



January 2004

## **Do maternal concerns at delivery predict parenting stress during infancy?**

Terri Combs-Orme

University of Tennessee, Knoxville, [tcombs-orme@utk.edu](mailto:tcombs-orme@utk.edu)

Daphne S. Cain

Elizabeth E. Wilson

Follow this and additional works at: [https://trace.tennessee.edu/utk\\_socipubs](https://trace.tennessee.edu/utk_socipubs)



Part of the [Family, Life Course, and Society Commons](#), and the [Social Work Commons](#)

---

### **Recommended Citation**

Combs-Orme, Terri; Cain, Daphne S.; and Wilson, Elizabeth E., "Do maternal concerns at delivery predict parenting stress during infancy?" (2004). *Social Work Publications and Other Works*.  
[https://trace.tennessee.edu/utk\\_socipubs/14](https://trace.tennessee.edu/utk_socipubs/14)

This Article is brought to you for free and open access by the Social Work at TRACE: Tennessee Research and Creative Exchange. It has been accepted for inclusion in Social Work Publications and Other Works by an authorized administrator of TRACE: Tennessee Research and Creative Exchange. For more information, please contact [trace@utk.edu](mailto:trace@utk.edu).



Pergamon

Child Abuse & Neglect 28 (2004) 377–392

Child Abuse  
& Neglect

## Do maternal concerns at delivery predict parenting stress during infancy?<sup>☆</sup>

Terri Combs-Orme<sup>a,\*</sup>, Daphne S. Cain<sup>b</sup>, Elizabeth E. Wilson<sup>a</sup>

<sup>a</sup> College of Social Work, University of Tennessee, Henson Hall 204, Knoxville, TN, USA

<sup>b</sup> School of Social Work, Louisiana State University, Baton Rouge, LA, USA

Received 7 August 2002; received in revised form 28 July 2003; accepted 16 September 2003

### Abstract

**Objective:** In a previous study, we found that new mothers could and would express concerns about their parenting, including concerns about maltreatment and poor care. In this study, we examine the utility of early maternal concerns for predicting parenting stress in the first year. Parenting stress is important because it has been shown to be related to maltreatment and poor parent-child relationships.

**Method:** A sample of 246 mothers were interviewed shortly after delivery in a publicly funded hospital about their parenting concerns, and 93% were reinterviewed in their homes about their parenting when the infants were 6 to 12 months old. Standardized measures with demonstrated psychometric properties were employed, including a measure of parenting stress due to the demands of the parenting role, characteristics of the child that make him or her difficult to care for, and stress due to difficult interactions.

**Results:** Multiple regression results indicate that both mothers concerns at delivery and sociodemographic variables are significant predictors of all three types of parenting stress in infancy. Maternal concerns were more powerful than sociodemographics in predicting stress related to the demands of parenting, while sociodemographics were more powerful for the prediction of stress related to difficult child characteristics and difficult mother-infant interaction.

**Conclusions:** These findings suggest that knowledge of new mothers' parenting concerns might be useful for predicting parenting problems, as well as for engaging mothers in and enhancing the effectiveness of parenting services.

© 2004 Elsevier Ltd. All rights reserved.

*Keywords:* Mother; Parenting stress; Parent-child

<sup>☆</sup> This work was funded by grants from: the National Institute of Mental Health, NIH R24 MH53623, "Children's Mental Health Services Research Center," the Mruz Family Foundation, the Society for the Psychological Study of Social Problems, and the Office of Research and College of Social Work, University of Tennessee.

\* Corresponding author.

## Introduction

The perinatal period has been identified as a period of both high risk for parenting problems and high potential for primary prevention of those problems (Guterman, 1999). Indeed, the period extending from just before to just after delivery has been referred to as a “window of opportunity” (Helfer, 1987) because of the generally high receptivity of new parents to advice and assistance (Schmitt, 1987) and the fact that bad parenting practices have not yet become habitual (Daro, 1988).

In recognition of the importance of this brief period to the prevention of child abuse and neglect, early intervention programs based on home visiting have proliferated (Daro & Winje, 1998), but questions remain about whether services should be universal, that is delivered to entire populations, or targeted to those deemed for some reason to be at risk. Guterman’s (1999) meta-analysis demonstrated significant, though modest, advantages associated with the universal approach. He speculated that methods of targeting based on risk may result in less effective outcomes because they screen in candidates who are less likely to use the services effectively.

In addition, screening methods may miss parents who need services and falsely identify others as being at risk for poor parenting or maltreatment. A review and discussion of screening methods for the targeting of these services (Caldwell, Bogat, & Davidson, 1988) showed that assessment for risk of abuse is costly, lacks predictive validity, and may be destructive for the large proportion of “false-negatives,” that is families who are categorized as being at risk falsely. Screening for risk of neglectful parenting is even less effective (Cox, 1998). Moreover, although ecological theories now emphasize the multiple causes of child maltreatment and poor parenting (Belsky, 1993), few assessment procedures are able to address the many individual, family, and community factors that influence parenting (Caldwell et al., 1988).

