Sociodemographic Disparities among Fast-Food Restaurant Customers Who Notice and Use Calorie Menu Labels

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ARTICLE INFORMATION

Article history:
Submitted 10 July 2014
Accepted 4 December 2014
Available online 3 February 2015

Keywords:
Calorie menu labeling
Nutrition policy
Health disparities
Food environment
Fast food

http://dx.doi.org/10.1016/j.jand.2014.12.004

ABSTRACT

Background As part of the recently passed Patient Protection and Affordable Care Act, chain restaurants with 20 or more locations nationwide will soon be required to post calorie information on menus with the aim of helping customers make healthier food choices. To be effective, this policy must affect all customers, especially those most at risk for poor health and diet outcomes.

Objective To determine whether noticing or using calorie menu labels was associated with demographic characteristics of customers at a national fast-food chain currently implementing calorie menu labeling.

Design Cross-sectional analysis.

Participants/setting Customer receipts and survey data were collected from 329 participants using street-intercept survey methodology at 29 McDonald's restaurant locations in low- and high-income neighborhoods throughout the Phoenix, AZ, metropolitan area.

Outcome measures Calorie menu labeling awareness and use were assessed. The total number of calories purchased was evaluated using participants' itemized receipts.

Statistical analyses Multivariate logistic regression analyses were used to calculate the odds of customers noticing or using calorie menu labels.

Results Approximately 60% of participants noticed calorie menu labels, whereas only 16% reported using the information for food or beverage purchases. Higher-income individuals had twice the odds of noticing calorie labels (P=0.029) and three times the odds of using them (P=0.004). Significant positive associations were found between individuals with a bachelor's degree or higher and use of calorie menu labels (odds ratio 3.25; P=0.023). Noticing calorie menu labels was not associated with purchasing fewer calories; however, those who reported using calorie information purchased 146 fewer calories than those who did not (P=0.001).

Conclusions Using calorie menu labels is associated with purchasing fewer calories. However, there are significant socioeconomic disparities among customers who notice and use calorie menu labels. Targeted education campaigns are needed to improve the use of menu labeling across all sociodemographic groups.
J Acad Nutr Diet. 2015;115:1093-1101.

FREQUENTLY EATING OUT, ESPECIALLY AT FAST-FOOD restaurants, is associated with greater weight gain and obesity, greater body fat, higher low-density lipoprotein cholesterol levels, and greater insulin resistance.[1-6] In addition, due to the rapid increase in obesity rates over the past 3 decades and the health outcomes associated with obesity, for the first time in modern history, today's youth may live shorter lives than their parents,[7] making obesity a public health priority.[8] Studies show that both the average consumer and nutrition experts have trouble estimating the calorie and nutrient content of a restaurant meal,[9-12] and the majority of Americans want eating establishments to post nutrition information on menus.[13-16] The Patient Protection and Affordable Care Act requires chain restaurants and food vendors with 20 or more locations nationwide to post calorie information on menus and menu boards.[17] The proposed guidance for the act states, "Providing calorie and other nutrition information in restaurants and similar retail food establishments would assist consumers in making healthier dietary choices."[18] In addition, menu labeling has the potential to encourage product reformulation throughout the restaurant industry.[14] To date, the Food and Drug Administration has not released final guidelines for restaurants regarding menu labeling and only a few states, cities, and counties currently have local policies implemented.[14,19]

Although there is substantial support for calorie menu labeling, there is conflicting evidence regarding its role in decreasing calorie consumption and reducing obesity rates. Some studies show that menu labeling leads to a reduction in the total number of calories ordered, purchased, or

consumed,[13,16,20-24] whereas others show that menu labeling has no influence on purchase or consumption behavior.[15,25-31] Furthermore, the majority of the research on this topic has been conducted in urban cities along the East Coast, often confined to communities with limited variability in socioeconomic status.[12,13,15,20,22,25,26,28,32-35]

