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Pediatrics 2006;118;174-182

DOI: 10.1542/peds.2005-1551

This information is current as of July 20, 2006

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<http://www.pediatrics.org/cgi/content/full/118/1/e174>

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American Academy of Pediatrics

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The Timing of Maternal Depressive Symptoms and Mothers' Parenting Practices With Young Children: Implications for Pediatric Practice

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The authors have indicated they have no financial relationships relevant to this article to disclose.

ABSTRACT

BACKGROUND. The prevalence of maternal depressive symptoms and its associated consequences on parental behaviors, child health, and development are well documented. Researchers have called for additional work to investigate the effects of the timing of maternal depressive symptoms at various stages in the development of the young child on the emergence of developmentally appropriate parenting practices. For clinicians, data are limited about when or how often to screen for maternal depressive symptoms or how to target anticipatory guidance to address parental needs.

PURPOSE. We sought to determine whether concurrent maternal depressive symptoms have a greater effect than earlier depressive symptoms on the emergence of maternal parenting practices at 30 to 33 months in 3 important domains of child safety, development, and discipline.

METHODOLOGY. Secondary analyses from the Healthy Steps National Evaluation were conducted for this study. Data sources included a self-administered enrollment questionnaire and computer-assisted telephone interviews with the mother when the Healthy Steps children were 2 to 4 and 30 to 33 months of age. The 30- to 33-month interview provided information about 4 safety practices (ie, always uses car seat, has electric outlet covers, has safety latches on cabinets, and lowered temperature on the water heater), 6 child development practices (ie, talks daily to child while working, plays daily with child, reads daily to child, limits child television and video watching to <2 hours a day, follows ≥ 3 daily routines, and being more nurturing), and 3 discipline practices (ie, uses more reasoning, uses more harsh punishment, and ever slapped child on the face or spanked the child with an object). The parenting practices were selected based on evidence of their importance for child health and development, near complete data, and sample variability. The discipline practices were constructed from the Parental Response to Misbehavior Scale. Maternal depressive symptoms were assessed using a 14-item

www.pediatrics.org/cgi/doi/10.1542/peds.2005-1551

doi:10.1542/peds.2005-1551

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Key Words

maternal depression, parenting, early childhood, primary care

Abbreviations

HS—Healthy Steps for Young Children
CES-D—Center for Epidemiologic Studies-Depression Scale

Accepted for publication Feb 17, 2006

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modified version of the Center for Epidemiologic Studies-Depression Scale. Multiple logistic regression models estimated the effect of depressive symptoms on parenting practices, adjusted for baseline demographic characteristics, Healthy Steps participation, and site. No significant interactions were found when testing analytic models with dummy variables for depressive symptoms at 2 to 4 months only, 30 to 33 months only, and at both times; reported models do not include interaction terms. We report main effects of depressive symptoms at 2 to 4 and 30 to 33 months when both are included in the model.

RESULTS. Of 5565 families, 3412 mothers (61%) completed 2- to 4- and 30- to 33-month interviews and provided Center for Epidemiologic Studies-Depression Scale data at both times. Mothers with depressive symptoms at 2 to 4 months had reduced odds of using car seats, lowering the water heater temperature, and playing with the child at 30 to 33 months. Mothers with concurrent depressive symptoms had reduced odds of using electric outlet covers, using safety latches, talking with the child, limiting television or video watching, following daily routines, and being more nurturing. Mothers with concurrent depressive symptoms had increased odds of using harsh punishment and of slapping the child on the face or spanking with an object.

CONCLUSIONS. The study findings suggest that concurrent maternal depressive symptoms have stronger relations than earlier depressive symptoms, with mothers not initiating recommended age-appropriate safety and child development practices and also using harsh discipline practices for toddlers. Our findings, however, also suggest that for parenting practices that are likely to be established early in the life of the child, it may be reasonable that mothers with early depressive symptoms may continue to affect use of those practices by mothers. The results of our study underscore the importance of clinicians screening for maternal depressive symptoms during the toddler period, as well as the early postpartum period, because these symptoms can appear later independent of earlier screening results. Providing periodic depressive symptom screening of the mothers of young patients has the potential to improve clinician capacity to provide timely and tailored anticipatory guidance about important parenting practices, as well as to make appropriate referrals.

