Mother–Child Interactions in Depressed Children and Children at High Risk and Low Risk for Future Depression

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Abstract

Objective—To compare mother–child interactions and parenting styles in families of children with major depressive disorder, youths at high risk for depression, and healthy controls.

Method—Currently depressed ($n = 43$), high-risk ($n = 28$), and healthy control ($n = 41$) youths and their mothers engaged in a standardized videotaped problem-solving interaction. Measures of affect and behavior for both mothers and children were obtained, in addition to global measures of parenting.

Results—Depressed children demonstrated more negativity and less positivity in dyadic interactions than did children at high risk and control children. Mothers of depressed children were more disengaged than control mothers. Exploratory repeated-measures analyses in a subgroup of depressed children ($n = 16$) suggested mother–child interactions do not significantly change when children recover from depression. Children at high risk demonstrated less positivity in dyadic interactions than did controls. Mothers with a history of major depressive disorder and mothers with higher current depressive symptoms demonstrated patterns of disengagement and low control in interactions with children.

Conclusions—Mother–child interactions in depressed youths are marked by maternal disengagement and low child positivity that may not improve when children recover. The bidirectional effects of maternal disengagement and low levels of child positivity may precede onset of major depressive disorder in children and serve as risk factors for recurrent depression in youths.

Keywords

major depressive disorder; high risk; mother–child interaction; parenting

Family interactions provide a rich context for studying the bidirectional relationship between interpersonal environments and the onset and course of psychopathology in depressed children and adolescents. Depressed children and adolescents have discordant family relationships, marked by high rates of conflict, hostility, rejection, low support and cohesion,

and poor communication,[1–5] that may persist after children and adolescents recover from acute depressive episodes.[6,7] As such, maladaptive family interactions have been postulated to be one of the mechanisms by which depression develops and is maintained in at-risk children and adolescents.[4,8] Research on children of depressed mothers further indicates that poor family functioning, negative mother–child interactions and maladaptive parenting strategies may predate the development of depression in children with familial loading for depression.[9,10]

Because of the bidirectional nature of child and parent factors that contribute overall discordant interactions in families of depressed children, it remains unclear whether negative family interactions precede depression in children and adolescents or whether negative family interactions are a consequence of children's depressive symptoms[1,11–13] or both. Two recently published studies sought to untangle the role of family discord as precursor to or consequence of youth depression by comparing family functioning and family interactions in a group of children and adolescents at high risk for developing major depressive disorder (MDD) with a group of depressed and healthy control children.[1,5] Both studies found significant discord in the family relationships of depressed youths, and similar patterns of family functioning and interactions of high-risk youths and healthy controls. Stein and colleagues[5] concluded that current maternal depression, rather than child depression, accounted for the high levels of impairment in family functioning, whereas Birmaher et al.[1] speculated that childhood depression may instigate negative family interactions. Longitudinal studies are necessary to assess family interactions during a child's depressive episode and after recovery to isolate and compare the bidirectional effects of childhood depression and family interactions.

The extant studies on youths' depression and parent–child interactions have two primary methodological limitations: the overreliance on parent- and child-report measures of family conflict, cohesion, and general functioning and the lack of clinically referred populations of children and adolescents. Observational research with clinically referred children and adolescents is needed to advance the field's understanding of how family interactions may contribute to depression in children and adolescents and how family interactions are affected by mood disorders in youths. To date, few observational studies of family interactions in depressed children and adolescents have been reported, and only a few empirical studies have examined both parent and child characteristics in family interactions in clinical samples of depressed youths. In two such studies, mothers of depressed adolescents were less facilitative; their adolescents engaged in less problem-solving, and both mothers and adolescents displayed high levels of negative affectivity.[7,14] Although these studies substantiate many of the findings derived from youths and parent report of family interactions, they are limited in their ability to tease apart whether maternal or child characteristics in family interactions precede the development of depression in children at high risk.

