

Supplementary Online Content

Myers CA, Mire EF, Katzmarzyk PT. Trends in adiposity and food insecurity among US adults. *JAMA Netw Open*. 2020;3(8):e2012767.
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This supplementary material has been provided by the authors to give readers additional information about their work.

eTable 1. Weighted Sample Characteristics by Food Security Status Among Adults in the US, NHANES 2015-2016^a			
	Food Secure	Food Insecure	<i>p</i>-value^c
Unweighted sample	3,978	1,331	
Weighted sample ^b	186,788,670	41,645,622	
Body mass index (BMI)			<0.001
<25 kg/m ²	29.3 (26.0-32.7)	23.4 (18.5-28.4)	
25 to 29.9 kg/m ²	32.7 (31.1-34.3)	27.0 (23.2-30.9)	
≥30 kg/m ²	37.9 (34.3-41.5)	49.5 (45.2-53.9)	
Waist circumference (WC)			0.006
Less than High-Risk	44.5 (39.8-49.1)	38.5 (34.1-42.8)	
High-Risk	55.5 (50.9-60.2)	61.5 (57.2-65.9)	
Sex			0.006
Female	51.5 (50.0-53.1)	54.9 (52.6-57.2)	
Male	48.5 (46.9-50.0)	45.1 (42.8-47.4)	
Race/ethnicity			<0.001
Non-Hispanic White	68.3 (60.4-76.3)	45.9 (35.5-56.3)	
Non-Hispanic African American	9.9 (5.5-14.2)	18.2 (11.3-25.0)	
Hispanic	11.9 (6.9-16.9)	28.7 (21.0-36.5)	
Other	9.9 (6.9-12.9)	7.2 (4.8-9.5)	
Age			<0.001
20-39	34.0 (31.0-37.0)	44.7 (40.2-49.1)	
40-64	43.9 (41.5-46.4)	42.6 (39.9-45.3)	
65 and older	22.0 (19.3-24.8)	12.7 (9.0-16.5)	
Education			<0.001
High school or less	31.1 (26.2-35.9)	53.2 (47.9-58.5)	
Some college or more	68.9 (64.1-73.8)	46.8 (41.5-52.1)	
Poverty to Income Ratio (family)			<0.001
≤130%	19.3 (15.8-22.7)	53.9 (49.4-58.5)	
>130%	80.7 (77.3-84.2)	46.1 (41.5-50.6)	
Marital Status			<0.001
Married	57.6 (53.8-61.5)	40.2 (34.7-45.6)	
Not married	42.4 (38.5-46.2)	59.8 (54.4-65.3)	

