

I. Introduction

A. Nature of the Research Problem

Maternal depressive symptoms are prevalent in families with young children, negatively affecting child, maternal and family health and development. The direct influence of both mothers and fathers on children's development is widely recognized. Yet, little is known about whether father involvement influences the relation between maternal depressive symptoms and family health. This gap is important for maternal and child well being, if mothers with depressive symptoms have more favorable parenting practices when fathers are involved in the care of their children. The study investigated relations among maternal depressive symptoms, father involvement, maternal parenting practices and children's well-being.

B. Purpose, Scope, and Methods of The Investigation

The goal of the study was to assess whether father involvement influences the relation of maternal depressive symptoms and maternal depression with maternal parenting and children's well-being. The 3 specific aims are:

1. To determine whether father's characteristics and father involvement are associated with maternal parenting practices and children's well being at 9 months and 2 years.
2. To determine whether father involvement influences the relation of maternal depressive symptoms with maternal parenting practices and children's well being at 9 months.
3. To determine whether father involvement influences the relation of maternal depression with maternal parenting practices and children's well being at 2 years.

Data for our study are from the Early Childhood Longitudinal Study, Birth Cohort (ECLS-B) led by the US Department of Education with sponsorship by multiple federal agencies including MCHB. ECLS-B follows a nationally representative cohort of 10,688 children born in 2001 to study home and educational experiences from ages 0-6 years. There are data on mother's health and parenting practices; father's involvement; children's well-being; and the family's social, economic, and demographic characteristics when children are 9 months and 2 years.

C. Nature of The Findings

The study results suggest complex relations between father's characteristics and involvement and maternal parenting practices and children's well-being. While father involvement in a child's life is recognized to have direct positive benefits for children, such involvement does not compensate for the negative effects of maternal depression on child development nor insulate children from the negative effects of maternal depression on parenting practices in early childhood.

II. Review of the Literature

A. Maternal Depression Is Common

Maternal depression has an estimated lifetime prevalence of 21% among women.¹ Ten percent of women experience severe postpartum depression during their lifetime.¹ High levels of depressive symptoms are associated with poverty and being uninsured, single, of non-white race, and unemployed.² About 13% of women have a major depressive disorder in a given year.³

B. Maternal Depressive Symptoms, Parenting Practices and the Family Context

Maternal depressive symptoms are widely recognized to impair parenting.⁴⁻⁸ Parenting practices are key factors contributing to children's health, social and cognitive competence, behavior, and lifelong learning.⁹ Parental mental health, parenting and child outcomes are three factors among a set of processes that together constitute family functioning.^{10,11} In analytic

models of family processes, parental mental health--- primarily indicated by maternal depressive symptoms---is related to parental characteristics¹⁰ and external events such as sudden income loss.¹² Maternal depressive symptoms, in turn, affect child well-being by affecting parenting,^{8,13} and marital quality and conflict may modify the effect of parental depression on parenting among married parents. Among unmarried mothers, high levels of instrumental social support appear to mitigate the effects of maternal depressive symptoms.¹³

Shonkoff and Phillips¹⁴ identify fathers as a key factor that can insulate children from the negative effects of maternal depressive symptoms or make children more vulnerable to them. Goodman and Gotlib¹¹ propose a developmental model for understanding maternal depressive symptoms, suggesting that supportive and involved fathers may moderate the negative influence of poor maternal health on maternal behaviors, cognition, and affect.

C. Fathers Roles in Promoting Children's Well-being

Father involvement contributes to children's emotional and intellectual well being, self esteem and social competence.¹⁵ Fathers' absence is related to negative consequences such as poor behavioral and cognitive functioning, poor school achievement, early childbearing, and increased risk taking behaviors.¹⁶ Direct influences of fathers include one-on-one interactions and indirect influences, financial support, their relationship with the mother, and mother-child interactions.^{17,18} Three components of father involvement, proposed by Lamb,^{19,20} include engagement (direct interactions with child), accessibility (availability regardless of extent of interaction), and responsibility (organization and planning of children's lives). The mutability of father involvement has been shown through trends such as: increasing engagement and accessibility from the 1960s through 1990s;^{21,22} variability in father involvement over a child's lifespan with lower engagement for younger children;^{23,24} and variability in father's engagement for a specific child vs. all children in a family.²³ Moreover, evaluations of specific interventions to promote parenting skills have led to increased engagement, accessibility, and support of their child's learning²⁵ and enhanced father-child relationships.²⁶

