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Dietary Behaviors of a Racially and Ethnically Diverse Sample of Overweight and Obese Californians

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Abstract

Objectives—To examine racial/ethnic differences in the dietary behaviors of overweight or obese adults using the 2007 California Health Interview Survey.

Method—Data were obtained from the 2007 California Health Interview Survey, a population-based sample of noninstitutionalized adults in California. The sample included 26,721 adults aged 18 years and older whose body mass index status indicated that they were overweight or obese (body mass index ≥ 25), with 19,264 non-Hispanic White; 1,749 African American/Black; 1,616 Asian/Pacific Islander; and 4,092 Latino respondents. Respondents were compared with regard to consumption of five categories of food: fruits, vegetables, French fries, soft drinks, and fast-food. Multivariable regression analyses were conducted to examine racial/ethnic differences in dietary behaviors, with and without adjustment for age, gender, nativity, marital status, education, income, and food insecurity.

Results—The findings suggested there were significant racial/ethnic differences in food preferences and that English proficiency, in part, explained some of these differences. Overweight/obese African American/Black respondents reported eating fruit (aBeta = −0.73, [95% confidence interval = −1.29, −0.17]) and vegetables (aBeta = −0.71 [−1.18, −0.24]) fewer times per day and fast-food (aBeta = 0.21, [0.04, 0.38]) more times per day compared with their non-Hispanic White counterparts. Irrespective of language proficiency, Asian/Pacific Islanders reported eating significantly less fruit compared with non-Hispanic Whites. Limited English proficient (LEP) Asian/Pacific Islanders were found to eat vegetables (aBeta = 1.41, [0.47, 2.63]) more times per day than non-Hispanic Whites, in contrast to English proficient Asian/Pacific Islanders who were found to eat vegetables (aBeta = −0.64, [−1.11, −0.18]) fewer times per day compared with non-Hispanic Whites. Both LEP and English proficient Latinos ate vegetables less often and drank soft drinks and ate fast-food more often than non-Hispanic Whites.

Conclusions—Efforts to intervene with individuals who are overweight or obese must include culturally and linguistically tailored interventions that consider how individuals' dietary behaviors are influenced by their racial/ethnic backgrounds.

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Declaration of Conflicting Interests

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Keywords

California Health Interview Survey; dietary behaviors; obesity; racial and ethnic differences

Overweight and obese adults are at increased risk for mortality and morbidity related to a wide range of chronic diseases, including coronary heart disease, hypertension, dyslipidemia, and diabetes mellitus (Banks, Muriel, & Smith, 2010; Berrington de Gonzalez et al., 2010). Approximately 34% of the U.S. adult population is considered overweight (body mass index [BMI] ≥ 25 kg/m^2), with an additional one quarter of Americans meeting the criteria for obesity (BMI ≥ 30 kg/m^2). Obesity and overweight prevalence rates are even higher for non-Hispanic Black Americans and Hispanics, with Blacks having a 51% higher prevalence of obesity and Hispanics having a 21% higher obesity prevalence compared with Whites (Centers for Disease Control and Prevention, 2010).

The rising prevalence of obesity in recent decades has been attributed, in part, to increased caloric intake associated with growing portion sizes and greater accessibility of inexpensive, high-calorie foods and beverages (Block, Scribner, & DeSalvo, 2004; Young & Nestle, 2002). For example, fast-food and soda consumption has been linked to increased rates of obesity, particularly among low-income individuals (August & Sorkin, 2010; French, Harnack, & Jeffery, 2000). Furthermore, findings from national population-based studies, such as the U.S National Health and Nutrition Examination Survey, suggest that low fruit and vegetable intake is associated with greater risk of being overweight/obese (Blanck, Gillespie, Kimmons, Seymour, & Serdula, 2008; Demydas, 2011; Dubowitz et al., 2008; Kimmons, Gillespie, Seymour, Serdula, & Blanck, 2009).

Much of the research that has compared the dietary behaviors of normal versus overweight/obese individuals has focused on identifying individual risk factors, while often neglecting the interpersonal context in which these behaviors occur and are reinforced. The Socio-Ecological Model (Stokols, 1996) offers a broader perspective, taking into account that the meaning and contexts for food choice are connected to people's cultural traditions and role expectations. Race and ethnicity has been used to highlight cultural and social characteristics and to categorize populations on the basis of shared language, ancestry, religious traditions, dietary preferences, and history (Caprio et al., 2008).

