

BACKGROUND

- Depression and diabetes have a bi-directional relationship. Depression can worsen diabetic complications through biological and behavioral mechanisms.¹⁻⁴
- Food insecurity is a lack of consistent access to enough food to maintain an active, healthy life.²
- Food insecurity is a growing problem that has a disproportionate impact among persons with diabetes.³⁻⁴
- Persons who are food insecure may have to make difficult financial choices between food, other basic living needs and costs for medical management.
- Food insecurity is a significant risk factor for depression in US adults.⁵
- Little research has focused on the relationship between food insecurity and depression among persons with diabetes.

This study aimed to examine whether food insecurity increased risk for depression among adults with diabetes.

REFERENCES

1. Holt R. Undoing Descartes: integrating diabetes care for those with mental illness. *Pract Diabetes*. 2011;28(6):270–275. <https://doi.org/10.1002/pdi.1613> Feeding America. The Impact of the Coronavirus on Food Insecurity in 2020 & 2021. <https://www.feedingamerica.org/research/coronavirus-hunger-research>. Accessed September 13, 2021.

2. Kirby JB, Bernard D, Liang L. The Prevalence of Food Insecurity Is Highest Among Americans for Whom Diet Is Most Critical to Health. *Diabetes Care*. Apr 26 2021.

3. Polonsky WH, Henry RR. Poor medication adherence in type 2 diabetes: recognizing the scope of the problem and its key contributors. *Patient Prefer Adherence*. 2016;10:1299-1307.

4. Reeder N, Tolar-Peterson T, Bailey RH, Cheng WH, Evans MW Jr. Food Insecurity and Depression among US Adults: NHANES 2005-2016. *Nutrients*. 2022 Jul 27;14(15):3081

Depression and Food Insecurity among Persons with Diabetes: Results from the United States 2019 National Health Interview Survey

Dr. Heather F. McClintock, PhD, MSPH, MSW¹, Sarah Edmonds MFA, MA¹

¹Department of Public Health, College of Health Sciences, Arcadia University, Glenside, Pennsylvania, US

RESULTS

- Among 3,355 persons with diabetes, nearly one third (29.1%) had depression.
- Over one tenth (13%) had low or very low food security.
- Persons who had low or very low food security were more likely to have depression (adjusted odds ratio (AOR)= 1.78, 95% confidence interval (CI)= 1.20, 2.64; AOR= 4.56, 95% CI=2.71, 7.64, respectively) (Table 1).
- Being female, African American, having lower income, ‘other’ insurance coverage, and having fair/poor health were associated with depression (Table 1).



Table 1. Adjusted odds ratios and 95% confidence intervals for the association between depression and sociodemographic characteristics.

	Depression AOR (95% CI)
Sociodemographic Characteristics and Health Indicators	
Food Security	
Food Secure	1.00
Low Food Security	1.782 (1.204–2.638)
Very Low Food Security	4.551 (2.712–7.637)
Sex	
Male	1.00
Female	1.619 (1.289–2.034)
Ethnicity	
Hispanic	1.00
Whites	1.858 (1.314–2.628)
Black or African American	0.723 (0.474–1.103)
Other	0.828 (0.488–1.403)
Insurance	
Private	1.00
Medicaid and Other	1.259 (0.899–1.763)
Other Coverage	3.043 (1.734–5.339)
Uninsured	0.734 (0.401–1.344)
Income	
\$0 to \$9,999	1.466 (0.956–2.249)
\$10,000 to \$19,999	1.763 (1.217–2.556)
\$20,000 to \$39,999	1.372 (1.028–1.831)
\$40,000 and Greater	1.00
General Health	
Very Good/Good	2.084 (0.857–5.066)
Fair/Poor	8.512 (3.539–20.472)
Excellent	1.00

Note: AOR, adjusted odds ratio; CI, confidence interval.

METHODS

- Data was obtained from 2019 National Health Interview Surveys (NHIS).
- The sample was limited to persons with diabetes.
- Depression was defined as a score of ≥ 5 on the eight-item Patient Health Questionnaire.
- Food insecurity status, the independent variable, was obtained through a 10-item scale (USDA food security questionnaire) and participants were categorized as food secure, low food security, or very low food security.
- Multinomial logistic regression evaluated the relationship between depression and food insecurity, controlling for confounders and incorporating weighting to account for study design.
- Confounders included age, sex, ethnicity, insurance, income, education, diabetes type, body mass index, region, general health.
- Statistical Package for the Social Sciences (SPSS) version 24 was used to analyze the data.

CONCLUSIONS

- Among adults with diabetes, low or very low food security was associated with depression.
- Our findings may help to inform policy, systemic, and provider level initiatives that may better support care for food insecure persons with co-morbid depression and diabetes.
- Further research is needed to evaluate the relationship between food insecurity and depression among persons with diabetes.