What is apparent from Guterman’s review and from an examination of the body of research about the delivery of prevention services in the perinatal period, is that potential service recipients’ assessments of their own risks of maltreatment and poor parenting and their need for services do not appear to be considered in the targeting of prevention services. Faver, Crawford, and Combs-Orme (1999) reviewed research suggesting that clients often do not use services productively because they do not feel them to be relevant to their lives, so failing to determine whether parents feel that they are at risk to maltreat or provide poor parenting seems unwise. This is particularly true given the high drop-out rates of at-risk families from prevention programs (Cox, 1998). Self-assessment of risk for poor parenting might be a true indicator of risk, as well as an indicator of motivation to seek assistance with parenting. The purpose of the current study is to examine the utility of mothers’ self-reports of concerns about parenting as predictors of early parenting problems.

### *Previous research*

In an earlier study, we (Combs-Orme, Martin, Fox, & Faver, 2000) documented that new mothers can and will report feelings of being at risk to provide poor care for their infants, and that their assessments appear to have some validity. We interviewed 170 delivering mothers in four large hospitals administering a measure of their concerns about providing good care, the Maternal Concerns Scale (MCS; Combs-Orme et al., 2000), and an empirical screening instrument for the risk of abuse (the Child Abuse Potential Inventory; Milner, 1986). The 170 mothers represented a 90.8% response rate and included a diverse sample of mothers, including 38.2% African-Americans and a broad spectrum on income and education.

Mothers in this study expressed confidence about caring for their infants, but only 28.7% indicated that they had no concerns. Significant proportions expressed concerns about providing adequate physical care of their infants, including enough food (25.3%), a place to live (22.9%), and adequate medical care (23.5%) and medicine (19.4%). Mothers also expressed concern about providing enough attention (21.8%) and “good enough care” generally (18.8%). Perhaps of most concern were the endorsements of issues related to abuse; 4.1 and 5.9%, respectively, expressed concerns about hurting their children due to fatigue and bad behavior, respectively; and 10.0% expressed concern about losing their children to the child welfare system. A total of 22 mothers (12.9%) endorsed at least one of these maltreatment items, and four mothers endorsed all three.

Mothers’ assessments were significantly correlated with their risk of abuse, as indicated by their scores on the Child Abuse Potential Inventory (CAPI; Milner, 1986), a widely used screening instrument for risk of child abuse based on attitudes and experiences. Zero-order correlations indicated significant correlations between mothers’ overall concerns (total score on the MCS) and their CAPI scores ( $r = .33, p < .01$ ), as well as between specific maltreatment concerns and CAPI scores ( $r = .24, p < .01$ ). Tests of partial correlations showed that these relationships between mothers’ own concerns and their CAPI scores did not vary as a function of age, education, marital relationship, or income.

Because our earlier study did not involve follow-up data collection, we were unable to determine whether mothers’ concerns were reflected in parenting problems during infancy. Specifically, for targeting service recipients, we would want to know whether information about maternal concerns provides useful information over and above demographic variables, which are easy and unobtrusive to obtain. Thus, the relevant questions in the current study were:

- (1) Do maternal concerns add to sociodemographic variables for predicting parenting problems?
- (2) Do sociodemographic variables add to maternal concerns for predicting parenting problems?
- (3) How do maternal concerns and sociodemographic variables predict the different types of parenting stress?

## Methods

### *Sample and population*

A total of 246 new mothers (not limited to first-time mothers) were recruited between February and November of 1999 from the Mother-Baby Unit of a university-affiliated hospital in a mid-size southeastern city that delivers approximately 3,200 babies annually. Despite legal requirements that insurance pay for longer hospital stays when desired by mothers and their physicians, in this hospital discharge occurred within 24 hours for most vaginal and 48 hours for most Cesarean section deliveries, so most interviews were conducted 12 to 36 hours after delivery. The surrounding area is urban, but the hospital also serves a number of remote mountainous counties without delivery facilities.

Circumstances did not permit probability sampling, as the hospital was not willing to provide an enumeration of delivering patients, and resources would not permit an interviewer to be on the Unit at all times. Therefore, we stationed interviewers on the Unit about 20 hours per week (sometimes including weekends) for most of the data collection period and simply approached mothers who were available. There were very few refusals to participate, all related to lack of time due to early discharge; mothers being

Table 1  
Description of the sample used in the final analysis ( $n = 215$ )

Variable	Category	Number (%)
Race	European-American	125 (58.1)
	African-American	90 (41.9)
Age	Under 16	7 (3.3)
	16–19	56 (26.0)
	20–24	76 (35.3)
	25–29	36 (16.7)
	30 and older	40 (18.6)
Marital/partner status	Married/living with partner	130 (60.5)
	Living alone	85 (39.5)
Education	Less than high school	73 (11.2)
	High school graduate/GED	57 (26.5)
	Vocational training	30 (13.9)
	Some college	65 (30.2)
Employment status at recruitment	Not employed	147 (68.4)
	Part-time	24 (11.2)
	Full-time	44 (20.5)
Annual income category	Under \$10,000	87 (40.4)
	\$10,000–\$19,999	50 (23.3)
	\$20,000–\$34,999	39 (18.1)
	\$35,000–\$59,999	25 (11.6)
	\$60,000+	14 (6.5)
Index child birth order	Mother's first child	103 (41.9)

sleepy or in pain; or the presence of visitors in mothers' rooms. We provided free coffee and ice cream in the hospital cafeteria as an inducement for visitors to leave so that the interview could be conducted in private.

