolent homes (Holden & Ritchie, 1991; Jaffe, Wilson & Wolfe, 1986), and are at greater risk for a wide range of problems, including externalizing disorders (Hershorn & Rosenbaum, 1985; Jouriles, Murphy & O'Leary, 1989), social maladjustment (Pfouts, Schloper & Henley, 1982; Wolfe, Jaffe, Wilson & Zak, 1985), and internalizing symptomatology (Holden & Ritchie, 1991; Pfouts *et al.*, 1982).

Further, risk for psychopathology extends beyond that associated with verbal conflict and general marital discord (Jouriles *et al.*, 1989). For example, witnessing verbal and physical anger between parents is linked with severe internalizing and externalizing problems in children, whereas verbal anger is only associated with low to moderate levels of externalizing problems (Fantuzzo *et al.*, 1991).

Nonverbal anger and dysphoria. Nonverbal expressions of anger may be more prevalent in families with parental depression. As an alternative to directly and appropriately expressing their anger, a depressed dyad may favor more subtle forms of hostility such as nonverbal anger (e.g. the silent treatment) (Field, 1989). Further, the conflicts of depressed dyads contain interdependencies between overtly anger and dysphoric expressions not as evident in conflicts of normal dyads (Biglan *et al.*, 1985; Hops *et al.*, 1987; Jacobson, Holtzworth-Munroe & Schmalting, 1989).

In sum, both overt and covert expressions of anger are more frequent in homes with depressed parents. While exposure to overt anger and hostility is most directly linked to externalizing difficulties, different mechanism(s) may be implicated in the expression of psychopathology due to exposure to nonverbal anger and sadness. One hypothesis is that nonverbal anger promotes internalizing styles of coping and disorders. The ambiguity and chronic tenseness in adults associated with nonverbal anger may act as a stressor for children, increasing their arousal levels, feelings of anger, and uncertainties with regard to how to behave. Because feelings are not clear, out in the open, or resolved when adults express anger nonverbally, these environments may prevent children from safely releasing their own anger and feelings of high arousal and tension, so that children resort to internalizing their feelings.

However, few studies have examined the impact of nonverbal anger between adults on children and the results are equivocal. Based on retrospective interviews, Jenkins and Smith (1991) found no association between nonverbal anger and child behavior problems. On the other hand, studies of children's immediate responses indicate that distress and anger is induced by exposure, with negative responding comparable to responses to verbalized anger (Cummings, Vogel, Cummings & El-Sheikh, 1989; Cummings, Ballard, El-Sheikh & Lake, 1991). One possible interpretation is that immediate distress responses do not translate into lasting effects on children's

functioning. Alternatively, retrospective interviews may be insensitive to these relatively subtle anger expressions, and thus may not detect true associations between exposure to nonverbal conflict and child adjustment. More research is clearly warranted on this question.

Conflict resolution. How conflicts end, particularly whether conflicts are resolved, may also be important to the impact of interparental conflict. Depressive symptoms such as lethargy, withdrawal and negative affect interfere with the effort and empathy required to resolve a conflict appropriately. Kochanska *et al.* (1987) reported that depressed mothers had difficulty resolving conflicts. Instead of attempting to reach a compromise, depressed mothers utilized less effortful strategies (e.g. withdrawal) to end conflicts.

Impairments in resolution abilities, however, may not be limited to the depressed spouse. Some studies report that while depressed wives typically withdraw after conflicts begin, their husbands become increasingly hostile (Biglan *et al.*, 1985; Hops *et al.*, 1987). This pattern precludes the interactive, open approach necessary for conflict resolution. Chronic failure to resolve conflicts may have long-term deleterious effects on interparental relations, leading to an accumulation of negative affect and unresolved issues, and ultimately increasing the frequency, intensity and/or duration of angry episodes between the parents (Jenkins & Smith, 1991).

Recent research indicates that children are sensitive even to subtle variations in resolution, with the negativity of their reactions closely corresponding to the degree of conflict resolution. For example, Cummings *et al.* (1991) reported that unresolved fights (continued fighting, the silent treatment) elicited more anger from children than partially resolved fights (submission, topic change), which, in turn, resulted in more anger than resolved conflicts (apology, compromise). Conflict resolution significantly ameliorates the deleterious impact of conflict on children's emotions and behavior. In fact, children respond to a conflict followed by a complete resolution in a manner similar to their responses to entirely friendly interactions (Cummings *et al.*, 1985, 1989, 1991). Children are sensitive even to conflict resolutions that occur "behind closed doors", interpreting cues in the changed affect of formerly angry adults as indicative of resolution (Cummings, Simpson & Wilson, in press).

Explanation. Parental explanations absolving the child from blame for the parents' conflict buffer the child from feelings of fear and responsibility, whereas explanations that impute the child as the cause increase children's feelings of shame and distress (Grych & Fincham, 1993). If child-blaming explanations increase children's negative self-cognitions and feelings, this may contribute to a depressionogenic cognitive style, whereas explanations in which the child is absolved from blame can serve as protective factors.