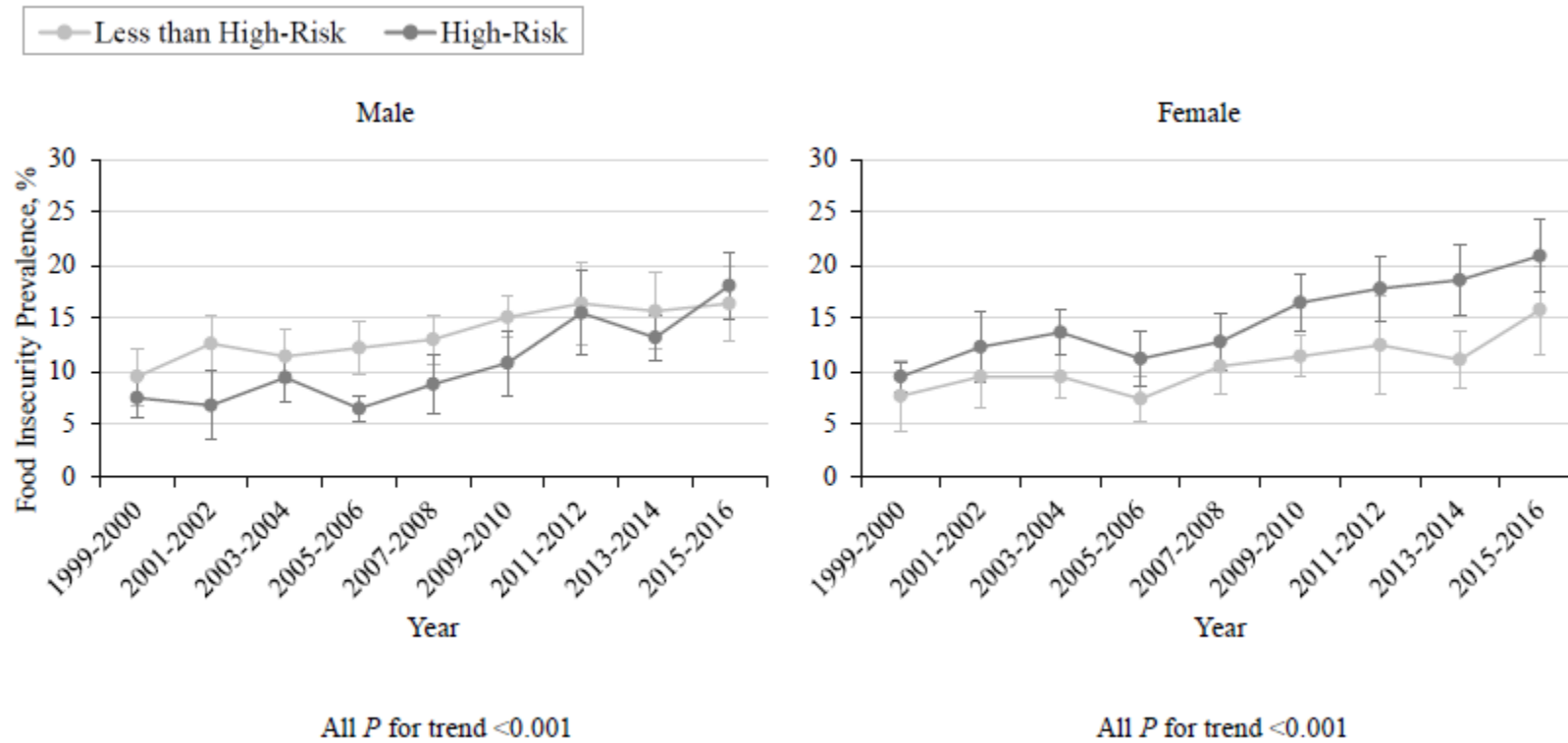
^a Data are presented as percentage % (95% CI).

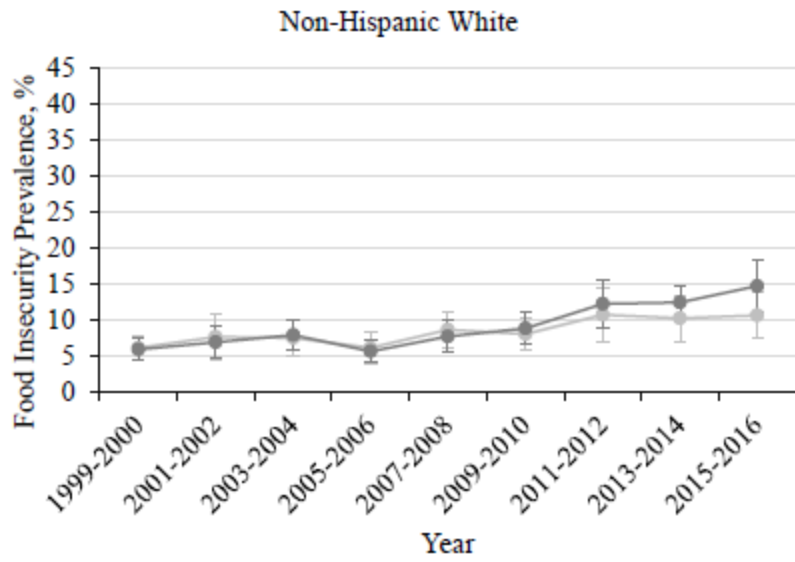
^b Data are weighted to be nationally representative.

^c Chi-square tests to determine statistically significant differences between food security status groups.