THE PREVALENCE OF maternal depression and its associated consequences on parental behaviors, child health, and development are well documented. Mothers with depressive symptoms are less sensitive and responsive in their daily interactions with their children, are more negative, and use corporal punishment, which, in turn, may place young children at risk for an array of

behavioral and developmental difficulties.¹⁻⁶ Depressive symptoms in mothers with young children have been shown to impede parental preventive health practices, such as using car seats, covering electrical outlets, and using the back sleep position.⁶⁻⁸ The variable clinical course of depressive symptoms complicates the picture related to maternal behaviors and makes it difficult to identify effective intervention strategies for mothers and their children.

Several studies have explored the differential effects that the timing and chronicity of depressive symptoms have on parenting practices and children's outcomes.⁹⁻¹³ Experts have suggested that depressive symptoms in the first months of children's lives have a greater negative impact than the later onset of symptoms. This is believed to be because of the importance of the primary relationships in which infants are more dependent on their caregivers to initiate and sustain interactions than are older children.^{1,10,11,13-15} Other investigators suggest a chronicity effect of maternal depressive symptoms; mothers with depressive symptoms reported at 2 times seem to be less likely to engage in parenting behaviors associated with child health and development than mothers with depressive symptoms at only 1 time or not at all.^{7,8}

Investigators also suggest that children's developmental stages contribute to adaptive behaviors and changing demands on parents. For example, in the first months of life, we expect mothers to play and talk with their young infant. With toddlers, we expect mothers to engage in other developmentally appropriate parenting behaviors, such as establishing routines and responding to misbehavior. Thus, researchers have called for additional work to investigate the effects of the timing of maternal depressive symptoms at various stages in a young child's development on the emergence of developmentally appropriate parenting practices.^{1,8,12}

A central question for clinical practice is when are the most useful times to intervene for pediatric clinicians who report inadequate time and training for screening, parent education, and counseling.¹⁶ To date, evidence is limited about when or how often to screen for maternal depressive symptoms or how to target anticipatory guidance to address parental needs. For the provision of anticipatory guidance to be most effective, clinicians should focus counseling on how maternal depressive symptoms, exhibited at different times in a child's development, affect the emergence of developmentally appropriate parenting practices. We are unaware of any studies that have addressed this particular topic.

This longitudinal study analyzed the effect of depressive symptoms on self-reported parenting behaviors of mothers with young children enrolled in Healthy Steps for Young Children (HS), when the HS children were 30 to 33 months of age. Based on recommended anticipatory guidance topics for pediatricians, multiple age-spe-

cific parenting practices in 3 important domains of child safety, development, and discipline were examined.¹⁷ We compared the effects of concurrent and earlier maternal depressive symptoms on the emergence of 4 safety, 6 child development, and 3 discipline parenting behaviors. Although previous research has pointed to an increased effect of chronic depressive symptoms on parenting practices and that maternal depressive symptoms early on establish certain parenting behaviors,^{7,8} we hypothesized that concurrent depressive symptomatology would have a greater effect than earlier depressive symptoms on mothers' parenting behaviors adopted at 30 to 33 months. A review of observational data found that negative maternal behavior was moderated by the timing of depressive symptoms. Although current depressive symptoms were associated with larger effects, the lingering effects of previous depressive symptoms were evident for all maternal behaviors.¹

METHODS

Study Design

This study used data collected from the national evaluation of HS.¹⁸ HS is a model of pediatric care for families with young children that incorporates enhanced developmental services and developmental specialists into pediatric primary care practices.¹⁹ The design was a prospective clinical trial at 24 pediatric practice sites (6 randomized, 9 quasiexperimental intervention, and 9 quasiexperimental comparison designs) that followed children from birth to 33 months. Sites began staggered enrollment in September 1996 with completion in November 1998.²⁰

Newborns were enrolled consecutively in HS in the hospital at birth or at the first office visit within the first 4 weeks of life. Newborns were ineligible if they were too ill to make an office visit within the first 4 weeks, were to be placed in foster care or adopted, parents expected to move within 6 months, or if their mother did not speak English or Spanish. The sample for the analyses reported here included mothers who completed enrollment questionnaires, completed telephone interviews at 2 to 4 and 30 to 33 months, and provided self-reported data of depressive symptoms using a modified Center for Epidemiologic Studies-Depression Scale (CES-D) at 2 to 4 and 30 to 33 months.

