

# Psychological Distress in Mothers of High Risk Infants: The Role of Family Support

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## Introduction

The experience of giving birth to and caring for a medically fragile infant has significant implications for maternal mental health. Preterm infants are at risk for experiencing a host of medical problems, including chronic lung disease, sepsis, and other health conditions that often require lengthy hospitalization. Previous research has found that mothers of infants who are born preterm or who have medical complications experience elevated levels of psychological distress (Klebanov, Brooks-Gunn & McCormick, 2001; Poehlmann & Fiese, 2001; DeMeir et al., 2000). Whereas additional stressors, particularly those within the family context, may exacerbate this situation, support from the child's father and extended family may have a protective effect.

Pearlin's stress process model (1999) suggests that moderating factors buffer an individual from primary and secondary stressors, thus lessening their effects on mental health outcomes. Access to resources such as family or partner support can function as a moderating factor for mothers with high risk infants. The current study explored family and partner support as a moderating resource in the relation between neonatal health risks, child- and partner-related stress, and maternal mental health outcomes. Using Pearlin's stress process model, early infant health risks were conceptualized as a primary stressor, stress within the child and partner domains when infants were 4 months of age was conceptualized as a secondary stressor, and support from the child's father and extended family members was viewed as a potential moderating resource.

## Research Questions and Hypotheses

**Child Stress Model:** Is the association between infant neonatal health risks, child-related stress, and subsequent maternal depressive symptoms moderated by paternal support?

**H<sub>1a</sub>:** Elevated neonatal health risks will be associated with more child-related stress and maternal depressive symptoms.

**H<sub>2a</sub>:** High perceived support from fathers will buffer the effects of child-related stress on maternal depressive symptoms (see Figure 1).

**Partner Stress Model:** Is the association between infant neonatal health risks, partner-related stress, and subsequent maternal depressive symptoms moderated by extended family emotional support?

**H<sub>1b</sub>:** Elevated neonatal health risks will be associated with more partner-related stress and maternal depressive symptoms.

**H<sub>2b</sub>:** High perceived emotional support from extended family members will buffer the effects of partner-related stress on maternal depressive symptoms (see Figure 2).

Figure 1: Hypothesized Risk and Protective Factors within the Child Stress Model.

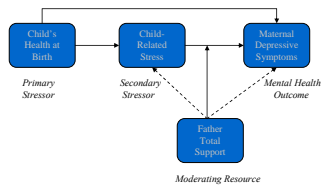
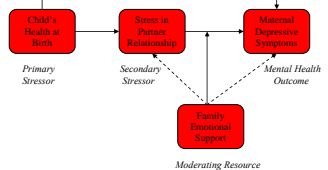


Figure 2: Hypothesized Risk and Protective Factors within the Partner Stress Model.



## Method

Mothers of infants in the NICU were asked to participate by collaborating nurses if infants:

- ✓ weighed less than 2500 grams or were less than 36 weeks gestation
- ✓ had no known prenatal drug exposure or congenital malformations
- ✓ mothers could read English
- ✓ mothers were age 17 and older
- ✓ mothers self-identified as the child's primary caregiver

Multiple methods were used to collect data at the baby's hospital discharge (Time 1) and 4 months post-term (corrected for gestational age) (Time 2).

**Time 1:** Mothers completed a depression scale and demographic information form within a week of their infant's discharge from the NICU. Collaborating nurses collected information from the infants' medical records.

**Time 2:** Home visits were conducted when infants were 4 months past their due dates. Mothers completed a depression scale, stress inventory, and demographic information form at the time of the home visit.

## Sample

Data were collected from 133 families recruited from 3 Wisconsin Neonatal Intensive Care Units as part of a larger study of high-risk infants. Ninety-four (71%) of the infants were Caucasian, 25 (19%) were African American, and 8 (6%) were Latino, and 6 (4%) were of other ethnicities or multiracial. Between NICU discharge and 4 months, 19 participants (14%) were lost to attrition, resulting in a final sample of 114 infants (see Table 1).

Table 1. Sample Demographic Characteristics (N = 114).

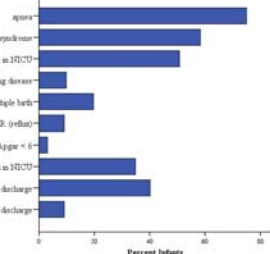
Variable	Range (n, %)	Mean	SD
Gestational age (weeks)	23.71-37.14	31.84	3.01
Birth weight (grams)	564-3328	1773.11	579.12
Days hospitalized	2-136	30.86	27.37
Age of mother (years)	17-42	28.98	6.13
Number of dependents	1-10	1.97	1.22
Years of maternal education	8-21	14.41	2.6
Household income	\$7,536-\$350,000	\$58,362	\$45,464

Maternal marital status:	n	(%)
Married	96	(72.2%)
Partnered, living together	16	(12%)
Partnered, not together	12	(9%)
Divorced or separated	1	(.8%)
Single	9	(6.8%)
Gender of child:	n	(%)
Male	73	(54.9%)
Female	60	(45.1%)

## Measures

**Primary Stressor: Neonatal Health Risks.** Infant medical records were reviewed to compute a neonatal health risk index for each participant. One point was given for each of the medical conditions listed in Figure 3; these items were summed to create a 10 item neonatal health risk index.