Evidence of racial/ethnic differences in dietary behaviors is limited and inconsistent (Shah, Doe, & Deverill, 2008; Thompson, Sowers, Frongillo, & Parpia, 1992). For example, some studies suggest that non-Hispanic Black Americans consume fewer servings of fruits and vegetables compared with non-Hispanic Whites (Dubowitz et al., 2008; B. H. Patterson, Block, Rosenberger, Pee, & Kahle, 1990), whereas others show no difference (Erinosho, Thompson, Moser, & Yaroch, 2011). Similar inconsistencies in findings occur when comparing Latino respondents to individuals from other racial/ethnic groups (Van Wieren, Roberts, Arellano, Feller, & Diaz, 2011). Few studies have included Asian Americans in their examinations of dietary behaviors (for an exception, see Kumanyika, 1993). Furthermore, research to date has yet to evaluate whether or not racial/ethnic differences in dietary behavior persist among overweight or obese individuals.

Racial/ethnic differences in health behaviors, including dietary behaviors, have been shown to be influenced by immigrants' level of acculturation to the U.S. lifestyle (Espino, Burge, & Moreno, 1991; Jasso, Massey, Rosenzweig, & Smith, 2000). For example, recent Latino immigrants are more likely to eat a healthy diet compared with immigrants who have lived in the United States longer (Bates, Acevedo-Garcia, Alegria, & Krieger, 2008). Research has demonstrated that as Latinos become more acculturated (meaning that they adopt the attitudes and behaviors of the dominant American culture), they tend to eat a less healthy diet. One index of acculturation, English proficiency, has been found to be related to health behaviors, such that more acculturated Latinos, or those who speak English well, are less likely to engage in healthy behaviors, such as meeting recommendations for physical activity or daily consumptions of fruits and vegetables, compared with Latinos who are less acculturated (August & Sorkin, 2010; Duffey, Gordon-Larsen, Ayala, & Popkin, 2008; National Research Council, 2004; Neuhouser, Thompson, Coronado, & Solomon, 2004). Therefore, for Latino and Asian respondents who have recent histories of immigration to the United States, their level of English proficiency, a reflection of their acculturation level, is also likely to be associated with their dietary behaviors.

Differences in food preferences across racial/ethnic groups are important to consider in efforts to promote weight loss among overweight and obese individuals. Despite the available evidence on racial/ethnic differences in health behaviors, very few studies have examined the dietary behaviors of overweight and obese individuals, and rarely have individuals from all four major racial/ethnic categories (non-Hispanic White, African American/Black, Latino, and Asian/Pacific Islander) been examined together in a population-based data set. Accordingly, the current study used data from the 2007 California Health Interview Survey (CHIS), a large population-based sample of California adults, to examine the dietary behaviors of overweight and obese African American/Black, Latino, and Asian/Pacific Islander adults compared with those of non-Hispanic Whites living in California. Given evidence of the importance of acculturation in influencing individuals' health behaviors, including dietary preferences, the current study further sought to examine how English proficiency contributed to potential racial/ethnic differences in dietary behavior for overweight and obese Latinos and Asian/Pacific Islanders. We hypothesized that racial/ethnic differences in dietary behavior would be most pronounced in African American/Blacks, and less acculturated Asian/Pacific Islanders and Latinos, compared with non-Hispanic Whites. The results will elucidate common and distinct dietary patterns among obese individuals from various racial/ethnic and cultural backgrounds and inform design of public health nutrition programs.

Method

Data Source and Sample

Data for the current study were derived from the 2007 CHIS Public Use File. CHIS is a biannual, random-digit dial telephone interview survey, representative of California's noninstitutionalized population. The sample included 26,721 adults aged 18 years and older whose BMI status indicated that they were overweight or obese (BMI ≥ 25 kg/m^2). This included 19,264 non-Hispanic White; 1,749 African American/Black; 1,616 Asian/Pacific

Islander (1,296 English proficient, 320 limited English proficient [LEP]); and 4,092 Latino (2,624 English proficient, 1,468 LEP) respondents. All White and African American/Black respondents were English proficient. The sample was weighted to account for the complex sampling design and to accurately represent variance estimates (California Health Interview Survey. 2006).

