

# Availability of Healthier Food Options in Fast-Food Restaurants by Community Racial/Ethnic and Socioeconomic Composition in a National Sample

SARA W. HEINERT<sup>1</sup>, ZEYNEP ISGOR<sup>2</sup>, LISA M. POWELL<sup>2</sup>

## Key Findings

- Overall, healthier options were more or equally prevalent at chain fast-food restaurants than non-chain fast-food restaurants.
- Fast-food restaurants in majority non-Hispanic black and majority Hispanic communities had lower prevalence of healthier food availability than those in majority non-Hispanic white communities.
- Fast-food restaurants in low- and middle-income communities had lower prevalence of healthier food options than those in high-income communities.
- There were a greater number of statistically significant differences in availability by community racial/ethnic and socioeconomic composition for non-chain compared to chain fast-food restaurants, with odds of availability of healthier options being lower in minority and lower-income community non-chain fast-food restaurants.

## Background

Approximately 40% of adults and 19% of youths in the United States (US) are obese.<sup>1</sup> Research has shown that obesity rates tend to be higher among racial and ethnic minorities compared to their white counterparts<sup>1</sup>, and lower among college graduates compared to people with less education.<sup>2</sup>

It has been shown that 34% of children and adolescents (2-19 years),<sup>3</sup> and 36% of adults consumed fast food on a given day.<sup>4</sup> For adults, the daily caloric intake from fast food averaged 877 kcal with fast food increasing daily caloric intake by 194 to 315 kcal, compared to intake on days without fast food.<sup>4,5</sup> In addition to higher calories, fast-food consumption was associated with higher intake of total fat, saturated fat, sugar, and sodium and lower intake of fruits and vegetables and essential vitamins.<sup>5-7</sup> One study showed that only 17% of chain fast-food menu items qualified as healthful choices based on caloric and sodium content and Nutrient Profile Index (NPI) score.<sup>8</sup> Of the thousands of possible combinations of meals on chain fast-food kids' menus, 0.4 to 3% of the combinations met nutrition standards.<sup>8-10</sup> Meals on the kids' menu that met nutrition standards offered a side of fruit plus milk, and had one-third the fat and two-thirds the calories, compared to meals that did not meet the standards.<sup>9</sup>

Two studies have explored availability of healthy options on restaurant menus by neighborhood characteristics.<sup>11,12</sup> Using data from St. Louis, MO, authors found that fast-food restaurants in primarily black and lower income areas were less likely than expected to offer healthier food options. People in primarily white and middle to higher income areas were more likely than expected to have access to fast-food restaurants with healthier food options.<sup>11</sup> Another study, in Los Angeles, CA, looked at restaurants (fast-food, limited-service, and full-service) in general, and not specifically fast-food restaurants.<sup>12</sup> It found that poorer neighborhoods with a higher proportion of black residents had fewer healthy options available.<sup>12</sup>

To our knowledge, this is the first study to examine associations between availability of healthier food options in both chain and non-chain fast-food restaurants and community racial/ethnic and socioeconomic composition using a nationwide dataset of fast-food restaurants.

## AUTHOR AFFILIATIONS

1. Department of Emergency Medicine, University of Illinois at Chicago, 808 South Wood Street, Chicago, Illinois, 60612.

2. Division of Health Policy and Administration, School of Public Health, University of Illinois at Chicago, 1603 West Taylor Street, Chicago, Illinois, 60612.