We did not seek to interview mothers with any particular risk characteristics. We did approach African-Americans first and interviewed only African-American mothers in the last few weeks of the study because of a desire to obtain a sample large enough for making comparisons by race. Comparisons to the birth population at the hospital indicate that the sampling procedure was effective in increasing the proportion of African-American mothers to 43.2% as compared to the delivering population during this time (22.0%). Because of this over-representation of African-Americans and their socioeconomic disadvantages compared to European-Americans, the sample also is more disadvantaged than the delivering population as a whole. (Table 1 describes the sample.)

The Institutional Review Boards at the University of Tennessee and the University of Tennessee Medical Center approved the study.

### Data collection

*Recruitment and baseline interviews.* Three Master's-level individuals, two in social work and one in psychology, participated in 8 hours of training, practice, and feedback in administering the standardized

questionnaire. The interviewers were instructed to ask the questions exactly as written and worked in pairs occasionally to observe each other and provide feedback.

The interviewers approached mothers who did not have visitors in their rooms to request their participation in the study unless nurses had identified them as too ill, psychotic, or too intellectually limited to give informed consent. In addition, we did not include the very small number of mothers whose babies had died or were not expected to survive or women who were relinquishing custody. Mothers of babies who were in the Neonatal Intensive Care Unit were included unless they were categorized in one of the above named groups.

To reduce the expense of follow-up, the sample was restricted to residents of counties within approximately 30 minutes' drive (though mothers who moved out of the county after recruitment were retained). Using a standardized interview instrument, interviewers first explained the nature and purpose of the study, the incentive, and the requirement that the interview be conducted in private, and then completed the written informed consent process. If mothers appeared to be groggy due to medication, we made arrangements to return later, but this was rare. The standardized baseline interview required approximately 20 minutes, and mothers received \$10 gift certificates.

*Follow-up interviews.* Follow-up interviews were completed by the same interviewers whenever possible (in hopes that personal rapport would contribute to mothers' willingness to participate) in respondents' homes when the infants were between 6 and 12 months of age. We chose this time to capture the early months of infancy, a stressful developmental stage believed to pose heightened risk of maltreatment (Schmitt, 1987). This interview was 90 minutes to 2 hours in length. Due to extensive tracking activities, we reinterviewed 93% of the original sample ( $n = 227$ ) at follow-up.

To examine whether attrition bias existed, mothers interviewed at the follow-up ( $n = 227$ ) and those not interviewed ( $n = 19$ ) were compared using logistic regression. Follow-up participation status was the dependent variable (0 = no, 1 = yes), and race, marital status, age, and highest education were entered simultaneously in the regression equation. These results showed that there was no difference between participants and non-participants in terms of race, marital status, age, and highest education.

### *Constructs and instruments*

Sociodemographic variables were measured at recruitment (delivery) and at follow-up. These included maternal age and race, highest grade completed, marital/partnership status, number of children previously parented, and annual income. Annual income was recorded as an ordinal variable from 1 (\$5,000 or less) to 10 (\$75,000 and over).

To document mothers' concerns about providing adequate care for their infants, we developed the MCS (Combs-Orme et al., 2000). The original MCS contained 14 items related to child care based on our review of the pediatric and child development literature. In our previous use of the measure, we found that it could be used as a total scale (coefficient  $\alpha = .91$ ), or as two subscales measuring concerns about physical care (7 items, coefficient  $\alpha = .78$ ) and about abuse and neglect (10 items, coefficient  $\alpha = .67$ ). (The MCS is available upon request from the corresponding author.) Because we continue the development of the MCS, we used an expanded version of the measure with 21 items, including additional items on abuse and neglect, in the current study.

Table 2 shows those items in the order the questions were asked and distributions for the items for the entire recruitment sample of 246. We chose to use the summed total concerns score because of its

Table 2  
Maternal concerns ( $n = 246$  except as noted)

Item	% concerned	Endorsers' level of concern, mean ( <i>SD</i> )
1. Provide enough food	14.2	4.3 (3.3)
2. Place to live	13.8	5.8 (3.5)
3. Keep safe	48.2	6.1 (3.0)
4. Child care	33.9	6.7 (2.6)
5. Father not provide ( $n = 245$ )	23.4	6.1 (2.8)
6. Might be taken away	4.6	5.4 (3.7)
7. Tie you down	10.6	3.7 (2.3)
8. Adequate medical care ( $n = 245$ )	19.3	5.5 (3.1)
9. Won't be able to control	23.9	3.8 (2.3)
10. Hurt child from fatigue	4.1	2.2 (3.1)
11. Hurt child due to behavior	4.1	1.9 (1.4)
12. Father hurt child	1.8	6.0 (3.4)
13. Father neglect child ( $n = 243$ )	8.2	5.2 (3.2)
14. Someone report for abuse or neglect	7.3	4.6 (3.1)
15. Buy medicine when sick	17.0	4.5 (2.9)
16. Give enough attention	25.7	4.0 (2.2)
17. Provide good enough care	25.7	4.5 (3.2)
18. I might abuse	1.4	1.7 (.6)
19. I might neglect	1.4	2.7 (2.1)
20. Caretaker might abuse	32.6	5.7 (2.8)
21. Caretaker might neglect	32.6	5.9 (2.6)

higher reliability, and because of the small number of mothers who endorsed the items about abuse and neglect (see Table 2). In addition, mothers' concerns about abuse and neglect are highly correlated with their overall concerns, and much more exploration of the meaning of these items for mothers is required before this subscale is used to address substantive questions.