Measures

Dietary behaviors—Respondents were asked to think about all the foods they ate or drank during the past month, including meals and snacks. Fruit consumption was assessed by asking respondents how many times per day, week, or month they ate fruit, not counting juices. Responses were recoded to indicate the number of times respondents reported eating fruit on average per day. Vegetable consumption was assessed by asking respondents how many times per day, week, or month they ate vegetables, such as green salad, green beans, or potatoes, not including fried potatoes and then recoding the responses to indicate the number of vegetables respondents ate on average per day. Respondents' consumption of French fries (including home fries and hash browns) and soft drinks (such as cola and other sweetened carbonated beverages, excluding diet soda) were assessed using similar questions and recoded to indicate average intake per day. Finally, respondents were asked to think about the past week and to report the number of times they ate fast-food, including fast-food meals eaten at work, at home, or at fast-food restaurants, carryout or drive through. Responses were coded to indicate the number of times fast-food was eaten in the past 7 days.

English proficiency—Respondents' self-ratings of their English proficiency were used as a proxy measure for their level of acculturation. Based on their responses to the question "Would you say you speak English . ., " Latino and Asian respondents were then classified as English proficient (*very well or well*) or LEP (*not well or not at all*). Because of limited variability in English proficiency of non-Hispanic White and African American/Black respondents, we did not differentiate between English proficient and LEP respondents in these groups.

Covariates—Variables commonly examined in previous research on racial/ethnic disparities in health (Dunlop, Song, Manheim, Daviglus, & Chang, 2007; Popkin, 1998; Rose, 1999; Schoeni, Martin, Andreski, & Freedman, 2005) were considered for inclusion as covariates in the current study. Any of these variables that exhibited significant racial/ethnic differences were included as covariates. The following sociodemographic characteristics were included in the analyses: gender (1 = *male*, 2 = *female*), marital status (1 = *currently married*, 2 = *not currently married*), education level (1 = *high school degree or less*, 2 = *some college or more*), and nativity (1 = *U.S. born*, 2 = *foreign born*). Respondents' income was dichotomized to reflect the 2-year average 2006-2007 median income (U.S. Census Bureau, 2011) for Californians (1 = $58,253 or less, 2 ≥ $58,254). Among respondents with a household income less than or equal to 200% of federal poverty level, food insecurity—the extent to which a person experiences limited or uncertain availability to acquire adequate food—was measured by asking respondents how often they experienced periods during the year when they could not afford to put food on the table or had to forego other basic needs to

do so. Responses were recoded into two categories: 1 = food secure; 2 = food insecure (≤200% federal poverty level, with and without hunger).

Procedures

One randomly selected adult per household was sampled to complete the interview (California Health Interview Survey, 2006). Interviews were conducted in six languages found in the 2000 Census to be the most commonly spoken by Californian residents: English, Spanish, Chinese (Mandarin and Cantonese), Vietnamese, or Korean. Comparable to response rates of other scientific telephone surveys conducted in California, the response rate ranged from 15.9% to 22.1%, depending on the mode of data collection (California Health Interview Survey, 2006).

Statistical Analyses

Analyses were performed using SAS Callable SUDAAN Release 9.0.2 (Research Triangle Institute, Research Triangle Park, NC) to account for the complex sampling design and to use weighted effects for more accurate variance estimates. We conducted bivariate analyses using analysis of variance tests to examine racial/ethnic differences in the sociodemographic characteristics of the sample. We then conducted multivariate analyses using multivariable linear regression to examine racial/ethnic differences in dietary behaviors. We adjusted for age, gender, marital status, education, nativity, income, and food insecurity in multivariable analyses. Finally, we evaluated whether there were significant race/ethnicity by gender interactions in dietary behaviors.

Results

There were racial/ethnic differences in the prevalence of overweight or obesity (analyses available on request). Latino and African American/Black respondents were significantly more likely to be overweight/obese compared with non-Hispanic Whites. Specifically, 74.6% of LEP Latinos, 65.2% English proficient Latinos, and 66.8% of African American/Blacks were overweight/obese compared with 55.7% of non-Hispanic Whites. Significantly, fewer Asian/Pacific Islanders (both English proficient and LEP) were overweight/obese compared with non-Hispanic Whites (37.9% and 34.3%, respectively).

The sociodemographic characteristics of the subset of respondents who were overweight or obese are presented in Table 1. Compared with respondents from the other racial/ethnic groups, the fewest LEP Latino respondents completed high school (only 7.3%). Both LEP Asian/Pacific Islanders (97.0%) and Latinos (98.5%) reported high rates of being foreign-born. Furthermore, LEP Latinos and LEP Asian/Pacific Islanders were among the poorest in the sample, with the lowest incomes rates (only 5.0% and 19.9% more than $58,253, respectively) and the highest food insecurity rates (25.1% and 42.5% more than $58,253, respectively, all p values <.001) compared with individuals from the other racial/ethnic groups.