The present study investigated differences in an observational measure of mother–child interactions in a sample of currently depressed children and adolescents, nondepressed youths at high risk for developing an affective disorder, and healthy controls. Both mother and child behaviors were compared across diagnostic groups. Based on previous studies, we hypothesized that mother–child problem-solving interactions in depressed children and adolescents would show evidence of greater discord compared to those of healthy controls and mother–child problem-solving interactions in children at high risk would indicate elevated rates of discord compared to those of healthy controls and less discord than those of depressed youths. Furthermore, maternal depression was hypothesized to be associated with maternal behavior in both depressed and high-risk groups and to predict more negative maternal behavior in problem-solving interactions.

This study sought to preliminarily address the question of whether parent or child factors account for maladaptive interactions in the families of depressed children. This mother–child interaction paradigm was repeated in a subsample of depressed youths, some of whom experienced remission and some who continued to meet diagnostic criteria for MDD, to compare the effects of child depression on both maternal and child behaviors. Repeated-measures analyses of mother–child problem solving were conducted with a subgroup of depressed children ($n = 16$) who continued to experience depression or recovered from depression 1 to 2 years after their index episode to explore whether changes in children's depressive status were associated with changes in mother–child interactions.

METHOD

Inclusion Criteria

Children between the ages of 8 and 17 were included in the present study and were participating in a larger program of research investigating neurobehavioral factors in pediatric affective disorders.[1,15] However, a particular emphasis was placed on recruiting prepubertal children (ages 8–12) at high risk for developing depression during early adolescence. Parents and children provided signed informed consent/assent before participating in the study in compliance with requirements of the University of Pittsburgh Institutional Review Board.

Children with MDD were required to meet diagnostic criteria according to *DSM-III-R*.[16] Children at high risk had no lifetime history for depression and did not meet diagnostic criteria for current mood disorders. However, all of them had at least one first-degree relative (96% parent, 4% sibling) and at least one second-degree relative each with a history of either childhood onset, recurrent, and/or bipolar depression. Children in the healthy control group had no lifetime history of Axis I disorders, and their first-degree relatives had no lifetime history of any mood or psychotic disorder. The second-degree relatives of healthy controls had no history of childhood-onset, recurrent, psychotic, or bipolar depression. However, control children with less than 20% of second-degree relatives with a single lifetime episode of depression remained eligible for inclusion in the present study.

Exclusion Criteria

Children were excluded from participating in this large biological protocol if they showed evidence of low IQ (<70), extreme obesity (weight >150% of ideal body weight), or growth failure (height or weight lower than the third percentile), developmental delays, significant medical or neurological illness, or an inordinate fear of intravenous needles. Children who had been taking any medication with CNS effects (e.g., serotonin reuptake inhibitors, stimulants, or other antidepressant medication) in the 2 weeks before the intake interview were also excluded from the study. Depressed children who met diagnostic criteria for schizophrenic, schizoaffective, or bipolar disorder were ineligible for participation in the research protocol.

Instruments

Child Psychopathology—Children's lifetime and current psychiatric symptomatology was assessed using the Schedule for Affective Disorders and Schizophrenia for School-Age Children, Epidemiological Version[17] and the Present Episode Version,[18] with both the child and parent(s) serving as informants. To meet diagnostic criteria, children endorsed at least five depressive symptoms that persisted for at least a 2-week period and interference with their global functioning. Recovery of the index depressive episode was defined as the absence of symptoms needed for a diagnosis of a depressive disorder, with no more than one

clinically significant symptom and two subclinical symptoms present at the time of assessment.

Family Psychopathology—First- and second-degree relatives were interviewed using the Schedule for Affective Disorders and Schizophrenia for School-Age Children, Epidemiological Version for relatives ages 6 to 18 and the lifetime version of the Schedule for Affective Disorders and Schizophrenia[19] for adult relatives. All of the lifetime diagnoses for first- and second-degree relatives were made according to the best estimate procedure[20] based on *DSM-III-R* criteria. Trained research clinicians who were blind to the child`s clinical status conducted all of the diagnostic interviews. Satisfactory interrater reliability for diagnoses was established ($\kappa > .70$) under the supervision of one of the primary investigators.

Maternal Lifetime Psychiatric History/Current Depressive Symptoms—Maternal lifetime psychiatric history was determined at intake via the lifetime version of the Schedule for Affective Disorders and Schizophrenia.[19] In addition, the Beck Depression Inventory,[21] a 21-item self-report questionnaire, indexed current maternal depressive symptoms. Mothers rated their depressive symptoms over the past 2 weeks, with higher total scores indicating more severe depressive symptomatology.