III. Study Design and Methods

A. Study Design

This research involved a secondary analysis of data collected from ECLS-B, a longitudinal cohort study with a nationally representative probability sample of children born in 2001. Data sources included: birth certificates, parent interviews, self administered questionnaires, and direct observations when the index child was 9 months and 2 years of age.

B. Population Studied

Subjects were mothers enrolled in ECLS-B, a nationally representative probability sample of all children born in the US in 2001 except those who: 1) were born to mothers < 15 years; 2) died before 9 months; or 3) were adopted before 9 months. Over 14,0000 births were sampled and 10,688 completed 9 month parent interviews. The sample included birth occurring in counties in 46 states and Washington, DC with oversampling of children who were American Indian and Alaska Native, Chinese and other Asian and Pacific Islander, twins, or low or very low birth weight in order to reflect the diversity of the nation as a whole with regard to socio-demographic characteristics.

At 9 months, 51% of children were boys. Mothers, the study subjects, are diverse with regard to race/ethnicity: 62% were white, 17% black, 13% Asian/Pacific Islander, 4% American Indian/Alaskan Native, 0.7% Native Hawaiian, and 3% multiracial. 18% were Hispanic.

Regarding plurality, 3% of births were twins, < 1% were high order multiple births, and 97% were single births. Eleven percent of children were born to teen mothers (15-19 years), 25% to moms 20-24 years, 26% to moms 25-29 years, 24% to moms 30-34 years, and 11% to moms 35-39 years, and 2% to moms 40 years and older. Maternal health varied with 34% in excellent health, 33% in very good health, 26% in good health, 7% in fair health and < 1% in poor health. In addition, 18% of mothers reported having depressive symptoms at 9 months.

Family type also varied with 20% single parent, 64% married with 2 biological parents, 14% cohabiting with 2 biological parents, and 2% other. At 9 months of age, 23% of children lived in families with incomes below the poverty threshold, 27% lived with mothers who had less than a high school education, and 17% lived with fathers who had less than a high school education.

Father presence in the household varied at 9 months with 20% living in households with no father. Of those without the biological father in the household, 13% had never seen their father while 40% had contact with their father on the day of the interview, 38% within the prior week, 7% within the last 1-2 weeks, and 2% more than 2 weeks earlier.

C. Sample Selection

Although we intended include children with both resident and non-resident fathers in all analyses, we were unable to do so. The response rate on the ‘Non-resident Father Questionnaire’ was low (32.3% at 2 years) and questions asked of resident and non-resident father were different and could not be combined in one analysis.