Table 2 presents the racial/ethnic differences in the average number of units per day for each food item, as well as adjusted results. The findings suggested that there were significant racial/ethnic differences in dietary behaviors among the overweight and obese respondents.

On average, after adjustment, overweight/obese African American/Black respondents reported eating fruit (aBeta = −0.73, [95% confidence interval (CI) = −1.29, −0.17]) and vegetables (aBeta = −0.71 [−1.18, −0.24]) fewer times per day and fast-food (aBeta = 0.21, [0.04, 0.38]) more times per week compared with their non-Hispanic White counterparts. Irrespective of language proficiency, Asian/Pacific Islanders reported eating significantly less fruit compared with non-Hispanic Whites. In the adjusted models, LEP Asian/Pacific Islanders reported eating vegetables (aBeta = 1.41 [0.47, 2.63]) more times per day than non-Hispanic Whites, in contrast to English proficient Asian/Pacific Islanders who reported eating vegetables (aBeta = −0.64 [−1.11, −0.18]) fewer times per day compared with non-Hispanic Whites. Both LEP and English proficient Latinos reported eating fewer vegetables, drinking more soft drinks, and eating more fast-food than non-Hispanic Whites.

We also examined whether racial/ethnic differences in dietary behavior varied by respondents' gender. In general, there were very few race/ethnicity by gender interactions. However, non-Hispanic White women reported eating vegetables more frequently (1.27 times per day) compared with either non-Hispanic White men (0.97 times per day) or English proficient Latino men and women (0.66 and 0.86 times per day, respectively; aBeta for interaction = −0.10, 95% CI = [−0.18, −0.03], $p = .009$). Whereas non-Hispanic White women reported less frequent soft drink consumption compared with non-Hispanic White men (0.21 vs. 0.33 times per day), African American/Blacks and LEP Latino women reported more frequent soft drink consumption (1.07 and 0.71 times per day, respectively) compared with their male counterparts (0.87 times per day for African American/Black and 0.52 times per day for LEP Latino males, respectively). Finally, LEP Asian/Pacific Islander women reported the lowest levels of fast-food consumption (0.06 times per week) compared with their LEP Asian/Pacific Islander male counterparts (0.19 times per week) and compared with non-Hispanic White males and females (1.63 and 1.27 times per week, respectively).

Discussion

The current study used population-based data representative of the Californian noninstitutionalized population to examine whether there were racial/ethnic differences in food preferences among overweight and obese adults. Irrespective of respondents' racial or ethnic background, all groups reported eating fruit and vegetables approximately once per day or less. Although the respondents only indicated frequency of eating each food type but not serving size, it is likely that all the groups studied are eating below the minimum recommended servings of fruit and vegetables, as reported elsewhere (Kimmons et al., 2009; Nebeling, Yaroch, Seymour, & Kimmons, 2007), and respondents are not likely consuming vegetables at every meal as recommended for weight loss (Centers for Disease Control and Prevention, 2011).

Furthermore, the findings suggest that there were significant racial/ethnic differences in food preferences. Specifically, African American/Black overweight and obese adults consumed fruit and vegetables less frequently and consumed fast-food more frequently than their non-Hispanic White counterparts. These racial differences parallel those reported in other studies that compared the diets of African American/Blacks with non-Hispanic Whites both in the

general population (Kuczmarski, Flegal, Campbell, & Johnson, 1994; Kumanyika, 1993) and among overweight/obese individuals with type 2 diabetes (Vitolins et al., 2009).

There were not only significant ethnic differences in the dietary behaviors of Latino compared with non-Hispanic White respondents but also significant differences among Latino respondents who were more versus less acculturated, as measured by their English proficiency. Latinos, regardless of their level of English proficiency, reported the highest soft drink consumption and the lowest vegetable consumption of any racial/ethnic group; however, there were significant differences in dietary behaviors among the Latino respondents who were LEP versus English proficient. The high frequency of fruit consumption observed among Latinos in the current study, particularly among LEP respondents, paralleled findings from other work describing high fruit consumption as part of the “traditional” Latino food pattern (Carrera, Gao, & Tucker, 2007). The high level of fast-food consumption observed in English proficient Latinos also is comparable to findings from other research showing increases in fast-food consumption among Latinos as they immigrate to the United States and become more acculturated (Bowie, Juon, Cho, & Rodriguez, 2007; Garcia-Maas, 1999).