The MCS was introduced by asking mothers to volunteer some of their concerns, followed by instructions about the individual items ("Now let me mention some concerns other mothers have told us about. For the following, please tell me, yes or no, whether this is a concern to you."). If a mother indicated that an item was of concern to her, we asked her how much on a scale from 1 (just a little) to 10 (a great deal). For example, item 20 asked: "That someone else who is caring for him/her might abuse your baby" and item 21 said: "That someone else who is caring for him/her might neglect your baby."

A second measure, the Michigan Infant Behavior Survey (McDonough, 1995), asks mothers to report on infant behavior. That measure, which is a clinical measure whose reliability and validity have not been reported, includes a general question about anything that concerns the mother about her baby and whether she plans on seeking assistance or help for that concern. Because of the limited reliability of individual items and the placing of these items following other questions related to the infant behavior, we examine this question only for exploratory interest.

*Outcome variables.* Parenting problems during infancy were measured based on mothers' reports of parenting stress. Parenting stress has important influences on parenting behavior and dysfunctional parenting,



including child abuse potential (Crouch & Behl, 2001; Rodriguez & Green, 1997). In addition, research has shown high levels of parenting stress to be related to insecure child attachment (Hadadian & Merbler, 1996; Moran & Pederson, 1998). We measured parenting stresses and problems at follow-up using the child and parent subscales of the Parenting Stress Index—Short Form (PSI-SF; Abidin, 1995), a 36-item measure of parenting stress based on the original, 120-item self-report questionnaire (PSI). The PSI was developed to identify parent-child relationships that are under stress and at risk of developing future parenting or child behavior problems.

The PSI-SF measures three types of parenting stress, described by Abidin (1995). “Parenting role” stress relates to the stresses attributed by the parent to the parenting role itself, including sense of competence, restrictions imposed by the demands of parenthood on other aspects of life, conflict with the other parent, lack of social support, and depression. Parenting stresses also may be related to parents’ attributions of their children as especially “difficult” or hard to care for. Finally, parent-child dysfunctional interaction stress focuses on perceptions that children are not meeting their parents’ expectations and that parent-child interactions are unsatisfying.

The PSI-SF is standardized for use with parents of children from 1 month to 12 years old. Items have five response categories from “Strongly Agree” to “Strongly Disagree” concerning child-related (“My child gets upset easily over the smallest thing”) and parent-related (“I feel trapped by my responsibilities as a parent”) stresses. Coefficient alpha has been reported from .70 to .84 for the subscales (Abidin, 1995). Construct validity is supported by theoretically meaningful correlations between PSI scores and other constructs such as child adjustment. Studies show higher (more stressed) PSI-SF scores among neglectful, drug-addicted, maladjusted, and abusive parents (Abidin, 1995; Ethier, Lacharite, & Couture, 1995). As prescribed by the scale’s author (Abidin, 1995), scale scores above the 85th percentile of the norms indicate clinically significant parenting stress.

### *Data analysis*

In terms of usefulness for identifying parents in need of preventive services, the most important question is how well mothers’ concerns at delivery predict each of the three types of parenting stress, and what the MCS might add to other data in terms of predicting parenting stress. We might ask the question in two ways that would have different implications for the process of screening new parents: After accounting for the variance attributable to sociodemographic variables, how does the MCS add to the prediction of parenting stress? Or, alternatively, after accounting for MCS scores, how do sociodemographic variables add to the prediction of parenting stress?

We examined both of these questions for each of the three types of parenting stress using hierarchical multiple regression (Cohen, Cohen, West, & Aiken, 2003). In the first set of analyses (Table 3) we first entered the block of demographic variables followed by MCS scores, and in the second set (Table 4) we entered first the MCS and then the demographics block. If MCS scores are robust predictors of a specific type of parenting stress, we would expect to see significant regression coefficients (as indicated by significant *t* values) both when it is entered before the sociodemographics and when it is entered after.

Significant *F* values for the block of variables indicate that one or more variables within the block is significant, while significant *F* change values indicate that the changes in the model brought about by the addition of the new block of variables are significant. The total variance accounted for in the dependent variable by the model is indicated by  $R^2$ , and  $R^2$  change indicates the addition to total variance by the new block of variables.



Table 3  
Demographics followed by maternal concerns

Variables	Parenting role: range, 12–54; <i>M</i> = 27.5 ( <i>SD</i> 8.5)			Difficult child: range 12–41; <i>M</i> = 18.3 ( <i>SD</i> 5.4)			Parent-child interaction: range 12–44; <i>M</i> = 22.6 ( <i>SD</i> 8.4)		
	<i>B</i>	<i>t</i>	$\beta$	<i>B</i>	<i>t</i>	$\beta$	<i>B</i>	<i>t</i>	$\beta$
Age	.13	1.06	.09	-.05	-.51	-.04	.00	.03	.00
Education	-.45	-2.29*	-.22	-.47	-3.25***	-.30	-.36	-2.94**	-.28
Income	-.42	-1.45	-.13	.04	.20	.02	.04	.24	.02
Partnership	1.13	.85	.07	-.22	-.22	-.02	-.32	-.38	-.03
	$R^2 = .06, F(4, 210) = 3.31, p = .01$			$R^2 = .11, F(4, 210) = 6.22, p = .000$			$R^2 = .08, F(4, 210) = 4.23, p = .003$		
Maternal concerns	.14	5.13***	.33	.04	1.92	1.13	.03	1.95*	.13
	$R^2$ change = .11, $F$ change (1, 209) = 26.32, $p = .00$ , $R^2 = .17, F(5, 209) = 8.23$ , $p = .000$			$R^2$ change = .2, $F$ change (1, 209) = 3.69, $p = .6$ , $R^2$ = 12, $F(5, 209) = 5.78$ , $p = .000$			$R^2$ change = .2, $F$ change (1, 209) = 3.79, $p = .5$ , $R^2$ = 09, $F(5, 209) = 4.19$ , $p = .001$		

\*  $p < .05$ .

