HHS Public Access

Author manuscript

J Public Health (Oxf). Author manuscript; available in PMC 2015 December 16.

Published in final edited form as:

J Public Health (Oxf). 2013 September ; 35(3): 354–360. doi:10.1093/pubmed/fdt049.

Use of calorie information at fast food and chain restaurants among US youth aged 9–18 years, 2010

H. Wethington, **L.M. Maynard**, and **H.M. Blanck**

CDC/NCCPHP/Division of Nutrition, Physical Activity, and Obesity/Obesity Prevention and Control Branch, Atlanta, GA 30341, USA

Abstract

Background—To examine whether youth use calorie information when it is available at fast food/chain restaurants and what factors are associated with using this information to make their food selection.

Methods—A cross-sectional analysis was conducted on a sample of 721 youth (9–18 years) using the 2010 YouthStyles and HealthStyles surveys. The outcome measure was reported use of calorie information at fast food/chain restaurants. Multivariable logistic regression was used to examine the associations between sociodemographic variables and the use of calorie information at fast food/chain restaurants.

Results—Of those who visited fast food/chain restaurants, 42.4% reported using calorie information at least sometimes. Girls were more likely than boys (adjusted odds ratio (aOR) = 1.8, 95% confidence interval (CI) = 1.2–2.5) and youth who were obese were more likely than those at a healthy weight (aOR = 1.7, 95% CI = 1.04–2.9) to use calorie information, and youth eating at a fast food/chain restaurant twice a week or more versus once a week or less were half as likely to report using calorie information (aOR = 0.5, 95% CI = 0.4–0.8).

Conclusion—Public health education efforts can benefit from research to determine how to increase usage among youth so that their food choices are appropriate for their caloric needs.

Keywords

children; food and nutrition; individual behaviour

Introduction

The prevalence of childhood obesity has tripled in recent decades.[1] Although the causes are multi-factorial, one potential contributor is consuming foods prepared away from home, such as those obtained from a fast food/chain restaurant. These foods are generally higher in

Address correspondence to Holly Wethington, hwethington@cdc.gov.
H. Wethington, Behavioral Scientist
L.M. Maynard, Epidemiologist
H.M. Blanck, Chief, Obesity Prevention and Control Branch

Conflict of interest

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

calories, salt and fats than home-cooked meals.[2–4] In addition, fast food is a major contributor to caloric consumption among youth.[5,6] Fast food consumption is also associated with increases in body weight among adults.[7]

Initiatives that modify the food environment, such as requiring restaurants to label menus with calorie and other nutritional information, allows consumers to make informed choices at point of purchase.[8] Policies requiring restaurants to post calorie and other nutritional information have been passed in some jurisdictions around the USA.[9] Further, federal law requires restaurants with at least 20 locations nationally to list calorie information next to menu items on menus or menu boards.[10] The law also requires restaurants subject to this law to place a prominent, succinct statement concerning suggested daily caloric intake on the menu.[10] At the time of this research, national menu labeling has not been implemented, but some fast food/chain restaurants have begun to post this information voluntarily.[11]

Some cities and states have begun to evaluate the effect of their menu labeling policies.[12–15] Elbel *et al*.[16] examined New York City's (NYC) calorie labeling regulation among youth and found that 57% reported noticing calorie labels after labeling went into effect and 9% considered the information when ordering. More research has been conducted among adults. For example, Dumanovsky *et al*.[17] examined whether adults at fast food/chain restaurants had seen calorie information and, if so, whether it had affected their purchase, before and after NYC's calorie labeling regulation. They found that the percentage who reported seeing calorie information increased from 25% before implementation to 64% after implementation. Further, among customers who saw calorie information post-enforcement, 27% said they used the information.[17] In a separate study, Dumanovsky *et al*.[12] conducted cross-sectional surveys before and 9 months after the enforcement of NYC's regulation to determine the caloric content purchased among adults who said that they used the calorie information. After enforcement, 15% of customers who reported using calorie information purchased 106 fewer calories than customers who did not see or use the calorie information. In King County, WA, total transactions and average calories per transaction were compared between fast food restaurants of the same chain located in King County and control locations of the same chain located in nearby counties not subject to the regulation. No differences were found in the number of calories purchased following implementation between control and intervention locations.[13]

