

Association Between Clinically-Identified Prenatal Food Insecurity and Prematurity, Pediatric Utilization, and Postnatal Social Needs

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Objectives: Childhood social needs negatively impact child developmental and health outcomes. However, the relationship between clinically-identified prenatal social needs, including food insecurity, and childhood health, health care, and social needs has not been examined.

Methods: We examined longitudinal data from 268 mother-child dyads receiving prenatal and pediatric care as well as social needs screening in both care settings at a large public, academically affiliated safety net medical center between October 2018 (when pediatric screening began) and July 2019. Associations among prenatal social needs including food insecurity, postnatal social needs, premature birth, pediatric inpatient and outpatient utilization, and missed vaccinations were estimated using covariate-adjusted regression models.

Results: Mothers who experienced prenatal food insecurity had higher odds of later social needs in the pediatric setting with their children (odds ratio [OR] for any social need 3.6; 95% confidence interval [CI] 1.5-8.4, $p=0.003$). Mothers experiencing prenatal food insecurity had 4.5 higher odds of having a child born premature (95% CI 1.3-14.9, $p=0.02$). Mothers who had prenatal food insecurity also had children with higher counts of inpatient visits (incidence rate ratio [IRR] 2.5, 95% CI 1.1-5.8, $p=0.04$) and missed immunizations (IRR 1.3, 95% CI 0.2-2.4, $p=0.03$) in the first 6 months of life.

Conclusions: Prenatal social needs, especially food insecurity, were found to be associated with adverse perinatal and pediatric outcomes, including prematurity, inpatient hospitalizations, and missed vaccinations. Identification of food insecurity and other social needs in the prenatal period may offer opportunities to intervene to reduce childhood health hazards.

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TABLE 1: Demographics			
Characteristic	Overall Sample (N=268)	Prenatal Food Insecurity (N=32)	Prenatal Housing, Transportation, or Food Insecurity (N=45)
	% (N) or Mean (SD)	% (N) or Mean (SD)	% (N) or Mean (SD)
Mother's Race			
White	72.0% (193)	68.8% (22)	68.9% (31)
Black or African American	13.8% (37)	18.8% (6)	22.2% (10)
Asian	10.1% (27)	6.3 (2)	4.4% (2)
Other	4.1% (11)	6.3% (2)	4.4% (2)
Mother's Ethnicity			
Hispanic or Latino	69.0% (185)	68.8% (22)	68.9% (31)
Not Hispanic or Latino	31.0% (83)	31.3% (10)	31.1% (14)
Mother's Preferred Language			
English	75.4% (202)	71.9% (23)	73.3% (33)
Spanish	22.8% (61)	28.1% (9)	26.7% (12)
Mother's Education			
Did not graduate high school	28.7% (77)	40.6% (13)	37.8% (17)
High school/GED	53.7% (144)	40.6% (13)	46.7% (21)
Some college or above	17.5% (47)	18.8% (6)	15.6% (7)
Mother's Employment Status			
Unemployed	50.6% (135)	50.0% (16)	54.6% (24)
Employed	49.4% (132)	50.0% (16)	45.5% (20)
Partnered Status			
Living with partner	59.4% (158)	37.5% (12)	37.8% (17)
Not living with partner	40.6% (108)	62.5% (20)	62.2% (28)
Number of Prior Gestations	1.51 (1.72)	1.91 (1.77)	2.22 (2.36)
Number of Previous Live Births	0.87 (1.16)	1.22 (1.34)	1.29 (1.34)
Child Outcomes			
Born <36 Completed Weeks of Gestation	6.9% (18)	16.1% (5)	11.4% (5)
Missed Immunizations	0.29 (1.02)	0.63 (1.64)	0.50 (1.44)
Inpatient Visits	0.16 (0.44)	0.32 (0.63)	0.33 (0.74)
Emergency Dept Visits	0.70 (1.15)	1.04 (1.57)	0.88 (1.43)
Missed WCC ^a at Ages 1, 2, 4, 6 Months	0.29 (0.64)	0.35 (0.65)	0.45 (0.77)
Missed WCC at Ages 2, 4, 6 Months	0.23 (0.53)	0.30 (0.56)	0.35 (0.61)

^aWell Child Check

TABLE 2: Social Need & Child Health Outcomes				
Outcomes	Prenatal Food Insecurity		Prenatal Housing, Transportation, or Food Insecurity	
	OR/IRR (95% CI)	<i>P</i>	OR/IRR (95% CI)	<i>P</i>
Social Needs in the Pediatric Period				
Housing	4.0 (1.2-13.9)	0.03	2.5 (0.7-8.7)	0.15
Employment	2.4 (0.7-8.8)	0.19	1.6 (0.4-5.7)	0.49
Financial Strain	5.8 (1.8-18.1)	0.003	3.5 (1.2-10.6)	0.03
Food	6.8 (2.1-21.8)	0.001	4.8 (1.5-15.1)	0.007
Transportation	4.3 (1.2-15.5)	0.03	6.7 (1.9-23.6)	0.003
Legal	4.0 (1.1-14.4)	0.03	3.7 (1.1-12.8)	0.04
Any of the Above	3.6 (1.5-8.4)	0.003	2.7 (1.2-5.8)	0.01
Prematurity				
Gestational Age Less than 36 Completed Weeks at Birth	4.5 (1.3-14.9)	0.02	2.4 (0.7-7.9)	0.15
Health Care Utilization				
Inpatient Visits	2.5 (1.1-5.8)	0.04	2.7 (1.2-5.9)	0.02
Missed Immunizations	1.3 (0.2-2.4)	0.03	1.4 (0.2-2.6)	0.02
Emergency Dept Visits	1.6 (0.8-3.0)	0.17	1.3 (0.7-2.5)	0.35
Missed WCC ^a at Ages 1, 2, 4, 6 Months	1.1 (0.5-2.5)	0.76	1.7 (0.9-3.3)	0.10
Missed WCC at Ages 2, 4, 6 Months	1.4 (0.6-3.3)	0.40	2.0 (0.9-4.2)	0.07

^aWell Child Check