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HEALTH and HUMAN PERFORMANCE

The Association between Food Insecurity and Diabetes: Differences by Sex and Socio-economic Status among Older Adults

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Background

Diabetes and food insecurity are highly prevalent among low-income older adults.

To improve the current nutrition programs designed for older adults [e.g., Child and Adult Day Care Program (CADCP)], it is important to identify subpopulations of low-income older adults for which food insecurity is a predictor of diabetes.

The purpose of the study is to examine sex and socio-economic differences in the relationship between food insecurity and diabetes among low-income older adults.

Methods & Results

Data. 2011 & 2012 National Health Interview Survey.

Participants. Respondents ≥ 60 years of age whose household income was ≤ 199% Federal Poverty Line (FPL), which are defined as low-income (N = 5,772).

Measures:
Food Insecurity. Affirmative responses to 3 or more of the 10-items on the USDA Food Security Scale.

Diabetes. Self-reported.

Table 1. Percent Food Insecure by FPL and Gender

FPL ≤ 0.99% (n = 2,250)	
Female	**28%**
Male	**25%**
FPL 1.00—1.99% (n = 3,527)	
Female	**15%**
Male	**16%**

Table 2. Percent Diabetic by FPL and Gender

FPL ≤ 0.99% (n = 2,250)	
Female	**29%**
Male	**27%**
FPL 1.00—1.99% (n = 3,527)	
Female	**23%**
Male	**26%**

Methods & Results (Continued)

Table 3. Descriptive Statistics of Control Variables [M (SD) or %]

	Analytic Sample (N = 5,777)	Female (n = 3,746)	Male (n = 2,031)
Age	70.95 (8.20)	72.63 (8.25)	70.68 (7.93)***
Female	64%	100%	0%
Race/ethnicity			
White^	56%	56%	56%
Black	19%	20%	19%
Hispanic	17%	17%	17%
Other	7%	7%	8%
Married/Cohabit	28%	20%	42%***
Education			
< HS diploma^	39%	38%	40%
HS diploma	45%	47%	43%**
Associates	7%	7%	6%
≥Bachelor's degree	9%	8%	11%***
Employed	11%	10%	12%
HH income (FPL)			
0.00 – 0.49	6%	6%	6%
0.50 – 0.99^	33%	35%	29%***
1.00 – 1.49^	34%	34%	34%
1.50 – 1.99	27%	25%	31%***
# of children in house	0.14 (0.51)	0.13 (0.50)	0.14 (0.52)
No health insurance	4%	5%	5%
Body mass index	27.96 (6.25)	28.14 (6.67)	27.61 (5.39)**
Region			
South^	42%	41%	42%
West	23%	22%	23%
Midwest	20%	20%	19%
Northeast	16%	17%	15%

HS = High school. HH = Household. ^Reference category in regression model. ** $p < .01$; ***$p < .001$.

Logistic regression models (**Table 4—7**) were conducted where diabetes was regressed onto food insecurity, controlling for demographic characteristics listed above. Models were stratified by gender and FPL [i.e. poor (FPL ≤ 0.99%) and working poor (FPL 1.00 — 1.99%)].

Table 4. Logistic Regressions Predicting the Association between Food Insecurity and Diabetes (n = 1,536)

Female, FPL ≤ 0.99%	OR	95% CI
Food Insecurity	1.33*	(1.03—1.73)
* $p < .05$		

Table 5. Logistic Regressions Predicting the Association between Food Insecurity and Diabetes (n = 714)

Male, FPL ≤ 0.99%	OR	95% CI
Food Insecurity	1.29	(0.85—1.95)

Table 6. Logistic Regressions Predicting the Association between Food Insecurity and Diabetes (n = 2,210)

Female, FPL 1.00—1.99%	OR	95% CI
Food Insecurity	1.62**	(1.22—2.16)
** $p < .01$		

Table 7. Logistic Regressions Predicting the Association between Food Insecurity and Diabetes (n = 1,317)

Male, FPL 1.00—1.99%	OR	95% CI
Food Insecurity	1.29	(0.91—1.82)

Conclusions

Findings suggest that limited food resources and experiences with episodic hunger place older female adults, but not older male adults, at risk for diabetes.

With the prevalence of diabetes projected to more than double by 2050, and the largest increases among older adults, interventions designed for this population are needed.

Taking an existing program such as CADCP, and including diabetes education and additional food assistance may be a comprehensive approach to support aging food insecure females with diabetes prevention and management.

Community partnerships between centers, clinics, and food pantries that include diabetes educators, dietitians, and undergraduate students interested in becoming health professionals may be a way to deliver and sustain such a comprehensive program.

Contact

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