To our knowledge, there are no studies examining the prevalence of using calorie information using a large, diverse sample of youth. The purpose of our research was to examine the proportion of youth who reported using calorie information when available at fast food/chain restaurants, and to determine whether this proportion differs by gender, age, weekly frequency of eating at a fast food/chain restaurant, parents' race/ethnicity, marital status, household income and region of the country.

Methods

Data source

Data from the HealthStyles and YouthStyles surveys, both conducted in the Fall 2010, were used for this cross-sectional study. HealthStyles and YouthStyles are mail surveys

administered annually as follow-up surveys to ConsumerStyles, a consumer mail panel survey. ConsumerStyles participants are sampled from a consumer mail panel of ~200 000 potential respondents using a sampling design stratified by region, household income, population density, age and household size, and includes an oversample of low-income/ minority participants and households-with-children to ensure adequate representation of these groups.[18] Respondents receive a small monetary incentive. The response rate for the 2010 ConsumerStyles Survey was 51.6%.

HealthStyles and YouthStyles are sent to mail panel households that return ConsumerStyles. HealthStyles is sent to US adults (≥18 years) and is designed to assess health-related attitudes, knowledge and behaviors. YouthStyles is sent to US youth (9–18 years) who had a parent or guardian who completes and returns ConsumerStyles, and assesses a variety of issues including but not limited to health-related knowledge and behaviors. YouthStyles data were weighted by gender and age of child, household size, household income, head of household age and race/ethnicity of adult in the study. The response rates for 2010 HealthStyles and YouthStyles were 66.9% (4184/6255) and 49.9% (1197/2401), respectively.[18] Our study population was US youth (aged 9–18 years) who go to fast food/ chain restaurants.

Outcome variable

The outcome variable for this study was youths' use of calorie information to make ordering decisions. This variable was determined using the question from YouthStyles, 'When calorie information is available at a fast food/chain restaurant, how often does this information help you decide what to order?' Response options included always, most of the time, sometimes, never, I have never noticed calorie information and I do not eat at fast food/chain restaurants. Responses were collapsed into the following categories: Yes (always, most of the time or sometimes), No (never), I have never noticed calorie information and I do not eat at fast food/chain restaurants. For multivariable logistic regression, we only included those in the categories of Yes and No.

Explanatory variables

Explanatory variables included youth-reported variables from YouthStyles and parent-reported variables from HealthStyles. The youth-reported variables included gender, age (9–11, 12–14, 15–16 and 17–18 years) and frequency of eating at a fast food/chain restaurant per week. Response options for the fast food/chain restaurant frequency question were never, once a week or less, two to three times/week, four to six times/ week, every day and more than once per day; we excluded those responding never. The parent-reported variables included race/ethnicity (non-Hispanic white, non-Hispanic black, Hispanic and non-Hispanic other), marital status (married/ domestic partnership and not married, which included widowed, divorced and single persons), household income (<$25 000, $25 000– < $40 000, $40 000– <$60 000 and ≥$60 000) and region of the country (New England, Middle Atlantic, East North Central, West North Central, South Atlantic, East South Central, West South Central, Mountain and Pacific). Lastly, we used the youth-reported variables of height and weight to calculate body mass index (BMI = weight/height^2 (kg/m^2)]. Underweight was defined as a sex- and age-specific BMI-for-age percentile of less

than 5th, normal weight was 5– <85th, overweight was 85– <95th and obesity was ≥95th; these categories were based on the 2000 Centers for Disease Control and Prevention (CDC) growth charts.[19]

