

4-13-2018

Association between food insecurity and CVD risk factors is moderated by intake of fruits and vegetables in Latinos

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Repository Citation

Lopez-Cepero, Andrea; Lemon, Stephenie C.; and Rosal, Milagros C., "Association between food insecurity and CVD risk factors is moderated by intake of fruits and vegetables in Latinos" (2018). *UMass Worcester PRC Presentations*. 4.
https://escholarship.umassmed.edu/prc_presentations/4

INTRODUCTION

- Latinos and individuals of low socioeconomic status have a disproportionate burden of risk factors for cardiovascular disease (i.e., type 2 diabetes, obesity, hypertension and hyperlipidemia).
- Food insecurity is a stressor that has been consistently associated with CVD risk factors.
- Poor dietary intake, such as low intake of fruit and vegetables, is an environmental stressor that has been associated with CVD risk factors.
- The combination of food insecurity and low intake of fruits and vegetables may render individuals to higher risk of disease.

OBJECTIVES

- To examine the potential moderating effect of fruit and vegetable intake in the association between food insecurity and CVD risk factors in a sample of Latino men and women

METHODS

- Cross-sectional analysis; Latino Health and Well-Being Study

Subjects

- Latino participants recruited from the Greater Lawrence Family Health Center (Lawrence, MA) with ages of 21-84 years.
- This analysis excluded participants with missing data on food insecurity, fruits and vegetables, CVD risk factors and covariates

Procedure

- Participants completed standardized interviews that included socio-demographics, food insecurity, fruits and vegetable screener and anthropometrics.

Measures

- Food insecurity: measured with the 6-item USDA Household Food Security Scale
- Fruit and vegetables intake: measured with Block's Fruit and Vegetable Screener.
- CVD risk factors: Diagnosis of type 2 diabetes, hypertension and hyperlipidemia were obtained through medical records. Obesity by BMI was calculated from height and weight measurements.
- Covariates: age, gender and education.

Statistical analyses

- Multivariable logistic regression adjusting for covariates
- Likelihood ratio tests to assess interaction between food insecurity and servings of fruits and vegetables.

RESULTS

Table 1. Sample Characteristics by intake of fruits and vegetables in the Latino Health and Well-being Study (n=595)

	5+ servings FV N=127 (21.3%)	<5 servings FV N=468 (78.7%)
Age; mean (SD)	46.5 (15.3)	46.9 (15.4)
Sex		
Female	55 (43.3)	249 (53.2)
Education		
<High school	59 (46.5)	246 (52.6)
High School	32 (25.2)	85 (18.2)
Some college or college grad	36 (28.4)	137 (29.3)
Ethnicity		
Puerto Rican	26 (20.6)	87 (18.6)
Dominican	91 (72.2)	344 (73.5)
Other	9 (7.1)	37 (7.9)
Food insecure	47 (37.0)	156 (33.3)

RESULTS (CONTINUED)

Figure 1. Prevalence of CVD risk factors by food security status and intake of fruits and vegetables

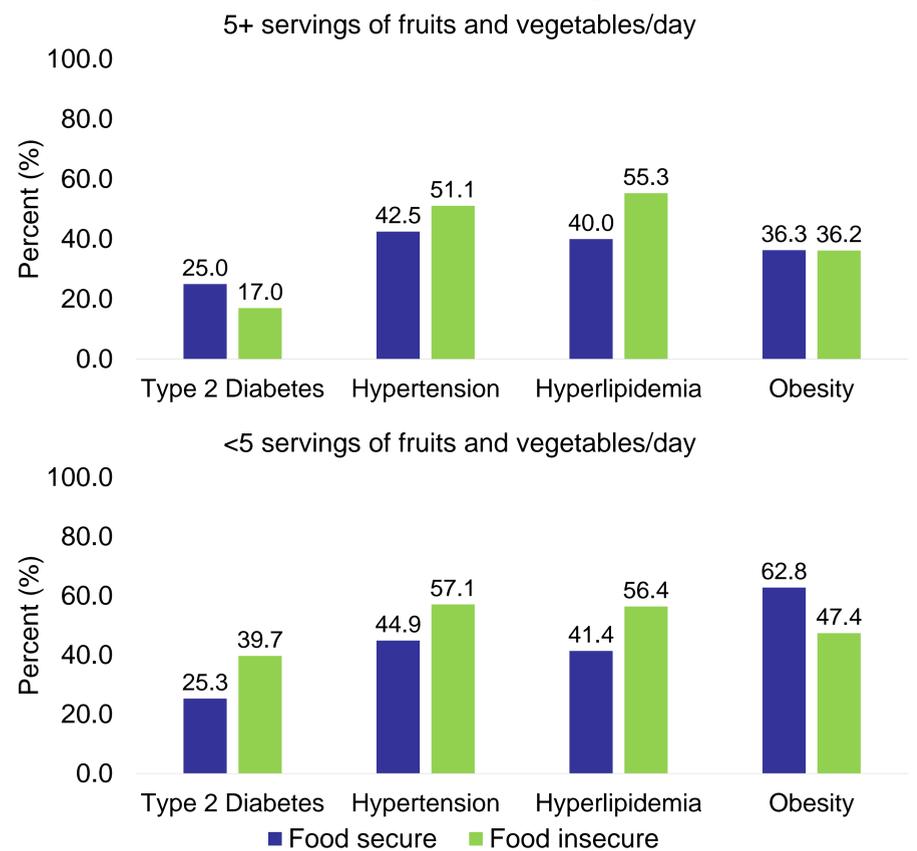


Table 2. Association between food insecurity and each CVD risk factor stratified by intake of fruits and vegetables

	OR (95%CI)	P value interaction (Food insecurity*fruit and vegetable)
Type 2 Diabetes		0.0374
5+ servings of FV		
Food insecure	0.61 (0.22-1.67)	
<5 servings of FV		
Food insecure	1.82 (1.15-2.90)	
Hypertension		0.6475
5+ servings of FV		
Food insecure	2.02 (0.75-5.40)	
<5 servings of FV		
Food insecure	1.31 (0.81-2.11)	
Hyperlipidemia		0.4829
5+ servings of FV		
Food insecure	2.87 (1.09-7.55)	
<5 servings of FV		
Food insecure	1.64 (1.03-2.62)	
Obesity		0.6669
5+ servings of FV		
Food insecure	1.04 (0.48-2.23)	
<5 servings of FV		
Food insecure	1.25 (0.84-1.86)	

CONCLUSIONS

- Intake of 5+ servings of fruits and vegetables/day was extremely low and it did not differ by food security status.
- Intake of fruits and vegetables only moderated the association between food insecurity and type 2 diabetes:
 - Food insecurity was associated with greater odds of type 2 diabetes only among those that consumed <5 servings of fruits and vegetables/day.
- Food insecurity and poor dietary intake, such as low intake of fruits and vegetables, are environmental stressors that affect the body's biological regulatory systems. Thus, the combination of experiencing both stressors may increase dysregulation of regulatory systems and increase diabetes risk.
- Interventions to increase availability of healthy foods among food insecure Latinos may alleviate health disparities in this group.

ACKNOWLEDGEMENTS

This work was funded by grants from the National Institute of Mental Health (R01 MH085653), National Institute of Minority Health and Health Disparities (5 P60 MD006912), Centers for Disease Control and Prevention (1 U48 DP005031) and UMass Center for Clinical and Translational Science Grant (UL1TR001453).