Figure 3. Percent of Infants Experiencing Neonatal Health Risks.



**Secondary Stressors: Child and Partner-Related Stress.** The Parenting Stress Index (PSI) was completed by mothers at Time 2 to assess secondary stressors (Abidin, 1986). For this report, the total Child Domain Index and the Partner Stress subscale were used. Higher scores reflected more child and partner stress.

**Moderating Resources: Support Provided by Baby's Father and Extended Family Members.** A questionnaire at Time 1 and 2 assessed maternal perception of support provided by the baby's father and emotional support provided by extended family members. Father support was assessed across 6 domains, including emotional and informational support, household chores, caring for the infant, financial support, and giving mother a rest when needed. Items were summed across the 2 time points, with higher items indicating more support from the baby's father.

Mothers were also asked about whether they received emotional support from their own parents, the baby's father's parents, and any other extended family members. Items were summed across the 2 timepoints, with higher items indicating more emotional support from extended family members.

**Mental Health Outcomes: Maternal Depressive Symptoms.** The Center for Epidemiological Studies-Depression (CES-D), a 20-item questionnaire that assesses depressive symptoms in the past week (Radloff, 1977), was used to assess maternal depressive symptoms at Times 1 and 2. Higher scores indicated more depression.

Table 2. Descriptive Statistics for Primary and Secondary Stressors, Moderating Resources, and Mental Health Outcomes (N = 114).

Variables	M	SD	Range	$\alpha$
Neonatal Health Risk Index	3.11	2.28	0 - 9	.76
Maternal Depressive Symptoms (Time 1)	12.93	9.14	0 - 42	.88
Maternal Depressive Symptoms (Time 2)	9.07	7.17	0 - 36	.85
Total Father Support	10.23	3.41	0 - 14	.93
Total Family Emotional Support	4.17	1.73	0 - 6	.71
Total Child Stress	90.01	16.16	55 - 150	.88
Stress in Partner Relationship	17.00	4.53	7 - 29	.63

## Results

Hierarchical multiple regression analysis was used to assess the parameters of the child stress and partner stress models. Maternal depression at Time 2 was the outcome variable in each model, and maternal education, family income, and Time 1 maternal depression were controls. Infant neonatal health risks were entered as the primary stressor in each model.

**Child Stress Model:** Is the association between infant neonatal health risks, child-related stress, and subsequent maternal depressive symptoms moderated by paternal support?

Results for the child stress model (Table 3, Figure 4) indicated that mothers reported more depressive symptoms at Time 2 ( $R^2 = .32$ ) when they:

- ✦ experienced more child related stress ( $B = .22, p < .05$ )
- ✦ had higher hospital discharge depression scores ( $B = .34, p < .01$ )
- ✦ perceived less total father support (at hospital discharge and 4 months) ( $B = -.16, p < .10$ )

Child related stress was associated with lower maternal education at the trend level ( $B = -.16, p < .10$ ).

The interaction between father emotional support and child-related stress was also a significant predictor of Time 2 depression ( $B = .20, p < .05$ ). Specifically, mothers experienced lower levels of depression when they reported lower child-related stress and more perceived father support (see Figure 4). Contrary to our expectations, high levels of father support did not buffer the relation between child-related stress and maternal mental health.

Unexpectedly, infant's neonatal health risks were not associated with child-related stress or Time 1 maternal depression. Thus, the conceptualization of neonatal health risks as a primary stressor was not supported.

Figure 4: Findings for Child Stress Model.

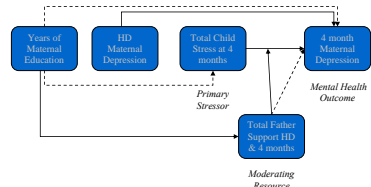
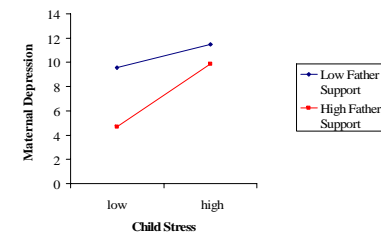


Table 3. Summary of Regression Analyses for Child Stress Model.