Selection of several of the explanatory variables were based on previous findings among adults for use of calorie information when provided on menu labeling or on the Nutrition Facts Panel. For example, women are more likely to read calorie information compared with men,[12] obese adults (BMI ≥ 30) are more likely to read nutrition labels compared with normal weight adults (BMI between 18.0 and 24.9),[20] adults in wealthier neighborhoods are more likely to report using calorie information than those in poorer neighborhoods[12] and those who go to fast food restaurants are less likely to use calorie information compared with those who do not go to fast food restaurants.[21]

Sample

The parent-reported variables from HealthStyles were linked to YouthStyles data using a unique household identifier. Data were weighted on gender and age of child, household size, household income, head of household age and race/ethnicity of adult in this study. The data set included 1197 youth respondents with matched parental reported data. We excluded 13 respondents who were 19 years old because YouthStyles is designed for 9–18 year olds. Further, we excluded 97 respondents who replied that they never eat at fast food/chain restaurants and 207 respondents who replied they have never noticed calorie information (1197-13-97 = 1087; 207/1087 = 19% of 9–18 year olds who eat at fast food/chain restaurants have never noticed calorie information). A descriptive analysis of these 207 found that it comprised 61% boys, 42% 9–11 year olds, 70% non-Hispanic White and 46% were living in households with annual incomes of ≥$60 000. Further, we excluded 30 youth for a biologically implausible BMI value and respondents with missing data; 24 respondents lacked data for the frequency of eating at a fast food/chain restaurant, 10 respondents lacked data on the use of calorie information and 95 lacked height or weight data. The final analytic sample was 721.

Statistical analysis

We used bivariate logistic regression to estimate unadjusted odds ratios (ORs) and 95% confidence intervals (CIs) for each explanatory variable. Multivariable logistic regression was used to estimate adjusted OR and 95% CIs for use of calorie information among youth who ate at fast food restaurants and noticed the information while ordering. Chi-square analysis examined whether those included in the regression analysis were different in their use of calorie information from those excluded from the analysis due to missing data or biologically implausible BMI data. We restricted this assessment to those who reported eating at fast food/chain restaurants and conducted this analysis for each explanatory variable that had missing data and did not find significant differences among youth included or excluded. In addition, a multivariable logistic regression sensitivity analysis was performed without BMI due to the large number of youth lacking this information. All statistical analyses were performed using Statistical Analysis Software,[22] version 9.3. This analysis was exempt from the CDC Institutional Review Board process because personal identifiers were not included in the data provided to the CDC.

Results

Descriptive results are shown in Table 1. Our final sample had a higher proportion of boys (56.4%) and a higher proportion of respondents were in the 12–14-year-old age group (32.2%) than in the other age groups. Most youth were of a healthy weight (65.8%), while 13.3% were obese. Most parents/caregivers reported their race/ethnicity as non-Hispanic white (66.3%). Slightly over half had a parent-reported household income of ≥$60 000 (55.8%). The highest proportion of respondents were from the South Atlantic (20.0%), East North Central (17.6%) and Middle Atlantic (15.8%) regions.

Of those who reported eating at fast food/chain restaurants, 65.6% reported going ≤1 week and 34.4% reported ≥2 times per week. When asked about using calorie information when it is available among those who reported seeing it, 42.4% of youth reported using calorie information when it was available always, most of the time or sometimes and 57.6% report never using it.

Multivariable logistic regression found that among those who ate at fast food/chain restaurants, girls were 80% more likely to report using calorie information than boys (aOR = 1.8, 95% CI = 1.2–2.5), obese youth were ~70% more likely to report using calorie information compared with healthy weight youth (aOR = 1.7, 95% CI = 1.04–2.9), youth living with an annual household income of $40 000–$60 000 versus ≥$60 000 were 70% more likely to report using calorie information (aOR = 1.7, 95% CI = 1.04–2.7) and youth who ate at a fast food/chain restaurant twice a week or more were 50% less likely to report using calorie information compared with those who ate at these types of restaurants once a week or less (aOR = 0.5, 95% CI = 0.4–0.8). Our sensitivity analysis without weight status had similar results.