Family Problem Solving—Ten-minute mother–child interactions were videotaped during intake and at annual laboratory assessments for the purposes of evaluating family problem solving. Each dyad was asked to discuss two previously reported issues that currently caused conflict in their relationship. A well-validated global coding system[22,23] was used to obtain 12 observational measures of affect and behavior for both children and parents (warmth, assertiveness, communication, involvement, self-disclosure, anger/hostility, coercion, transactional conflict, authority/control, negative mood, positive mood, problem solving), and four global measures of parenting (authoritative, authoritarian, permissive, and disengaged), based on Baumrind's four parenting classifications. Each of these variables was rated on a 1 to 5 Likert scale, with higher numbers indicating traits or behaviors more characteristic of the parent or child in the videotaped interaction. Reliability was established on approximately 20% of the coded videotapes between a criterion coder, who received extensive training from the developers of the coding system, and a secondary coder. Satisfactory interrater reliability for each variable was determined by intraclass correlation coefficients (average intraclass correlation coefficient for parent variables = 0.63; average intraclass correlation coefficient for child variables = 0.67).

Three maternal factors (positivity, negativity, and control) and two child factors (positivity and negativity) were created by averaging individual scores from the original observational coding as described in previous studies that used this coding system.[24,25]

Demographics—Sex of child, minority status, and date of birth/age data were collected at the initial assessment. Socioeconomic status was measured using the Hollingshead Four-Factor Index.[26] Family composition (e.g., two-parent or single-parent family) was derived from the Psychosocial Schedule,[6,27] a semistructured parent interview that assesses marital relationships in addition to children`s relationships with parents and peers, and academic performance.

Procedure

The present study represents a subset of data collected during a 21-year program of research on the neurobehavioral factors associated with pediatric affective disorders. Depressed, high-risk, and control youths were originally recruited to participate in a broader set of

biological protocols aimed at examining differences between groups on hormonal markers of stress reactivity, neuroendocrine function, and sleep EEG. Once enrolled in the study, youths and their families were invited to return for annual or biannual visits that included follow-up psychiatric interviews of the identified child and at least one parent. Recruitment was ongoing for the duration of this project, and retention of subjects for the core protocols was excellent (approximately 88%). For this core protocol, follow-up psychiatric interviews were conducted in the subjects' homes, in our laboratory setting, or over the telephone to retain out-of-state subjects.

Across the scope of this program, time-limited and supplemental protocols were added to gain additional information about the sample. The mother–child interaction data were collected as a part of the phase II protocols that focused on assessing the social environments of depressed and high-risk children and adolescents. The families who participated in this protocol represent a subset of the overall sample that were defined by the time they entered the study and availability of this supplemental protocol. Fifty percent of families in the present study were recruited during phase II and participated in the mother–child problem-solving paradigm at the time of initial contact (month 0). The other half of the subjects, who were recruited during phase I, participated in this protocol during an annual follow-up visit. No statistically significant differences based on when youths completed this mother–child problem-solving protocol (at time of initial contact or at a follow-up visit) were found on any of the dependent measures, allowing us to collapse across groups.

For roughly 50% of families, the family interaction paradigm was administered more than once during annual visits for the period of time when this protocol was active. For between-subjects comparisons, our goal was to match all three groups based on the child's chronological age to control for developmental differences in children's verbal and self-regulatory processes as well as the type of content discussed within the mother–child interactions. For children in the MDD group with multiple data points ($n = 16$), data from the first mother–child problem-solving protocol were used to allow repeated-measures analyses of family problem solving in a subgroup of children and because youths in the MDD group tended to enter the study at older ages. For children in the low-risk and high-risk groups, we chose the data point at which the child's age at the time of the problem-solving paradigm was as close to the mean age of youths in the MDD group as possible (12.1 years). For all of the children in the high-risk group and for most youths in the control group, the data point chosen was the last problem-solving paradigm because youths in the high-risk and low-risk control groups were generally recruited at younger ages than those in the MDD group.