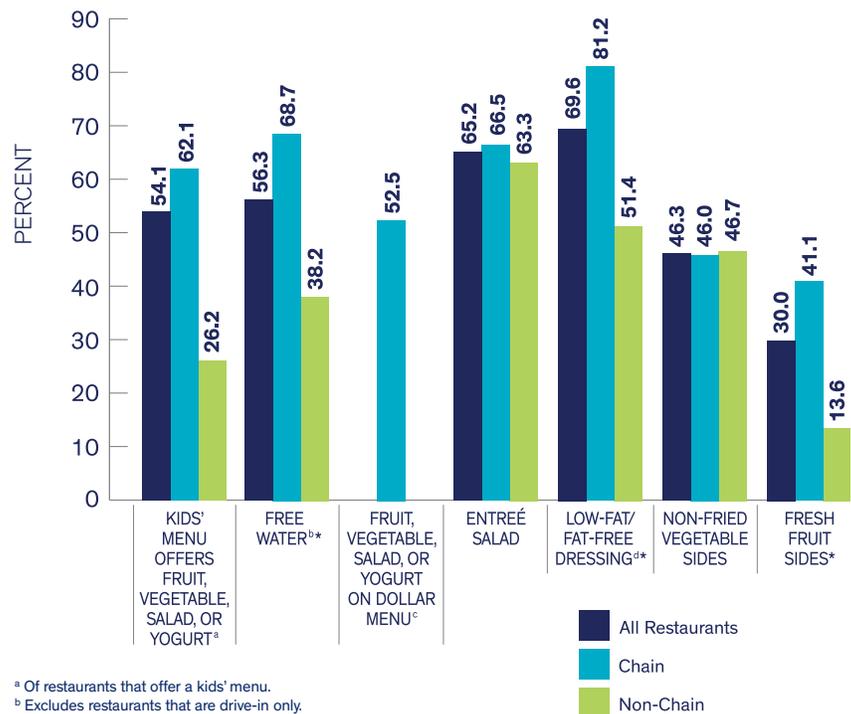
### Healthier Menu Options by Chain Status

- Overall, healthier options were more or equally prevalent at chain fast-food restaurants than non-chain fast-food restaurants.
- Healthier options in kids' menus were significantly more prevalent in chain fast-food restaurants (62.1%) than in non-chain fast-food restaurants (26.2%).
- Free water was also significantly more prevalent in chain fast-food restaurants (68.7%), compared to non-chain fast-food restaurants (38.2%).
- Although prevalence of entrée salad was not significantly different in chain fast-food restaurant (66.5%) vs. non-chain fast-food restaurant menus (63.3%), low-fat/fat-free dressing was significantly more prevalent in chain fast-food restaurant menus (81.2%) than non-chain fast-food restaurant menus (51.4%), conditional on entrée salad availability.
- Additionally, prevalence of one or more fresh fruit side(s) was significantly higher for chain fast-food restaurants (41.1%) than non-chain fast-food restaurants (13.6%).

### Healthier Menu Options by Community Racial/Ethnic and Socioeconomic Composition- All Fast-Food Restaurants

- Fast-food restaurants in majority non-Hispanic black communities were associated with 34%, 40%, and 37% lower odds of offering kids' menus with healthier items, entrée salad, and low-fat/fat-free dressing, respectively, as compared to those in majority non-Hispanic white communities.
- Being a fast-food restaurant in a majority Hispanic community was associated with 31% lower odds of having free water accessible to customers and having entrée salad options on the menu, as compared to fast-food restaurants located in majority non-Hispanic white communities.
- Being a fast-food restaurant located in a low-income community was associated with 20% to 29% lower odds of having free water accessible to customers, entrée salad, and non-fried vegetable side(s), as compared to fast-food restaurants located in high-income communities.
- In addition, middle-income community fast-food restaurants had 24% lower odds of offering free water to customers than high-income community fast-food restaurants.

**FIGURE 1** Prevalence (%) of Healthier Food Options for All Fast-Food Restaurants and by Chain Status (2010-2012)



<sup>a</sup> Of restaurants that offer a kids' menu.

<sup>b</sup> Excludes restaurants that are drive-in only.

<sup>c</sup> Of restaurants that offer a dollar menu. There were only 29 non-chain restaurants in the sample with dollar menus, so we have excluded non-chain restaurants with dollar menus due to low sample size.

<sup>d</sup> Of restaurants that offer an entrée salad.