Discussion

Main findings of this study

Our estimate that 40% of youth who noticed calorie labeling information within a fast food/chain restaurant reported using calorie information is promising. Girls were more likely than boys to use calorie information, and obese youth were more likely to use calorie information than those at a healthy weight. And, those who eat at fast food/chain restaurant two or more times per week were less likely to use calorie information compared with those who frequent fast food/chain resturants less than twice a week.

What is already known on this topic

Girls in our study were more likely to report using calorie information than boys. We were unable to find other studies of youth with which to compare our findings. However, a study among adults conducted by Dumanovsky *et al.*[12] found that women were more likely than men to report using calorie information. These findings are consistent with other studies examining use of Nutrition Facts Panels, where women tend to use this information more than men.[20,23,24] A study of how young adults use nutrition facts panel information examined whether college students noticed and used nutrition information in college dining

areas when making their food choices and found that girls sought foods to promote weight loss by selecting menu items with lower calories and fat.[25]

Our findings for weight status among youth are consistent with Satia *et al*.[20] findings among adults. They found that normal weight adults were less likely to report reading nutrition labels than obese adults. Perhaps obese adolescents are more likely to use calorie information than normal weight adolescents, which can help inform development of public health interventions.

The association between more frequent use of calorie information when available and less frequent use of fast food/ chain restaurants is notable. One study among adults reported that those noticing and using calorie labels consumed fast food less frequently compared with adults who did not notice the labels (4.9 versus 6.6 meals per week).[21] Calorie labeling may inform those who typically avoid fast food/chain restaurants over concern that they cannot eat within their calorie limits, by identifying menu items lower in calories. In contrast, it is also possible those who frequent fast food/chain restaurants already know what is on the menu and know what they will order, thus they do not look at the menu or accompanying nutrition information while ordering.

We did not find significant associations by age, race/ethnicity, parents' marital status or region. Regarding age, our findings do not support that older adolescents use calorie information more frequently than younger children, as we hypothesized. This may be due to taste preferences, which Elbel *et al*.[16] showed was the most important factor in meal selection among adolescents. We likely did not find that younger children used calorie information because parents may have ordered for them. This may not be surprising because although it has been shown that parents report greater nutrition information awareness after menu-labeling regulation has gone into effect, it has not been shown to translate to a decrease in calories purchased for children.[15] Our lack of any significant associations for race/ethnicity is consistent with prior research that found no differences between race or ethnicity among adults when using the Nutrition Facts Panel.[23] Finally, our lack of associations for region may be due to our sample from the Middle Atlantic states (which includes NYC) having too few youth from NYC or due to a number of voluntary labeling efforts across the nation.

For youth to notice calorie information, it may need to be highlighted on menu boards or menus, or be presented in a manner in which youth can relate. We found 19% (207 of the 1087) of youth did not report seeing calorie information. While we cannot determine what proportion of this 19% patronized restuarants that had calorie information available, this finding may indicate that establishments need to place their information in a consumer-friendly format. For example, one study found that when presented calorie information for calorically sweetened beverages, participants who were given a simple interpretation for amount of physical activity (in minutes of running) needed to burn off the number of calories had a reduced odds of purchasing calorically sweetened beverages compared with participants who were only provided with absolute caloric information or the percent daily value.[26]

What this study adds

Our finding that ~40% of youth who ate at fast food/chain restaurants and noticed the information reported using calorie information when it was available to select menu items has not been reported from a nationally based survey to the best of our knowledge. This study adds to what is already known on significant associations regarding demographic and behavioral characteristics (i.e. gender, weight status and frequency of fast food consumption) with use of calorie information that is important for targeting public health education programs. These findings may provide important data for comparison when evaluating calorie labeling in fast food/ chain restaurants once the requirement for calorie labeling in fast food/chain restaurants takes effect nationally.