Statistical Analysis

The demographic characteristics of the high-risk, MDD, and healthy control groups were compared using analysis of variance (ANOVA), analysis of covariance, χ^2, and Pearson's correlations as appropriate. ANOVAs were chosen over multivariate analyses to simplify results based on group differences and to be consistent in statistical strategies with previously published reports on the family interactions within this high-risk sample.[1,5] However, multivariate analyses were largely consistent with the univariate results presented here. The interested reader can refer to the multivariate analyses included in Tables A and B, available on the *Journal*'s Web site (www.jaacap.com) through the Article Plus feature. Repeated-measures ANOVAs were carried out to test for differences in mother–child interactions across time for a subset of youths in the MDD group who had either continued to meet diagnostic criteria for depression or who were in remission at subsequent visits. ANOVA and regression were used to examine the effects of lifetime history of maternal depression and current depressive symptoms on mother–child interactions. All of the post hoc tests included least significant difference corrections. All of the values are reported as

mean ± SD, and *p* values are based on two-tailed tests. Analyses testing a priori hypotheses were conducted without adjusting for multiple comparisons. We did not use a stringent error control strategy when conducting exploratory analyses regarding the mother–child interactions of MDD group with youths with comorbid disorders, and the repeated-measures data with remitted and nonremitted youths from the MDD group because these results must be qualified and substantiated by future studies that are adequately powered. Exploratory analyses were conducted to investigate an open and intriguing question in the child and adolescent psychiatry literature and to inform future studies and not conducted with Bonferroni-adjusted α levels.

Subjects

A total of 112 children and adolescents from 90 families participated in the study: 28 nondepressed at high risk for MDD, 43 with MDD, and 41 healthy controls. Children and adolescents in all three diagnostic groups did not significantly differ in age (mean age 12.1 years). In the high-risk group, only one child met criteria for a *DSM-III-R* diagnosis (attention deficit disorder). In the depressed group, 23 children (52%) met diagnostic criteria for at least one comorbid disorder; of these children, 11 met diagnostic criteria for a comorbid anxiety disorder and 10 had a comorbid externalizing disorder (e.g., oppositional defiant disorder, attention deficit disorder, conduct disorder). These rates of comorbid disorders are consistent with diagnostic profiles of depressed children and adolescents from previous epidemiological and clinical studies of early-onset depression.[28–31]

Of the 90 mothers who participated in the present study, 26 (29%) had no history of any psychiatric disorder, 15 (17%) had a history of a non-mood disorder (e.g., anxiety disorder, substance use disorder, eating disorder, conduct disorder), and 49 (54%) had a history of MDD. Eighteen (20%) mothers had more than one child enrolled in the study. These mothers completed individual data collection for each child, including the videotaped mother–child problem-solving paradigm. Although information regarding maternal psychiatric history was the same for siblings, these mother–child dyads were treated as independent data points and subsequent analyses controlled for within-family correlations. All of the analyses were first carried out correcting for within-family correlations using mixed-effects linear regression (intracluster correlation range 0.16–0.62). Because a similar pattern of results emerged regardless of whether within-family correlations were considered in analyses, results are presented without controlling for intrafamily correlations.

RESULTS

Preliminary Analyses

Preliminary analyses were conducted to assess the comparability of demographic characteristics across high-risk, MDD, and low-risk control groups (Table 1). Youths in the MDD group were less likely to live with both biological parents than the high-risk and low-risk control groups and more likely to be of lower socioeconomic status than the low-risk control group. Although there were no ethnic minority children in the high-risk group, the low-risk control and MDD groups did not differ significantly in rates of ethnic minority children (χ^2 [*df* = 1] = 0.57, not significant).

Pearson's correlations were conducted to investigate relationships between family composition, socioeconomic status, and minority status and all of the dependent variables to determine whether any of these factors needed to be controlled for in subsequent analyses. Children from intact families demonstrated increased rates of positive affect in dyadic problem-solving ($r = 0.24$, $p < .05$). Lower socioeconomic status was significantly associated with higher rates of maternal negativity during the family problem-solving task (*r*

= −0.19, $p < .05$), and mothers of minority children were less likely to demonstrate high levels of positivity during family problem-solving sessions ($r = −0.21$, $p < .05$). Hence, the corresponding covariates were controlled for in analyses involving these dependent measures.