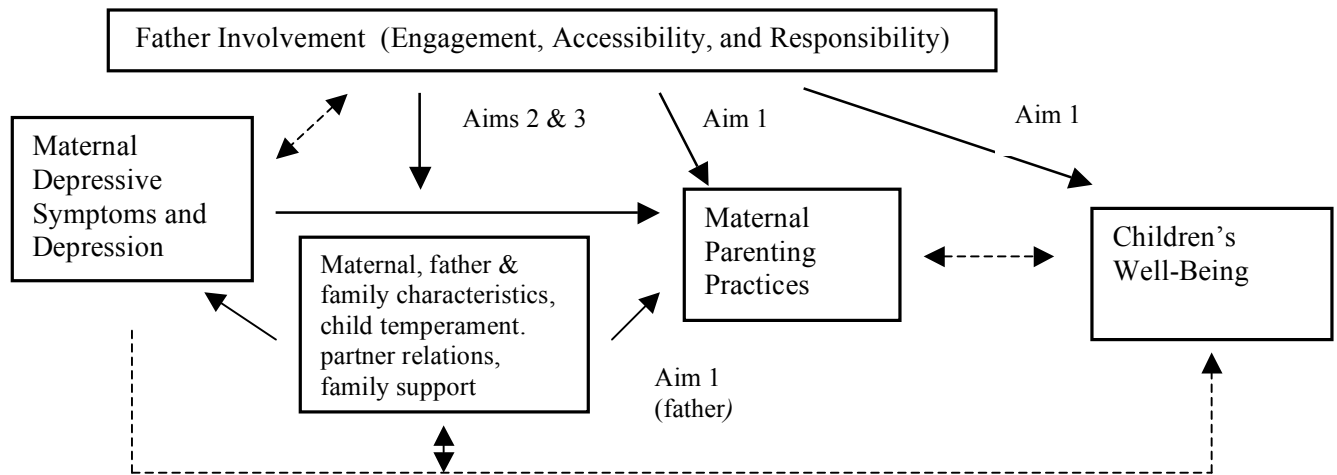
At 9 months of age, the sample for this analysis included biological or other mothers who reported on depressive symptoms, whose children were 7-13 months of age at assessment and who had a live-in partner that completed the ‘Resident Father Questionnaire’ (n=5184). ‘Resident Fathers’ were not necessarily biological fathers and also included adoptive, step and foster fathers, and partners of the mothers. This sample represents 48.5% of the observations at the 9 month wave (n=10,688). Most exclusions occurred because there was no resident father (n=1745) or because the resident father did not complete the questionnaire (n= 1392). Non-resident fathers were excluded because the response rate on the ‘Non-resident Father Questionnaire’ was low (52.4%) and questions asked of resident and non-resident father were different and could not be combined in one analysis.

At 2 years of age, the sample for this analysis included biological or other mothers who reported on depressive symptoms, whose children were 22-28 months old at assessment, and who had a live-in partner that completed the ‘Resident Father Questionnaire’ (n= 5704). ‘Resident Fathers’ were not necessarily biological fathers and also included adoptive, step and foster fathers, and partners of the mothers. This sample represents 58.0% of the observations at the 24 month wave (n=9835). Most exclusions occurred because there was no resident father (n=2009) or because the resident father did not complete the questionnaire (n= 1729). Non-resident fathers were excluded because the response rate on the ‘Non-resident Father Questionnaire’ was low (32.3%) and questions asked of resident and non-resident father were different and could not be combined in one analysis.

D. Instruments Used

Our conceptual framework focused on 1) the indirect effects of maternal depression on children via maternal parenting practices, and 2) influences of father involvement on this relation (Fig). It also focused on the direct effect of father involvement on maternal parenting practices and child well-being. As suggested by Cummings and Davies,¹⁰ this framework considers the effects of maternal depressive symptoms “within a larger family context of interdependent elements and processes.”

Fig. Conceptual Framework



There were three modes of data collection in ECLS-B: 1) computer assisted personal interviews (CAPI) with parents, usually mothers; 2) self-administered questionnaires for gathering more sensitive information (SAQ) from mothers, resident and non-resident fathers, and 3) direct observations of the child. In addition, birth certificates were available for enrolled children. The parent interviews provided information regarding maternal parenting practices, relationship characteristics, and demographics, while the SAQ provided information regarding mental health and self-reported father involvement. Direct observations yielded information regarding children's developmental attainment.

E. Statistical Techniques Employed

Although extensive data cleaning and editing were not needed, considerable efforts were made to refine the sample based on identification of relationships among mothers, children, and fathers (both resident and non-resident).

The next step of analysis was variable development by constructing scales and assessing degree of reliability of items using Cronbach alpha and item-to-total correlation. We developed scales for father engagement and responsibility and parental relationship quality at 9 months and 2 years. These scales were examined using bivariate analyses in relation to maternal depressive symptoms (9 months) and depression (2 years) as well as with maternal parenting practices and child's well-being.

Hierarchical weighted logistic regression models with Taylor linearized standard errors estimated the associations between depression and each of the dichotomized maternal parenting practices. First, simple logistic regression models were fit to estimate the unadjusted OR's for depression and each outcome. Positive parenting practices were coded as 1, so an $OR < 1$ indicates an inverse association between depression and positive parenting behaviors. For each outcome, a subsequent model included demographic covariates: maternal age, maternal race, maternal SES quintile, parity, and child's age at assessment. Two final models additionally adjusted for father involvement and parental relationship quality. Father responsibility and engagement were modeled in separate regressions. For each of the parenting outcomes, it was seen whether the OR for depression changed between models after accounting for additional covariates.