Limitations of this study

This study used a convenience sample from a consumer panel. Although data were weighted to US demographics, participants in the panel survey may be different from those who did not participate on their use of calorie information. In addition, the survey was cross sectional; therefore, causality cannot be examined. Another limitation is the questions have not been tested for reliability and validity. Furthermore, for those who selected the option that they did not notice calorie information we could not determine whether the calorie information was available and they did not notice it or whether the calorie information was just not available. In addition, self-reported calorie use carries no assurance that respondents chose lower calorie items. For example, reported use of nutrition labels is high, but actual use of nutrition labeling during food purchase may be much lower due to other drivers.[27] Another limitation is the income categories. We find it challenging to interpret our income findings; it may be that different household income levels have different food away from home consumption patterns that could lead to response bias. Additional research, including use of a measure such as the poverty income ratio which includes household size, may better explain whether this is a real effect or statistical anomaly. In addition, respondents received a small monetary incentive for completing the survey. Lastly, because of the need for brevity in a questionnaire, we were unable to define fast food/chain restaurants within the question.

Conclusion

Our findings are important given the prevalence of obesity among youth and the adverse health effects associated with obesity. It is encouraging that a large number of youth, particularly youth who are obese, are using the calorie information to inform their ordering selections. This may have potential to lead to improved food choices as a way to manage weight. More research is needed to assess whether youth know how many calories they should consume in a day given their activity level. Further research is needed to understand differences in motivation by gender in using calorie labeling. Public health practitioners, school nutrition services, retailers and other interested groups can implement education programs in various venues to assist development of this understanding as a way to improve health literacy.

References

1. Ogden CL, Carroll MD, Kit BK, et al. Prevalence of obesity and trends in body mass index among us children and adolescents, 1999–2010. JAMA. 2012; 307(5):483–490. [PubMed: 22253364]
2. Lin, B-H.; Frazao, E.; Guthrie, JF. Away-from-home foods increasingly important to quality of American diet. Washington, DC: Food and Rural Economics Division, Economic Research Service, U.S. Department of Agriculture and Food and Drug Administration, U.S. Department of Health and Human Services; 1999.
3. Young LR, Nestle M. The contribution of expanding portion sizes to the US obesity epidemic. Am J Public Health. 2002; 92(2):246–249. [PubMed: 11818300]
4. Young LR, Nestle M. Expanding portion sizes in the US marketplace: implications for nutrition counseling. J Am Diet Assoc. 2003; 103(2):231–234. [PubMed: 12589331]
