



# Material Need Insecurity and Its Concurrent Barriers to Diabetes Management Among Low-Income Latino Adults Receiving Medical Care

Briga Mullin,<sup>1</sup> Brett S. Cervantes,<sup>1,2</sup>  
and John Billimek<sup>1,2</sup>

*Diabetes Care* 2019;42:e31–e33 | <https://doi.org/10.2337/dc18-1583>

Material need insecurity—limited or uncertain ability to access or pay for basic needs such as food, housing, or energy (1)—is reported by 18.9% of older adults with chronic health conditions (2). The association between material need insecurity and health is likely bidirectional (1,3). The sacrifices and trade-offs made to meet material needs lead to exacerbation of chronic conditions, and poor health creates circumstances that precipitate insecurity (3).

Material need insecure (MNI) individuals receiving treatment for diabetes tend to be no less likely than material need secure (MNS) individuals to receive recommended health care services (4). However, upstream challenges leading to insecurities (such as unstable employment, family, and housing situations) likely undermine patients' ability to manage health conditions for reasons that extend beyond access to medical services (1). This problem is especially relevant in Latino patients who face higher rates of material deprivation and worse diabetes outcomes than non-Latino individuals, even after accounting for access to care (5). As efforts to screen for and respond to material need insecurity in clinical settings expand, it is important for providers to consider correlates of insecurity that extend beyond a patient's lack of resources.

The current study uses secondary analysis of cross-sectional observational data from low-income Latino adults receiving regular medical care for type 2 diabetes ( $n = 738$ ) in the Reducing Racial Disparities in Diabetes Care: The Coached Care Study (R2D2C2), described in detail elsewhere (5), under institutional review board oversight. Trade-offs caused by material need insecurity were assessed with a single questionnaire item: "During the last 12 months, have you spent less on food, heat or other basic needs so you would have enough money for your medicines?"

Performance on seven Healthcare Effectiveness Data and Information Set (HEDIS) quality-of-care measures was assessed from electronic health records. Nine "concurrent barriers" were measured, including depressive symptoms from the 11-item Center for Epidemiologic Studies Depression Scale (CES-D), challenging circumstances from the Stressful Life Events Index, and difficulty accessing care from four items adapted from the Medicare Expenditure Panel Survey (MEPS). Medication nonadherence related to cost and negative beliefs were assessed from 11 items, adapted from a measure used in a national survey of Medicare beneficiaries (3).

Quality of care, concurrent barriers, difficulty accessing care, and nonadherence were compared between MNI (reporting trade-offs) and MNS (reporting

no trade-offs) participants using logistic regression models, adjusted for age, sex, nativity (U.S. vs. foreign born), education, language preference, health insurance, usual source of care (Federally Qualified Health Center vs. other), and income using SPSS, version 24.0 (IBM Corp., Armonk, NY). All comparisons that were performed are presented.

Roughly 34% (248/738) of participants reported trade-offs related to material need insecurity. Compared with MNS individuals, MNI participants were significantly younger (mean  $\pm$  SD  $52.6 \pm 10.2$  vs.  $56.8 \pm 11.0$  years,  $P < 0.001$ ) and more likely to be female (72% vs. 64%,  $P = 0.039$ ), uninsured (50% vs. 29%,  $P < 0.001$ ), and to access a Federally Qualified Health Center as a usual source of care (92.3% vs. 85.1%,  $P = 0.005$ ). The groups did not differ in education (11.7% completed high school), household income (60%  $<$  \$20,000 per year), nativity (84% born outside the U.S.), and language preference (84% Spanish).