Similarly, weighted linear regression models estimated the association between depression and each child development score. We assessed whether the depression coefficient changed between models to determine if maternal depression affects child development even after accounting for father involvement.

Given complex relations between father involvement and the outcomes of interest (as well as with maternal depression, not shown), analytic models tested for confounding effects of father involvement, but not mediation.

IV. Detailed Findings

A. Maternal Depressive Symptoms at 9 Months and Depression at 2 Years

At 9 months, 14.5% of mothers reported having depressive symptoms ($CESD \geq 10$). The presence of depressive symptoms was associated with mothers being young (< 20 years), non Hispanic, of low SES, and multiparous.

At 2 years of age, 7.8% (8.4% weighted analyses) of mothers were depressed ($CIDI > 3$). Depressed mothers also were disproportionately young (< 20 years), non Hispanic, of low SES, and multiparous. Having depressive symptoms at 9 months also was strongly associated with reporting depression when the child reached 2 years of age.

B. Father Involvement

Father involvement scales were created for responsibility and engagement. The limited measures of accessibility (e.g., number of times away from child 1 week or more, number of hours worked/week) did not support the construction of a composite measure of accessibility, the domain least likely, conceptually, to influence relations between maternal depression and parenting practices and between maternal depression and child development. At 9 months of age, 8 items comprised the responsibility scale ($\alpha = 0.84$) and 9 items comprised the engagement scale ($\alpha = 0.71$). At 2 years of age, 8 items comprised the responsibility scale and 9 items comprised the engagement scale.

Table 1. Father Involvement Scales at 2 Years

	<i>Father Responsibility^a</i>	<i>Father Engagement^b</i>
<i>Number of items</i>	8	9
<i>Range</i>	0-47	0-46
<i>Mean (s.d.)</i>	33.8 (7.9)	30.8 (6.1)
<i>Cronbach's Alpha</i>	0.85	0.76

a. Responsibility includes: 1) In the past month, how often have you looked after your child while your spouse/partner did other things?; 2-8) *In the past month, how often did you do the following things with your child?* Prepare meals for your child? Change your child's diapers or help your child use the toilet? Help your child to bed? Give your child a bath? Help your child get dressed? Assist your child with eating? Help your child brush his or her teeth?

b. Engagement includes: 1-4) *In a typical week, how often do you do the following things with your child?* 1) Read books to your child? 2) Tell stories to your child? 3) Sing songs to your child? 4) Take your child along while doing errands, like going to the post office, the bank, or the store?; 5-9) *In the past month, how often did you do the following things with your child?* Play chasing games with your child? Take your child for a ride on your shoulders? Play with games or toys indoors with your child? Take your child outside for a walk or to play in the yard, a park, or a playground? Go to a restaurant or out to eat with your child?

B. Father Characteristics, Father Involvement, Maternal Parenting and Children's Well-Being

The relations between father demographic characteristics, involvement and maternal parenting practices were complex and exemplified by analyses at 9 months. For example, the presence of older and more educated fathers was associated with favorable parenting practices: breastfeeding (ever or current), not feeding cow's milk, not putting to bed with a bottle, putting to sleep on the infant's back/side, and reading daily. However, for other parenting practices, such as running errands, playing peekaboo, and tickling, reverse associations were seen.

Residency status of father also appears to influence associations between father involvement and maternal parenting. For example, at 9 months, for household with resident fathers, more favorable maternal parenting practices (e.g., ever or currently breastfeeding, not putting to bed with a bottle, reading daily) were reported among families with less responsible fathers. Mixed associations were observed between maternal parenting and the extent of resident father engagement. However, in households without resident fathers, no associations were observed between maternal parenting and extent of non-resident father responsibility.