Data Sources

Three data sources, available in English and Spanish, included an enrollment questionnaire and 2- to 4- and 30- to 33-month interviews. The self-administered enrollment questionnaire provided data on demographic characteristics, including mother's age and race/ethnicity. Computer-assisted telephone interviews with the mother at 2 to 4 and 30 to 33 months provided information about the presence of depressive symptoms and

additional demographic data, including marital status, maternal education, employment, household income, home ownership, and child's insurance. The 30- to 33-month interview provided information about current parenting practices associated with safety, child development, and discipline.

The parenting practices reported at 30 to 33 months were selected based on evidence of importance for child health and development, near complete data, and sample variability. Four safety practices included: always uses a car seat; has electric outlet covers; has safety latches on cabinets; and lowered hot water heater temperature in the home.¹⁷ Six child development practices included: talks daily to child while working at home; plays daily with child; reads daily to child; child watches television or videos <2 hours a day; follows 3 daily routines (nap time, bedtime, and meals); and being more nurturing.^{17,21-23}

The dichotomous "more nurturing" variable, was constructed from the Parent Behavior Checklist about how parents raise young children.²⁴ Eighteen of the 20 nurturing subscale items were used that measure specific parent behaviors that promote a child's psychological growth (eg, "I encourage [child] to learn new things"). The 2 items excluded were not appropriate for 30- to 33-month-old children. Parents rated each statement using a 4-point Likert scale with 1 for always/almost always and 4 for never/almost never. The categories were reverse coded so that higher scores indicated more frequent use of the nurturing behavior. The "more nurturing" variable was indicated by scores ≥ 63 of a possible 72. This cutoff was selected, because mothers with scores of ≥ 63 reported on average always or almost always performing the nurturing behaviors. The α coefficient for the 18 items in this nurturing subscale was .80 at 30-33 months, consistent with the normative sample.²⁴

The 3 discipline practices, uses more reasoning, uses more harsh punishment, and ever slapped or spanked, were constructed from the 12-item Parental Response to Misbehavior Scale, which assesses the frequency that parents used each of 12 disciplinary responses to their child's misbehavior in an average week in the past month.²⁵ The usual 7-point Likert scale was condensed to 4 response categories (0 = never to 4 = almost always) to facilitate telephone administration. Responses were dichotomized to indicate whether individual responses were "never" or "seldom" vs "often" or "almost always" used. Six items were chosen because of their association with depressive symptoms. Three dichotomous scalar variables were created using 6 individual items as a way to consolidate variables into conceptual domains. The first variable, using more reasoning, consisted of often or almost always negotiate and often or almost always ignore the misbehavior. Reasoning and ignoring were combined, because they are both positive

responses to certain misbehaviors and had a similar direction of effect. The second variable, more harsh punishment, included 4 harsh responses to misbehaviors (eg, yelling in anger, threatening, slapping the child's hand, and spanking with a hand). The third variable included 2 physical responses to misbehavior, whether the parent ever slapped the child in the face or spanked the child with an object. For the second and third scalar variables, the items were combined, because individually each did not happen that frequently.

A 14-item modified version of the 20-item CES-D²⁶ was used to assess mothers' depressive symptoms at 2 to 4 and 30 to 33 months to conserve time in the parent interview for other important variables in the HS evaluation. Six items were eliminated from the 20-item scale that were highly correlated with other items and did not contribute to the overall score in 2 samples from previous studies where the full scale was used. One study involved a general sample, and the other study a sample of high-risk women.¹⁵ Correlation of the reduced-item version with the 20-item scale exceeded 0.95 in a sample of high-risk pregnant women.²⁷ The 14-item scale includes 9 of the items in the 10-item CES-D.^{28,29} The α coefficient for the 14-item CES-D for HS mothers was .85 at 2 to 4 months and .87 at 30 to 33 months, similar to that for the total scale for the general population.²⁶

The presence of depressive symptoms at a single time point was reported regardless of whether symptoms were present at the earlier or later time point. Using the same response categories as the 20-item scale, scores ≥ 11 indicated the presence of maternal depressive symptoms, a cutoff numerically equivalent to the conventionally used cutoff of 16 for the 20-item scale.

Analysis

A longitudinal sample was used to assess the associations among mothers with depressive symptoms at 2 to 4 and 30 to 33 months and parenting practices at 30 to 33 months. Of the 3482 mothers who completed both the 2- to 4- and 30- to 33-month interviews, 70 were excluded for lack of CES-D data (7 at 2–4 months, 61 at 30–33 months, and 2 at both times), resulting in a sample of 3412 mothers.

