

## Factors Associated with Effective Control of Diabetes and Hypertension Among NeighborhoodHELP Patients: A Multivariable Analysis

### Open Access

Published 03/16/2020

### Copyright

© Copyright 2020

Hernandez et al. This is an open access poster distributed under the terms of the Creative Commons Attribution License CC-BY 4.0., which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Distributed under

Creative Commons CC-BY 4.0

Waleem Hernandez <sup>1</sup>, Ashley Ramirez <sup>2</sup>, Raelynn Vigue <sup>3</sup>, Juan Ruiz-Pelaez <sup>4,5</sup>, Noel C. Barengo <sup>6,4</sup>, David R. Brown <sup>7,8</sup>, Grettel Castro <sup>9</sup>

1. Epidemiology and Public Health, Florida International University, Herbert Wertheim College of Medicine, Miami, USA 2. Surgery, Florida International University, Herbert Wertheim College of Medicine, Miami, USA 3. Public Health, Florida International University, Herbert Wertheim College of Medicine, Miami, USA 4. Department of Translational Medicine, Florida International University, Herbert Wertheim College of Medicine, Miami, USA 5. KMC senior researcher, Kangaroo Foundation, Bogota, COL 6. Department of Health Policy and Management, Florida International University, Robert Stempel College of Public Health, Miami, USA 7. Family Medicine, West Kendall Baptist Hospital, Miami, USA 8. Humanities, Health, and Society, Herbert Wertheim College of Medicine, Miami, USA 9. Department of Medical and Population Health Sciences Research, Florida International University, Herbert Wertheim College of Medicine, Miami, USA

**Corresponding author:** Raelynn Vigue, whern025@med.fiu.edu

**Categories:** Endocrinology/Diabetes/Metabolism, Family/General Practice, Epidemiology/Public Health

**Keywords:** epidemiology and public health, public health, hypertension, neighborhoodhelp, quality of care, public health and safety, socio-economic factors, ethnicity, hypertension, diabetes mellitus type 2

### How to cite this poster

Hernandez W, Ramirez A, Vigue R, et al. (2020) Factors Associated with Effective Control of Diabetes and Hypertension Among NeighborhoodHELP Patients: A Multivariable Analysis. *Cureus* 12(3): e.

## Abstract

**Background:** The management of chronic conditions such as hypertension and diabetes can place a huge financial burden on patients and the healthcare system, while lack of control leads to significant morbidity and mortality. Literature shows that there are considerable socioeconomic disparities that impact effective hypertension and diabetes control. The main objective of this study is to identify factors that affect the control of hypertension and diabetes among patients treated at the NeighborhoodHELP (NHELP) Mobile Health Clinic, a multidisciplinary program in Miami-Dade County founded in 2010 designed to engage underserved communities to improve health outcomes of patients served through this program and enhance the impact of NHELP on public health.

**Methods:** A retrospective cohort study of 362 adult patients with diabetes and/or hypertension who receive care at the NHELP Mobile Health Clinic was performed using secondary data extracted from patient charts recorded in Centricity and NHELP Portal electronic medical records from September 2010 to June 2020. Of these, 143 had diabetes mellitus, while 222 had hypertension. Independent variables included age, gender, race/ethnicity, marital status, language spoken, catchment area, household income per capita, medical student assignment, and presence of comorbid diabetes among hypertensive patients. The primary outcome measured was hypertension and diabetes control, defined as systolic blood pressure less than or equal to 130 mmHg and a diastolic blood pressure less than or equal to 80 mmHg and HbA1c less than or equal to 7%. A bivariate analysis was performed to determine the presence of independent associations between each variable and the control of diabetes and hypertension, respectively. In addition, a multivariable logistic regression model was fitted for each outcome to identify factors independently associated with achieving control of diabetes and hypertension.

**Results:** The unadjusted multivariable analysis model revealed that non-Hispanic black individuals had a lower likelihood of diabetes control than Hispanics (OR 0.52; 95% CI 0.26-1.04,  $p = 0.06$ ). Similarly, control of hypertension was also lower among non-Hispanic blacks (OR 0.51; 95% CI 0.28-0.93;  $p = 0.027$ ). The adjusted multivariable analysis indicated that Haitian creole-speaking patients were less likely to have controlled diabetes (OR 0.13 95% CI 0.02-0.75,  $p = 0.02$ ) than Spanish speakers. In addition, income per capita greater than \$10,000 showed a significantly greater likelihood of control in hypertensive patients (OR 2.22; 95% CI 1.03-4.8;  $p = 0.04$ ). Two catchment areas showed increased odds of diabetes control, including Hippocrates (OR 4.9; 95% CI 1.23-19.37;  $p = 0.02$ ) and Semmelweis (OR 3.71; 95% CI 1.07-12.83;  $p = 0.04$ ).

**Conclusions:** This study found that income per capita greater than \$10,000 is associated with greater likelihood of control of hypertension. In addition, Haitian-Creole speakers have a decreased odds of diabetes control. Thus, public health programming targeting Creole speakers is needed. Currently, regions of Miami Dade county served by Neighborhood HELP that are represented by Hippocrates and Semmelweis exhibit the highest likelihood of effective diabetes control. A borderline significant increase in odds of diabetes control with income per capita greater than \$10,000 was identified (OR 3.74; 95% CI 0.99-14.13;  $p = 0.05$ ). Future study with a larger sample size is needed.

□