Cummings *et al.* (in press) in a recent study reported that explanations by adults of their conflict resolutions after-the-fact sharply reduced the negative impact of children's exposure to interadult conflicts. The benefits were comparable to those obtained from children actually watching the adults resolve their differences. Thus, a verbal account of the resolution process may also be beneficial, even when it is not practical or even possible to resolve fights in front of children.

Unfortunately, depressed mothers may be impaired in the ability to explain the

causes and consequences of conflict to their children. Based on clinical observations, Davenport, Zahn-Waxler, Adland and Mayfield (1984) concluded that depressed parents go to great lengths to deny the occurrence of anger. Thus, the parents foster further confusion in their children by not only failing to provide an explanation but also denying that a conflict ever occurred. The fact that depressed parents are critical, provide less structure, and are relatively uninvolved during parent-child interactions (Goodman & Brumley, 1990; Gordon *et al.*, 1989; Panaccione & Wahler, 1986) is further indication that depressed parents may do little to reassure and support their children.

Processes and Mechanisms

As we have argued, an advanced conceptual foundation of risk status in children of depressed mothers necessitates consideration of the processes and mechanisms underlying links between family dysfunction and child outcomes. Several hypotheses for the effects of marital discord on children now receive support. As should be apparent, these processes bear similarities to those associated with other familial factors linked with depression within families, raising questions concerning possible additive or multiplicative effects on similar processes across multiple family systems (an issue to be discussed below; see also Cummings & Davies, in press).

Arousal and the dysregulation of emotion and behavior. The arousal generated by witnessing conflict may disrupt or otherwise negatively affect children's capacities to regulate their emotions and behavior (Fabes & Eisenberg, 1992). Repeated exposure to emotionally arousing events has a sensitizing effect whereby behavioral responses are intensified with more frequent exposure to the stimuli (Zillman, 1983). Marital conflict is a highly arousing event that elicits negative reactions from children (e.g. distress, anger and aggression) (see Cummings & Zahn-Waxler, 1992). Repeated exposure energizes or intensifies negative reactions. Thus, high levels of exposure to marital discord may have cumulative effects, contributing to emotional and behavioral dysregulation and risk for behavior problems (also see Davies & Cummings, 1993).

Negative reinforcement. Responses by children that mitigate the deleterious effects of conflict are maintained through their negative reinforcement value. For example, children may interrupt interparental conflicts by misbehaving (e.g. becoming aggressive, crying). Although such behaviors may be adaptive in that they distract the parents from their argument to a less serious discipline problem, the fact that these problematic behaviors are reinforced increases the likelihood that they will be exhibited in subsequent aversive situations (Emery, 1989). As the reinforcing process is repeated over and over again in conflict situations, increasingly strong, persistent aversive behaviors may be shown, contributing to the general development and maintenance of problematic patterns of behavior.

Modeling. Externalizing problems may result because children model their parents' conflictual behaviors (Emery, 1982; Schwarz, 1979; Tschann, Johnston, Kline & Wallerstein, 1989). One process is simple imitation of hostility, aggression and anger displayed by the parents (Bandura & Walters, 1963). More generally, children may acquire new rules or "scripts" for performing aggressive behaviors through witnessing

conflicts between the parents (Bandura, 1973, 1986). Also, children's restraints and inhibitions for exhibiting aggression may be reduced from repeated exposure to adult models for hostile behavior.

Extra-Familial Factors

Depression covaries with other factors that adversely affect family functioning, irrespective of a diagnosis of depression, including low SES, lack of education about child development, and stressful life events (e.g. health problems, financial difficulties) (Teti *et al.*, 1990). For example, Birtchnell, Masters and Deahl (1988) reported that a disproportionate number of depressed women live in areas and neighborhoods stricken by poverty.

Stressful life events may interact with depression, resulting in disruptions in parenting (Gordon *et al.*, 1989; Hammen *et al.*, 1987). Thus, depressive symptoms increase the number and severity of environmental stressors, for example, by negatively affecting relations with friends, co-workers, and others (Hammen, 1992b). Environmental stressors, in turn, may exacerbate depressive episodes, setting up a vicious reciprocal cycle in which depression leads to more stressful environmental events, and environmental stressors increase the severity of depression.

Depressed parents may negatively impact children's relations with others outside of the home. A primary responsibility of parents is managing their children's interpersonal activities and support networks (Parke, MacDonald, Beitel & Bhavnagri, 1988). Ideally, parents provide their children with opportunities to develop positive relations with peers and adult role models. However, there is evidence that depressed parents are less willing to encourage and assimilate their children into social groups and events outside the immediate family (Dodge, 1990; Zahn-Waxler, Denham, Iannotti & Cummings, 1992). This may prevent children from developing an adequate extra-familial support network of extended kin, neighbors, peers and even friends. Familial isolation may leave children of depressed parents more vulnerable to psychological difficulties (Pellegrini *et al.*, 1986). Further, overdependence on parents is associated with impairments in separation/individuation and maladjustment (Cummings & Cicchetti, 1990; Daniels, 1990). Finally, the relatively few contacts outside the family are frequently neighbors and friends who are also mentally or emotionally disturbed (Zahn-Waxler *et al.*, 1990, 1992).