\*\*  $p < .01$ .

\*\*\*  $p < .001$ .

Table 4  
Maternal concerns followed by demographics

Variables	Parenting role			Difficult child			Parent-child interaction		
	<i>B</i>	<i>t</i>	$\beta$	<i>B</i>	<i>t</i>	$\beta$	<i>B</i>	<i>t</i>	$\beta$
Maternal concerns	.14	5.16***	.33	.04	1.99*	.14	.04	2.08*	.14
	$R^2 = .11, F(1, 213) = 26.65, p = .000$			$R^2 = .02, F(1, 213) = 3.94, p = .05$			$R^2 = .02, F(1, 213) = 4.31, p = .04$		
Age	.06	.53	.04	-.07	-.73	-.06	-.02	-.20	-.02
Education	-.38	-2.05*	-.18	-.45	-3.13**	-.29	-.35	-2.81**	-.26
Income	-.42	-1.54	-.13	.04	.20	.02	.04	.24	.02
Partnership	1.79	1.41	.10	-.03	-.03	-.00	-.15	-.18	-.01
	$R^2$ change = .05, $F$ change (4, 209) = 3.34, $p = .01$ , $R^2 = .17, F(5, 209) = 8.23, p = .00$			$R^2$ change = .10, $F$ change (4, 209) = 6.14, $p = .000$ , $R^2 = .12, F(5, 209) = 5.78, p = .000$			$R^2$ change = .07, $F$ change (4, 209) = 4.09, $p = .003$ , $R^2 = .09, F(5, 209) = 4.19, p = .001$		

\*  $p < .05$ .

\*\*  $p < .01$ .

\*\*\*  $p < .001$ .

A standardized coefficient ( $\beta$ ) indicates the average of change in the parenting stress, in standard deviation units, associated with a one standard deviation increase in the independent variable, when controlling for other independent variables in the model. Standardized coefficients allow us to compare the relative effects of individual variables on parenting stress (so that a larger  $\beta$  within the model indicates that the variable has a larger effect on parenting stress). An unstandardized coefficient ( $B$ ) indicates the average change in parenting stress associated with a one-point increase in the independent variable, when controlling for other independent variables in the model. Given that different independent variables are measured using different scales, unstandardized coefficients for different independent variables cannot be compared to determine the relative effects of different independent variables. For both standardized and unstandardized coefficients, a negative coefficient indicates an inverse relationship and a positive coefficient indicates a positive relationship.

## Results

### *Descriptive and psychometric information*

MCS data computed on the entire recruitment sample were complete for 242 respondents; the other 4 cases had a total of 8 missing items. In order to maximize sample size and use all the available data, missing values were imputed using expectation maximization (Acock, 1997). This method of imputation is superior to mean substitution, listwise or pairwise deletion, and other common methods of handling missing data (Acock, 1997).

With a total possible range of 0 to 210 on the MCS, the obtained summed scores for the entire recruitment sample (using imputed values for missing data as described above) ranged from 0 (22.8% of the mothers) to 116 ( $\chi = 17.5$ ,  $SD 19.5$ , median 10.5). Coefficient alpha for the MCS was .79. Item-total correlations ranged from .14 (item 19, the only item under .20) to .55.

Reliability for the three subscales of the PSI was .84 (Parental Distress); .79 (Difficult Child), and .80 (Difficult Interaction). Of the 227 mothers who were included in the follow-up interview, 28 did not complete the PSI. All items were complete for the mothers who completed the PSI.

Findings indicated that 22.9% were experiencing clinically significant levels of parenting stress related to the parenting role; 6.4% were experiencing significant “Difficult Child” stress; and 10.6% were experiencing significant stress related to maternal-infant interaction. Neither the total score nor the subscale scores on the PSI were related to infant age at follow-up. (Ninety-five percent of the infants were between 6 and 12 months at follow-up, with a range of 5.7 to 12.7 months.)

### *Nature of concerns*

Over three-quarters of delivering mothers endorsed at least one concern about their parenting on the day of delivery. Preliminary analyses indicated that first-time mothers’ concerns did not differ from those of other mothers either in type or in number, so we present the summary of concerns for all mothers combined and do not include this variable in further analyses.

By far the most common concern for mothers (and among the items with the highest levels of concern), expressed by nearly half (48.2%) of mothers, was keeping their babies safe (Table 2). Approximately one-third also expressed concerns about child care: getting good child care (33.9%), and that

a caretaker might be abusive (32.6%) or neglectful (32.6%). Approximately one quarter of mothers also expressed concerns about giving their infants enough attention and providing “good enough” parenting in general; being “able to control” their children; and that their infants’ fathers would be good providers. As the table shows, mothers also expressed concern about issues related to being able to provide for their infants’ basic needs, ranging from 13.8% concerned about shelter to 17.0% concerned about providing medicine. Few mothers endorsed concerns about abusing or neglecting their infants, although 31 mothers (13.8%) endorsed at least one of the items indicating concern about hurting or abusing, being reported for maltreatment, or losing custody. A total of 98 mothers (43.8%) expressed at least one concern that someone else might abuse or neglect their children.