χ^2 statistics were used to compare parenting practices among mothers with and without depressive symptoms at 2 to 4 and 30 to 33 months. Multiple logistic regression models were used to estimate the overall unadjusted and adjusted relation of the presence of maternal depressive symptoms with parenting practices. The results for the parent behavior outcomes are reported as odds ratios with all of the estimates presented with 95% confidence intervals. Logistic regression models included timing of depressive symptoms (at 2–4 and at 30–33 months) with an interaction term (the product of depressive symptoms at 2–4 months with depressive symptoms at 30–33 months). We also tested analytic models

with dummy variables for depressive symptoms at 2 to 4 months only, 30 to 33 months only, and both time points. Using a Wald test, no significant interactions were found for either approach. Accordingly, models reported here do not include interaction terms. Therefore, we report the main effects of depressive symptoms at 2 to 4 months and at 30 to 33 months when both are included in the model.

The logistic regression models assessed whether differences by depressive symptoms were because of covariates that may potentially be associated with both depressive symptoms and parenting practices. Covariates included: maternal age, race/ethnicity, education, marital status, employment, parity, father's employment, income, and home ownership (Table 1). Because of possible correlation of observations among families receiving pediatric care at the same site, regression analyses were also adjusted for the site of health care and enrollment in the HS intervention group. The results for adjustment by HS participation and site are not reported here, because they were similar to the results with the covariates alone. Analyses were conducted using SAS version 8.2 (SAS Institute, Cary, NC).³⁰

The Committee on Human Subjects Research of the Johns Hopkins Bloomberg School of Public Health and the Institutional Review Board of Columbia University College of Physicians and Surgeons granted study approval. For study participants, informed consent was obtained at time of enrollment and before the 2- to 4- and 30- to 33-month interviews.

RESULTS

Of the 3412 mothers who completed the 2- to 4- and 30- to 33-month surveys and provided depressive symptoms data, 16.1% reported depressive symptoms at 2 to 4 months, and 15.5% reported depressive symptoms at 30 to 33 months. Depressive symptoms at either 2 to 4 or 30 to 33 months were more frequently reported by mothers who were <20 years of age, low-income, nonwhite, Hispanic, not living with the child's biological father, and had less than a high school education than their counterparts. (Table 1).

Safety Practices

A smaller percentage of mothers with depressive symptoms at both 2 to 4 and 30 to 33 months engaged in 4 safety practices at 30 to 33 months than mothers without depressive symptoms (Table 2). When adjusted for covariates, mothers with depressive symptoms at 2 to 4 months had a 0.65 reduced odds of always using a car seat, and 0.70 odds of lowering the hot water temperature at 30 to 33 months (Table 3). There were no significant differences in the adjusted odds between mothers with and without depressive symptoms at 2 to 4 months for use of electric outlet covers or cabinet safety latches.

In adjusted analyses, mothers with depressive symp-

TABLE 1 Mothers With Depressive Status at 2 to 4 Months and 30 to 33 Months by Selected Baseline Family Demographic Characteristics (%)

Demographic Characteristics	With Depressive Symptoms at 2-4 Months (N = 549)		With Depressive Symptoms at 30-33 Months (N = 528)		Total (N = 3412)	
	N	%	N	%	N	%
Mother's age, y ^a						
<20	94	24.6	87	22.8	382	11.2
20-29	287	17.1	273	16.2	1682	49.3
≥30	168	12.5	168	12.5	1348	39.5
Mother's race ^a						
Black	171	22.2	159	20.6	772	22.6
Not black	378	14.3	369	14.0	2640	77.4
Mother's ethnicity ^b						
Hispanic	119	19.9	107	17.9	598	17.5
Not Hispanic	479	80.1	421	15.0	2814	82.5
Mother's marital status ^c						
Married, living with baby's father	294	12.4	299	12.6	2370	69.5
Not married, living with baby's father	93	24.4	81	21.3	381	11.2
Other	162	24.5	148	22.4	661	19.4
Mother's education						
Less than high school ^a	122	26.2	114	24.5	466	13.6
High school graduate ^d	171	19.8	157	18.2	864	25.3
Some college or vocational school	151	15.3	145	14.7	989	29.0
College graduate	105	9.6	112	10.2	1093	32.0
Mother's employment						
Employed	184	14.9	177	14.3	1237	36.2
Not employed	365	16.8	351	16.1	2175	63.7
No. of times as mother						
First-time mother	269	16.3	259	15.7	1652	48.4
Second-time or greater	280	15.9	269	15.3	1760	51.6
Father employed ^c	449	15.1	436	14.7	2974	87.2
Household income, \$ ^a						
<20 000	262	26.2	224	22.4	1002	29.4
20 000-44 999	184	15.1	199	16.4	1215	35.6
≥45 000	103	8.6	105	8.8	1195	35.0
Home ownership						
Owns home ^a	264	13.7	255	13.2	1926	56.4
Does not own home	285	19.2	273	18.4	1486	43.6
Child's health insurance ^a						
Public	289	23.2	272	21.8	1245	36.5
Private	233	11.5	234	11.5	2034	59.6