Figure 1 displays a comparison of MNS versus MNI participants across the clinical and contextual measures evaluated in the study. MNI individuals scored significantly worse than MNS counterparts on 15 out of the 23 evaluated measures. For quality of care, MNI patients did not differ from MNS individuals in process measures or blood pressure

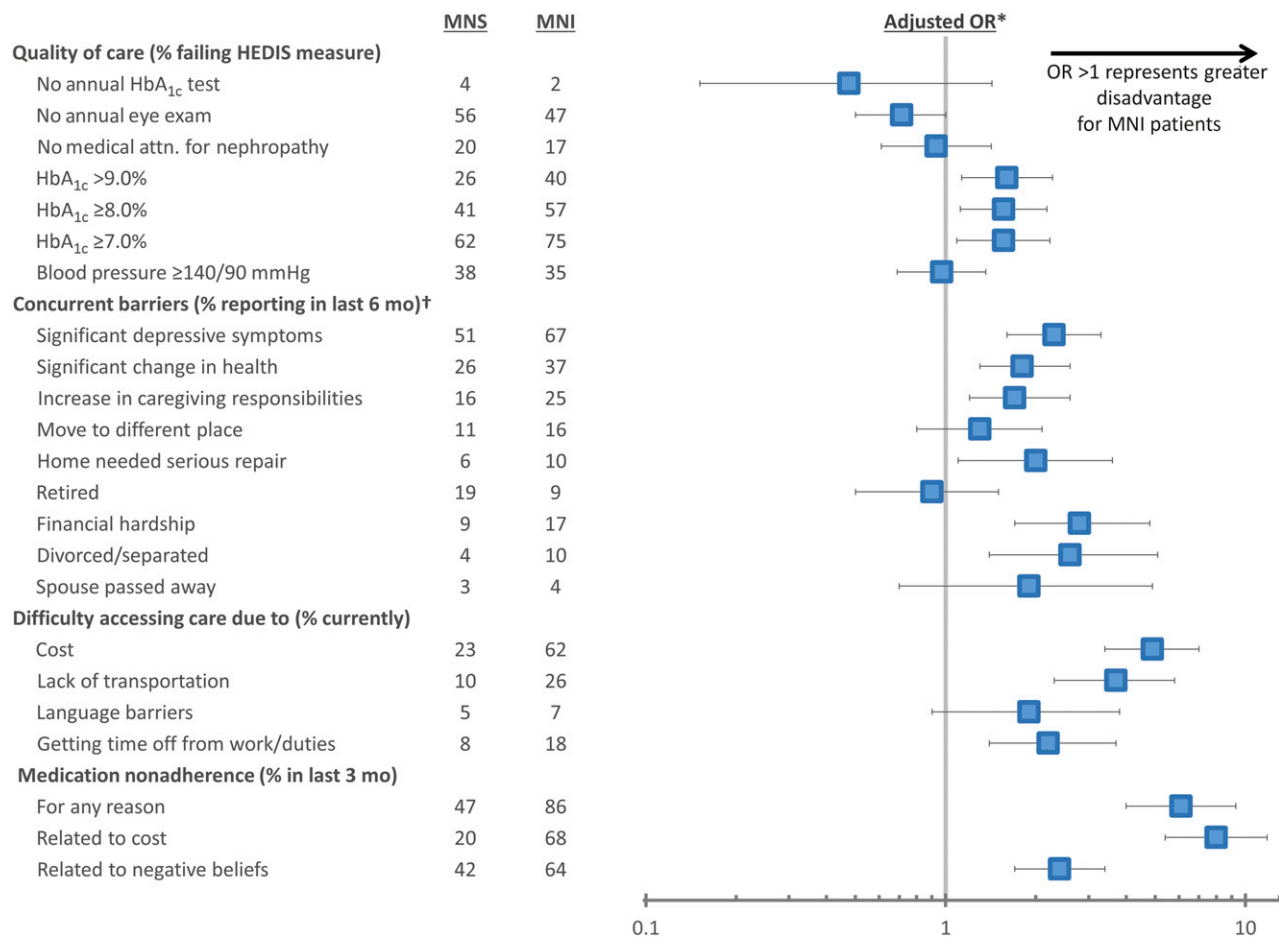
<sup>1</sup>Program in Medical Education for the Latino Community (PRIME-LC), School of Medicine, University of California, Irvine, Irvine, CA

<sup>2</sup>Health Policy Research Institute, University of California, Irvine, Irvine, CA

Corresponding author: John Billimek, [jbillime@uci.edu](mailto:jbillime@uci.edu)

Received 24 July 2018 and accepted 19 November 2018

© 2019 by the American Diabetes Association. Readers may use this article as long as the work is properly cited, the use is educational and not for profit, and the work is not altered. More information is available at <http://www.diabetesjournals.org/content/license>.