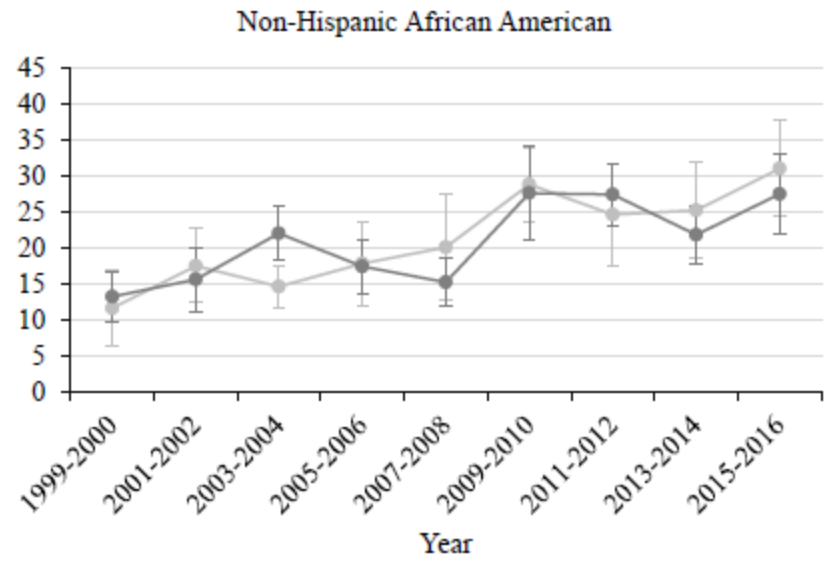
^d Other includes race/ethnicity other than Non-Hispanic White, Non-Hispanic African American, or Hispanic, including multiracial.

eFigure 1. Crude Weighted Trends in Waist Circumference by Sex and Race/Ethnicity, NHANES 1999-2016^a

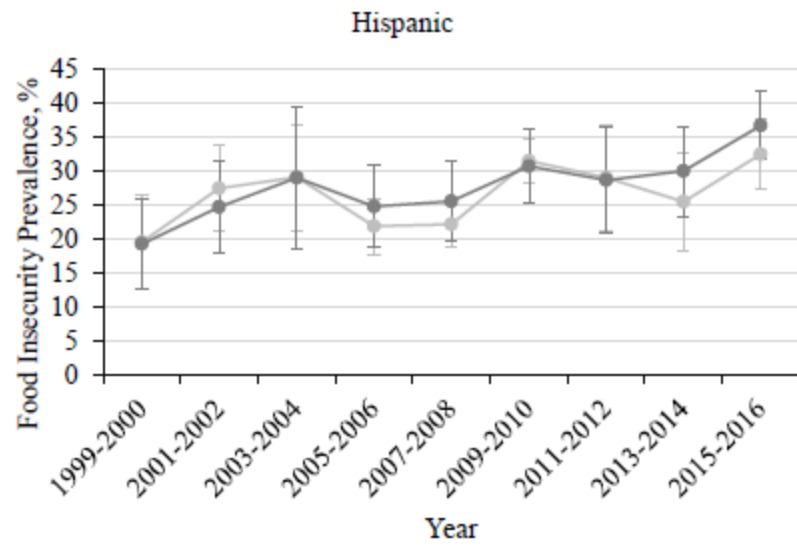




Less than High-Risk (P for trend =0.003)
 High-Risk (P for trend <0.001)



All P for trend <0.001



Less than High-Risk (P for trend =0.02)
 High-Risk (P for trend <0.001)

^a Data weighted to be nationally representative. Error bars indicate 95% CIs.