Similarly, relations between father involvement and child development were examined separately for households with resident and non resident fathers at 9 months. No relationships were observed between resident father responsibility and Bayley mental or motor scores, although lower scores were observed among households with least engaged resident fathers. In households with non resident fathers, no relationships were observed for the child development measures and any domains of father involvement

Regarding socioemotional development at 9 months, no consistent gradient patterns were observed by father involvement quartiles, although higher scores were observed in households with less responsible fathers. No associations were observed between socioemotional development and non-resident father involvement.

C. Maternal Depressive Symptoms/Depression, Maternal Parenting, and Child Development

At 9 months of age, few associations were observed in adjusted analyses between maternal depressive symptoms ($CESD \geq 10$) and maternal parenting practices. After considering maternal age, race, SES, parity, child's age at assessment, and partner status, only 4 practices (not putting infant to bed with a bottle, reads daily, tells stories daily, and takes on errands daily) were associated with depressive symptoms with decreased odds of favorable practices among those with symptoms (aOR 0.69, 0.81, 0.77, 0.80, respectively). Similarly, at 9 months of age, only small differences in mean Bayley (mental and motor) and NCATS scores were observed in children whose mothers had depressive symptoms.

At 2 years of age, more associations were observed between maternal depression ($CIDI \geq 3$) and maternal parenting practices and between depression and child development. After adjusting for demographic factors, depression was associated with decreased odds of drinking from a cup (rather than a bottle), being put to bed without a bottle, not drinking soda, limiting tv use on week ends, and playing outside often. Depression also was associated with lower Bailey t-scores (motor and mental) and less favorable measures of socioemotional development (engagement with parent and sustained attention).

D. Maternal Depression, Maternal Parenting and Father Involvement at 2 Years

The first column of Table 2 shows that simple logistic regression models estimated strong unadjusted associations between maternal depression and most parenting practices. The direction of the observed associations were negative for 'no bottle to bed' (OR= 0.69), 'no soda' (0.66), 'restrict TV weekends' (0.65), and 'play outside often' (0.62), indicating that maternal depression decreases the odds of these positive parenting practices. The only observed positive relationship was between depression and 'rarely eat at restaurants' (OR= 1.53). No relationship

was observed between ‘child drinks from cup’ (OR= 0.92), ‘restrict TV weekdays’ (OR= 0.87), or ‘play chase often’ (OR= 0.97) and maternal depression.

Column 2 of Table 2 shows the aOR for depression and each parenting practice from logistic regressions adjusted for maternal age, race, SES, parity, and child’s age. In all outcomes but ‘child drinks from cup,’ the adjusted OR changes less than 10% from the unadjusted OR, indicating that these relationships are not confounded by maternal demographics or child’s age. In one case (‘no soda’), the OR loses statistical significance due to a change in model *n*.

The last two columns of Table 2 show the adjusted OR’s from models further adjusted for father involvement (responsibility in column 3 and engagement in column 4) and parental relationship quality. With the exception of ‘child drinks from cup,’ the OR for the effect of depression of each outcomes change less than 10% when father involvement is added to the models. The aOR for maternal depression remains statistically significant for the parenting practices: ‘no bottle to bed’ (OR= 0.66) ‘restrict TV weekends’ (0.69), and ‘play outside often’ (0.64). ‘No soda’ shows a strong negative trend and approaches statistical significance.

Table 2: Odds ratios for Maternal Depression (CIDI \geq 3) on Positive Maternal Parenting Practices

Positive maternal parenting practice	Unadjusted OR	aOR Demographics ^c	aOR Demographics ^c Responsibility ^d Relation Quality ^e	aOR Demographics ^c Engagement ^f Relationship Quality ^e
n range	5622-5704	5615-5695	4783-4845	4783-4845
FEEDING PRACTICES				
Child drinks with cup (vs. bottle)	0.92	0.79	0.89	0.91
No bottle to bed	0.69 ^b	0.65 ^b	0.66 ^b	0.66 ^b
No soda (at meals/snacks)	0.66 ^b	0.67	0.68	0.67
Rarely eat out at restaurants (< few times/mo)	1.53 ^a	1.49 ^a	1.49 ^b	1.49 ^b
PHYSICAL AND SEDENTARY PRACTICES				
Restrict TV on weekdays (\leq 2hrs/d)	0.87	0.89	0.81	0.81
Restrict TV on weekends (\leq 2hrs/d)	0.65 ^a	0.69 ^a	0.69 ^b	0.69 ^b
Play outside often (>once/day)	0.62 ^a	0.60 ^a	0.64 ^b	0.64 ^b
Play outside often (\geq once/day)	0.92	0.93	1.01	1.01
Play chase often (>once/day)	0.97	0.93	0.99	0.99
Play chase often(\geq once/day)	0.84	0.81	0.84	0.84