Maternal Depression and Child Characteristics

Research on children of depressed parents often has not considered child effects (Burbach & Borduin, 1986). However, children are not passive recipients of environmental stimuli, but, in fact, are active participants in shaping their developmental trajectories and outcomes.

As the model in Fig. 1 illustrates, relations between family factors and children's adjustment are, in the final analysis, mediated by children's individual differences and coping processes. The work of Garmezy and associates has called attention to

the importance of the individual competencies of children at risk, including their stress-resistance (Garmezy & Masten, 1991; Garmezy, Masten & Tellegen, 1984; Masten *et al.*, 1988).

However, it has proven difficult to operationalize important dimensions of individual child functioning. For example, labels such as vulnerable and resilient may, in fact, be no more than synonyms for already known *outcomes* rather than descriptions of processes and dynamics underlying individual differences in coping.

Similarly, demographic characteristics, such as age or gender, may capture significant variance but shed little light on the processes that actually account for outcomes. Also, substantial individual differences may be evident within these categories, so age and gender effects must be interpreted with caution. Nonetheless, trends and processes associated with age and gender are of interest and merit consideration.

Age

The impact of depression is present from the earliest weeks of life right through adolescence. Some studies suggest that children become more vulnerable as they get older. For example, Ghodsian, Zajicek and Wolkind (1984) found that the relation between child disturbance and maternal depression was not significant at 14 months, but reached significance at 27 and 42 months of age. Longitudinal analyses indicated that maternal depression as early as 4 months post-partum was linked with children's behavior problems at 42 months. A follow-up study (Ghodsian, Zajicek & Wolkind, 1985) focused on family correlates for this random sample of London inner-city women. The finding was that relations between child behavior problems and parental stress, use of physical punishment, marital conflict and parental depression became stronger across the assessment periods of 14, 27 and 42 months.

Other studies also support increasing relations between maternal depression and child behavior problems as children get older. Within a cross-sectional sample of 5-10-year-olds, Goodman, Brogan, Lynch and Fielding (1993) found links between maternal depression and low levels of socio-emotional competence (e.g. externalizing, internalizing) primarily for older children. Hops *et al.* (1990) reported that children's expression of dysphoria in the home increased with age among 3-16-year-olds for children of depressed mothers but not for children of well mothers. Within the sample of families with a depressed mother, children 11 years of age and over exhibited substantially higher levels of dysphoria in comparison with children under 11.

However, other research suggests that even very young children may be vulnerable. For example, Field *et al.* (1988) found that infants of depressed mothers exhibit depressive, withdrawn behavioral styles across a variety of settings as early as 3 months of age! Based on their review, Burbach and Borduin (1986) suggested that younger children of depressed parents, particularly infants, may be at greatest risk for developing problems. Finally, based on a review of maternal depression research, LaRoche (1989) argues that early infancy and adolescence are periods of particular vulnerability. She suggests that infants are at particular risk because maternal depression interferes with their ability to regulate emotions and behaviors and to form attachment relations and healthy peer relations. For adolescents maternal depression interferes

with attempts to achieve a healthy separation from parents and a separate, autonomous identity.

However, although age is clearly a moderator between maternal depression and child outcomes, the pattern of findings does not clearly indicate that one age group is more vulnerable than another to maternal depression and its correlates (Goodman & Brumley, 1990). Several issues make it difficult to draw conclusions about the effects of age. First, it is difficult to disentangle effects due to history of exposure to parental depression from effects due to age, particularly in cross-sectional studies. Thus, older children of depressed parents may exhibit psychopathology largely because they have been exposed to maternal depression for a longer period of time.

Second, multiple dimensions of functioning change with age, with some changes making children more vulnerable and others making children less vulnerable as they get older. For example, as children get older they become more sensitive to negative affect, anger, and discord within the family, which might reasonably be thought to be a risk factor in the development of psychopathology. At the same time, however, older children are developing a wider and more effective repertoire of coping strategies that may serve as a protective factor and offset the deleterious effects of increasing sensitivity to discord in the family (Cummings & Cummings, 1988; Grych & Fincham, 1990).

Third, children of different ages may be differentially vulnerable to specific forms of psychopathology. For example, Glasberg and Aboud (1981, 1982) note that infants and young children generally respond to stressors with aggression, noncompliance and temper tantrums, whereas older children are more inclined to dysphoria and passivity. The incidence of depression increases substantially between late childhood and adolescence (Angold & Rutter, 1992; Kaplan, Hong & Weinhold, 1984; Rutter, 1986a). Also, sadness plays a more critical role in children's lives as they get older. They are more capable of evaluating themselves in a negative manner (Cantwell & Carlson, 1983; Kaslow & Wamboldt, 1985), and have a greater facility to develop stable, negative self-cognitions (Hammen *et al.*, 1990; Harter, 1985).