In the current study, the LEP Asian/Pacific Islanders were more likely to consume vegetables compared with non-Hispanic Whites, whereas the English proficient Asian/Pacific Islanders were less likely to consume vegetables compared with non-Hispanic Whites. This difference in the dietary preferences of more acculturated (i.e., English proficient) versus less acculturated (i.e., LEP) Asians is similar to the pattern found for Latinos and suggests that Asian/Pacific Islanders show a shift from healthy traditional high-fiber, low-fat, low-calorie diets toward increasing consumption of calorie-dense foods containing refined carbohydrates, fats, and low fiber (Misra, Singhal, & Khurana, 2010) as they adopt the dietary behaviors of the dominant American culture.

In evaluating the results of the current study, some limitations need to be considered. First, the sampling area for the current study precludes us from drawing any firm conclusions about racial/ethnic minorities living in other areas of the United States. It is likely that regional preferences and availability of particular foods influence individuals’ dietary behaviors. Second, although we differentiated between LEP and English proficient Asian/Pacific Islanders and Latinos, we did examine each racial/ethnic minority as a homogenous group rather than examining specific subgroups. Results may differ when specific subgroups are examined. For example, within the Asian/Pacific Islander population there is considerable geographical, ethnic, cultural, and genetic diversity, with differences seen in dietary practices among subgroups (Misra et al., 2010; Narayan et al., 2010; Sorkin, Tan, Hays, Mangione, & Ngo-Metzger, 2008). Third, although we adjusted for participants’ age, there may be meaningful differences in dietary behaviors when comparing across different ages. For example, some of our own work suggests that racial/ethnic differences in unhealthy dietary behaviors are less prevalent in later life (August & Sorkin, 2010). Fourth, although CHIS is a population-based sample drawn from the civilian, noninstitutionalized adult population in California living in households with access to a residential telephone or mobile phone, individuals without a telephone, those who are unable to answer the telephone, or who live in group quarters of unrelated adults (a common situation among

recent immigrants with limited income). It is likely, therefore, that these findings actually underestimate the reported dietary differences. Finally, the telephone-based, self-report nature of the data in conjunction with questions asking about frequency of eating each food item (rather than servings) may have contributed to individuals' misreporting the actual amounts of each food consumed (Erinosho, Thompson, Moser, & Yaroch., 2011). Future studies should consider using alternative methods, such as a household food inventory or mobile phone–based food diaries, to monitor dietary behaviors in community settings (R. E. Patterson, Kristal, Shannon, Hunt, & White, 1997). The findings from this study present an important first step in describing racial/ethnic differences in food preferences; however, future studies need to be conducted to gain a more detailed understanding of ways in which food preferences and eating habits are influenced by people's cultural backgrounds.

Despite these limitations, the current study adds to the literature on racial/ethnic differences in dietary behaviors. The findings from this study suggest that efforts to intervene with individuals who are overweight or obese need to consider these individuals' racial/ethnic backgrounds and bring to light the need to develop culturally tailored interventions that meet the health needs that are unique to each race/ethnic group. Approaches that focus narrowly on risk factors and behavioral change of the individual may be inadequate for addressing the multilayered cultural and personal factors that create and reinforce dietary behaviors (McLeroy, Bibeau, Steckler, & Glanz, 1988; Robinson, 2008). For example, given the central importance of close relationships for promoting positive health behaviors, particularly in Latino and Vietnamese populations (August & Sorkin, 2011), and the tendency for poorer eating behaviors to accompany acculturation, interventions targeting multigenerational family units may prove to be more effective than interventions targeting a single individual (Cousins et al., 1992). Such family-based interventions can emphasize healthy food choices that are not only compatible with the culture of origin but also leverage mutually influential close relationships within the family to facilitate behavioral change (Fisher, Burnet, Huang, Chin, & Cagney, 2007). Among African American/Black populations, for whom acculturative processes are largely stabilized over generations, but for whom widespread availability of unhealthy foods is particularly problematic (Hickson et al., 2011), interventions targeting community-based organizations (e.g., faith-based groups) to provide motivation, accountability, and support to promote sustainable health behavior changes may be most beneficial.