^a $p < 0.01$; ^b $p < 0.05$

^c Demographics: Adjusted for demographic factors: maternal age, maternal race, SES, parity, child’s age at assessment

^d Responsibility: Adjusted for Father Responsibility Scale: Frequency father cares for child, prepares food, changes diapers, puts child to sleep, bathes child, dresses child, helps child with eating, brushes child’s teeth.

^e Relationship Quality: Adjusted for mother’s report of relationship quality with father: happiness with marriage, frequency of ‘everyday’ arguments, frequency of arguments about drinking, frequency of arguments about other women/men.

^f Engagement: Adjusted for Father Engagement Scale: Frequency father reads books, tells stories, sings songs, takes child on errands, plays chase, gives child a ride on his shoulders, plays indoor games, plays outside, takes child out to eat.

E. Maternal Depression, Child Development and Father Involvement at 2 Years

Table 3 presents depression coefficients from weighted hierarchical linear regression models on each development score. Coefficients represent the mean score differences between children of non-depressed and depressed mothers. Column 1 displays results from unadjusted models, which estimated lower mean development scores in children of depressed mothers for most outcomes, including mental t-score, motor t-score, and sustained attention. Engagement of parent approached statistical significance.

Column 2 shows depression coefficients from models after adjusting for demographic factors: maternal age, race, SES, parity, and child’s age. Coefficients change little, and maternal depression remains statistically significantly associated with mental, motor, and attention score and become significant for engagement. Columns 3 and 4 display coefficients from final models adjusting for demographics, father involvement (responsibility or engagement), and relationship quality. Results from models adjusting for father responsibility and father engagement are similar. Comparing columns 2 and 3, depression coefficients change by greater than 10% for mental score, motor score, and engagement of parent, indicating some confounding. However, mental score, motor score, engagement, and attention all remain significantly lower in children of depressed mothers, even after controlling for father involvement.

Table 3: Linear Regression Coefficients for Maternal Depression (CIDI≥3) on Child Development

Positive maternal parenting practice	Unadjusted	Adjusted Demographics ^c	Adjusted Demographics ^c Responsibility ^d Relation Quality ^e	Adjusted Demographics ^c Engagement ^f Relationship Quality ^e
n range	5051-5909	5043-5900	3993-4556	3994-4557
BAYLEY’S T-SCORES				
Mental t-score	-2.12 ^a	-2.07 ^a	-1.74 ^b	-1.73 ^a
Motor t-score	-2.43 ^a	-2.32 ^a	-2.87 ^a	-2.88 ^a
TWO BAGS TASK- CHILD OUTCOMES				
Child engaged with parent	-0.17	-0.16 ^b	-0.19 ^b	-0.18 ^b
Child negativity toward parent	0.08	0.07	0.05	0.05
Child sustained attention	-0.29 ^a	-0.29 ^a	-0.29 ^a	-0.29 ^a

^a $p < 0.01$

^b $p < 0.05$

^c Demographics: Adjusted for demographic factors: maternal age, maternal race, SES, parity, child's age at assessment

^d Responsibility: Adjusted for Father Responsibility Scale: Frequency father cares for child, prepares food, changes diapers, puts child to sleep, bathes child, dresses child, helps child with eating, brushes child's teeth.

^e Relationship Quality: Adjusted for mother's report of relationship quality with father: happiness with marriage, frequency of 'everyday' arguments, frequency of arguments about drinking, frequency of arguments about other women/men.

^f Engagement: Adjusted for Father Engagement Scale: Frequency father reads books, tells stories, sings songs, takes child on errands, plays chase, gives child a ride on his shoulders, plays indoor games, plays outside, takes child out to eat.