Accordingly, Rutter (1989) maintains that conclusions concerning age changes are not explanations for behavioral development, rather they are only markers for biological and experiential processes. He argues that researchers must go beyond the global level to examine specific processes linked with behavioral change, such as brain development or hormonal processes. In summarizing literature on age differences in vulnerability to depression, Rutter (1990, p. 64) concludes: "On the whole, the child's age has not been a crucial factor. The ways in which children respond are influenced by developmental considerations, but no one age group seems either particularly protected or particularly at risk".

Gender. Similarly, gender is a marker variable for a complex set of processes. Gender-linked differences in adjustment of children of depressed mothers are unclear and far from simple. For example, some studies on parental depression have reported no consistent gender differences (Sameroff, Seifer & Zax, 1982) while others have reported gender-linked differences in different directions (Beardslee, Schultz & Selman, 1987; Radke-Yarrow, Richters & Wilson, 1988; Pianta & Egeland, 1990).

One issue is that boys and girls of depressed parents may be differentially vulnerable to different forms of psychopathology. Boys, for example, exhibit more externalizing

problems (Block, 1983; Cohn, 1991), whereas girls experience more internalizing problems (Eme, 1979; Nolen-Hoeksema, 1987). Is this a modelling effect? Do depressed mothers respond differently to male and female offspring? Do male infants and children have differing developmental agendas from females that may pose different demands on depressed women (see discussion in Chodorow, 1978; Maltesta & Haviland, 1982)?

Gender differences in the relative vulnerability to depressive family environments may also change across development. In a sample of 18-month-old children, Murray (1992) reported that gender-linked vulnerabilities in child-mother attachment relations emerged for groups of depressed mothers but not well mothers. Within the group of depressed mothers, boys were found to exhibit more insecure attachments than girls. Within a sample of psychiatrically ill parents (including affective disorders), Rutter and Quinton (1984) found that boys, at least initially, were more vulnerable to family discord than girls, as indicated by teacher reports of behavioral and emotional problems. However, girls and boys rates of psychological disturbance were similar if exposed to persistent marital discord over the course of 4 years. Further, Hops *et al.* (1990) reported that within a sample of families with a depressed mother, girls were at higher risk for displaying irritability in the home, particularly when they reached adolescence.

With regard to gender differences, Rutter (1990, p. 65) concluded that "data are too few for strong conclusions". However, he also outlined important directions for the study of gender-linked vulnerabilities to maternal depression. Depressive family environments may adversely affect boys and girls through different processes. Depressed mothers, for example, exhibit a tendency to seek comfort from their daughters. Such comforting seeking or role reversal behavior may draw girls into their mothers problems, adding to risk for behavioral styles of distress and dysphoria. Boys vulnerability, on the other hand, may result from heightened exposure to family negativity and discord (see also Rutter, 1987). Parents are also less tolerant of both shyness and conduct problems in boys.

Thus, as Rutter and others have argued, in the final analysis greater understanding of the intergenerational transmission of psychopathology in depressed families will come from an understanding of children's responding at the level of coping responses, processes and styles. This level of analysis, therefore, merits attention.

Social cognitive processes in children of depressed parents

Recent models propose that children's thoughts, feelings, perceptions and interpretations mediate their adjustment in depressive family environments (Cummings & Cicchetti, 1990; Hammen, 1992b). Thus, it is not the actual stress within the family that determines children's behavioral responses and adjustment, but rather their social cognitions concerning themselves and their family environment. However, the relations between maternal depression, social cognition and child adjustment are not well understood.

One possibility is that social cognitions moderate relations between maternal depression and child adjustment. Individual differences in social cognitive skills may predict child outcomes, irrespective of the presence of familial depression and other

correlated risk factors. In support of this hypothesis, Beardslee *et al.* (1987) found that a significant number of adolescents with depressed parents had superior interpersonal negotiation skills which protected them from developing psychological problems. Similarly, Downey & Walker (1989) reported that individual differences in children's social-cognitive skills were not related to familial risk status (parental depression and/or maltreatment), but did predict risk for developmental problems.

Another possibility is that social cognitions are mediators. Family environments with parental depression may promote dysfunctional social-cognitive skills in children, which then increase children's risk for developing psychopathology (Beardslee *et al.*, 1987; Cummings & Cicchetti, 1990; Hammen, 1992b). Children of parents with depression are more susceptible to disturbances in social problem-solving (Beardslee *et al.*, 1987), negative internal working models (Cummings & Cicchetti, 1990; Hammen, 1992b), and depressionogenic attributional styles (Jaenicke *et al.*, 1987). Further, familial correlates of maternal depression (e.g. family conflict, parenting impairments, disturbances in child-parent attachments) have been directly linked with social cognitive deficits (Bretherton, 1985; Emery, 1989; Harter, Marold & Whitesell, 1992; Petit, Dodge & Brown, 1988). Social-cognitive disturbances, in turn, have been consistently associated with the development of social-psychological problems in children. For example, negative views of the self are correlates and precursors of psychopathology, particularly depression (Asarnow, Carlson & Guthrie, 1987; Hammen, 1988; Panak & Garber, 1992; Renouf & Harter, 1990). Further, associations are reported between hostile social perceptions and the incidence of social withdrawal, aggression, peer rejection and general maladjustment (Dodge & Somberg, 1987; Dodge, Murphy & Buchsbaum, 1984).