eTable 2. Crude Weighted Trends in Food Insecurity by Sex and Adiposity Among the US Adult Population, NHANES 1999-2016^{a,b}										
	1999-2000	2001-2002	2003-2004	2005-2006	2007-2008	2009-2010	2011-2012	2013-2014	2015-2016	P for Trend^c
<i>Female</i>										
BMI										
<25 kg/m ²	7.3 (4.7 – 9.9)	8.2 (5.8 – 10.5)	9.2 (7.0 – 11.3)	7.8 (5.1 – 10.4)	8.8 (6.2 – 11.5)	10.8 (8.5 – 13.1)	12.3 (8.2 – 16.5)	10.6 (7.3 – 13.8)	14.7 (9.9-19.4)	<0.001
25 to 29.9 kg/m ²	7.0 (4.4 – 9.7)	10.2 (6.3 - 14.1)	11.1 (7.6 – 14.7)	8.6 (5.8 – 11.5)	10.8 (8.4 – 13.3)	12.6 (9.7 – 15.5)	13.2 (9.2 – 17.2)	13.9 (9.6 – 18.2)	16.1 (11.9-20.3)	<0.001
≥30 kg/m ²	11.8 (9.6 – 14.0)	14.5 (10.9 – 18.0)	16.0 (13.3 – 18.6)	12.2 (8.8– 15.6)	15.6 (11.8 – 19.4)	19.6 (15.5 – 23.6)	21.3 (17.2 – 25.4)	21.4 (17.4 – 25.4)	24.6 (20.8-28.4)	<0.001
WC										
Less than High-Risk	7.7 (4.4 – 11.0)	9.5 (6.6 – 12.3)	9.5 (7.4 – 11.5)	7.4 (5.2 – 9.6)	10.5 (7.9 – 13.1)	11.4 (9.5 – 13.4)	12.5 (7.9 – 17.0)	11.1 (8.3 – 13.8)	15.8 (11.6-20.0)	<0.001
High-Risk	9.5 (8.1 – 10.9)	12.3 (9.0 – 15.7)	13.7 (11.6 – 15.9)	11.2 (8.6 – 13.8)	12.8 (10.1 – 15.4)	16.5 (13.9 – 19.2)	17.8 (14.8 – 20.8)	18.6 (15.3 – 21.9)	20.9 (17.5-24.4)	<0.0001
<i>Male</i>										
BMI										
<25 kg/m ²	10.4 (6.5 – 14.4)	14.5 (9.9 – 19.1)	12.2 (8.1 – 16.3)	13.1 (9.3 – 16.9)	14.2 (11.3 – 17.2)	14.9 (12.4 – 17.5)	16.1 (10.6 – 21.6)	18.8 (13.5 – 24.1)	15.6 (11.3-20.4)	0.008
25 to 29.9 kg/m ²	7.5 (5.2 – 9.8)	9.3 (7.4 - 11.3)	8.8 (6.1 – 11.5)	9.3 (7.2 – 11.5)	10.1 (7.6 – 12.6)	13.7 (10.7 – 16.6)	14.1 (9.9 – 18.2)	11.7 (8.6 – 14.8)	15.1 (10.8-19.5)	<0.001
≥30 kg/m ²	8.6 (5.7 – 11.5)	7.5 (3.9 – 11.2)	11.1 (8.9 – 13.3)	7.2 (5.3 – 9.0)	10.5 (7.0 – 14.0)	11.5 (8.4 – 14.6)	17.8 (13.6 – 22.0)	14.7 (12.5 – 16.9)	20.2 (16.5-24.0)	<0.001
WC										
Less than High-Risk	9.5 (6.8 – 12.2)	12.6 (10.0 – 15.2)	11.4 (8.9 – 13.9)	12.2 (9.6 – 14.7)	13.0 (10.7 – 15.3)	15.1 (13.1 – 17.0)	16.4 (12.5 – 20.2)	15.7 (12.0 – 19.3)	16.4 (12.9-20.0)	<0.001
High-Risk	7.5 (5.5 – 9.4)	6.8 (3.5 – 10.0)	9.4 (7.2 – 11.7)	6.5 (5.3 – 7.7)	8.8 (6.0 – 11.6)	10.8 (7.8 – 13.9)	15.5 (11.5 – 19.5)	13.2 (11.1 – 15.4)	18.1 (14.9-21.3)	<0.001

^a Data are presented as percentage % (95% CI) for each survey cycle.

^b Data are weighted to be nationally representative.

^c The estimate β (95% CI) and P for trend were calculated using logistic regression that included the NHANES 2-year cycle as a continuous variable.