\*Difference between chain and non-chain restaurant is significant at  $p \leq 0.05$

**TABLE 1** Association between Availability of Healthier Food Options and Community Racial/Ethnic and Socioeconomic Composition in Fast-Food Restaurants (2010-2012)

ALL (N=7252)	Kids' Menu Offers Fruit, Vegetable, Salad, or Yogurt <sup>a</sup> (N=3930)	Free Water <sup>b</sup> (N=7023)	Entrée Salad (N=7190)	Low-Fat/Fat-Free Dressing <sup>c</sup> (N=4382)	Non-Fried Vegetable Side(s) (N=7207)	Fresh Fruit Side(s) (N=7212)
<b>Race/Ethnicity</b> (ref=Majority Non-Hispanic White)						
Majority Non-Hispanic Black	<b>0.66*</b> [0.47, 0.93]	0.80 [0.57-1.14]	<b>0.60*</b> [0.48, 0.75]	<b>0.63*</b> [0.40, 0.97]	0.90 [0.72, 1.12]	1.06 [0.70, 1.61]
Majority Hispanic	1.01 [0.65, 1.57]	<b>0.69*</b> [0.47, 1.00]	<b>0.69*</b> [0.54, 0.88]	1.15 [0.82, 1.61]	1.12 [0.82, 1.53]	0.99 [0.76, 1.29]
Majority Non-Hispanic Mixed	1.06 [0.87, 1.30]	0.89 [0.72, 1.11]	0.95 [0.76, 1.18]	0.79 [0.58, 1.08]	1.17 [0.93, 1.47]	<b>1.22*</b> [1.00, 1.49]
<b>Income</b> (ref=High Income)						
Low-Income	1.17 [0.95, 1.44]	<b>0.72*</b> [0.56, 0.92]	<b>0.71*</b> [0.58, 0.86]	0.83 [0.62, 1.10]	<b>0.80*</b> [0.67, 0.95]	0.89 [0.75, 1.06]
Middle-Income	1.02 [0.84, 1.23]	<b>0.76*</b> [0.61, 0.95]	0.88 [0.73, 1.05]	0.86 [0.66, 1.12]	0.84 [0.70, 1.01]	0.96 [0.82, 1.11]

<sup>a</sup> Of restaurants that offer a kids' menu.

<sup>b</sup> Excludes restaurants that are drive-in only.

<sup>c</sup> Of restaurants that offer an entrée salad.

Odds ratios and confidence intervals are reported from logistic regressions.

All regressions included variables that controlled for urbanicity, U.S. Census divisions, year of survey, and chain status.

\*Significant at  $p \leq 0.05$

### Healthier Menu Options by Community Racial/Ethnic and Socioeconomic Composition- Chain Fast-Food Restaurants

- Chain fast-food restaurants located in majority non-Hispanic black communities were associated with 49% lower odds of offering kids' menu items with fruit, vegetable, salad, or yogurt than those in majority non-Hispanic white communities.
- Chain fast-food restaurants in low-income compared to high-income communities were associated with 28% lower odds of having a healthier food option on the dollar menu.

### Healthier Menu Options by Community Racial/Ethnic and Socioeconomic Composition- Non-Chain Fast-Food Restaurants

- Free water was about half as likely to be available in non-chain fast-food restaurants in majority non-Hispanic black (49%) and majority Hispanic (54%) communities, compared to majority non-Hispanic white communities.
- Similar results were found for availability of entrée salad, with both majority non-Hispanic black (58%) and majority Hispanic (51%) community non-chain fast-food restaurants being about half as likely as those in majority non-Hispanic white communities to list a healthier entrée salad option on the menu.
- For non-chain fast-food restaurants that had entrée salads, majority non-Hispanic black community fast-food restaurants were 45% less likely to have low-fat/fat free dressing than restaurants in majority non-Hispanic white communities.
- Free water was 39% and 28% less likely to be available in low- and middle-income community non-chain fast-food restaurants, respectively, than those in high-income community fast-food restaurants.
- Entrée salad was 45% less likely to be available in low-income community non-chain fast-food restaurants than high-income community non-chain fast-food restaurants.
- Non-fried vegetable side (27%) and fresh fruit side (42%) availability were both less likely for low-income community, compared to high-income community non-chain fast-food restaurants.