An important consideration may be the specific dimension of social cognition at issue. Obfuscating the picture of relations, there is a discernable tendency to treat social cognition as a unidimensional construct. In fact, of course, social cognition involves a number of distinct cognitive systems, for example, internal representations of the social world, views of the self, information processing styles and social problem-solving skills (Downey & Walker, 1989). Each may have different pathways of effects within discordant family environments (see Davies & Cummings, 1993). Research should focus on relations between specific dimensions of social cognition, family depression, and child adjustment.

Temperament and children of depressed parents

Children of depressed parents may more often have difficult temperaments. Aversive behavioral dispositions in children with depressed mothers could play a critical role in shaping their developmental outcomes. Difficult temperament may moderate children's responses to depressive familial environments (Crockenberg, 1986; Wachs & Gandour, 1983). Children with difficult temperamental styles are less sensitive to positive features of the environment and more susceptible to negative familial characteristics (Graham, Rutter & George, 1973; Rutter & Quinton, 1984; Thompson, 1986; Wachs & Gandour, 1983). Thus, difficult temperament may be a vulnerability factor, while easy temperament buffers children from family depression and discord.

Consistent with the model shown in Fig. 1, temperament might also indirectly

contribute to children's effects by increasing family discord, parenting impairments and disturbances in parent-child attachment (Hammen, 1992a). Exposure to aversive child dispositions compromises parental resources, caregiving abilities and the quality of family relationships, leading to parenting impairments and disturbances in the larger family system (Bugental *et al.*, 1989; Lee & Bates, 1985; Mangelsdorf, Gunnar, Kestenbaum, Lang & Andreas, 1990). These disturbances, as part of a continuous, spiraling cycle, may then increase risk for psychopathology in these children by exacerbating their negative behavioral dispositions and styles (Bell, 1979; Maccoby, Snow & Jacklin, 1984; Rutter & Quinton, 1984).

Difficult temperament and child problems tax the functioning of parents by fostering parental negativity (Anderson, Lytton & Romney, 1986; Stevenson-Hinde & Simpson, 1982; Webster-Stratton, 1990), depression (Cutrona & Troutman, 1986; Patterson, 1980; Wolkind & DeSalis, 1982), and maladaptive child management techniques (Olweus, 1980). Aversive child dispositions increase risk for reciprocal, coercive interactions between parent and child (Cunningham & Barkley, 1979; Mash & Johnson, 1990; Patterson, 1982) and these interactions, in turn, are linked with disturbed relationships and child maladjustment (Patterson *et al.*, 1990).

However, few studies meet the criteria to absolutely establish that temperament rather than early environment causes children's dispositions. For example, the work of Cutrona and Troutman (1986) is interpreted to demonstrate the contribution of "difficult" temperament to maternal depression. However, the sample of infants studied were already a few months old. Given that Cohn and Tronick (1983) have demonstrated immediate effects on infants of alterations of parental interactive style, infant difficult behavior could have been provoked by maternal state prior to the investigation. Caution in interpretation is thus called for. Studies including assessments of neonatal behavior prior to the onset of maternal depression would allow for firmer conclusions.

Towards a Family Systems Perspective: Children of Depressed Mothers

Interdependencies are assumed to exist between family subsystems, with disturbances in one family subsystem influencing the development, form, and intensity of other family stressors, and with the combination of disturbances within the family system most closely associated with child outcomes. In this section we consider interdependencies of effects: (a) as shown by empirical studies of multiple family subsystems; (b) at the level of processes and mechanisms; and (c) in terms of the impact of the comorbidity of family stressors.

Empirical demonstrations of interrelations between family subsystems

A particularly robust association has been identified between parenting impairments and insecure attachment relationships. Research has shown that parental negativity and unavailability towards children predicts insecure child-parent attachment relationships (Ainsworth *et al.*, 1978; Bretherton, 1985). Further, more precise pathways have been identified whereby exposure to particular maladaptive styles of

parenting place children at risk for developing specific patterns of insecure attachment. For example, very insecure, disorganized attachments are linked with severe forms of parental abuse and neglect (Cicchetti, 1987), whereas insecure, resistant attachments are related to inconsistent, disorganized parenting practices (Crittenden & Ainsworth, 1989; Egeland & Farber, 1984; Main & Cassidy, 1988; Sroufe, 1985).