Mother–Child Problem-Solving and Parenting Styles

Results are presented in Table 2. A significant difference in maternal control was detected across child diagnostic groups, with mothers in the low-risk group showing evidence of higher rates of control and involvement in the problem-solving discussion than mothers in both the high-risk and MDD groups. The degree of maternal control demonstrated by mothers was similar in the high-risk and MDD groups. In regard to parenting styles, only one significant group difference emerged: mothers in the MDD group demonstrated more disengaged parenting than mothers in the low-risk group. Again, mothers in the high-risk group did not differ significantly from the MDD group in their degree of disengaged parenting.

Child negativity was significantly higher in the MDD group compared to children at low risk and at high risk. Depressed and high-risk children demonstrated significantly lower levels of child positivity than did healthy controls. Exploratory analyses were conducted to examine whether comorbid internalizing or externalizing disorders in the childhood MDD group accounted for differences in maternal problem solving, parenting styles, and children's problem solving during family problem solving (Table 3). Depressed children with a comorbid externalizing disorder displayed more negativity toward their mothers than children with MDD only. A difference approaching statistical significance was also observed in maternal negativity between the MDD only and MDD with comorbid externalizing disorders groups.

Exploratory Analyses—Repeated-measures ANOVAs were conducted to determine whether changes in maternal or child behavior were evident in 16 children who were diagnosed with MDD at intake and had either recovered from their index episode of depression ($n = 9$) or continued to meet criteria for depression ($n = 7$) at the time of a subsequent assessment. Within-subjects results suggested that the degree of maternal control displayed in problem solving significantly decreased over time, regardless of whether children's depression remitted (Table 4). Similarly, within-subjects differences approaching significance were found for maternal positivity and child positivity, suggesting that mothers' positive affect decreases and children's positive affect increases over time. No significant between-subjects differences were found on any maternal, child, or parenting outcome measures.

Exploratory repeated-measures comparisons for mother-child problem solving including a control group of 11 low-risk youths yielded findings similar to those reported for the MDD remitted and nonremitted groups only. These analyses are included in Table C, available online at www.jaacap.com through the Article Plus feature of the *Journal*.

Effects of Maternal Psychiatric History and Current Depressive Symptoms on Problem Solving and Parenting Styles

Mothers with a history of a mood disorder(s) demonstrated more disengaged parenting when interacting with their children than mothers with no history of psychiatric disorders (Table 5). Similarly, there was a notable trend for mothers with a history of mood disorders to demonstrate less control in interactions with their children compared to mothers with no history of psychiatric disorders. Within the group of mothers with a history of mood disorders, exploratory analyses were conducted to examine the effects of comorbid anxiety

and substance use disorders on mothers' problem-solving and parenting styles. There were no significant differences in mothers' problem solving or parenting associated with a history of comorbid anxiety or substance use disorders.

Last, a series of regression analyses were conducted to determine the association between concurrent depressive symptoms in mothers and observed problem-solving and parenting styles in a sample of 93 dyads whose mothers had completed the Beck Depression Inventory during the same laboratory visit during which the family interaction data were collected. Consistent with previously reported findings for mothers with a history of MDD, mothers with increased depressive symptoms demonstrated less positivity ($R = 0.21$, $B = -0.21$, $t(92) = -2.02$, $p < .05$), more negativity ($R = 0.24$, $B = 0.24$, $t(92) = 2.36$, $p < .05$), and more disengaged parenting toward their children in problem-solving interactions ($R = 0.33$, $B = 0.33$, $t(92) = 3.32$, $p < .01$) than mothers with fewer depressive symptoms.