V. Discussion and Interpretation of Findings

A. Conclusions to be Drawn from Findings

At 9 months and 2 years of age, poor maternal health is associated with less favorable maternal parenting practices and child outcomes, specifically with regard to mental, motor, and socioemotional development (engagement, attention). While father involvement may have a direct positive impact on children, father responsibility and engagement do not mitigate these negative consequences of maternal depression.

B. Explanation of Study Limitation

Several limitations of our studied are noted. First, we are unable to include non-resident fathers, despite the generous ECLS-B sample size due to concerns of generalizability (low response rate) and lack of comparable measures (e.g., no measures of engagement and different measures for responsibility) making it impossible to pool models. Thus, although ECLS-B is a nationally representative analyses, our analyses are limited to a subset of respondents. Second, although we adjusted for known confounders, there may be additional unmeasured factors that influence the relations among father involvement, maternal depression, parenting, and child development. Third, there may be additional parenting practices and aspects of child development for which father involvement does mitigate the negative consequences of maternal depression. However, we included a broad array of parenting practices shown previously to be negatively influenced by poor maternal mental health.

C. Comparison with Findings of Other Studies

Using ECLS-B 9 month data, Paulson et al recently reported associations between maternal depressive symptoms and less favorable maternal parenting practices; the authors reported a small moderating effect of paternal depression on selected maternal behaviors, but did not consider domains of father involvement, the focus of our study, or child development outcomes.²⁷ Both Mezulis²⁸ and Chang²⁹ reported that father involvement may compensate for the negative effects of maternal depression on children's subsequent behavior problems, but did not consider maternal parenting practices, child development outcomes, or domains of father involvement.

D. Possible Application to Actual MCH Health Care Delivery Situations

Our findings support recommendations to develop systems to assess parental mental health in settings where parents of young children seek health care services for themselves and for their children. Although the barriers to screening for parental depression and referring families needing mental health services are widely recognized in pediatric settings, failure to offer these services is likely to perpetuate poor parental, child, and family health.

E. Policy Implications

Pediatric providers have a unique role in promoting family health due to their longitudinal and trusted relationships with families, frequent contact with families (particularly those with young children), knowledge of the family and social environment, and parents' reliance on their expertise.^{30,31,32} Pediatric settings may be the only component of the health system with which mothers routinely interact.³³ Bright Futures encourages the assessment of psychosocial issues within families.³⁰ Yet, only 29% of mothers with depressive symptoms were identified by providers in an inner-city, general pediatric.³⁴ Mothers welcome a pediatric role in screening, referral and receipt of information about depressive symptoms.^{35,36}

The policy implications of this work include the need to continue to support efforts to link pediatric clinicians with adult mental health services, to provide a broader array of family health services in pediatric settings, and to actively screen and refer mothers for maternal depression in settings in which parents seek care for their children. The need to address poor parental health is likely to grow giving the large numbers of parents of young children who are serving in active combat in the military (increasing their own and their spouses' needs for mental health services), declining social supports due to family mobility and limited neighborhood cohesion, and multiple barriers (system, provider, individual) preventing adults from seeking needed mental health services.

F. Suggestions for Further Research

While we examined a broad set of measures with regard to father involvement, it is possible that other aspects of fathers' responsibilities and engagement may influence relations between poor maternal health and maternal parenting and children's development for particular subsets of families. For example, one such responsibility might relate to supporting the mother's health (e.g., scheduling and accompanying to mental health appointments), rather than limiting considerations to assuming responsibilities for the child. As shown by Horwitz et al, patient unwillingness to seek care after being referred remains a formidable barrier to identifying and managing maternal depression in pediatric settings.³⁷

VI. List of Products

Two presentations will occur at the upcoming Pediatric Academic Societies meeting (5/08) with peer-reviewed manuscripts being submitted shortly thereafter. Findings also were selected for presentation at the annual Research Symposium held in the Dept of Population, Family and Reproductive Health at Johns Hopkins (4/08). In addition, after results are disseminated in journals, a policy brief will be posted at the Women's and Children's Health Policy website at <http://www.jhsph.edu/WCHPC>. Posting prior to publication might jeopardize publication.

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