Predictor	Step 1			Step 2			Step 3		
	B	SE B	$\beta$	B	SE B	$\beta$	B	SE B	$\beta$
Maternal Education	-.62	.29	.21*	-.47	.30	-.16	-.46	.29	-.16
Family Income	-.00	.00	-.12	-.00	.00	-.09	-.00	.00	-.10
Neonatal Health Risks	-.03	.26	.10	.01	.26	.01	.05	.25	.02
HD CESD	.30	.07	.37**	.28	.07	.34**	.27	.07	.34**
Spousal Support				-.67	.62	-.10	-.96	.62	-.14
Child Stress	1.15	.63	.16	1.56	.64	.22*	1.02	.45	.20*
Spousal Support X Child Stress									
$R^2$	.25			.28			.32		
Model F	F(4, 109) = 9.27**			F(6, 107) = 7.07**			F(7, 106) = 7.02**		
F for change in $R^2$	2.24			5.22*					

\*  $p < .10$  \*\*  $p < .05$  \*\*\*  $p < .01$

Figure 5. Interaction Between Child Stress and Father Support.



**Partner Stress Model:** Is the association between infant neonatal health risks, partner-related stress, and subsequent maternal depressive symptoms moderated by extended family emotional support?

Results for the partner stress model (Table 4, Figure 6) indicated that mothers reported more depressive symptoms at Time 2 ( $R^2 = .34$ ) when they:

- ✦ experienced more partner stress ( $B = .30, p < .01$ )
- ✦ had higher time 1 depression scores ( $B = .37, p < .01$ )
- ✦ completed fewer years of education ( $B = -.22, p < .05$ )

Mothers perceived more stress in the partner relationship when they:

- ✦ had infants with more neonatal health risks ( $B = .17, p < .10$ ). This finding supported the conceptualization of neonatal health risks as a primary stressor, although it was at the trend level.
- ✦ received less emotional support from extended family ( $B = -.17, p < .10$ ). However, extended family emotional support did not moderate the relation between partner stress and maternal depressive symptoms.

Figure 6: Findings for Partner Stress Model.

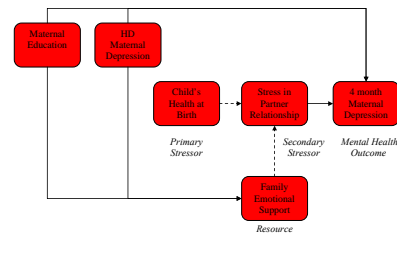


Table 4. Summary of Regression Analyses for Partner Stress Model.

Predictor	Step 1			Step 2			Step 3		
	B	SE B	$\beta$	B	SE B	$\beta$	B	SE B	$\beta$
Maternal Education	-.62	.29	.21*	-.64	.28	.22*	-.64	.28	.22*
Family Income	-.00	.00	-.12	-.00	.00	-.13	-.00	.00	-.13
Neonatal Health Risks	.03	.26	.01	-.12	.25	-.04	-.12	.25	-.04
HD CESD	.30	.07	.37**	.30	.07	.37**	.30	.07	.37**
4 month Spousal Stress				2.16	.58	.30**	2.14	.62	.30**
Family Emotional Support				-.02	.63	-.00	-.01	.63	-.00
Spousal Stress X Family Emotional Support							-.06	.52	-.01
$R^2$	.25			.34			.34		
Model F	F(4, 109) = 9.27**			F(6, 107) = 9.21**			F(7, 106) = 7.82**		
F for change in $R^2$	2.24			7.04**			.02		

\*  $p < .10$  \*\*  $p < .05$  \*\*\*  $p < .01$

## Conclusions

In families raising medically fragile infants, child- and partner-related stress and partner support are key contributors to maternal mental health. Within this study, maternal education, maternal depressive symptoms at hospital discharge, partner- and child-related stress and partner support were associated with maternal depressive symptoms when infants were 4 months of age.

**Child Stress Model.** Consistent with predictions, partner support moderated the relationship between perceived child stress and maternal depressive symptoms. Contrary to our expectations, however, this interaction did not reflect a buffering effect. The lowest levels of maternal depressive symptoms were seen in families experiencing low child stress and high partner support (dual benefit). Partner support did not buffer the negative effects of having high child stress; rather, partner support appeared more influential when child stress was low. According to these findings, partner support may be beneficial but not necessarily function as a protective factor for a mother's experience of child-related stress.

**Partner Stress Model.** Mothers with medically fragile infants experienced somewhat more stress in the partner domain, and elevated partner stress related to less optimal maternal mental health. Although the relation was modest in magnitude, mothers who experienced more family emotional support reported less partner-related stress, although family emotional support was not directly related to maternal depressive symptoms at 4 months. These findings highlight a potential mechanism through which infants' early medical risks relate to later maternal depression and how family emotional support may alleviate some of the increased partner stress associated with having a medically fragile infant.

**Implications for Intervention.** The findings of this study suggest that families of medically fragile infants are at slightly increased risk for experiencing stress in the partner relationship and highlight the importance of father support for maternal mental health. Consistent with Pearlin's stress process model and family-focused intervention models, results suggest the use of multimodal approaches to intervention for families raising medically fragile infants. Optimal maternal mental health may be supported by encouraging partner support and family emotional support and by minimizing child-related stress. Because maternal depression at the infant's hospital discharge was a significant predictor of depression when infants were 4 months of age, efforts should be made to screen mothers before infants are discharged from the NICU.

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