Demographic Characteristics Associated with Food Insecurity in Michigan: 2021-2023 Snapshot

HC MICHELLE BYRD, YAN TIAN, JANEE MOORE, CAROLINE MESSERSCHMIDT, KRYSTAL QUARTERMUS, AND BETH E ANDERSON
MICHIGAN DEPARTMENT OF HEALTH AND HUMAN SERVICES

BACKGROUND

Food Insecurity is the limited or uncertain availability of nutritionally adequate and safe foods or the limited or uncertain ability to acquire acceptable foods in socially acceptable ways.[1,2]

- It may increase risk for coronary heart disease, hypertension, obesity, and cancer.[3]
- This study used the Michigan Behavioral Risk Factor Survey (MiBRFS) to identify sociodemographic characteristics associated with food insecurity among Michigan adults.

METHODS

- MiBRFS data, 2021-2023 (Unweighted N=16,369)
  - Food Insecurity Module, short form of the USDA Economic Research Service household food security module
  - Six questions and a scoring system.[1,2]
- Demographics/Characteristics:
  - Sex, age, race/ethnicity, education, employment, household income, LGBT+ status, health insurance, and housing status.
- Outcome measures:
  - Estimated prevalence of food insecurity
  - Unadjusted prevalence ratio (uPR)
  - Adjusted prevalence ratio (aPR)
  - 95% confidence interval (CI)
- Analysis:
  - Used weighted logistic regression
  - Determined which characteristics were associated with food insecurity.
  - SAS-callable SUDAAN 11.0.3. was used for the complex sample design.

Table 1. Estimated Food Insecurity Prevalence by Demographic Characteristics, Adults Aged 18 Years and Older, MiBRFSS 2021-2023 Combined

Demographic	Estimated Prevalence (%)	Unadjusted Prevalence Ratio (uPR)	Adjusted Prevalence Ratio (aPR)
Michigan	13.1 (12.3-14.0)	-	-
Sex Assigned at Birth			
Female	14.5 (13.3-15.7)	1.28 (1.09-1.51)	1.15 (1.00-1.32)
Male (ref.)	*11.6 (10.4-13.0)*	*ref.*	*ref.*
Age Group			
18-24 yrs	22.8 (18.8-27.3)	4.14 (3.24-5.30)	3.90 (2.94-5.17)
25-34 yrs	17.5 (14.9-20.4)	3.18 (2.54-3.98)	3.30 (2.44-4.46)
35-44 yrs	15.3 (13.1-17.8)	2.78 (2.23-3.47)	3.61 (2.74-4.74)
45-54 yrs	15.0 (12.9-17.2)	2.72 (2.20-3.38)	2.94 (2.25-3.83)
55-64 yrs	12.0 (10.2-14.0)	2.18 (1.74-2.73)	1.99 (1.55-2.55)
65+ yrs (ref.)	*5.5 (4.7-6.4)*	*ref.*	*ref.*
Race/Ethnicity			
Non-Hispanic American Indian/Alaska Native	NR	NR	NR
Non-Hispanic Asian/Pacific Islander	NR	NR	NR
Non-Hispanic Black	24.7 (21.4-28.3)	2.33 (1.98-2.75)	1.38 (1.16-1.64)
Hispanic/Latinx	23.1 (17.5-30.0)	2.18 (1.64-2.90)	1.55 (1.15-2.10)
Non-Hispanic Multi-racial	18.9 (13.8-25.4)	1.78 (1.30-2.46)	1.16 (0.82-1.65)
Non-Hispanic Other	NR	NR	NR
Non-Hispanic white (ref.)	*10.6 (9.7-11.5)*	*ref.*	*ref.*
Disability Status			
Adults with Disabilities	25.3 (23.3-27.3)	3.22 (2.81-3.70)	2.32 (1.99-2.70)
Did Not Report Disability (ref.)	*7.8 (7.0-8.8)*	*ref.*	*ref.*
Education			
Up to HS	28.9 (23.5-34.8)	6.67 (5.21-8.53)	1.74 (1.27-2.40)
HS Graduate/GED	17.9 (16.1-19.9)	4.14 (3.45-4.98)	1.50 (1.23-1.83)
Some College	13.0 (11.7-14.5)	3.01 (2.51-3.62)	1.47 (1.22-1.77)
College Graduate+ (ref.)	*4.3 (3.7-5.0)*	*ref.*	*ref.*
Employment Status			
Unemployed	36.2 (30.7-42.2)	4.60 (3.52-6.12)	1.34 (1.07-1.68)
Non-working	12.4 (11.1-13.7)	1.15 (0.98-1.36)	1.00 (0.83-1.20)
Employed (ref)	*10.9 (9.8-12.1)*	*ref.*	*ref.*
Household Income			
Less Than $20,000	38.5 (34.2-42.9)	15.45 (11.35-21.05)	7.36 (5.11-10.61)
$20,000 to $34,999	25.7 (23.0-28.6)	10.33 (7.59-14.06)	6.03 (4.27-8.51)
$35,000 to $49,999	14.9 (12.3-17.8)	5.97 (4.25-8.40)	4.16 (2.92-5.92)
$50,000 to $74,999	8.5 (6.7-10.6)	3.41 (2.36-4.92)	2.51 (1.75-3.60)
$75,000+ (ref.)	*2.5 (1.9-3.3)*	*ref.*	*ref.*

Source: Michigan Behavioral Risk Factor Surveillance System (MiBRFSS) 2021-2023 Combined

95% CI: 95% Confidence Interval
ref.: Reference
NR: Not Reported (Suppressed) if the denominator count is less than 50 and/or the relative standard error is greater than or equal to 30%.

FINDINGS

- An estimated 13.1% of Michigan adults reported experiencing food insecurity.
- Initial analysis showed that food insecurity was associated with the 7 sociodemographic characteristics shown (Table 1).
- Adults defined as being LGBT+, those with no health insurance, and non-homeowners were associated with food insecurity (Data not shown). When adjusted, there was no statistical evidence of an association, and they were excluded from the final model.
- Higher prevalence of food insecurity was observed within groups including:
  - Age groups 18-24 years vs. 65+ years (aPR=3.90; 95% CI: 2.94-5.17)
  - Hispanic/Latinx vs. non-Hispanic white (aPR=1.55; 95% CI: 1.15-2.10)
  - Household income less than $20,000 vs. $75,000+ (aPR = 7.36, 95% CI: 5.11-10.61)
  - Adults living with disability vs. no disability (aPR=2.32; 95% CI:1.99-2.70)

CONCLUSIONS

- More than 1 in 8 Michigan adults have experienced food insecurity.
- They tended to be female, non-Hispanic Black, Hispanic/Latinx, those with lower educational attainment, lower income, or living with a disability.
- These findings will assist in mixed methods approach to learn people's experiences to tailor interventions/supports.

References

1. Core indicators of nutritional state for difficult-to-sample populations. (1990). The Journal of Nutrition, 120 Suppl 11, 1559–1600. https://doi.org/10.1093/jn/120.suppl_11.1555.
2. Rabbitt, M. P., Hales, L. J., Burke, M. P., & Coleman-Jensen, A. (2023). Household food security in the United States in 2022. Economic Research Service, U.S. Department of Agriculture. https://doi.org/10113/8134351.
3. Gregory, C. A. & Coleman-Jensen, A. (n.d.). Food insecurity, chronic disease, and health among working-age adults. July 2017. Found at http://www.ers.usda.gov/publications/pub-details/?pubid=84466

MDHHS
Michigan Department of Health & Human Services