Marital conflict has also been linked with maladaptive parent-child relationships (Camara & Resnick, 1989; Daniels, 1990; Forehand *et al.*, 1991) as well as insecure parent-child attachment patterns (Cox & Owen, 1993; Easterbrooks & Goldberg, 1990; Howes & Markman, 1989; Isabella & Belsky, 1985). For example, children may be pressured to side with parents during and following marital conflicts (Johnston, Gonzalez & Campbell, 1987; Vuchinich, Emery & Cassidy, 1988). Further, maritally distressed parents may rely upon their children for emotional and other support not found in the marital relationship (Byng-Hall, 1990; Johnston *et al.*, 1987; Stevenson-Hinde, 1990). Children exposed to such pressures are specifically at risk for relational disturbances, including insecure attachment patterns (Byng-Hall, 1990) and enmeshed parent-child relationships (Buchanan, Maccoby & Dornsbush, 1991; Carlson, Cicchetti, Barnett & Braunwald, 1989; Cummings, Pellegrini, Notarius & Cummings, 1989). Further, these role reversals and parental pressures place undue psychological burden on children that promote maladjustment (e.g. Lewis *et al.*, 1984; Sroufe, 1983), particularly symptomatology of withdrawal, anxiety and dysphoria (Johnston *et al.*, 1987; Schwarz, 1979).

Although most of these studies have utilized nondepressed samples, similar results might be expected to apply to families with depressed parents. For example, Stein *et al.* (1991) found that marital discord was a primary predictor of parent-child interactive disturbances, particularly lack of warmth between mother and child, and mediated relations between depression and mother-child interactions.

In fact, interrelations between marital conflict, disturbances in the parent-child subsystem, and child characteristics may be even more pronounced in families with depressed parents. Hops *et al.* (1987, 1990), for example, reported that families with depressed parents are more enmeshed than nondepressed families, and are particularly affected in an adverse way by negative interactions among the family members. Further, cycles of coercion and conflict between parents and children may be particularly likely in depressed families (Patterson, 1982; Hops *et al.*, 1987).

On the one hand, the increased sensitivity of depressed parents to their children's negative behavior is associated with increased engagement in coercive parenting styles (Lahey *et al.*, 1984; Webster-Stratton & Hammond, 1988). On the other hand, the greater disposition towards aversive expression by children of depressed mothers (e.g. negative mood, heightened reactivity to negative events, aggression) increases their susceptibility to exhibiting problem behaviors in interactions with their parents. The proclivity toward expressing negativity for depressed parents and their children heightens the probability of negative, reciprocal interactions (Hammen *et al.*, 1990; Rutter, 1990; Wolkind & DeSalis, 1982).

Interrelations in processes and mechanisms

Specific processes and mechanisms underlie relations between family stressors and

child outcomes. Further, various *different* family subsystems may affect each of several common processes and mechanisms of influences. An appreciation of these joint directions of effect, which could be additive, interactive, or even multiplicative in their impact on children, is fundamental to a process-oriented model for understanding risk in children of depressed parents.

Arousal and the dysregulation of emotion and behavior. Disturbances in each of the family subsystems have been shown to affect children's arousal and their proneness to dysregulation of emotion and behavior. Difficulties in affect expression and regulation increase the risk for affective disorders and depression, but also add to the likelihood of externalizing disorders (e.g. conduct problems, aggressiveness). Over time children's arousal systems may become sensitized by exposure to discordant family environments and therefore more difficult to regulate in some or all social situations. In particular, the quality of attachment relationships plays an important role in children's regulation of affect, behavior, and arousal when confronted with stressful events, with relatively long-lasting effects on functioning. In addition, individual child characteristics may also contribute to children's capacity to regulate emotion and behavior. For example, children most vulnerable to dysregulation may have temperamental (constitutionally-based) styles characterized by extreme behavioral reactivity to environmental events and extreme and intense expressions of emotion.

Modelling, contingencies and reinforcement. Multiple family systems activate learning processes that may affect negative child outcomes. Thus, the behavioral contingencies underlying coercive parenting practices function as reinforcers for child noncompliance, aggression and other deviant behaviors. Children may also model emotionally insensitive, hostile or dysphoric behavior by the parents. Misbehavior or aggressiveness may occur because of its negative reinforcement value for terminating interparental disputes. Each of these relations may contribute over time to the development of strong, persistent patterns of aversive behavior by children.

Cognitive processes. Children's negative representations of the self may develop from various patterns of parent-child interaction (i.e. attachment, parenting). Such constructs could become long-lasting and resistant to change when incorporated by children as internal working models of the self (Main *et al.*, 1985; Bretherton, 1985). Further, various impairments in social perceptions, attributions and skills may result from exposure to discordant marital and parent-child subsystems in families with parental depression.