^a $P < .0001$ at both 2 to 4 months and 30 to 33 months.

^b $P < .01$ at 2 to 4 months.

^c $P < .0001$ at 2 to 4 months and $P < .001$ at 30 to 33 months.

^d $P < .001$ at 2 to 4 months and $P < .05$ at 30 to 33 months.

toms at 30 to 33 months had a 0.61 reduced odds of using electric outlet covers and a 0.72 odds for having safety latches on cabinets (Table 3). There was no significant difference in the adjusted odds of always using a car seat or lowering the water heater temperature between mothers with and without depressive symptoms.

Child Development Practices

A smaller percentage of mothers with depressive symptoms at 2 to 4 and 30 to 33 months reported engaging in the 6 child development practices at 30 to 33 months as compared with mothers without depressive symptoms

(Table 2). When adjusted for covariates, the mothers with depressive symptoms at 2 to 4 months had a 0.72 reduced odds for playing with the child and 0.76 odds of being more nurturing (Table 3). For mothers with depressive symptoms at 30 to 33 months, the adjusted odds ratios were 0.58 for talking with the infant, 0.76 for limiting television or video watching, 0.79 for following 2 or more routines, and 0.72 for being more nurturing as compared with mothers without depressive symptoms at 30 to 33 months (Table 3). The adjusted odds for playing with the child or reading books were not significant.

TABLE 2 Parenting Practices of Mothers at 30 to 33 Months and Mother's Depressive Status at 2 to 4 Months and at 30 to 33 Months (%)

Parenting Practices	Depressive Symptoms at 2–4 Months		Depressive Symptoms at 30–33 Months		Total (N = 3412)
	Yes (N = 549)	No (N = 2863)	Yes (N = 528)	No (N = 2884)	
Safety practices					
Always uses car seat	89.98 ^a	95.53	91.29 ^d	95.25	94.64
Has electric outlet covers	85.77 ^a	91.20	83.90 ^a	91.50	90.33
Has safety latches on cabinets	57.19 ^b	64.23	53.41 ^a	64.88	63.10
Lowered temperature on water heater	42.28 ^a	61.76	51.99 ^d	60.98	59.60
Child development practices					
Talks to child	90.16 ^c	92.87	87.88 ^a	93.27	92.44
Plays with child	66.30 ^a	75.34	68.37 ^b	74.90	73.89
Reads to child	61.70 ^d	69.80	62.00 ^d	69.70	68.50
Child watches television or videos <2 hours a day	56.10 ^a	65.81	54.17 ^a	66.09	64.24
Followed ≥3 routines	55.60 ^a	66.10	54.96 ^a	66.11	64.39
More nurturing	17.22 ^a	25.36	16.92 ^a	25.36	24.05
Discipline					
More reasoning	79.63	78.20	81.18	77.93	78.43
More harsh punishment	15.20 ^a	9.11	20.15 ^a	8.25	10.09
Ever slapped child in face or spanked with an object	8.20	6.71	12.71 ^a	5.90	6.95

^a P < .0001.^b P < .01.^c P < .05.^d P < .001.**TABLE 3 Parenting Practices at 30 to 33 Months, Mother's Depressive Status, and Unadjusted and Adjusted Odds Ratios (95% Confidence Intervals)**