Although the rates of obesity have increased across all demographic segments, low-income and minority populations carry a significantly higher burden,[36-38] resulting in health disparities. Public health policies are seen as an effective tool to help reduce disparities. If, however, policies targeting obesity are not likely to equally engage all segments of the population, then these policies may in fact increase health disparities. Therefore, for a national menu labeling policy to be effective, it is paramount that it affect population groups that are most likely to consume fast food and are at the greatest risk for poor diet and health outcomes. Currently, there is mixed evidence on the association between income and the use of calorie menu labeling; whereas one study showed that patrons with higher income are more likely to use calorie information,[20] others failed to show this relationship.[16,30,39] It is important to note that several studies looking at calorie menu labeling were confined to low-income neighborhoods or did not collect income information and were, therefore, not able to examine behavior differences among income groups.[13,22,23,25-28,32] In addition, some research studies showed that women are more likely than men to use calorie information,[16,20,30,39] whereas one study showed that men are more likely to use the information.[40] Only a few studies have examined the associations among race and ethnicity or customer education levels.[16,27,30] Results are also mixed across age categories.[23,27,30,40]

Ours is the first study to be specifically designed for examining sociodemographic disparities and the likelihood of customers noticing and using calorie menu labels in fast-food restaurants in a mixed income and racially/ethnically diverse sample of adults in the southwestern United States.

METHODS

The sample for this cross-sectional study was drawn from McDonald's restaurants in the Phoenix metropolitan area in Arizona, which hosts a large racially/ethnically and socioeconomically diverse population. McDonald's restaurants were selected because of the chain's decision to implement calorie menu labeling across all of its restaurants starting in September 2012.[41] Using the McDonald's store locator feature available through the company's website,[42] a list of free-standing restaurant locations within a 20-mile radius of downtown Phoenix was generated (n=126). Stratified random sampling was used; restaurant locations were divided into two lists based on census data—one contained locations in lower-income zip codes (neighborhoods with a median household income below 185% of the 2012 federal poverty guideline [FPG][43] for a family of four, which was <$42,600 per year) (n=29) and the other contained restaurants located in higher-income zip codes (neighborhoods with a median household income of at least $70,000 per year) (n=28). These cutoffs were used to obtain approximately an equal number of restaurants in the low-income and higher-income neighborhoods. Locations that did not fall within these income categories were eliminated from the sampling pool. A random number generator was used to select study locations from each income category. In the final sample, data were collected from a total of 29 locations, 14 of which were in low-income neighborhoods and 15 of which were in high-income neighborhoods, over an 8-week period between February and April 2013. Each site was further randomized to data collection during a weekday or weekend day and for lunch or dinner. Each data collection period lasted 3 hours (11 AM to 2 PM for lunch and 5 to 8 PM for dinner).

Participants were recruited outside the front entrance of each location using street-intercept survey methodology adapted from previous research.[20,25] During the data collection period, every possible customer was approached before entering an establishment and asked to participate. Only individuals who were at least 18 years old; who could read, speak, and understand English; and who were purchasing food for personal consumption were used for the study. Participants were instructed to purchase food and beverage items as they usually would and to obtain a receipt, which was collected and verified by a trained data collector. After reviewing a participant's receipt, a trained data collector orally administered a brief survey. Participants were offered $5 for completing the survey. This study was considered exempt from review by the Institutional Review Board of Arizona State University.

Data on sociodemographic characteristics of participants and outcome variables was obtained using modified survey questions from previous research studies.[20,25] Information was collected on participants' age, sex, race, ethnicity, education level, and annual household income; whether respondents had children; the frequency of their fast-food restaurant visits; and zip codes of residence. For participants who did not answer the household income question (n=11), median income for the zip code of residence was assigned. Participants with household income at or below $50,000 were categorized as low-income (approximately 200% or below the FPG for a family of four[43]), those with incomes $50,000 to <$100,000 were categorized as middle income (approximately between 200% and 400% of the FPG for a family of four[43]), and those with incomes >$100,000 were categorized as high income. Participants were asked, "Did you notice any calorie information listed for menu items at the restaurant today?" Response options included "Yes, before placing my order today"; "Yes, after placing my order today"; "I saw it during a previous visit"; and "No, I did not notice calorie information." Participants who reported noticing calorie menu labels before placing their order or on a previous visit were coded as 1, and those who did not, were coded as 0. Participants who noticed calorie menu labeling before ordering were asked a follow-up question: "Did the calorie information affect your food purchases today?" Response options included "Yes" (coded as 1), "No" (coded as 0), and "Did not purchase food items" (also coded as 0). A similar question was asked regarding beverage purchase behavior. The total number of calories purchased was assessed using customer itemized receipts and nutrition information obtained from the McDonald's website. In addition, the total cost of the order (food and/or beverage) was calculated using the itemized receipt.

A total of 1,159 McDonald's customers were approached and data were collected from 330, for a response rate of 28%, which was lower than previous studies.[20,22,24] One