### *Relationship between maternal concerns and parenting stress*

Table 3 shows the results entering the sociodemographic variables as a block first, and then adding the MCS. For each type of parenting stress the model containing sociodemographic variables was statistically significant and predicted the greatest amount of variance for stress related to difficult child characteristics. Among the sociodemographic variables, which are highly inter-correlated, only education was significant individually (this was true in every analysis). When the MCS score was added to sociodemographics, it was significant ( $R^2$  change = .11,  $p = .000$ ) for the prediction of parental role stress, but not quite significant for predicting stress related to maternal-infant interaction ( $R^2$  change = .02,  $p = .053$ ), or stress related to child characteristics ( $R^2$  change = .02,  $p = .056$ ).

Table 4 shows the results when MCS scores were entered first, followed by the sociodemographics block. In this case, MCS scores were significant in predicting all three types of parenting stress, but the variable was most predictive of parenting role stress, accounting for 11% of the variance as opposed to 2% each for the other types of stress. The addition of the sociodemographic variables was significant for all three of the parenting stress variables, adding the most variance (10%) to stress related to child characteristics and the least (5%) to parenting role stress.

The results in Tables 3 and 4 show that the MCS has different relationships with the three types of parenting stress when also considering the sociodemographic variables. Clearly mothers’ concerns about parenting at delivery were the most powerful predictors of parenting stress related to the demands of the parenting role, whether the MCS or the sociodemographic variables were entered into the regression equation first. In each case, the standardized coefficient for the MCS was one-and-one-half to twice that of the standardized coefficient for education, the only individually significant demographic variable. The opposite is true for the other two types of parenting stress, with the standardized education coefficients being about twice that of the MCS coefficient.

Finally, we examined all mothers’ responses to the general questions in the Michigan Infant Behavior Survey (MIBS) about concerns regarding their infants and plans to seek help. Over three-quarters (77.2%) of mothers said they had no concerns on this item at follow-up, with 23.1% indicating they did have concerns. Mothers who reported general concerns at follow-up ( $n = 51$ ) also had significantly higher Maternal Concerns scores at baseline ( $M = 5.3$ ,  $SD 20.9$  vs.  $16.5$ ,  $SD 19.3$ ;  $t = 2.8$ ,  $p = .005$ ). Nearly three-quarters of mothers with concerns (73.5%) indicated that they were planning on seeking assistance, but those mothers planning to seek assistance had virtually identical Maternal Concerns scores as mothers who did not plan to seek help (25.7 vs. 25.5). Moreover, there was no relationship between these two items and mothers’ scores on the PSI-SF.

## Discussion

The findings of this study indicate that mothers' concerns at delivery about providing good care to their infants provide important information about the likelihood of parenting stress during early infancy. While it is possible that some mothers may have had concerns that they were not willing to share with us, the fact that so many mothers did express concerns and the significant relationships that were discovered suggest that this was not the case. Moreover, the fact that the two measures (mothers' concerns and their reports of parenting stress) were collected several months apart lends credibility to the finding that mothers' concerns are important predictors of significant early problems in parenting.

Indeed, while there is concern that self-reports do not capture a rich, accurate picture of family functioning (DeVoe & Kantor, 2002), they provide the most direct (and sometimes the earliest) access to parental attitudes and experiences that may be deleterious to children in the long term. In the absence of overt maltreatment, and even with adequate physical care, negative maternal attitudes and experiences may provide early indications of problems in the relationship that may lead to abuse, neglect, poor attachment, and poor child development (Broussard & Hartner, 1970; Crouch & Behl, 2001; Palisin, 1981; Rodriguez & Green, 1997). The next sections address each specific type of parenting stress, predictors of that stress, and differential implications for intervention.

### *Parenting role stress*

Maternal concerns at delivery were most significantly related to stress specifically related to the parenting role. The demands of parenting are intense in the first few months of infancy, as infants are completely dependent and new parents must go without sleep while simultaneously learning to interpret and meet their new infants' needs. Moreover, infants vary in their effectiveness at providing signals about their needs, as well as in how easy they are to soothe, and many parents experience significant stress in learning to respond to their infants. Nearly one-quarter (22.9%) of the mothers in our sample were experiencing clinically significant levels of stress with regard to the parenting role at follow-up, indicating that they found the demands of parenting to be overwhelming, depressing, or disruptive to other areas of their lives.

While screening on sociodemographic variables may identify many of these mothers (the combination of maternal age, education, partnership status, and income was significant, if accounting for a relatively small proportion of the variance), the current findings suggest that mothers' own concerns at delivery were even more important; for example, the maternal concerns score was about twice as powerful as education (the only significant single predictor) in predicting stress related to the parenting role.

