

# Measuring Food Insecurity and Healthy Days in a Primary Care Setting

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## Background

Food insecurity experienced at any time across the lifespan has an adverse impact on health<sup>1,2</sup>; however the relationship between food insecurity and health-related quality of life (HRQOL) has not been rigorously examined in a primary care setting. This program administered a food insecurity screening and a HRQOL survey (i.e., Healthy Days) to patients in three primary care clinics in south Florida. Those who screened positive for food insecurity were provided food resources on site and referred to community resources.

## Objective

To measure the prevalence of food insecurity; and the association between food insecurity status, HRQOL, and various patient characteristics, among the study population.

## Methods

**Study Design:** Cross-sectional

**Study Period:** October 24, 2016 to November 18, 2016

**Data Source:** Surveys, medical claims, and electronic health record (EHR) data for 369 patients from primary care clinics with commercial, Medicare or Medicaid health plan coverage from Humana Inc.

**Measures:**

- **Food insecurity status:** Measured by The Hunger Vital Sign™; a validated food insecurity screening tool<sup>4</sup>
  - Within the past 12 months we worried about whether our food would run out before we got money to buy more. (never, sometimes, or often true)
  - Within the past 12 months the food we bought just didn't last and we didn't have money to get more. (never, sometimes, or often true)
- **HRQOL:** Measured by Healthy Days; a validated HRQOL measure developed by the Centers for Disease Control and Prevention<sup>5</sup>
  - Thinking about your physical health, which includes physical illness and injury, for how many days during the past 30 was your physical health not good? (1-30 days)
  - Now thinking about mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 was your mental health not good? (1-30 days)
- **Patient characteristics:** age, sex, race/ethnicity, and Medicare-Medicaid dual eligibility status

**Analysis:** Chi-square measured associations between food insecurity status, Healthy Days, and categorical age, sex, race/ethnicity, Medicare-Medicaid dual-eligibility status.

## Conclusions

- Food insecurity was prevalent and associated with Healthy Days, age, race/ethnicity, Medicare-Medicaid dual-eligibility status, among the study population.
- There may be an opportunity to improve quality of life, for certain patient populations, by addressing food insecurity in the primary care setting.

## Limitations

- Findings are subject to limitations inherent to claims and EHR data (e.g., coding errors, missing data, fixed variables) and self report survey data (e.g., recall bias, acquiescence bias, extreme responding).
- This study included patients in select clinics from a single healthcare company and may not be generalizable to all populations.
- The cross-sectional nature of the data prevents inferences of a temporal or causal relationship between measures.

## References

1. Gundersen C, Ziliak JP. Food insecurity and health outcomes. *Health Aff.* 2015;34(11):1830-1839.
2. Seligman HK, Schillinger D. Hunger and socioeconomic disparities in chronic disease. *NEJM.* 2010; 363(1):6.
3. Hager ER, Quigg AM, Black MM, et al. Development and validity of a 2-item screen to identify families at risk for food insecurity. *Pediatrics.* 2010; 126:e26-32.
4. Centers for Disease Control and Prevention. Measuring Healthy Days. Atlanta, Georgia: CDC, November 2000.

## Results

**Table 1. Patient Characteristics**

Characteristic	Total, n (%)
N	369
Age (years)	
18-64	87 (24%)
65+	282 (76%)
Sex	
Male	147 (40%)
Female	222 (60%)
Race/ethnicity	
White	125 (34%)
African American/Black	147 (40%)
Hispanic/Latino	58 (16%)
Other	24 (7%)
Health insurance type	
Medicare Advantage	245 (66%)
Medicaid	68 (18%)
Dual-eligible	47 (13%)
Other	9 (2%)

Percentages may not sum to 100 due to missing data or rounding

**Table 2. Patient Characteristics by Food Insecurity Status**

Characteristic, n (%)	Food Insecurity Status		p-value
	Secure	Insecure	
Age (years)			
18-64	24 (27%)	63 (73%)	<0.0001
65+	157 (56%)	125 (43%)	
Sex			
Male	81 (55%)	66 (45%)	0.058
Female	100 (45%)	122 (55%)	
Race/ethnicity			
White	90 (72%)	35 (28%)	<0.0001
Non-White	83 (36%)	146 (64%)	
Medicare-Medicaid dual-eligibility status			
Medicare Advantage	149 (61%)	96 (39%)	<0.0001
Dual-eligible or Medicaid	23 (15%)	88 (77%)	

**Table 3. Healthy Days by Food Insecurity Status**

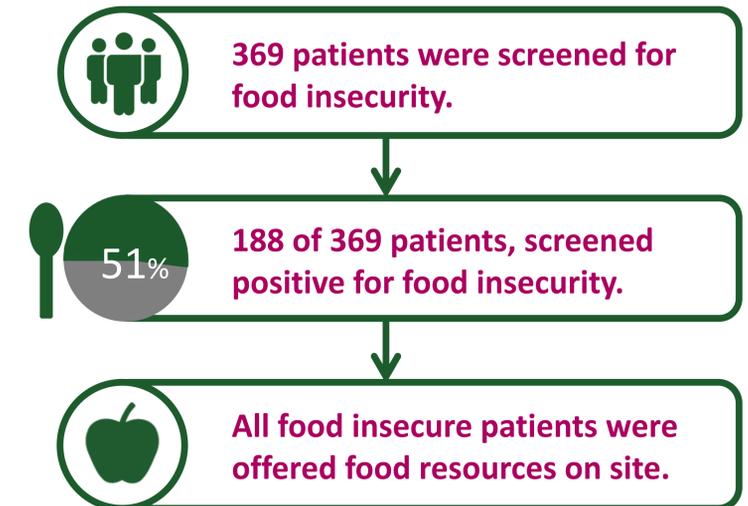
Characteristic, n (%)	Food Insecurity Status		p-value
	Secure	Insecure	
Physically Unhealthy Days (PUHD)			
PUHD < 14	84 (56%)	66 (44%)	<0.0001
PUHD ≥ 14	24 (29%)	57 (71%)	
Mentally Unhealthy Days (MUHD)			
MUHD < 14	78 (54%)	66 (46%)	<0.0001
MUHD ≥ 14	14 (20%)	46 (80%)	

**Healthy Days was associated with food insecurity status.**

**Food insecurity was more prevalent among those who reported 14 or more Physically or Mentally Unhealthy Days.**

**Those who screened positive for food insecurity reported significantly more average Unhealthy Days than those who were food secure.**

**Figure 1. Prevalence of Food Insecurity and Food Resources**



**Age, race/ethnicity and Medicare-Medicaid dual-eligibility status were associated with food insecurity status.**

**Food insecurity was more prevalent among patients 18-64 years of age, non-white, and dual-eligible or enrolled in Medicaid.**

**Figure 2. Average Unhealthy Days by Food Insecurity Status**