DISCUSSION

Our results supported hypotheses regarding increased family discord in the parent–child interactions of currently depressed children and suggested some prodromal features of parent–child interactions in high-risk children that may contribute to the development of early-onset depression. Mothers of depressed children demonstrated the lowest rates of control and highest rates of disengagement when interacting with their children, whereas mothers of high-risk children demonstrated intermediate levels of control and disengagement that were not significantly different from those observed in mothers of the MDD groups. High rates of negativity and low rates of positivity were observed in currently depressed children compared with those in the high-risk or healthy control groups. Comorbid externalizing disorders in depressed children presented significant risk for elevated rates of child and maternal negativity in the observed problem-solving interaction. Exploratory analyses revealed that many aspects of parent–child interactions do not change when children's depressive symptoms remit and that for children in the MDD group, maternal control and positivity decreases over time regardless of the presence or absence of depressive symptoms in children. Children in the high-risk group demonstrated intermediate levels of positive affect, significantly lower than that observed in healthy controls. Lifetime history of mood disorder in mothers were associated with increased disengagement and lower control in interactions with children, and higher scores of current depressive symptoms predicted less maternal positivity, more maternal negativity, and high rates of disengaged parenting.

Findings from the present study highlight maternal disengagement and low levels of child positivity in the depressed and high-risk groups as markers of discordant family interactions. Substantiating the findings from previous studies,[32–34] mothers of depressed children were less engaged, less active, and less involved with their children in discussing and resolving problems compared to mothers of healthy controls, and depressed children demonstrated more negativity and less positivity in interactions with their mothers compared to nondepressed control children. The most distressed parent–child interactions with high levels of negative affectivity were observed in depressed children with comorbid externalizing disorders.[35,36] Maternal involvement and child positive and negative affectivity most likely represent reciprocal processes that reinforce maladaptive interaction styles.

Exploratory repeated-measures analyses suggest that mother–child problem-solving interactions do not significantly change when children's depression remits; rather, maternal control was found to significantly decrease over time regardless of whether children's depression remits. A similar trend was found for maternal positivity to decrease over time

for both the remitted and nonremitted groups. The observed decrease over time in maternal control, the degree to which mothers are actively engaged in problem solving and attempting to influence their children, may be related to natural changes in mother–child interactions across different developmental periods. Mothers may exhibit lower levels of control as their children become older and increasingly autonomous. Similarly, mothers of older children and adolescents may demonstrate lower levels of positive affect compared to mothers of younger children.[37] Decreased maternal control and positivity toward youths who have recovered from depression may reflect mothers' decreased need to monitor children's behavior and decisions, and a decreased need to enhance their mood. Decreased maternal control and positivity in the context of continued youth depression may indicate a less resilient family system that has difficulty monitoring and improving the mood of its members and may be a risk factor for continued youth depression. Although these findings begin to suggest that patterns of mother–child interactions in youths with a history of MDD may be more stable and less dependent on child mood states, these negative findings across nonremitted and remitted youths may reflect this study's limited ability to detect differences across groups with a small sample. At this time, all interpretations of these findings must be tempered with caution given the exploratory nature of such analyses with a small sample.

Mothers and children in the high-risk group consistently had intermediate scores of problem-solving behavior, affectivity, and parenting compared to dyads in the depressed and healthy control groups. Child positivity emerged as a domain by which children at high risk for developing depression differed from low-risk control children, showing evidence of significantly lower levels of positive affect. Child positive affectivity has recently been investigated in the affective neuroscience literature and linked with child and adolescent depression.[38] Specifically, a growing body of evidence suggests that children with depression demonstrate disruptions in neural systems related to reward and positive affect that may precede the onset of MDD and place them at risk for recurrent episodes. Our findings may also support the hypothesis that lower levels of positivity in mother–child interactions may be one pathway of vulnerability for adolescent depression.

Maternal disengagement and lower maternal control, as they were related to a lifetime history of MDD and high levels of current depressive symptoms in mothers, may also precede MDD in children and present another familial pathway for the development of child and adolescent depression. Disengaged mothers who are less effortful when interacting with children may be less responsive to their children's emotional needs and may contribute to a less supportive and cohesive family environment. Children at risk for developing depression may experience less optional interpersonal interactions with their mothers, who may be less emotionally available even outside acute episodes of maternal depression.