**Figure 1**—Clinical and contextual characteristics of MNS (*n* = 490) and MNI (*n* = 248) Hispanic/Latino adults with type 2 diabetes. Values presented are percentages. Attn., attention; mo, months. \*Adjusted OR comparing the likelihood of each characteristic being present for food insecure vs. food secure individual, computed with logistic regression models adjusted for age, education, language preference, health insurance type, clinic type, and income. †All “concurrent barriers” were assessed from 6-month recall, except for “significant depressive symptoms,” which was assessed at time of data collection using the 11-item CES-D.

control but showed significantly worse glycemic control (e.g., HbA<sub>1c</sub> >9.0% in 40% of MNI individuals vs. 26% of MNS patients, odds ratio [OR] [95% CI] 1.60 [1.19, 2.27]). Regarding concurrent barriers, MNI patients reported significantly higher rates of depression (OR 2.29 [1.62, 3.25]), changes in health (OR 1.83 [1.28, 2.60]), increased caregiving duties (OR 1.74 [1.16, 2.62]), and financial hardship (OR 2.83 [1.69, 4.76]). More MNI patients had difficulty accessing care due to cost (OR 4.89 [3.41, 7.00]), lack of transport (OR 3.68 [2.33, 5.83]), and getting time off work (OR 2.24 [1.36, 3.70]). Whereas it was unsurprising that material need insecurity was associated with medication nonadherence due to cost (OR 7.96 [5.39, 11.76]), material need insecurity was also associated with nonadherence due to negative beliefs about medications (OR 2.44 [1.72, 3.45]).

Among low-income Latino patients currently accessing care for diabetes, reporting trade-offs related to material need insecurity was associated with elevated rates of poor glycemic control, depression, stressful life events, barriers to access, and nonadherence due to cost and to negative beliefs about medications. These associations are not explained by income, sex, nativity, insurance status, language preference, or education. Clinicians’ responses to patients who screen positive for material need insecurity should account for these broader issues.

**Funding.** This work was supported by the National Institute of Diabetes and Digestive and Kidney Diseases (R18DK69846) and the National Heart, Lung, and Blood Institute (R56HL142964).

**Duality of Interest.** No potential conflicts of interest relevant to this article were reported.

**Author Contributions.** B.M., B.S.C., and J.B. wrote the manuscript. J.B. researched data. J.B. is the guarantor of this work and, as such, had full access to all the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

**Prior Presentation.** Parts of this study were presented in abstract form at the 76th Scientific Sessions of the American Diabetes Association, New Orleans, LA, 10–14 June 2016.

**References**

1. Berkowitz SA, Meigs JB, DeWalt D, et al. Material need insecurities, control of diabetes mellitus, and use of health care resources: results of the Measuring Economic Insecurity in Diabetes study. *JAMA Intern Med* 2015;175: 257–265
2. Safran DG, Neuman P, Schoen C, et al. Prescription drug coverage and seniors: findings from a 2003 national survey. *Health Aff (Millwood)* 2005;24(Suppl. Web Exclusives):W5-152–W5-166

3. Ippolito MM, Lyles CR, Prendergast K, Marshall MB, Waxman E, Seligman HK. Food insecurity and diabetes self-management among food pantry clients. *Public Health Nutr* 2017;20:183–189

4. Billimek J, Sorkin DH. Food insecurity, processes of care, and self-reported medication underuse in patients with type 2 diabetes: results from the California Health Interview Survey. *Health Serv Res* 2012;47:2159–2168

5. Kaplan SH, Billimek J, Sorkin DH, Ngo-Metzger Q, Greenfield S. Reducing racial/ethnic disparities in diabetes: the Coached Care (R2D2C2) project. *J Gen Intern Med* 2013;28:1340–1349