**TABLE 2 Association between Availability of Healthier Food Options and Community Racial/Ethnic and Socioeconomic Composition in Chain Fast-Food Restaurants (2010-2012)**

CHAIN (N=3845)	Kids' Menu Offers Fruit, Vegetable, Salad, or Yogurt <sup>a</sup> (N=2951)	Free Water <sup>b</sup> (N=3698)	Fruit, Vegetable, Salad, or Yogurt on Dollar Menu <sup>c</sup> (N=1444)	Entrée Salad (N=3818)	Low-Fat/Fat-Free Dressing <sup>d</sup> (N=2472)	Non-Fried Vegetable Side(s) (N=3825)	Fresh Fruit Side(s) (N=3826)
<b>Race/Ethnicity (ref=Majority Non-Hispanic White)</b>							
Majority Non-Hispanic Black	<b>0.51*</b> [0.37, 0.69]	1.02 [0.63-1.64]	1.69 [0.98-2.92]	0.75 [0.55-1.02]	0.67 [0.35-1.26]	1.02 [0.71-1.47]	0.91 [0.61-1.34]
Majority Hispanic	0.85 [0.61-1.19]	0.96 [0.67-1.36]	1.13 [0.72-1.76]	0.91 [0.70-1.18]	1.46 [0.88-2.43]	1.50 [0.96-2.35]	1.07 [0.78-1.47]
Majority Non-Hispanic Mixed	1.08 [0.84-1.37]	1.18 [0.91-1.53]	1.25 [0.84-1.87]	1.13 [0.89-1.45]	0.83 [0.50-1.37]	1.31 [0.98-1.77]	1.11 [0.89-1.40]
<b>Income (ref=High Income)</b>							
Low-Income	1.22 [0.96-1.56]	0.78 [0.60-1.01]	<b>0.72*</b> [0.52, 0.99]	0.85 [0.69-1.06]	0.75 [0.53-1.08]	0.86 [0.69-1.06]	0.97 [0.79-1.20]
Middle-Income	1.06 [0.86-1.32]	0.82 [0.65-1.02]	0.79 [0.58-1.08]	0.93 [0.76-1.13]	0.85 [0.60-1.20]	0.89 [0.73-1.08]	1.05 [0.88-1.25]

<sup>a</sup> Of restaurants that offer a kids menu. <sup>b</sup> Excludes restaurants that are drive-in only. <sup>c</sup> Of restaurants that offer a dollar menu. There were only 29 non-chain restaurants in the sample with dollar menus, so this analysis has only been calculated for chain restaurants. <sup>d</sup> Of restaurants that offer an entrée salad.

\*Significant at p≤ 0.05

Odds ratios and confidence intervals are reported from logistic regressions.

All regressions included variables that controlled for urbanicity, U.S. Census division indicators, and year of survey.

**TABLE 3 Association between Availability of Healthier Food Options and Community Racial/Ethnic and Socioeconomic Composition in Non-Chain Fast-Food Restaurants (2010-2012)**

NON-CHAIN (N=3407)	Kids' Menu Offers Fruit, Vegetable, Salad, or Yogurt <sup>a</sup> (N=979)	Free Water <sup>b</sup> (N=3325)	Entrée Salad (N=3372)	Low-Fat/Fat-Free Dressing <sup>c</sup> (N=1910)	Non-Fried Vegetable Side(s) (N=3382)	Fresh Fruit Side(s) (N=3386)
<b>Race/Ethnicity (ref=Majority Non-Hispanic White)</b>						
Majority Non-Hispanic Black	2.31 [0.66, 8.12]	<b>0.51*</b> [0.29, 0.92]	<b>0.42*</b> [0.31, 0.57]	<b>0.55*</b> [0.32, 0.95]	0.73 [0.53, 1.01]	1.45 [0.64, 3.29]
Majority Hispanic	2.30 [0.83, 6.40]	<b>0.46*</b> [0.26, 0.81]	<b>0.49*</b> [0.30, 0.81]	0.94 [0.46, 1.89]	0.76 [0.45, 1.28]	0.79 [0.44, 1.44]
Majority Non-Hispanic Mixed	1.09 [0.58, 2.02]	<b>0.63*</b> [0.46, 0.87]	0.78 [0.58, 1.04]	<b>0.70*</b> [0.50, 1.00]	1.05 [0.79, 1.40]	1.44 [0.97, 2.13]
<b>Income (ref=High Income)</b>						
Low-Income	0.90 [0.47, 1.73]	<b>0.61*</b> [0.41, 0.91]	<b>0.55*</b> [0.41, 0.74]	0.87 [0.58, 1.31]	<b>0.73*</b> [0.55, 0.97]	<b>0.58*</b> [0.40, 0.85]
Middle-Income	0.84 [0.53, 1.34]	<b>0.72*</b> [0.52, 0.99]	0.83 [0.65, 1.07]	0.91 [0.62, 1.34]	0.78 [0.59, 1.02]	0.79 [0.57, 1.10]