eTable 3. Crude Weighted Trends in Food Insecurity by Race/Ethnicity and Adiposity Among the US Adult Population, NHANES 1999-2016^{a,b}										
	1999-2000	2001-2002	2003-2004	2005-2006	2007-2008	2009-2010	2011-2012	2013-2014	2015-2016	P for Trend
<i>Non-Hispanic White</i>										
BMI										
<25 kg/m ²	6.8 (3.6 – 10.0)	8.1 (4.5 – 11.7)	8.5 (5.1 – 11.9)	6.4 (4.1 – 8.8)	8.6 (5.7 – 11.5)	8.5 (6.2 – 10.9)	11.6 (6.7 – 16.5)	11.2 (7.0 – 15.4)	11.7 (7.4-15.9)	0.006
25 to 29.9 kg/m ²	3.9 (1.6 – 6.2)	5.3 (3.6 – 7.0)	5.7 (3.7 – 7.7)	5.3 (3.5 – 7.1)	6.9 (5.1 – 8.8)	7.5 (5.5 – 9.5)	8.7 (5.7 – 11.8)	8.6 (5.5 – 11.7)	9.6 (5.8-13.4)	<0.001
≥30 kg/m ²	7.6 (4.9 – 10.3)	8.0 (4.8 – 11.2)	9.2 (6.9 – 11.4)	5.5 (3.4 – 7.7)	8.9 (5.8 – 12.0)	9.1 (6.6 – 11.5)	14.3 (9.8 – 18.8)	14.4 (11.1 – 17.7)	17.1 (13.0-21.1)	<0.001
WC										
Less than High-Risk	6.1 (4.3 – 7.5)	7.6 (4.4 – 10.8)	7.5 (5.0 – 9.9)	6.1 (3.8 – 8.4)	8.6 (6.2 – 11.0)	8.0 (5.7 – 10.2)	10.7 (6.9 – 14.4)	10.2 (7.0 – 13.4)	10.6 (7.5-13.8)	0.003
High-Risk	5.9 (4.3 – 7.5)	6.9 (4.6 – 9.1)	7.9 (5.7 – 10.1)	5.6 (4.0 – 7.1)	7.7 (5.5 – 10.0)	8.8 (6.5 – 11.1)	12.2 (8.8 – 15.5)	12.4 (10.0 – 14.8)	14.7 (11.0-18.4)	<0.001
<i>Non-Hispanic African American</i>										
BMI										
<25 kg/m ²	13.3 (6.6 – 20.1)	18.0 (9.6 – 26.5)	13.5 (7.6 – 19.5)	20.8 (13.5 – 28.0)	21.7 (13.8 – 29.7)	31.4 (26.0 – 36.8)	25.2 (14.7 – 35.6)	29.6 (21.1 – 38.1)	34.0 (24.1-43.9)	<0.001
25 to 29.9 kg/m ²	10.3 (5.0 – 15.6)	15.8 (11.0 - 20.7)	16.9 (8.4 – 25.5)	15.2 (10.7 – 19.7)	13.6 (7.6 – 19.7)	25.5 (16.6 – 34.3)	23.9 (19.1 – 28.7)	22.9 (17.9 – 27.9)	27.0 (22.6-31.5)	<0.001
≥30 kg/m ²	13.0 (9.1 – 16.9)	16.6 (11.3 – 21.9)	21.5 (17.0 – 25.9)	17.5 (13.1 – 21.9)	17.8 (14.0– 21.6)	28.0 (21.0 – 35.0)	28.3 (22.4 – 34.1)	20.6 (16.6 – 24.7)	28.3 (22.6-34.1)	<0.001
WC										
Less than High-Risk	11.6 (6.3 – 16.9)	17.5 (12.3 – 22.6)	14.6 (11.7 – 17.5)	17.8 (12.1 – 23.6)	20.1 (12.8 – 27.5)	28.8 (23.6 – 34.0)	24.6 (17.5 – 31.7)	25.2 (18.6 – 31.8)	31.0 (24.3-37.6)	<0.001
High-Risk	13.2 (9.6 – 16.7)	15.6 (11.1 – 20.0)	22.0 (18.3 – 25.7)	17.4 (13.6 – 21.2)	15.2 (11.9 – 18.5)	27.6 (21.0 – 34.1)	27.4 (23.2 – 31.7)	21.8 (17.7 – 25.9)	27.5 (21.9-33.2)	<0.001
<i>Hispanic</i>										
BMI										
<25 kg/m ²	18.4 (9.1 – 27.7)	26.2 (18.2 – 34.2)	30.6 (19.8 – 41.4)	18.4 (12.1 – 24.6)	20.2 (12.8 – 27.6)	25.6 (21.1 – 30.4)	23.8 (16.6 – 30.9)	25.2 (16.7 – 33.6)	28.1 (23.1-33.0)	0.34
25 to 29.9 kg/m ²	20.1 (13.8 – 26.3)	29.4 (21.3 – 37.5)	29.2 (19.1 – 39.3)	23.6 (18.5 – 28.7)	23.6 (19.0 – 28.2)	30.9 (24.7 – 37.2)	29.4 (20.3– 38.5)	25.0 (19.9 – 30.1)	34.7 (27.0-42.4)	0.06
≥30 kg/m ²	19.1 (12.0 – 26.1)	23.1 (14.9 – 31.2)	27.6 (15.5 – 39.7)	26.9 (19.9 – 33.8)	26.8 (19.6 – 34.0)	34.2 (28.4 – 39.9)	30.8 (22.5 – 39.1)	31.0 (23.4 – 38.6)	37.6 (33.7-41.5)	<0.001
WC										
Less than High-Risk	19.6 (12.8 – 26.4)	27.5 (21.2 – 33.7)	29.1 (21.3 – 36.9)	21.9 (17.8 – 26.1)	22.2 (18.9 – 25.4)	31.5 (28.2 – 34.7)	29.0 (21.1 – 36.9)	25.5 (18.4 – 32.6)	32.5 (27.3-37.7)	0.02
High-Risk	19.3	24.7	29.0	24.8	25.6	30.7	28.7	30.0	36.7	<0.001