The comorbidity of family stressors

There may be complex effects of multiple stressors. Work by Rutter and associates with discordant families indicates that the presence of two or more stressors may potentiate or multiply children's risk for developing psychological problems. That is, two or more family stressors may generate greater effects than the sum of the stressors considered singly (Hauser, Vieyra, Jacobson & Wertlieb, 1985; Rutter, 1980, 1981). Another possibility is that the presence of two or more risk factors has an additive effect whereby the combined impact is roughly equivalent to the sum of the effects of each of the stressors in isolation (Shaw & Emery, 1988). Further, a family stressor

may mediate, or largely account for, the association between children's outcomes and other family stressors (Emery *et al.*, 1982; Fauber, Forehand, Thomas & Wierson, 1990). This issue, in particular, underscores the need to examine the different relations between *combinations of specific stressors* and child outcomes, rather than simply examining the associations between child adjustment and the *number of stressors*.

Towards a Developmental Psychopathology of Parental Depression: Future Directions

While substantial progress in understanding relations between parental depression and risk for child psychopathology has been made in the past decade, the field is only beginning to articulate the developmental psychopathology of parental depression from the children's perspective. Several emerging directions in research that offer the potential to advance further a process-level understanding of the impact of parental depression on children are considered next. The general theme is a need for greater articulation of the specific and precise relations between parental depression, family environments and child outcomes.

1. Depression as a multidimensional construct

It remains that in many investigations depression is treated as a homogeneous, unidimensional construct. For instance, parents are often simply dichotomized into depressed and well groups. Such an approach to the "stimulus" of parental depression does not adequately capture the multi-dimensional complexities of depression and family environments associated with depression.

The symptoms alone can take many forms that, in turn, differ in terms of frequency, duration, time of onset and recurrence. Yet, only a few investigations (e.g. Radke-Yarrow *et al.*, 1985) have empirically examined how specific dimensions of depression (e.g. type of symptoms, duration and intensity of episodes) influence family and child outcomes. The family context within which depression occurs also should be differentiated in a complex characterization of depressionogenic environments, including marital conflict, disturbances in the parent-child subsystem, parental hospitalization and physical absence, additional forms of pathology in either parent, adverse socioeconomic conditions, and inadequate social support systems (e.g. Zahn-Waxler *et al.*, 1992; for a review, see Coyne *et al.*, 1992).

Relatedly, there needs to be a better delineation of proband and comparison samples for better discrimination of process relations. A recent innovation is the use of multiple comparison samples. For example, Hammen and her associates included four groups of mothers: unipolar depressed, bipolar depressed, well, and medically ill (Hammen, 1992b; Hammen *et al.*, 1987). Comparisons across these groups permitted the more precise identification of factors contributing to children's outcomes.

Certain subcategories of depression should clearly be distinguished, including: (a) unipolar versus bipolar depression; and (b) postpartum depression. For example, children of bipolar depressed parents may be at greater risk due to the significant externalizing component that characterizes the phenomenology of bipolar depression

(Davenport *et al.*, 1984; Gaensbauer, Harmon, Cytryn & McKnew, 1984). Insecure attachment is particularly prevalent among children of bipolar depressed parents (Radke-Yarrow *et al.*, 1985; Zahn-Waxler, Chapman & Cummings, 1984). Parents may have unrealistically high standards of achievement, conformity and maturity of their children (Davenport, Adland, Gold & Goodwin, 1979). Clinical observations of Davenport and others suggest that families with a bipolar depressed parent are intensely preoccupied with controlling and avoiding negative expressions of anger and sadness. Avoidance of negative affect, as well as greater overt hostility, may characterize marital conflict (Ablon, Davenport, Gershon & Adland, 1975). The demand-withdraw pattern is a significant expression of concurrent marital distress (Christensen & Heavey, 1990) and one predictor of long-term difficulties (Gottman & Krokoff, 1989). However, the distinctions between the family environments of bipolar versus unipolar depression are not well-established; much more work is needed.

Another category is depression associated with the birth of a child, that is, postpartum depression. During the post-natal period approximately 10% of women experience a clinical depression (Campbell & Cohn, 1991). In fact, the predictors of depression for childbearing women are similar to those for nonchildbearing women (e.g. previous episodes of depression), but the inclusion of factors specific to the context of childbearing (e.g. childcare stress) adds to prediction (O'Hara, Neunaber & Zekoski, 1984; O'Hara, Schlechte, Lewis & Varner, 1991). Campbell, Cohn, Flanagan, Popper and Meyers (1992) reported that depressed women showed less positive engagement and more negative affect when observed with their infants at 2 months, and that depression severity was related to measures of personal and family history, minor pregnancy and delivery complications, and their adaptation to pregnancy (see also Cohn *et al.*, 1990). In particular, spouse support differentiated depressed and nondepressed women and more chronic versus short-lived depression. Postpartum depression is more likely to have prolonged effects on the infant when the depression is chronic and severe; in low-risk samples, when depression is short-lived, effects may be negligible (Campbell, Cohn, Meyers, Ross & Flanagan, 1993).

2. Age-related changes and developmental course

More research on age-related reactions and developmental continuities and changes is necessary for an understanding of how the mechanisms and pathways of children with depressed parents are similar and different from children of normal parents. Age as an issue has received scant attention in the parental depression literature (Rutter, 1990).