There are several limitations to the present study. Given the cross-sectional design of this study, causality cannot be established from the results. Even with a comparison group, our findings from repeated-measures analyses can only be considered exploratory because there was a small group of children in the MDD group who had consecutive family problem-solving data. These findings need to be replicated in an adequately powered study. Although minority children were represented in the depressed and control group, the high-risk group was entirely white. Hence, the pattern of findings described in the present study may not characterize interactions between mothers and high-risk children in racial and ethnic minority groups. Because fathers were not included in problem-solving interactions with children, these findings may not generalize across parents. Although family composition was not a significant predictor of mother–child interactions in our sample, it remains important to consider the influence of contextual stressors associated with the high rate of nonintact families in the MDD group that may subsequently affect mother– child interactions.

Preventive treatments for youths at risk for developing MDD are needed that focus on promoting adaptive and supportive parent–child relationships. Clinicians treating depressed children and adolescents should consider the quality of parent–child interactions and, in addition to improving children's mood, promote increased positive affective exchanges between children and parents and increased parental involvement. Maternal vulnerability to depression based on psychiatric history should also be addressed in the treatment of depressed children. Prompt treatment of concurrent maternal depression may increase mothers' positive involvement with their children and allow them to be active participants in their children's treatment. If clinicians note the importance of parent–child interactions or parental psychiatric disorder, then these factors should be sensitively and directly included in a treatment plan. Families can be informed that interventions in these areas can minimize risk for childhood depression and speed recovery from childhood depression.

Acknowledgments

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TABLE 1

Demographic Characteristics

	MDD ($n = 43$)	High Risk ($n = 28$)	Low Risk ($n = 41$)	Statistic
Age, y, mean ± SD	12.6 ± 1.7[a]	11.7 ± 2.5[a]	12.1 ± 2.5[a]	$F_{2,109} = 1.26$
Sex, % female	51.2[a]	42.9[a]	39.0[a]	$\chi^2 (df = 2) = 1.30$
Minority status, %	20.9[a]	0.0[b]	14.6[a]	$\chi^2 (df = 2) = 6.49$[*]
SES (Hollingshead), mean ± SD	40.9 ± 12.6[a]	41.4 ± 12.4[a]	47.9 ± 10.1[b]	$F_{2,109} = 4.36$[*]
Intact family, %	46.3[a]	76.0[b]	95.0[b]	$\chi^2 (df = 2) = 23.9$[**]
Maternal lifetime MDD, %	72[a]	71[a]	NA	$\chi^2 (df = 1) = 0.00$

Note: Means with different superscripts are significantly different; SES = socioeconomic status; MDD = major depressive disorder; NA = not applicable

[*]
p < .05;

[**]
p < .01.

TABLE 2 Maternal Problem-Solving and Parenting Styles and Child Problem Solving Across Diagnostic Groups

	MDD ($n = 43$)	High Risk ($n = 28$)	Low Risk ($n = 41$)	Statistic $F_{2,109}$
Maternal control	3.4 ± 0.7[a]	3.4 ± 0.5[ab]	3.7 ± 0.5[b]	2.91[*]
Maternal positivity[1]	3.2 ± 0.5[a]	3.3 ± 0.5[a]	3.3 ± 0.5[a]	0.87
Maternal negativity[1]	2.2 ± 0.9[a]	2.1 ± 0.8[a]	2.0 ± 0.8[a]	0.76
Authoritative parenting	2.7 ± 1.0[a]	2.9 ± 0.9[a]	3.0 ± 0.9[a]	0.90
Authoritarian parenting	1.8 ± 0.9[a]	1.7 ± 0.8[a]	1.6 ± 0.9[a]	0.25
Permissive parenting	1.6 ± 0.8[a]	1.5 ± 0.5[a]	1.4 ± 0.6[a]	0.87
Disengaged parenting	1.4 ± 0.7[a]	1.2 ± 0.5[ab]	1.1 ± 0.3[b]	3.60[*]
Child positivity[1]	2.4 ± 0.6[a]	2.5 ± 0.4[a]	2.9 ± 0.4[b]	12.22[**]
Child negativity	2.7 ± 1.0[a]	2.3 ± 0.9[ab]	2.1 ± 0.8[b]	4.23[*]

Note: Means with different superscripts are significantly different. MDD = major depressive disorder.

[*] $p < .05$;

[**] $p < .01$.