Parenting Practices	Depressive Symptoms at 2–4 Months		Depressive Symptoms at 30–33 Months	
	Unadjusted	Adjusted	Unadjusted	Adjusted
Safety practices				
Always uses car seat	0.48 ^a (0.33–0.68)	0.65 ^b (0.45–0.94)	0.67 ^b (0.46–0.97)	0.86 (0.58–1.27)
Has electric outlet covers	0.71 ^b (0.53–0.95)	0.84 (0.62–1.13)	0.54 ^a (0.41–0.72)	0.61 ^c (0.46–0.82)
Has safety latches on cabinets	0.84 (0.69–1.02)	0.98 (0.80–1.20)	0.65 ^a (0.54–0.80)	0.72 ^d (0.59–0.88)
Lowered temperature on water heater	0.62 ^a (0.51–0.75)	0.70 ^c (0.57–0.86)	0.80 ^b (0.65–0.98)	0.90 (0.73–1.11)
Child development practices				
Talks to child	0.85 (0.61–1.19)	0.95 (0.67–1.34)	0.55 ^c (0.40–0.75)	0.58 ^c (0.42–0.80)
Plays with child	0.68 ^c (0.56–0.84)	0.72 ^d (0.58–0.89)	0.81 (0.66–1.01)	0.85 (0.68–1.05)
Reads to child	0.75 ^d (0.62–0.92)	0.92 (0.75–1.14)	0.78 ^b (0.63–0.95)	0.88 (0.71–1.09)
Child watches television or videos <2 hours a day	0.75 ^d (0.62–0.91)	0.93 (0.76–1.14)	0.66 ^a (0.54–0.80)	0.76 ^d (0.62–0.94)
Followed ≥3 routines	0.72 ^d (0.58–0.88)	0.86 (0.70–1.07)	0.69 ^c (0.56–0.85)	0.79 ^b (0.64–0.97)
More nurturing	0.68 ^d (0.53–0.88)	0.76 ^b (0.59–0.98)	0.67 ^d (0.52–0.86)	0.71 ^d (0.55–0.92)
Discipline				
More reasoning	1.03 (0.82–1.31)	1.06 (0.83–1.35)	1.21 (0.95–1.55)	1.24 (0.96–1.59)
More harsh punishment	1.31 (0.98–1.74)	1.16 (0.86–1.56)	2.58 ^a (1.98–3.38)	2.40 ^a (1.82–3.16)
Ever slapped child in face or spanked with an object	0.93 (0.64–1.33)	0.83 (0.57–1.21)	2.38 ^a (1.73–3.27)	2.26 ^a (1.63–3.12)

^a P < .0001.^b P < .05.^c P < .001.^d P < .01.

Discipline Practices

For mothers with depressive symptoms at 2 to 4 months, a greater percentage used more harsh discipline practices at 30 to 33 months than mothers without depressive symptoms (Table 2). The percentages for more reasoning and slapping/spanking practices were comparable to mothers without depressive symptoms at 2 to 4 months.

The adjusted odds for using all 3 of the discipline practices at 30 to 33 months symptoms were not significantly different for mothers with and without depressive symptoms at 2 to 4 months (Table 3).

A greater percentage of mothers with depressive symptoms at 30 to 33 months engaged in the 2 types of harsh discipline practices as compared with mothers

without depressive symptoms. The percentages of mothers with depressive symptoms at 30 to 33 months were comparable to those for mothers without depressive symptoms for using more reasoning discipline practices. When adjusted for covariates, mothers with depressive symptoms at 30 to 33 months had >2 times the odds of slapping a child in the face or spanking with an object and of using more harsh discipline practices than mothers without symptoms at 30 to 33 months (Table 3).

DISCUSSION

Our findings suggest that the timing of maternal depressive symptoms is associated with variations in the adoption of a broad array of safety, child development, and discipline practices by mothers with young children. It seems that concurrent maternal depressive symptoms have stronger relations than earlier depressive symptoms for mothers not using recommended age-appropriate parenting practices for toddlers. Specifically, for parenting practices more likely to be initiated in the 30- to 33-month developmental period, mothers with concurrent depressive symptoms had decreased odds of engaging in recommended safety and child development practices, such as using electric outlet covers and following daily routines, and had increased odds of using harsh discipline practices. In addition, mothers with depressive symptoms at 2 to 4 months had a decreased odds of engaging in practices likely to be established earlier in life, such as using a car seat. There were no significant effects of early depressive symptoms on the adoption of later discipline practices. The only parenting practice affected by both early and concurrent depressive symptoms was being less likely to be more nurturing. We believe that this finding may be because of the fact that the items in the nurturing subscale of the Parent Behavior Checklist included nurturing behaviors important at both ages.