One issue is how children of depressed parents approach and resolve stage-salient tasks. Successful resolution of stage-salient tasks facilitates normal development (Cicchetti, Toth, Bush & Gillespie, 1988). However, since these tasks are already challenging in themselves, their successful resolution may be highly sensitive to stressors such as parental depression. For example, acquiring the capacity for emotion modulation is hypothesized to be a salient task for the late infancy and toddler period (12–30 months) (Cicchetti, 1989). Zahn-Waxler and colleagues have reported more emotional regulation problems in children of bipolar depressed parents (Zahn-Waxler, Cummings, McKnew & Radke-Yarrow, 1984) and that emotion regulation problems

in toddlers of depressed parents predicted behavior problems at school age (Zahn-Waxler *et al.*, 1990).

As another example, the development of positive self-concept and healthy peer relations are central to the preadolescent years. Goodman *et al.* (1993) recently reported that maternal depression predicted less popularity among peers. However, much more of the children's social and emotional competence was accounted for by a multiple risk factor model that also included the parents' marital status and the fathers' psychiatric status.

Another concern is whether children's socialization histories cause them to develop task capabilities at the appropriate ages for their level of functioning or too early. For example, Zahn-Waxler, Kochanska, Krupnik and McKnew (1990) reported that at 5–6 years children of depressed mothers experienced more guilt than children of well mothers. Taking responsibility for the parents' well-being at this early age is burdensome and possibly problematic for children's later functioning, since it occurs before children have established the skills and maturity to cope effectively with such responsibility. Zahn-Waxler *et al.* (1990, p. 57) state that "Intense arousal and involvement in others' problems very early in development may draw children away from other stage-salient tasks of attachment and separation-individuation, or alter how these tasks are resolved."

3. *Buffers and resilience factors*

Children of depressed parents often cope effectively (Eisenbruch, 1983; Williams & Carmicheal, 1985). Investigators should not neglect the existence of buffers and resilience factors in even very depressionogenic family environments. Although depression is linked with family discord, many families with depressed parents function in healthy ways in areas of marriage, child management and the provision of love in rearing their children (Cox *et al.*, 1987; Stein *et al.*, 1991).

Garnezy (Garnezy & Masten, 1991) contends that "competence" should be added to the "stress and coping" lexicon to emphasize the key role of children's own capacities in overcoming experiential threats and challenges. The recognition of this notion in research could improve the prediction of child outcomes and provide a more encompassing descriptor of children's response processes.

Relatedly, it should not be assumed that depression in families only has negative implications for child development. There may also be positive developmental outcomes, or special strengths, that are found in children from such backgrounds. For example, such individuals may learn to be especially attuned to others' feelings and sensitivities, which in some contexts may be especially adaptive and valuable. Outcomes associated with maternal depression are not necessarily pathological, and it is important not to assume differences between children of depressed parents and children of normal parents are always indices of risk for psychopathology.

4. *Utilization of experimental designs*

Experimental research on the effects of parental depression on children has been relatively rare, and the experimental method underutilized. However, experimental

designs have an important role to play in advancing scientific understanding. In particular, this approach can significantly increase certainty about questions of the direction of causality, thereby advancing understanding of process relations and mechanisms. Further, with correlational methods, the possibility always exists that extraneous and unassessed variables account for relations.

As an example, Cohn and Tronick (1983) devised a procedure in which normal mothers simulated depressive symptoms in interactions with their infants under controlled circumstances. Infants responded with negative affective expressions and eventually with disengagement to such behaviors by their mothers, powerfully demonstrating the effects of the mother's depressed affect on infants. This work added importantly to evidence that environmental factors, rather than solely biological or genetic mechanisms, could contribute to emotional and behavioral dysregulation in children of depressed parents.

Conclusion

Clearly, there are substantial bases for holding that environmental factors in family functioning contribute to the elevated occurrence of psychopathology in children of depressed parents. Further, as this review indicates, a quite substantial body of evidence now exists on specific process relations between maternal depression, family functioning and child outcomes.

To a significant degree, the environmental processes and mechanisms that operate in families with depressed parents bear notable similarities to those found in nondepressed families. That is, while parental depression increases the likelihood of family discord, broadly defined (see Davies & Cummings, 1993), the impairments in parenting, marital conflict and other evidences of family discord associated with parental depression have effects similar in important ways to those in nondepressed families. Thus, work on the development of children of depressed parents has implications not only for this at-risk population, but also for our views of child development more generally.

Nonetheless, the constellation of risk factors associated with these families from the perspective of child development makes this an important and distinctive group in its own right, with research in this field having implications for clinical as well as developmental models of functioning. An important direction for future research is the study of interrelations and interactions between environmental and biological risk processes in families with depression, which holds the promise of advancing an understanding of the unique problems and challenges that are faced by these families. Given the significant mental health problem posed by depression in families, it is to be hoped that, in addition to advancing conceptual understanding of the developmental psychopathology of depression in families, research will be increasingly valuable in providing an informed foundation and groundwork for more effective education, prevention, and intervention for at-risk children and families.

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