[1] Estimated marginal means accounting for appropriate covariates in maternal positivity, maternal negativity, and child positivity.

TABLE 3

Mother–Child Problem-Solving and Maternal Parenting Styles Within Childhood MDD Group

	MDD Only ($n = 21$)	MDD and Internalizing ($n = 12$)	MDD and Externalizing ($n = 10$)	Statistic $F_{2,40}$
Maternal control	3.4 ± 0.8^a	3.7 ± 0.6^a	3.3 ± 0.6^a	1.01
Maternal positivity	3.1 ± 0.6^a	3.3 ± 0.4^a	3.2 ± 0.5^a	0.30
Maternal negativity	1.9 ± 0.8^a	2.5 ± 1.0^{ab}	2.5 ± 0.8^b	$2.60^{†}$
Authoritative parenting	2.7 ± 1.1^a	3.1 ± 1.2^a	2.4 ± 0.5^a	1.28
Authoritarian parenting	1.6 ± 1.0^a	2.0 ± 0.8^a	1.9 ± 0.9^a	0.90
Permissive parenting	1.5 ± 0.8^a	1.4 ± 0.5^a	2.0 ± 0.7^a	2.23
Disengaged parenting	1.4 ± 0.7^a	1.3 ± 0.7^a	1.5 ± 0.7^a	0.25
Child positivity	2.4 ± 0.5^a	2.6 ± 0.8^a	2.1 ± 0.6^a	1.37
Child negativity	2.2 ± 0.9^a	3.0 ± 1.0^{ab}	3.4 ± 1.0^b	7.43^{**}

Note: Means with different superscripts are significantly different. MDD = major depressive disorder.

*
$p < .05$;

**
$p < .01$;

†
$p < .10$.

TABLE 4

Repeated Measures of Mother–Child Problem-Solving and Maternal Parenting Styles in MDD Group

	MDD Nonremitted ($n = 7$)		MDD Remitted ($n = 9$)		Within-Subjects Statistic $F_{1,14}$
	Time 1	Time 2	Time 1	Time 2	
Maternal control	4.14	3.48	3.56	3.26	11.83 [**]
Maternal positivity	3.46	3.23	3.38	3.11	4.18 [†]
Maternal negativity	2.05	2.10	1.93	2.04	0.13
Authoritative parenting	3.43	3.14	3.11	2.33	2.23
Authoritarian parenting	2.00	1.57	1.56	1.56	1.31
Permissive parenting	1.14	1.43	1.44	1.67	2.85
Disengaged parenting	1.00	1.00	1.44	1.22	0.08
Child positivity	2.23	2.49	2.49	2.71	3.36 [†]
Child negativity	2.38	2.38	2.44	2.22	0.19

Note: MDD = major depressive disorder.

[*]
$p < .05$;

[**]
$p < .01$;

[†]
$p < .10$.

TABLE 5

Effects of Maternal Psychiatric History on Family Interaction and Parenting

	No Disorders (*n* = 35)	Non-mood Disorder(s) (*n* = 17)	MDD (*n* = 60)	Statistic $F_{2,109}$
Maternal control	3.7 ± 0.5^a	3.5 ± 0.5^a	3.4 ± 0.7^b	$2.72^\dagger$
Maternal positivity	3.3 ± 0.5^a	3.3 ± 0.3^a	3.2 ± 0.5^a	1.17
Maternal negativity	2.0 ± 0.8^a	1.9 ± 0.7^a	2.2 ± 0.9^a	0.79
Authoritative parenting	3.0 ± 0.9^a	2.9 ± 0.7^a	2.7 ± 1.0^a	0.80
Authoritarian parenting	1.6 ± 0.9^a	1.8 ± 0.8^a	1.8 ± 0.9^a	0.51
Permissive parenting	1.5 ± 0.6^a	1.8 ± 0.9^a	1.5 ± 0.6^a	1.32
Disengaged parenting	1.1 ± 0.3^a	1.1 ± 0.2^{ab}	1.4 ± 0.6^b	3.98^*

Note: Means with different superscripts are significantly different. MDD = major depressive disorder.

*
$p < .05$;

†
$p < .10$.