In conclusion, disease prevention and health promotion programs must include efforts to target multiple levels of influence, including personal, cultural, linguistic, organizational, and environmental factors, with specific efforts to increase fruit and vegetable consumption and to reduce soft drink and fast-food consumption.

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Table 1

Sociodemographic Characteristics of Overweight or Obese Respondents (BMI ≥ 25 kg/m^2) by Race/Ethnicity (N = 26,721)

	Non-Hispanic White (n = 19,264)	African American/Black (n = 1,749)	Asian/Pacific Islander—EP (n = 1,296)	Asian/Pacific Islander—LEP (n = 320)	Latino—EP (n = 2,624)	Latino—LEP (n = 1,468)	p Value
Age, years	50.4	46.2	43.1	55.6	37.6	43.6	<.001
Female, %	43.2	52.5	40.2	41.0	42.5	48.4	<.001
Married, %	63.3	31.9	63.9	74.9	49.3	61.4	<.001
Some college or more, %	66.8	56.6	75.4	33.9	41.0	7.3	<.001
Foreign born, %	8.0	8.0	63.9	97.0	36.5	98.5	<.001
Income ≥$58,254, %	61.3	36.4	62.1	19.9	39.0	5.0	<.001
Food insecurity, %	5.0	17.1	7.7	25.1	15.2	42.5	<.001

Note. EP = English proficient; LEP = limited English proficient. All percentages are weighted.

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Table 2

Adjusted Racial/Ethnic Differences in Dietary Behaviors Among Overweight or Obese Adults (N = 26,721)

	Unadjusted Mean	Adjusted Beta Coefficient [95% Confident Interval]	*p* Value
Number of times per day consumed fruit			
Non-Hispanic White	1.12	REF	
African American/Black	0.98*	−0.73 [−1.29, −0.17]	.01
Asian/Pacific Islander—EP	1.08	−0.70 [−1.26, −0.14]	.01
Asian/Pacific Islander—LEP	1.03	−1.38 [−2.28, −0.48]	.003
Latino—EP	1.09	0.17 [−0.31, 0.64]	.48
Latino—LEP	1.21	0.46 [−0.24, 1.17]	.19
Number of times per day consumed vegetables			
Non-Hispanic White	1.10	REF	
African American/Black	0.97*	−0.71 [−1.18, −0.24]	.004
Asian/Pacific Islander—EP	0.96*	−0.64 [−1.11, −0.18]	.007
Asian/Pacific Islander—LEP	1.14	1.41 [0.47, 2.36]	.004
Latino—EP	0.74*	−1.77 [−2.08, −1.47]	<.001
Latino—LEP	0.61*	−1.80 [−2.35, −1.25]	<.001
Number of times per day consumed French fries, home fries, hash browns			
Non-Hispanic White	0.14	REF	
African American/Black	0.14	−0.03 [−0.14, 0.09]	.64
Asian/Pacific Islander—EP	0.12*	−0.00 [−0.15, 0.15]	.96
Asian/Pacific Islander—LEP	0.06*	−0.17 [−0.38, 0.04]	.10
Latino—EP	0.17*	0.10 [−0.01, 0.21]	.08
Latino—LEP	0.10*	−0.05 [−0.25, 0.16]	.64
Number of times per day consumed soft drinks			
Non-Hispanic White	0.28	REF	
African American/Black	0.38*	0.27 [−0.11, 0.66]	.16
Asian/Pacific Islander—EP	0.24	−0.30 [−0.63, 0.03]	.07
Asian/Pacific Islander—LEP	0.20	−0.56 [−1.25, 0.13]	.11
Latino—EP	0.47*	0.48 [0.04, 0.92]	.03
Latino—LEP	0.50*	0.63 [0.12, 1.14]	.02
Number of times per week consumed fast-food			
Non-Hispanic White	1.46	REF	
African American/Black	1.79*	0.21 [0.04, 0.38]	.01
Asian/Pacific Islander—EP	1.44	0.09 [−0.11, 0.29]	.35
Asian/Pacific Islander—LEP	0.91*	−0.03 [−0.33, 0.25]	.79
Latino—EP	2.15*	0.49 [0.30, 0.67]	<.001
Latino—LEP	1.21*	−0.04 [−0.27, 0.18]	.71

Note. EP = English proficient; LEP = limited English proficient; REF = reference. Adjusted models include age, gender, nativity, marital status, education, income, and food insecurity.

$^{*}p < .001$.