5. Bowman SA, Gortmaker SL, Ebbeling CB, et al. Effects of fast-food consumption on energy intake and diet quality among children in a national household survey. Pediatrics. 2004; 113(1 Pt 1):112–118. [PubMed: 14702458]
6. French SA, Story M, Neumark-Sztainer D, et al. Fast food restaurant use among adolescents: associations with nutrient intake, food choices and behavioral and psychosocial variables. Int J Obes (Lond). 2001; 25:1823–1833.
7. Pereira MA, Kartashow AI, Ebbeling CB, et al. Fast-food habits, weight gain, and insulin resistance (the CARDIA study): 15-year prospective analysis. Lancet. 2005; 365:36–42. [PubMed: 15639678]
8. Pomeranz JL, Brownell KD. Legal and public health considerations affecting the success, reach, and impact of menu-labeling laws. Am J Public Health. 2008; 98(9):1578–1583. [PubMed: 18633081]
9. Center for Science in the Public Interest. [26 April 2013, date last accessed] State and local menu labeling policies. 2011. http://cspinet.org/new/pdf/ml_map.pdf
10. [26 April 2013, date last accessed] The Patient Protection and Affordable Care Act: HR 3590 (111th Congress 2nd Sess) Sec.4205: nutrition labeling of standard menu items at chain restaurants. 2010. http://www.healthcare.gov/law/
11. Strom, S. The New York Times. 2012. McDonald’s Menu to Post Calorie Data.
12. Dumanovsky T, Huang CY, Nonas CA, et al. Changes in energy content of lunchtime purchases from fast food restaurants after introduction of calorie labelling: cross sectional customer surveys. BMJ. 2011; 343:d4464. [PubMed: 21791497]
13. Finkelstein EA, Strombotne KL, Chan NL, et al. Mandatory menu labeling in one fast-food chain in King County, Washington. Am J Prev Med. 2011; 40(2):122–127. [PubMed: 21238859]
14. Elbel B, Kersh R, Brescoll VL, et al. Calorie labeling and food choices: a first look at the effects on low-income people in New York City. Health Aff (Millwood). 2009; 28(6):w1110–w1121. [PubMed: 19808705]
15. Tandon PS, Zhou C, Chan NL, et al. The impact of menu labeling on fast-food purchases for children and parents. Am J Prev Med. 2011; 41(4):434–438. [PubMed: 21961472]
16. Elbel B, Gyamfi J, Kersh R. Child and adolescent fast-food choice and the influence of calorie labeling: a natural experiment. Int J Obes (Lond). 2011; 35(4):493–500. [PubMed: 21326209]
17. Dumanovsky T, Huang CY, Bassett MT, et al. Consumer awareness of fast-food calorie information in New York City after implementation of a menu labeling regulation. Am J Public Health. 2010; 100(12):2520–2525. [PubMed: 20966367]
18. Novelli, Porter. Styles 2010 Methodology. Washington, DC: 2010.
19. Kuczmarski RJ, Ogden CL, Grummer-Strawn LM, et al. CDC growth charts: United States. Adv Data. 2000; 314:1–27. [PubMed: 11183293]
20. Satia JA, Galanko JA, Neuhouser ML. Food nutrition label use is associated with demographic, behavioral, and psychosocial factors and dietary intake among African Americans in North Carolina. J Am Diet Assoc. 2005; 105:392–402. [PubMed: 15746826]
21. Vadiveloo MK, Dixon LB, Elbel B. Consumer purchasing patterns in response to calorie labeling legislation in New York City. Int J Behav Nutr Phys Act. 2011; 8:51. [PubMed: 21619632]
22. SAS v9.2 [computer program]. Version 9.2. Cary, NC: SAS Institute, Inc;