There seems to be little effect of early depressive symptoms on the adoption of parenting practices that are initiated when the child is older. However, our findings suggest that for parenting practices that are likely to be established early on, it is reasonable that mothers with early depressive symptoms may continue to affect mothers' use of these practices. A recent study demonstrated a similar pattern between early maternal depressive symptoms and child's receipt of health care services, suggesting that patterns of parental health care seeking are established early in a child's life.¹⁵

Unlike other studies that have found a relation between chronicity of depressive symptoms and parenting practices, our analyses showed no interactive effects of symptoms at both 2 to 4 and 30 to 33 months on any of the parenting practices. There are several possible reasons for this. First, our sample provided information about depressive symptoms only at 2 times. We do not know if the mother's depressive symptoms were ongoing.

Second, we have a demographically mixed sample with lower levels of depressive symptoms than would likely be found among a sample of predominantly low-income families and for whom there may be higher levels of severe depressive symptoms.³¹

Several limitations should be noted. First, we used self-report measures for assessing parenting practices, which may be subject to distortion for mothers with depressive symptoms. Although Richters³² suggests that there is no clear evidence for overreporting of children's behavior problems, more recent studies suggest that there is maternal bias in reporting of infant and child behavior.³³⁻³⁶ We studied parenting behaviors, however, and analysis of maternal report of child health care use in our sample was found to be valid for mothers with depressive symptoms.³⁷

Second, as in other studies of maternal mental health and parenting practices, we used the self-report CES-D as a measure of depressive symptoms as opposed to a diagnostic instrument.^{8,15,31} The CES-D has been shown to be associated with self-reported impaired parenting ability^{6,8,15} and, thus, we believe, more relevant for pediatric practice. Third, our findings about mothers with depressive symptoms being less likely to lower the water heater temperature could be tempered, because we do not know if families lived in a rented apartment without access to the water heater. We did control for income in the analyses. Finally, although the magnitude of each parenting practice is small, we examined multiple practices in 3 domains that are important for child health and development. Thus, the cumulative effect is greater than the individual item effect, and makes the findings important for clinical practice.

The results of our study underscore the importance of pediatricians screening for maternal depressive symptoms at critical times in a child's first 3 years of life. The US Preventive Services Task Force recommends primary care providers use a 2-item screener to detect depressive symptoms, without guidelines about how often or when to screen.³⁸ Our study begins to disentangle the effects of the timing of maternal depressive symptoms on an important set of parenting practices, suggesting the need for physicians to screen for maternal depressive symptoms during the toddler period, as well as during the early postpartum period, because these symptoms can appear later independent of earlier screening results.

Bright Futures and the American Academy of Pediatrics Task Force on the Family state that it is within the scope of professional responsibility for pediatricians to recognize depressive symptoms in their patients' mothers, provide appropriate anticipatory guidance, and make referrals.^{17,38,39} The findings of this study underscore the importance of tailoring counseling to be supportive for mothers with depressive symptomatology who may be finding it difficult to adopt positive parenting practices that are specific to the toddler developmental

stage. In addition, these findings suggest that clinicians review whether the mother had depressive symptoms in the early postpartum period, because she is less likely to engage currently in positive parenting practices that usually are established early in the child's life.

Despite barriers of limited time and training, it is encouraging that an American Academy of Pediatrics Periodic Survey found that more than half (57%) of pediatric clinicians reported believing that they were responsible for recognizing maternal depressive symptoms; more than two thirds believed they were responsible for following up to determine available supports (69%) and for providing brief interventions and counseling (66%).¹⁶ Timely screening and referrals require clarifying the pediatrician's role, training, and more efficient office systems for screening, counseling, and follow-up.¹⁶ In addition, efforts are needed to assure that linkages exist between pediatric and adult systems of care and that communities have adequate resources for family mental health. These changes have the potential to improve pediatric clinicians' ability to support mothers with depressive symptoms in the service of promoting child health and development and family well-being.

ACKNOWLEDGMENTS

We gratefully acknowledge support from the Commonwealth Fund.

We thank Edward L. Schor, MD, for his thoughtful comments.

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Pediatrics 2006;118:174-182

DOI: 10.1542/peds.2005-1551

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