<sup>a</sup> Of restaurants that offer a kids' menu. <sup>b</sup> Excludes restaurants that are drive-in only. <sup>c</sup> Of restaurants that offer an entrée salad.

Odds ratios and confidence intervals are reported from logistic regressions.

All regressions included variables that controlled for urbanicity, U.S. Census divisions, year of survey, and chain status.

\*Significant at p≤ 0.05

## Data and Methods

This study used cross-sectional pooled data (2010-2012) that were collected using the fast-food restaurant outlet instrument of the Bridging the Gap Community Obesity Measures Project (BTG-COMP), the BTG Fast Food Observation Form (BTG-FFOF). The communities in which fast-food restaurants were observed were drawn from the Monitoring the Future (MTF) study school enrollment zones and constituted a nationally representative sample of where 8<sup>th</sup>, 10<sup>th</sup>, and 12<sup>th</sup> grade traditional public school students resided.<sup>13</sup>

Field staff were trained by the research team to make in-person visits to each fast-food restaurant to complete the form using a standardized protocol to collect characteristics of the fast-food restaurants including restaurant type, exterior features and marketing, and food item availability and prices. After testing for interrater reliability, over 85% of the measures on the form had substantial or almost perfect agreement suggesting the instrument to be a reliable measure of the fast-food environment. Further information on the BTG-FFOF can be found elsewhere.<sup>14</sup>

The number of observations used in the empirical analyses of various outcomes we examined were based on a sample of 7,252 fast-food restaurants (3,845 chain and 3,407 non-chain restaurants) from 437 communities across 46 U.S. states over the three years of data collection.

We included outcome measures of healthier food item availability on the kids' menu, the dollar menu, and the regular menu. Binary variables indicating availability of a healthier side (fruit, vegetable, salad, or yogurt) on the kids' menu and a healthier item (fruit, vegetable, salad, or yogurt) on the dollar menu were generated. We also assessed the availability of free water. From the regular menu, we included the presence of an entrée salad; low-fat/fat-free dressing if entrée salad was present; non-fried vegetable side; and, fresh fruit side. Count outcome variables (number of non-fried vegetable side(s) and fresh fruit side(s) on the regular menu) were converted into binary variables that indicated availability.

Main independent variables of interest were community race/ethnicity and socioeconomic composition, which were

obtained from the census block-group level 5-year estimates from the American Community Survey (2007-2011).<sup>15</sup> The race/ethnicity and socioeconomic composition indicators of block-groups that fell within our community (i.e., catchment area) boundaries were aggregated to construct community level race/ethnicity and socioeconomic-related independent variables used in analyses. Race/ethnicity was defined as majority (at least 50%) of community residents who self-identified as non-Hispanic white (reference category in regressions), non-Hispanic black, Hispanic, or non-Hispanic mixed (i.e., communities with no non-Hispanic white, non-Hispanic Black, or Hispanic population of 50% or more). Community socioeconomic composition was captured by tertiles of median household income (low-, medium-, and high-income [reference]).