23. Blitstein JL, Evans WD. Use of nutrition facts panels among adults who make household food purchasing decisions. J Nutr Educ Behav. 2006; 38:360–364. [PubMed: 17142192]

24. Neuhouser ML, Kristal A, Patterson RE. Use of food nutrition labels is associated with lower fat intake. J Am Diet Assoc. 1999; 99:45–50. 53. [PubMed: 9917731]

25. Conklin MT, Cranage DA, Lambert CU. College students' use of point of selection nutrition information. Top Clin Nut. 2005; 20(2):97–108.

26. Bleich SN, Herring BJ, Flagg DD, et al. Reduction in purchases of sugar-sweetened beverages among low-income black adolescents after exposure to caloric information. Am J Public Health. 2012; 102:329–335. [PubMed: 22390447]

27. Cowburn G, Stockley L. Consumer understanding and use of nutrition labelling: a systematic review. Public Health Nutr. 2005; 8(01):21–28. [PubMed: 15705241]

J Public Health (Oxf). Author manuscript; available in PMC 2015 December 16.

Table 1

Demographics, prevalence of use of calorie labeling information, and unadjusted ORs and aORs for use of calorie labeling information while ordering at fast food or chain restaurants, YouthStyles and HealthStyles 2010

	Number (%)	Number using calorie information (%)	Unadjusted OR (95% CI)	P value	aOR (95% CI)	P value
Child demographics						
Gender						
Boys	404 (56.4)	153 (36.6)	Reference		Reference	
Girls	317 (43.6)	163 (49.9)	1.7 (1.2–2.5)[a]	0.002	1.8 (1.2–2.5)[a]	0.002
Age (years)						
9–11	151 (23.6)	65 (43.3)	Reference		Reference	
12–14	220 (32.2)	96 (40.8)	0.9 (0.6–1.4)	0.61	1.0 (0.6–1.7)	0.97
15–16	178 (21.6)	85 (45.2)	1.1 (0.7–1.7)	0.47	1.2 (0.7–2.0)	0.48
17–18	172 (22.7)	70 (41.1)	0.9 (0.5–1.6)	0.74	1.1 (0.6–1.9)	0.77
Weight status						
Underweight	38 (5.4)	14 (40.6)	1.0 (0.4–2.3)	0.64	1.1 (0.5–2.5)	0.87
Healthy weight	462 (65.8)	193 (40.2)	Reference		Reference	
Overweight	115 (15.6)	52 (45.2)	1.2 (0.8–2.0)	0.82	1.3 (0.8–2.1)	0.29
Obese	106 (13.3)	57 (50.6)	1.5 (0.9–2.5)	0.20	1.7 (1.04–2.9)[a]	0.04
Parental demographics						
Parent/caregiver race/ethnicity						
Non-Hispanic White	486 (66.3)	207 (41.6)	Reference		Reference	
Non-Hispanic Black	76 (12.1)	32 (40.2)	0.9 (0.5–1.8)	0.44	1.1 (0.6–2.1)	0.80
Hispanic	103 (16.9)	45 (43.6)	1.1 (0.7–1.8)	0.76	1.1 (0.6–1.8)	0.81
Other	56 (4.7)	32 (55.2)	1.7 (0.9–3.2)	0.10	1.6 (0.3–1.1)	0.14
Marital status						
Married or domestic partnership	615 (82.1)	261 (40.5)	Reference		Reference	
Not married	106 (17.9)	55 (51.0)	1.5 (0.8–2.8)	0.17	1.6 (0.9–2.9)	0.10
Annual household income						
<$25 000	94 (12.2)	48 (48.2)	1.5 (0.8–2.5)	0.41	1.2 (0.6–2.3)	0.65
$25 000– <$40 000	70 (12.6)	30 (36.2)	0.9 (0.5–1.6)	0.19	0.8(0.4–1.4)	0.42
$40 000– <$60 000	119 (19.5)	58 (52.3)	1.7 (1.0–2.8)	0.09	1.7 (1.04–2.7)[a]	0.04

	Number (%)	Number using calorie information (%)	Unadjusted OR (95% CI)	P value	aOR (95% CI)	P value
≥$60 000	438 (55.8)	180 (39.1)	Reference		Reference	
Region of country						
West South Central	72 (9.6)	28 (34.3)	Reference		Reference	
East North Central	131 (17.6)	54 (39.5)	1.3 (0.7–2.4)	0.88	1.3 (0.7–2.7)	0.41
East South Central	50 (6.7)	21 (41.4)	1.4 (0.6–3.2)	0.88	1.3 (0.6–3.2)	0.51
Middle Atlantic	117 (15.8)	57 (50.0)	1.9 (0.9–4.0)	0.11	1.7 (0.9–3.4)	0.13
Mountain	30 (4.2)	11 (39.5)	1.2 (0.5–3.2)	0.93	1.3 (0.5–3.5)	0.66
New England	26 (3.5)	7 (29.0)	0.8 (0.3–2.4)	0.27	0.8 (0.3–2.6)	0.77
Pacific	93 (13.0)	49 (49.7)	1.9 (0.9–3.9)	0.10	1.9 (0.9–4.1)	0.11
South Atlantic	145 (20.0)	67 (44.7)	1.5 (0.8–2.9)	0.35	1.5 (0.8–3.0)	0.23
West North Central	57 (9.6)	22 (35.4)	1.1 (0.4–2.5)	0.54	1.1 (0.5–2.5)	0.81
Child behavior						
Frequency of eating at a fast food or chain restaurant per week						
Once a week or less	477 (65.6)	229 (47.3)	Reference		Reference	
2 times per week or more	244 (34.4)	87 (33.0)	0.5 (0.4–0.8)[a]	0.002	0.5 (0.4–0.8)[a]	0.001
Total	721 (100.0)	316 (42.4)	721		721	

[a] 95% CI does not include 1.0.

J Public Health (Oxf). Author manuscript; available in PMC 2015 December 16.