



The Neonatal Intensive Care Unit (NICU) and Maternal Mental Health



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Abstract

Admittance of newborns into a Neonatal Intensive Care Unit (NICU) is a common, though often unexpected, occurrence. Prior research on the psychological impacts of a NICU admittance for new mothers has utilized hospital samples for postpartum depressive symptomology. The current study draws upon a transition to motherhood survey conducted in 2016 of 127 women during pregnancy and following the birth of a first child. Though there were no significant differences in depression scores during pregnancy, multiple regression analyses indicate that women whose infants were admitted to a NICU following birth reported significantly higher postpartum depressive symptomology than women whose infants were not admitted to a NICU. These findings suggest implications for policies and practices that enhance maternal well-being following an infant's NICU admittance.

Introduction

Each year, neonatal intensive care units (NICU) across the United States admit 1.5 million newborns (10 - 15 percent of all babies born) (Harrison & Goodman, 2015). There are many reasons for NICU admittance, with preterm (born before 37 weeks gestation) birth as the prevailing reason for NICU admittance (March of Dimes, 2016). Although there are many and diverse reasons that newborns are admitted to the NICU, the parental experience can be distressing.

Prenatal and Postnatal Depression and the NICU

Maternal depression that occurs before or after birth can have harmful effects for both the mother and infant. Prenatal depression can increase risk for NICU admission (Latendresse et al. 2015), but it has been unclear whether NICU admittance significantly affects new mothers' depressive symptoms over and above prenatal symptoms of depression.

Research Questions

- Do maternal depression rates differ pre- and postnatally among women with a newborn admitted to the NICU?
- Do new mothers who experience a NICU admission of their newborns report higher postpartum depressive symptoms?

Methods

Sample

- Data come from an online survey collected from pregnant women living in rural and urban counties in a South Central state in the United States in 2016 who were expecting their 1st biological child. The sample includes the 126 women (ages 18-36) who participated in the survey in their 3rd trimester and approximately 6-8 weeks post birth.

Measures

- *Depressive Symptoms.* Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977). For this study, the sum of responses were used to calculate the *prenatal depression* and *postpartum depression* scales. The scale includes 20 questions, coded and reverse-coded from 0 (rarely/never) to 3 (most of the time). Cronbach's alpha values for prenatal and postnatal depression scales were .90 and .91, respectively.
- *Neonatal Intensive Care Unit (NICU) Admission.*, "Did your baby spend any time in a neonatal unit?" 1=yes and 0=no.
- Control variables: *age, education, race/ethnicity, and union status.*

Analytic Strategy

- ANOVA comparisons by NICU admission status; multivariable linear regression analysis examining the relationship between NICU admission status and postpartum depression.

Results

Table 1. Means and standard deviations of study variables by NICU admission experience (N=126).

Variables	Full sample		NICU (N=14)		No NICU (N=113)		Range	F statistic	p
	M or %	SD	M or %	SD	M or %	SD			
NICU admission	11%						0-1		
Prenatal depression	12.10	8.15	15.50	9.31	11.68	7.94	0-40	2.00	
Postnatal depression	10.77	7.47	15.64	9.81	10.16	6.94	0-38	6.38 *	
Demographic variables									
Age	24.36	4.19	24.43	4.43	24.35	4.18	18-36	.02	
Some college or more	72%		79%		71%		0-1	.03	
White	71%		71%		71%		0-1	.10	
Living in union	84%		79%		85%		0-1	.01	

*p<.05.

Summary of Results:

- 11% of the sample had newborns admitted to the NICU.
- ANOVA results revealed no significant differences between NICU and non-NICU mothers except for postpartum depression scores.
- In multivariable linear regression models, NICU admittance was significantly associated with higher postpartum depression scores, even after controlling for prenatal depression and control variables.



Table 3. Multivariable linear regression analysis of postnatal depression by NICU admittance, demographic characteristics, and prenatal depression (N=126).

Variables	Model 1		Model 2		Model 3	
	b	SE	b	SE	b	SE
NICU admission	5.48 *	2.07	5.42 *	2.08	4.80 *	2.08
Demographic variables						
Age			-.20	.18	-.16	.18
Some college or more			-.38	1.69	.05	1.68
White			-.27	1.50	-.08	1.49
Living in union			-1.69	1.96	-.74	1.99
Prenatal depression					.17 *	.09
Constant	10.16 ***	.69	16.53 ***	4.00	12.65 *	4.43

*p<.05; **p<.01; ***p<.001.

Conclusions

Analyses reveal several important implications of NICU admittance and depressive symptomology.

- ❑ The findings from the current study suggest that NICU admittance had a unique association with postpartum depressive symptoms, over and above prenatal depressive symptoms. This finding supports prior research indicating mental health risks to mothers with infants admitted to the NICU compared to mothers of healthy babies (Korja et al., 2009).
- ❑ Importantly, there were no significant prenatal differences between mothers with and without a NICU admission, and differences between the groups emerged with a decline in symptoms for mothers without a NICU admission.
- ❑ This decline is consistent with data reporting that, for most mothers, and especially for mothers with high prenatal depressive symptoms, there is a decline in depressive symptoms over the first 6 weeks postpartum (Fredriksen et al., 2017).
- ❑ However, following a NICU admittance, these symptoms may remain elevated for additional time because the delivery experience itself took longer to resolve, and there are likely continuing concerns about the infant's health which would reasonably maintain symptoms.

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