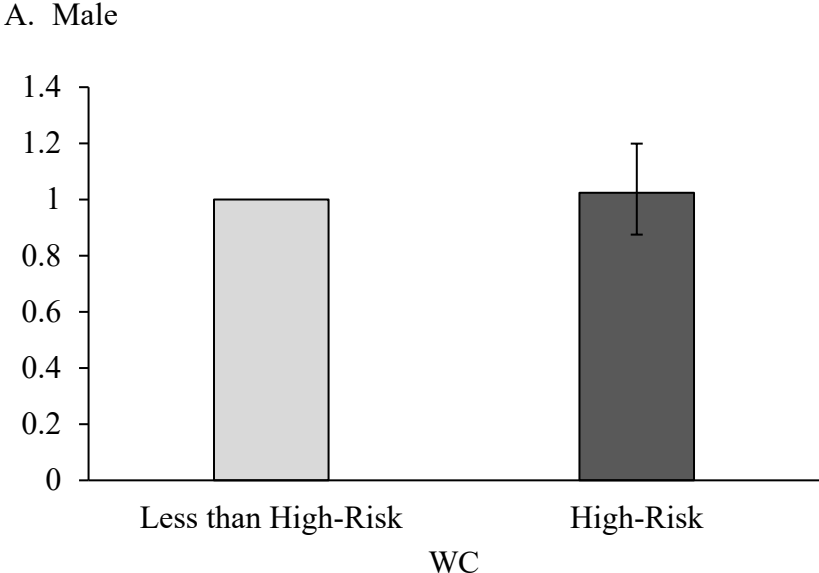
	(12.7 – 25.9)	(18.1 – 31.4)	(18.4 – 39.4)	(18.7 – 30.8)	(19.8 – 31.5)	(25.3 – 36.1)	(21.1 – 36.4)	(23.4 – 36.6)	(31.7-41.7)	
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^a Data are presented as percentage % (95% CI) for each survey cycle.

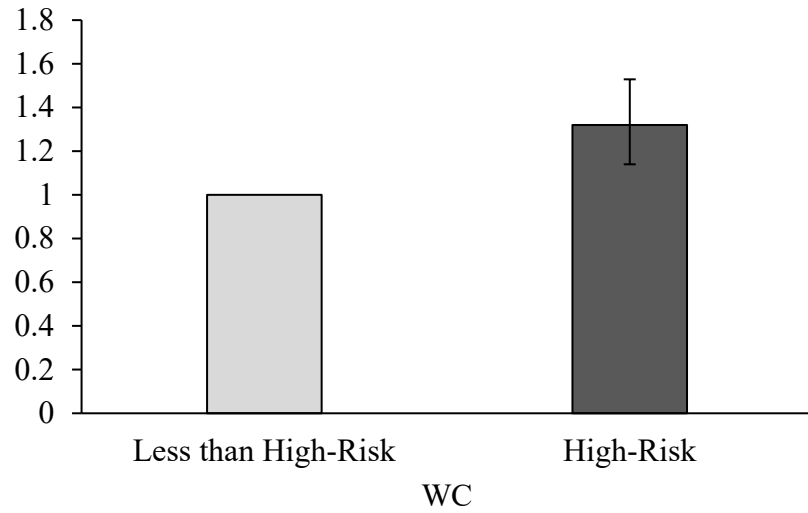
^b Data are weighted to be nationally representative.

^c The estimate β (95% CI) and P for trend were calculated using logistic regression that included the NHANES 2-year cycle as a continuous variable.

