Research Article

Social and Environmental Barriers to Nutrition Therapy for Diabetes Management Among Underserved Pregnant Women: A Qualitative Analysis

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ABSTRACT

Objective: To identify social and environmental barriers to nutrition therapy for diabetes management during pregnancy among a population of low-income, minority pregnant women.

Design: Prospective, in-depth, semi-structured interviews performed serially during pregnancy and continued until thematic saturation was reached.

Setting: Urban academic medical center.

Participants: Ten pregnant low-income, minority women with gestational diabetes and type 2 diabetes mellitus.

Phenomenon of Interest: Social and environmental barriers to nutrition therapy for diabetes management during pregnancy.

Analysis: Qualitative analysis of interview data using electronic coding software was performed using theme analysis.

Results: Participants perceived limited ability and self-efficacy to adopt nutrition recommendations. Specific themes identified as barriers included (1) feeling overwhelmed by the unfamiliar; (2) using and decoding nutrition labels; (3) managing nutrition choices and seeking control in the setting of food insecurity; (4) experiencing lack of control and motivation, and limited self-efficacy; (5) balancing recommendations with taste preferences and cultural food norms; (6) maintaining a healthy eating schedule; and (7) accommodating diabetes in family and social life.

Conclusions and Implications: Pregnant women with diabetes encounter a number of knowledge-based, attitudinal, and resource-related barriers that reduce capacity for nutrition therapy adherence. Provision of culturally informed, practical nutrition support that addresses the needs of women in low-resource communities is an important component of comprehensive diabetes care during pregnancy.

Key Words: pregnancy, medical nutrition therapy, gestational diabetes mellitus, type 2 diabetes mellitus, health disparities (*J Nutr Educ Behav*. 2016;■:1-11.)

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INTRODUCTION

Diabetes during pregnancy is a growing and significant clinical and public health problem, and as with the obesity epidemic, women in minority communities are disproportionately affected.[1,2] Type 2 diabetes mellitus (T2DM) and gestational diabetes mellitus (GDM) are both associated with adverse perinatal outcomes and long-term maternal and child health risks.[1,2] Thus, glycemic control during pregnancy is the primary goal of diabetes-related prenatal care in this setting, and nutrition therapy forms the foundation of care for pregnant women with

diabetes.[1-3] However, adoption of nutrition therapy, which requires intensive behavior change and mastery of complex information, is often a significant barrier to successful glycemic control for low-income minority women.[4-7]

During a pregnancy with diabetes, many specific lifestyle adjustments are recommended over a short period of time.[1-3] Pregnant women with diabetes must implement an extensive and tailored diet, monitor glucose levels, and attend frequent appointments beyond the usual routine prenatal frequency for maternal and fetal monitoring.[1,2,8] Women are challenged to learn to regulate both the quantity and quality of carbohydrate consumption while simultaneously adopting new medication use and exercise behaviors.[8] As clinicians providing care for pregnant women with diabetes, the authors have observed that women in medically and socially underserved communities are challenged with the complexities of diabetes self-management.

Limited existing data have explored barriers to adoption of nutrition recommendations during pregnancy, primarily in international settings.[4-7] Whereas the literature suggests that women face logistical, social, and knowledge-based barriers while managing diabetes during pregnancy, few reports have investigated nutrition-specific barriers in a medically high-risk population of US women. Thus, this study aimed to investigate nutrition-specific barriers to diabetes self-care among pregnant, low-income, minority women in Chicago. The goal was to apply qualitative methodology to better understand women's experiences with nutrition recommendations during a pregnancy complicated by diabetes, ultimately to identify ways in which care teams can enhance adherence to nutrition therapy guidelines during pregnancy.

METHODS

This prospective observational cohort study used qualitative methodology to investigate the nutrition-related challenges of diabetes self-care during pregnancy. Pregnant women seen at their first visit for GDM or T2DM at an outpatient prenatal clinic in a large

urban academic medical center were recruited. This clinic provides obstetric and gynecologic care for low-income women via residents and fellows of the Department of Obstetrics and Gynecology, with faculty supervision. All patients in this clinic received Medicaid-funded prenatal care. English-speaking women over age 18 with GDM or T2DM who were presenting for antenatal care before 30 weeks' gestation were eligible. A convenience sample of women meeting the inclusion criteria was recruited. Participants were identified via clinical care and were invited to participate by in-person interaction with a member of the research team. All women provided written informed consent before study participation. Participants were offered a gift certificate for newborn photography after study completion. Approval was received from the Northwestern University Institutional Review Board.

Sample size was based on the goal of saturation in qualitative research, in which data collected capture the range of experiences and variation in responses in a population. The research team planned *a priori* to conduct interviews until achievement of saturation. Groups of 2–4 interview transcripts were reviewed as the study progressed to identify and code common themes iteratively.[9]

Brief self-completed surveys identified demographic characteristics and obstetrical history. Participants completed 3 semi-structured, in-person, 30- to 60-minute interviews. Two members of the research team (LMY and JMM) with extensive research interviewing experience conducted all interviews. Both interviewers were multiracial female obstetrician-gynecologist physicians who were not specifically ethnicity-matched to participants; 1 interviewer was briefly involved in the care of patients but performed interviews separately from clinical care. Interviews occurred at study enrollment, after 35 weeks' gestational age, and in the immediate postpartum hospitalization. Longitudinal interviewing was performed optimally to identify barriers arising during the changing requirements of pregnancy. Interviews focused on the individual lived patient experience and her patient-centered perspectives on diabetes management and self-care. In-

terviews were conducted privately in outpatient clinical rooms, conference rooms, or postpartum hospital rooms. Participants were encouraged to speak freely about their experiences. They were informed there were no right or wrong answers, answers would not affect their medical care, and they were free not to answer questions. Interviews were recorded using a digital audio recorder and transcribed verbatim by the interviewer shortly thereafter. Iterative review of transcripts in early stages of interviewing informed later data collection; the process of reviewing interview responses and exploring emerging themes was performed until saturation occurred.[10,11]

Cognitive load theory was used as the theoretical framework for this investigation. Cognitive load describes the amount of cognitive demand called for by a particular task.[12,13] It refers to the amount of mental demand imposed on a person and is related to an individual's working memory and capacity to process novel information.[14-16] Being a patient requires managing health in the setting of complex learning systems,[14] and such situations can reduce decision-making capacity and present challenges to behavior change.[17,18] Thus, the researchers proposed that the complexity and intensity of perinatal diabetes management is a high cognitive load state that can make it harder for patients to incorporate health behaviors. Interviews were designed as patient-driven explorations of experiences with the cognitive load elements of diabetes during pregnancy. The research team worked with perinatology specialists to identify the major domains of diabetes care requirements during pregnancy, which were identified as contributors to the cognitive load. The structured interview guide was then designed to address patient experiences with these domains, which included disease knowledge, nutrition management, logistics of care, blood glucose testing, and medication use (Table 1). With regard to the nutrition domain, participants were asked about their experiences with counting carbohydrates, knowing how to choose healthy food, affording a diabetic diet, and reading nutrition labels. This analysis