### *Difficult child and interaction stress*

On the other hand, demographic variables were more powerful for predicting parenting stress related specifically to mothers' attributions of their children as difficult to care for, and stress related to unsatisfying or negative interactions between mothers and infants. This relationship is not surprising; adolescent and single parenting, lack of education, and poverty are highly correlated, and are believed to represent a constellation of factors that make parenting difficult. Less mature parents, for example, are likely to have less knowledge and fewer skills for parenting (O'Callaghan, Borkowski, Whitman, Maxwell, & Keogh, 1999). Similarly, lack of resources is likely to divert parents' attention toward more day-to-day survival issues (Hoff-Ginsberg, Laursen, & Tardif, 2002). Mothers who are preoccupied with lack of resources

might be more likely to have difficulty soothing their infants or engaging them in positive interactions, thus experiencing more unrewarding and tense interactions. Immaturity might contribute to mothers attributing normal infant behaviors such as crying or night waking to infants being fussy or irritable or “hard to please.”

The purpose of the present study was to predict parenting stress during infancy, and not to explain it, of course. Explanation would involve additional examination of *why* these demographic variables are related to parenting stress, perhaps by examining how disadvantaged mothers tend to be different from those who are more advantaged. Nevertheless, the differential prediction of the specific types of parenting stress suggests a question: what is it about mothers’ own concerns at delivery about parenting that make them a stronger predictor of parenting stress related to the parenting role, compared to the other types of stress?

The answer may lie in what the MCS is measuring. Originally we had conceived of the measure as an indicator of mothers’ assessments of their circumstances and parenting abilities. For example, we expected more disadvantaged mothers to be more concerned at delivery because they would be considering the resources needed to provide for an infant in relationship to their own lack of resources. This was not the case for this sample, however, as there were no significant relationships between Maternal Concerns and measures of income, education, maternal age, or partnership status, nor between Maternal Concerns and amount of child care experience.

Given our findings, it seems reasonable that both maternal concerns and the parenting role subscale indicate attitudes of ambivalence about the parenting role itself. Parenting has been called an “other-directed” activity that is directed totally toward satisfying the needs of someone else (O’Callaghan et al., 1999). Indeed, research has shown that part of the assumption of the role of “mother” during and shortly after pregnancy is a focus away from the outer world and the self (except as caregiver) and toward the infant (Bohlin & Hagekull, 1987). Mothers who do not have this focus may resent the need to neglect themselves and their own needs, and may be aware that these attitudes are not conducive to good parenting.

This ambivalence about parenting may be a part of the construct of “readiness to parent,” which refers to attitudes that are conducive to parenting, as well as knowledge of child development and appropriate parenting skills and practices (Sommer et al., 1993). Bohlin and Hagekull (1987) suggest that appropriate parenting attitudes are related to competent parenting; they found that mothers who demonstrated the most skill in caring for their infants were also the most confident and took the most pleasure in the caretaking tasks and routines. Thus, a mother who is ambivalent about parenting and who experiences significant stress in response to the heavy demands of parenting an infant might also be expected to provide less competent care.

### *Limitations and strengths of the study*

As we noted earlier, the sample used in this study was not a probability sample. However, the sample is similar to the mothers one is likely to find in publicly funded facilities where screening is often done to identify mothers in need of parenting services; although there are mothers in higher income brackets (due in part to the hospital university affiliation), the sample is clearly skewed toward disadvantaged mothers. Indeed, because of the preponderance of disadvantaged patients, this hospital has been a screening site for the Healthy Families America child abuse prevention program.

On the other hand, a significant advantage of this study was the high rate of sample retention (93%) between delivery and the home follow-up interview. This unusually high rate of retention among a sample of transient, disadvantaged mothers enables us to be more confident in our findings and the meaning of

the significant relationships, since the families one loses to attrition may be those with the most social disadvantages, and we might expect this to relate in turn to parenting.

### **Implications for intervention**

These findings emphasize that demographic variables are but one method for identifying new mothers who may experience parenting problems, particularly stress related specifically to the parenting role. Past practices of the delivery of generic “parenting classes,” however, may be improved by thinking about the different kinds of parenting stress new parents may experience. While some parents need simple information about normal infant behavior and development, skills such as feeding, diapering, and determining the infant’s needs, others also may need services directed more toward adaptation to the heavy demands of parenting. Sommer et al. (1993) have noted the difficulty in completing the process of maturity and identity development while engaged in the difficult, time-intensive job of parenting. These individuals might benefit from services specifically designed to address these issues. Further research should be conducted to determine how mothers’ concerns and measures of parenting stress in infancy may be used both to target service recipients and to deliver services appropriate to parents’ needs.

Clearly mothers’ concerns at delivery do not provide a comprehensive and fool-proof measure of their risks for parenting problems. Indeed, it is possible that the highest risks exist among those who are completely unconcerned about their parenting in the face of extensive problems. What seems clear, however, is that service providers should take advantage of mothers’ awareness of the risk of providing poor infant care, together with the unique circumstances at delivery that make new parents willing to seek and use services. Wurtele (1999) presents an important tool among many for identifying those who need and might make good use of services. It is straight-forward to ask new parents whether they are worried that they might not provide good care or might mistreat their infants, particularly compared to current methods that involve the administration of complex questionnaires or the abstracting of records and analysis of sociodemographic data.

### **Summary**

The current study demonstrates that mothers can articulate concerns about the adequacy of their parenting at delivery, and yet mothers’ concerns have not been assessed in efforts to identify possible risk of maltreatment and poor parenting. This longitudinal study with high sample retention indicates that mothers’ early concerns significantly predict parenting stress, which has been shown consistently to be related to poor attachment and potential maltreatment. Mothers’ concerns at delivery about parenting would seem to provide important and easily gathered information for identifying mothers who might need early parenting services.