Covariates used as control variables in analyses included urbanicity, U.S. census divisions, year of survey, and fast-food restaurant chain status. Community urbanicity definition was based on the New Urban-Centric Locale Codes from the National Center for Education Statistics, and grouped into four categories of urban, suburban, town, and rural based on distance to an urban/metropolitan area.<sup>16</sup> The nine U.S. Census division indicators were generated. The survey year indicators served as controls for time trends. The chain status variable indicated whether a fast-food restaurant was in the top 400 chains listed in *Restaurants & Institutions (2009)* based on system-wide sales, while the remaining restaurants were classified as non-chain.<sup>17</sup>

Bivariate analyses of the availability of healthier food items by chain status were calculated using z-tests for comparing two proportions. Multivariate analyses were undertaken using logistic regressions of maximum likelihood estimation to examine the associations between the outcome variables that indicated the availability of healthier options in fast-food restaurants and the independent variables that represented the community racial/ethnic and socioeconomic composition, including control variables. Odds ratios (i.e., exponentiated coefficients from logistic regressions) and the corresponding exponentiated 95% confidence intervals were reported in tables.

## Discussion

This study found that fast-food restaurants in majority non-Hispanic black and majority Hispanic communities had overall lower prevalence of healthier food options available on their menus than those in majority non-Hispanic white communities. Also, low- and middle- income community fast-food restaurants had lower prevalence of healthier food options than their high-income community counterparts. These associations were especially present for non-chain compared to chain fast-food restaurants.

Our findings concur with existing literature, which found that low-income and minority neighborhoods in Los Angeles and St. Louis have fewer healthier food options in restaurants.<sup>11,12</sup> Our

results are based on national data compared to previous studies that have taken place in more limited geographical areas. To our knowledge, this is the first study that has looked at healthier food option availability by chain status of fast-food restaurants.

Experts who reviewed research on existing nutrition standards and initiatives to determine recommendations to promote healthier food uptake by restaurants determined that the two most critical shifts needed were limiting total caloric intake and increasing consumption of fruits and vegetables. The experts recommended certifying a restaurant as "healthier" if they have a minimum number of healthier options on the menus.<sup>18</sup> Current "healthier"

certification programs are voluntary and experts suggest that incentives could encourage restaurants to participate.<sup>18</sup>

We found more racial/ethnic and socioeconomic disparities in healthier food availability in non-chain than chain fast-food restaurants. A previous study found that 27% of restaurant chains offer healthier foods to avoid losing customers who are “health seekers.”<sup>19</sup> Certification programs that currently exist are financed by the restaurants who desire them, and each pays a fee for a compliance review of its practices, menus, and recipes.<sup>18</sup> However, such a fee may be burdensome and costly for smaller, non-chain restaurants. One of these programs, the American Heart Association’s Heart Check Program has a sliding fee scale so smaller restaurants pay less than large chain restaurants. Similar

alternatives should be determined for restaurants who are unable or unwilling to pay for such a certification.<sup>18</sup>

Our findings suggest that the availability of healthier food options differ by racial/ethnic and socio-economic composition of communities. Limited availability of healthier foods may act as a barrier to healthier eating. Such barriers could lead to greater risk for obesity and other diet-related chronic conditions. Introducing and/or increasing the availability of healthier food options on the menus of fast-food restaurants, and especially providing non-chain restaurants with incentives to increase these options, may help reduce the barriers to healthier food availability in lower- income and minority communities, and associated chronic health conditions and related disparities.