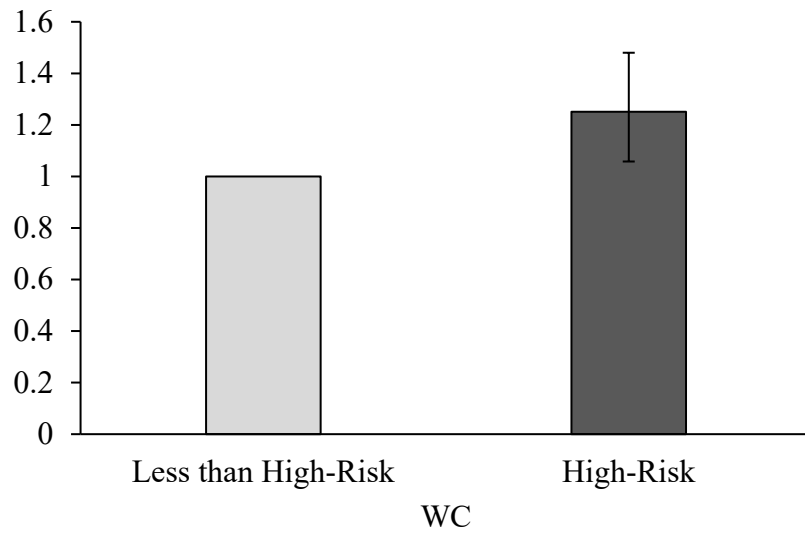
eFigure 2. Adjusted Odds (95% CI) of Food Insecurity Among Adults in the US, NHANES 1999-2016^a



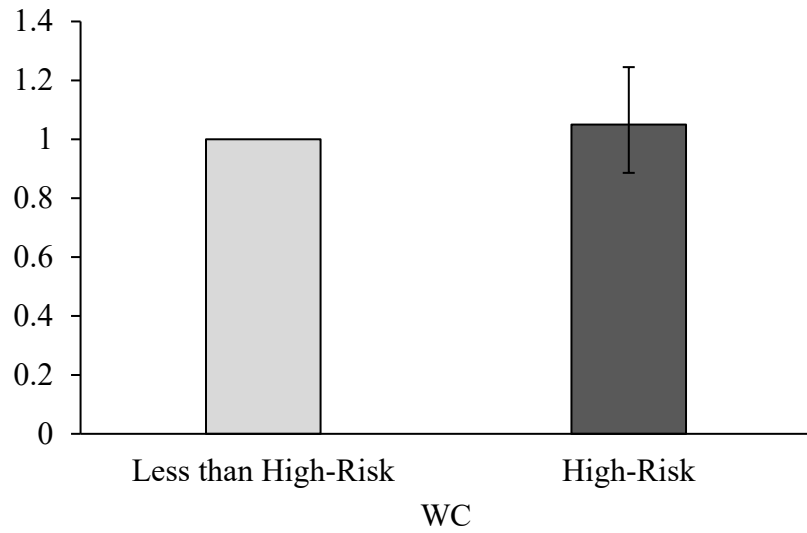
B. Female



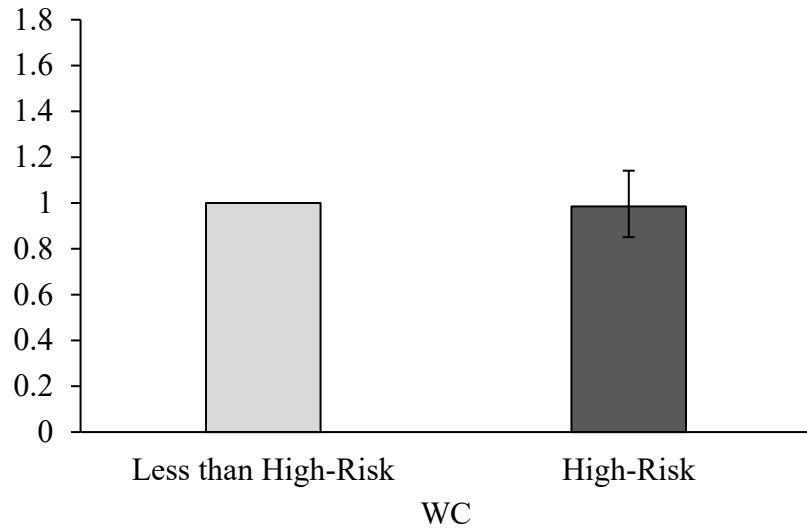
C. Non-Hispanic White



D. Non-Hispanic African American



E. Hispanic



^aData weighted to be nationally representative. Error bars indicate 95% CI.

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