### **Acknowledgments**

The authors gratefully acknowledge the assistance of Alex Washington, Cathy Greenberg, Melody Kirby, Tommie L. Martin, Laura D. Kirby, and John G. Orme for assistance with data analysis and interpretation.



## References

- Abidin, R. R. (1995). *Parenting stress index: Professional manual* (3rd ed.). Odessa, FL: Psychological Assessment Resources, Inc.
- Acock, A. C. (1997). Working with missing values. *Family Science Review*, *10*, 76–102.
- Belsky, J. (1993). Etiology of child maltreatment: A developmental-ecological analysis. *Psychological Bulletin*, *114*, 413–434.
- Bohlin, G., & Hagekull, B. (1987). “Good mothering”: Maternal attitudes and mother-infant interaction. *Infant Mental Health Journal*, *8*, 352–363.
- Broussard, E. R., & Hartner, M. S. S. (1970). Maternal perceptions of the neonate as related to development. *Child Psychiatry and Human Development*, *1*, 16–25.1.
- Caldwell, R. A., Bogat, G. A., & Davidson, W. S. (1988). The assessment of child abuse potential and the prevention of child abuse and neglect: A policy analysis. *American Journal of Community Psychology*, *16*, 609–624.
- Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences* (3rd ed.). Mahwah, NJ: Lawrence Erlbaum Associates.
- Combs-Orme, T., Martin, L., Fox, G., & Faver, C. (2000). Risk for child maltreatment: New mothers’ concerns and screening test results. *Children and Youth Services Review*, *22*, 517–537.
- Cox, A. D. (1998). Preventing child abuse: A review of community based projects II: Issues arising from reviews and future directions. *Child Abuse Review*, *7*, 30–43.
- Crouch, J. L., & Behl, L. E. (2001). Relationships among parental beliefs in corporal punishment, reported stress, and physical child abuse potential. *Child Abuse & Neglect*, *25*, 413–419.
- Daro, D. (1988). *Intervening with new parents: An effective way to prevent child abuse*. Chicago: National Committee to Prevent Child Abuse.
- Daro, D., & Winje, C. (1998). *Healthy families America: Profiles of pilot sites*, Center on Child Abuse Prevention Research. Chicago: National Committee to Prevent Child Abuse.
- DeVoe, E. R., & Kantor, G. K. (2002). Measurement issues in child maltreatment and family violence prevention programs. *Trauma, Violence, & Abuse*, *3*, 15–39.
- Ethier, L. S., Lacharite, C., & Couture, G. (1995). Child adversity, parental stress, and depression of negligent mothers’. *Child Abuse & Neglect*, *19*, 619–632.
- Faver, C. A., Crawford, S. L., & Combs-Orme, T. (1999). Services for child maltreatment: Challenges for research and practice. *Children and Youth Services Review*, *21*, 89–109.
- Guterman, N. B. (1999). Enrollment strategies in early home visitation to prevent physical child abuse and neglect and the “universal versus targeted” debate: A meta-analysis of population-based and screening-based programs. *Child Abuse & Neglect*, *23*, 863–890.
- Hadadian, A., & Merbler, J. (1996). Mother’s stress: Implications for attachment relationships. *Early Child Development and Care*, *125*, 59–66.
- Helfer, R. (1987). The perinatal period, a window of opportunity for enhancing parent-infant communication: An approach to prevention. *Child Abuse & Neglect*, *11*, 565–579.
- Hoff-Ginsberg, E., Laursen, B., & Tardif, T. (2002). Socioeconomic status and parenting. In M. H. Bornstein (Ed.), *Handbook of parenting, Vol. 2: Biology and ecology of parenting* (2nd ed., pp. 161–188). Mahwah, NJ: Lawrence Erlbaum Associates.
- McDonough, S. (1995). *Michigan infant behavior survey*. Ann Arbor, MI: Author.
- Milner, J. (1986). *The child abuse potential inventory: Manual* (2nd ed.). Webster, NC: Psytec Corporation.
- Moran, G., & Pederson, D. R. (1998). Proneness to distress and ambivalent relationships. *Infant Behavior and Development*, *21*, 493–503.
- O’Callaghan, M. F., Borkowski, J. G., Whitman, T. L., Maxwell, S. E., & Keogh, D. (1999). A model of adolescent parenting: The role of cognitive readiness to parent. *Journal of Research on Adolescence*, *9*, 203–225.
- Palisin, H. (1981). The neonatal perception inventory: A review. *Nursing Research*, *30*, 285–289.
- Rodriguez, C. M., & Green, A. J. (1997). Parenting stress and anger expression as predictors of child abuse potential. *Child Abuse & Neglect*, *21*, 367–377.
- Schmitt, B. D. (1987). Seven deadly sins of childhood: Advising parents about difficult development phases. *Child Abuse & Neglect*, *11*, 421–432.
- Sommer, K., Whitman, T. L., Borkowski, J. G., Schellenbach, C., Maxwell, S., & Keogh, D. (1993). Cognitive readiness and adolescent parenting. *Developmental Psychology*, *29*, 389–398.

Wurtele, S. K. (1999). Preventing child maltreatment: Multiple windows of opportunity in the health care system. *Children's Health Care*, 28, 151–165.

### **Résumé/Resumen**

French and Spanish language abstracts not available at time of publication.