## References

1. Hales CM, Carroll MD, Fryar CD, Ogden CL. Prevalence of obesity among adults and youth: United States, 2015-2016. NCHS data brief, no 288. Hyattsville, MD: National Center for Health Statistics. 2017.
2. Ogden CL, Fakhouri TH, Carroll MD et al. Prevalence of obesity among adults, by household income and education- United States, 2011-2014. MMWR Morb Mortal Wkly Rep 2017;66:1369-1373.
3. Vikraman S, Fryar CD, Ogden CL. Caloric intake from fast food among children and adolescents in the United States, 2011-2012. NCHS data brief, no 213. Hyattsville, MD: National Center for Health Statistics. 2015.
4. Powell L, Nguyen B, Han E. Energy intake from restaurants: Demographics and socioeconomic, 2003-2008. Am J Prev Med. 2012;43,498-504.
5. Nguyen BT & Powell LM. The impact of restaurant consumption among US adults: Effects on energy and nutrient intakes. Public Health Nutr. 2014;17,2445-2452.
6. Paeratakul S, Ferdinand DP, Champagne CM, Ryan DH, Bray GA. Fast-food consumption among U.S. adults and children: Dietary and nutrient intake profile. J Am Diet Assoc. 2003;103,1332-8.
7. Powell LM & Nguyen BT. Fast-food and full-service restaurant consumption among children and adolescents: Effect on energy, beverage, and nutrient intake. JAMA Pediatr. 2013;167,14-20.
8. Harris JL, Schwartz MB, Brownell KD. Fast food F.A.C.T.S.: Evaluating fast food nutrition and marketing to youth. Yale Rudd Center for Food Policy & Obesity. 2010.
9. O'Donnell SI, Hoerr SL, Mendoza JA, Tsuei Goh E. Nutrient quality of fast food kids meals. Am J Clin Nutr. 2008;88,1388-95.
10. Batada A, Bruening M, Marchlewicz EH, Story M, Wootan MG. Poor Nutrition on the menu: Children’s meals at America’s top chain restaurants. Child Obes. 2012;8,251-254.
11. Baker E, Shootman M, Barnidge E, Kelly C. The role of race and poverty in access to foods that enable individuals to adhere to dietary guidelines. Prev Chronic Dis. 2006;3,A76.
12. Lewis L, Sloane D, Nascimento L et al. African Americans’ access to health food options in South Los Angeles restaurants. Am J Pub Health. 2005;95,668-73.
13. Bachman JG, Johnston LD, O'Malley PM, Schulenberg JE. The Monitoring the Future Project after thirty-seven years: Design and procedures. Monitoring the Future Occasional Paper Series. Ann Arbor, MI. 2011;76. Available at: <http://www.monitoringthefuture.org/pubs/occpapers/mtf-occ76.pdf>
14. Rimkus L, Ohri-Vachaspati P, Powell LM et al. Development and reliability testing of a fast-food restaurant observation form. Am J Health Promot. 2015;30,9-18.
15. U.S. Department of Commerce, Economics and Statistics Administration. The 2007–2011 ACS 5-year summary file technical documentation. 2012. Available at: [http://www2.census.gov/programs-surveys/acs/summary\\_file/2011/documentation/5\\_year/ACS\\_2007-2011\\_SF\\_Tech\\_Doc.pdf](http://www2.census.gov/programs-surveys/acs/summary_file/2011/documentation/5_year/ACS_2007-2011_SF_Tech_Doc.pdf)
16. National Center for Education Statistics. Appendix D NCES locale codes. 2006. Available at: [https://nces.ed.gov/programs/handbook/data/pdf/appendix\\_d.pdf](https://nces.ed.gov/programs/handbook/data/pdf/appendix_d.pdf)
17. Restaurants and Institutions. R & I top 400 restaurants chains. 2009. Available at: [www.rolypoly.com/news/articles/R&I%202009%20Top%20400%20Restaurant%20Chains.pdf](http://www.rolypoly.com/news/articles/R&I%202009%20Top%20400%20Restaurant%20Chains.pdf)
18. Cohen D, Bhatia R, Story MT et al. Performance standards for restaurants: A new approach to addressing the obesity epidemic. Rand Corporation. 2013. Available at: [http://www.rand.org/content/dam/rand/pubs/conf\\_proceedings/CF300/CF313/RAND\\_CF313.pdf](http://www.rand.org/content/dam/rand/pubs/conf_proceedings/CF300/CF313/RAND_CF313.pdf)
19. Glanz K, Resnicow K, Seymour J et al. How major restaurant chains plan their menus: The role of profit, demand, and health. Am J Prev Med. 2007;32,383-388.

## SUGGESTED CITATION

Heinert SW, Isgor Z, Powell LM. Availability of Healthier Food Options in Fast Food Restaurants by Community Racial/Ethnic and Socioeconomic Composition in a National Sample. Research Brief No. 110. Illinois Prevention Research Center, University of Illinois at Chicago; Chicago, IL. December 2018. <https://illinoisprc.org/publications/>

## ACKNOWLEDGMENTS

Data collection and analysis were supported by the Robert Wood Johnson Foundation through grants (Grant IDs 64702 and 70157) to the Bridging the Gap program at the University of Illinois at Chicago.