



Material Hardship and Internal Locus of Control Over the Prevention of Child Obesity in Low-Income Hispanic Pregnant Women

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ABSTRACT

OBJECTIVE: To determine the relations between household material hardships and having a low internal locus of control over the prevention of child obesity in low-income Hispanic pregnant women.

METHODS: We performed a cross-sectional analysis of baseline data collected during a third trimester prenatal visit from women participating in the Starting Early Study, a randomized controlled trial to test the efficacy of a primary care-based family-centered early child obesity prevention intervention. Using multiple logistic regression analyses, we determined whether 4 domains of material hardship (food insecurity, difficulty paying bills, housing disrepair, neighborhood stress), considered individually and also cumulatively, were associated with having a low internal locus of control over the prevention of child obesity.

RESULTS: The sample included 559 low-income Hispanic pregnant women, with 60% having experienced at least 1 hardship. Food insecurity was independently associated with a low

internal locus of control over the prevention of child obesity (adjusted odds ratio, 2.38; 95% confidence interval, 1.50–3.77), controlling for other hardships and confounders. Experiencing a greater number of material hardships was associated in a dose-dependent relationship with an increased odds of having a low internal locus of control.

CONCLUSIONS: Prenatal material hardships, in particular food insecurity, were associated with having a lower prenatal internal locus of control over the prevention of child obesity. Longitudinal follow-up of this cohort is needed to determine how relations between material hardships and having a low internal locus of control will ultimately affect infant feeding practices and child weight trajectories.

KEYWORDS: infant; locus of control; obesity; poverty; pregnancy; weight

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WHAT'S NEW

We found that prenatal material hardships are linked to a low internal locus of control over the prevention of child obesity. These findings link poverty-related challenges to prenatal attitudes that might ultimately increase obesity-promoting infant feeding practices and weight trajectories.

POVERTY-RELATED DISPARITIES IN early child obesity have significant public health implications, including adverse effects on child health¹ and the increased risk of obesity across the life-course.² Ethnic disparities also exist, with Hispanic children having the highest prevalence of overweight in the first 2 years of life compared with non-

Hispanic white and African American children.³ Research has identified modifiable maternal behaviors associated with child obesity risk during infancy, such as breast or formula feeding.⁴ An understanding of maternal characteristics related to these behaviors is important for the development of obesity prevention strategies. Because feeding intentions and attitudes are established during pregnancy and predict infant feeding behaviors, it is essential to identify the contributing characteristics that influence these attitudes during pregnancy.⁵

Internal locus of control, defined as one's sense of personal control over life outcomes, is a prenatal characteristic that might serve as an early antecedent of child obesity-promoting behaviors.⁶ Individuals with a low internal locus of control believe that they are not able to

control their own life outcomes. Those with a more external locus of control believe that their life outcomes are controlled by powerful others, fate, or luck. With respect to health, beliefs that one's own actions lead to positive health outcomes is thought to motivate healthy behaviors. During pregnancy, the degree to which a woman perceives that she is responsible for the health of her fetus has been related to multiple prenatal health behaviors as well as intentions regarding postnatal behaviors.⁷⁻⁹ Specific to infant feeding, pregnant women who have higher internal locus of control with regard to fetal health are more likely to intend to breastfeed.¹⁰

Low internal locus of control might mediate multiple negative parenting and child health behaviors linked to living in poverty.¹¹ A few studies have linked challenges associated with poverty, in particular household material hardships, to having a low internal locus of control. During pregnancy, food insecurity has been linked to beliefs in greater control by others or chance rather than themselves.¹² The daily hassles and anxiety that commonly accompany poverty and high neighborhood deprivation have been related to lower self-perceived control.^{13,14} Furthermore, a broad body of evidence suggests that experiencing an increasing number of hardships has greater effects on child health and development.^{15,16}

To our knowledge, no previous studies have comprehensively assessed whether individual material hardships during pregnancy, such as food insecurity, difficulties paying bills, housing disrepair, and neighborhood stress, as well as their cumulative effects, are associated with prenatal internal locus of control related to preventing child obesity. Therefore, we sought to understand how material hardships, considered individually and also cumulatively, are associated with prenatal internal locus of control over the prevention of child obesity (LOC-PCO) in low-income Hispanic pregnant women.

METHODS

STUDY DESIGN

We performed a cross-sectional analysis of data from pregnant women participating in the Starting Early Study, a randomized controlled trial to test the efficacy of a primary care-based, family-centered, early child obesity prevention intervention. The Starting Early intervention was designed for low-income Hispanic families. It begins in the third trimester of pregnancy and continues until child age 3 years old. Data used in these analyses were collected between August 2012 and December 2014 before randomization during a baseline survey at a third trimester prenatal visit. Trained bilingual research staff conducted an interviewer-administered survey in either English or Spanish. This study was approved by the institutional review boards of New York University School of Medicine and the Albert Einstein College of Medicine, by Bellevue Hospital Center, and by the New York City Health and Hospitals Corporation. This study was registered on clinicaltrials.gov (NCT01541761).

STUDY SAMPLE

This study took place in the prenatal clinics of a large urban public hospital and an affiliated satellite neighborhood health center. Inclusion criteria were: 1) age ≥ 18 years old, 2) self-identification as Hispanic/Latina, 3) fluent in English or Spanish, 4) singleton uncomplicated pregnancy, and 5) intention to receive prenatal and pediatric care at the study sites. Exclusion criteria were: significant medical or psychiatric illness, homelessness, substance abuse or severe fetal anomalies on ultrasound examination. At a prenatal visit between 28 and 32 weeks' gestational age, women were approached and assessed for eligibility. Women interested in participating signed written informed consent and completed baseline assessments.

ASSESSMENTS

INDEPENDENT VARIABLES

Household food insecurity was assessed using the Core Food Security Module from the US Department of Agriculture¹⁷ on the basis of a 12-month period that overlapped the pregnancy. Continuous scores were generated from 10 questions (Cronbach $\alpha = .53$) and dichotomized using recommended cut points. Women were classified as "food secure" if they reported no more than 2 food-insecure conditions and "food insecure" if they reported 3 or more.

Difficulties paying bills was assessed using 2 questions from the Survey of Income and Program Participation (SIPP)¹⁸: 1) "Have you had serious financial problems or been unable to pay monthly bills, rent, or mortgage during the past 12 months?"; 2) "Has there been a time when your household had service turned off by the gas or electric company, or the telephone company?" Continuous scores were generated on the basis of the sum of the responses ($\alpha = .53$). A categorical variable was defined as a "yes" response to either of these questions.

Housing disrepair was measured using questions from the Survey of Income and Program Participation.¹⁸ We asked women "Are any of the following conditions present in your home?": Responses included 1) a leaking roof or ceiling, 2) a toilet, hot water heater, or other plumbing that does not work, 3) broken windows, 4) exposed electric wires, 5) rats, mice, roaches, or other insects, 6) holes in floor (large enough to trip in), and 7) open cracks or holes in the walls or ceiling. Continuous scores were generated on the basis of the number of housing conditions experienced ($\alpha = .51$). A categorical variable for housing disrepair was defined as a "yes" response to any of the housing conditions.

Neighborhood stress was measured using questions from the Pregnancy Risk Assessment Monitoring System.¹⁹ Mothers were asked: "Did you do any of the following things because you felt it was unsafe to leave or return to the neighborhood where you live?": 1) miss doctor or other appointments, 2) limit grocery or other shopping, and 3) stay with other family members or friends. Responses were on the basis of a 5-point Likert scale (never, almost never, sometimes, fairly often, and always). Continuous scores were generated from the sum of the 3 questions

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