

Food and Beverage Selection Patterns among Menu Label Users and Nonusers: Results from a Cross-Sectional Study



Jessie Gruner, MS, RDN; Punam Ohri-Vachaspati, PhD, RDN

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ABSTRACT

Background By May 5, 2017, restaurants with 20 or more locations nationwide will be required to post calorie information on menus and menu boards. Previous research shows that those who use menu labels purchase fewer calories, but how users are saving calories is unknown.

Objective To assess food and beverage selection patterns among menu label users and nonusers.

Design Secondary, cross-sectional analysis using data from a study examining socio-demographic disparities in menu label usage at a national fast-food restaurant chain.

Participants/setting Participants were recruited outside restaurant locations, using street-intercept survey methodology. Consenting customers submitted receipts and completed a brief oral survey. Receipt data were used to categorize food and beverage purchases.

Main outcome measure Side, beverage, and entrée purchases. Sides and beverages were classified as healthier and less-healthy options consistent with the 2015 Dietary Guidelines for Americans. Healthier options contained items promoted in the guidelines, such as whole fruits, vegetables, low-fat dairy, and 100% fruit juice; less-healthy options contained solid fat or added sugar. Entrées were categorized as lower-, medium-, and higher-calorie options, based on quartile cutoffs.

Statistical analyses Multinomial logistic regression models were used to estimate prevalence ratios (PRs) for purchases among menu label users and nonusers, controlling for sociodemographic characteristics and total price paid.

Results Healthier sides were selected by 7.5% of users vs 2.5% of nonusers; healthier beverages were selected by 34.0% of users vs 11.6% of nonusers; and lowest-calorie entrées were selected by 28.3% of users vs 30.1% of nonusers. Compared with nonusers (n=276), users (n=53) had a higher probability of purchasing healthier sides (PR=5.44; P=0.034), and healthier beverages (PR=3.37; P=0.005). No significant differences were seen in the purchasing patterns of entrées.

Conclusions Targeting educational campaigns to side and beverage purchasing behaviors may increase the effectiveness of menu labeling.

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AMERICANS SPEND ROUGHLY HALF OF THEIR annual food budgets and consume a third of total daily calories on food prepared outside of the home.¹ Food and beverage items offered at fast-food restaurants are cheaper, lower in nutrient density, and higher in energy than healthier food items such as fruits and vegetables.^{2,3} In addition, away-from-home foods are generally higher in saturated fat and sodium and lower in dietary fiber.⁴ Given the poor nutrient content of away-from-home foods and the rates of consumption, frequently dining out is not surprisingly associated with adverse health outcomes, including weight gain and obesity, high cholesterol, and greater insulin resistance.⁵⁻¹¹ Therefore, finding solutions to help patrons make healthier choices when eating out is a public health priority.

One such solution, first proposed by advocates and policy analysts and subsequently endorsed by the Institute of Medicine in 2005,¹² and since passed as part of the Affordable Care Act in 2010,¹³ is menu labeling. The goals of menu labeling are to increase awareness of the calorie content of away-from-home foods and to help consumers make healthier decisions when eating out.¹ Under the Affordable Care Act, chain restaurants and food vendors with 20 or more locations nationwide will be required to post calorie information on menus and menu boards.¹³ The Food and Drug Administration recently released its final ruling on menu labeling guidelines, requiring food establishments to place calorie amounts adjacent to the name or price of standard menu items by May 5, 2017.¹⁴ Some national chains have started posting calorie information as a result of the national

mandate, and some states and municipalities already have local policies in place.^{15,16}

Several studies have been conducted to assess the effectiveness of menu labeling, with a number of studies showing that those who report using menu labeling information purchase significantly fewer calories than those who do not.¹⁷⁻²¹ Dumanovsky and colleagues¹⁸ and Green and colleagues,²¹ in studies conducted in New York, NY and Phoenix, AZ, found that those who used menu labeling information to inform their purchases bought 96 and 146 fewer calories, respectively. Other studies show that menu labeling has no impact on purchasing or consumption behaviors.²²⁻²⁹ Studies finding no difference typically looked at the impact of menu labeling across all customers, rather than those who reported using the information.^{22-24,26,30} Observing an overall reduction in the number of calories purchased or consumed by all consumers as a result of menu labeling is more difficult, because most studies show that only 9% to 34% of participants use the information for purchasing decisions.^{18,20,21,23,26,31,32}

Furthermore, although several studies point to fewer calories purchased among those who report using menu labels, where calorie savings may be taking place is unknown, because most studies only look at total calories purchased as the main outcome variable. Simulated experiments in which patrons receive calorie information in a virtual restaurant environment show higher purchase intentions for more healthful items, such as salads.^{33,34} The only study examining the type of purchases made by menu label users and non-users in a real-world setting³² found mixed results. New York patrons purchased significantly more caloric beverages and full-fat salad dressings after the implementation of menu labels compared with customers in Newark, NJ (control city). Adults who reported noticing and using calorie labels purchased more salads and ate at fast-food restaurants less often than those who did not use menu labels. The study was conducted 4 weeks after the implementation of menu labels in New York City, a very short period of exposure, and it did not examine purchase patterns based on menu label usage.

As a follow-up to a parent study that showed those who used menu labels purchased fewer calories than those who did not use menu labels,²¹ our study, using the same sample, aims to better understand the food and beverage selection patterns among a diverse sample of menu label users and nonusers, 5 months after the implementation of menu labels at a national fast-food restaurant chain in the Phoenix, AZ, metropolitan area. We hypothesized that patrons who used menu labels would be more likely to purchase sides, beverages, or entrées that are consistent with the 2015 Dietary Guidelines for Americans (DGA; items that contained whole fruits, vegetables, low-fat dairy, or were low in solid fats and added sugars),³⁵ compared with those who do not use menu labels.

METHODS

Setting

This analysis used secondary data from a study that examined sociodemographic disparities in menu labeling usage at a national fast-food chain.²¹ Study participants were recruited at 29 restaurant locations of a national fast-food chain within a 25-mile radius of downtown Phoenix. Restaurants from this chain were selected because the chain

implemented menu labeling across all of its locations ahead of the federal mandate and in advance of the study period; Phoenix did not have a local policy in place at the time of the study. Restaurant locations were randomly selected to serve as sampling locations, using stratified random sampling. Each location was further randomized to data collection during a weekday or weekend day and for lunch or dinner. Data were collected over an 8-week period between February and April of 2013, with each collection period lasting 3 hours (11:00 AM to 2:00 PM for lunch and 5:00 PM to 8:00 PM for dinner).

Data Collection

Study participants were recruited outside the front entrance of each restaurant location in a method similar to street-intercept survey methodology adapted from previous researchers.^{17,18} Before entering an establishment, customers were approached by a member of the research team and asked to participate in the research study. Eligible participants were those who were at least 18 years old; could read, speak, and understand English; and were purchasing food or beverage items for personal consumption. Consenting customers were instructed to enter the restaurant, order items as they normally would, obtain a receipt, and, on exiting, submit their receipt to a trained data collector, who verified the receipt and administered a brief oral survey. Participants received \$5 compensation for turning in a receipt and completing the survey. Survey questions included socioeconomic characteristics (age, sex, race, ethnicity, education level, and annual household income); whether respondents had children; frequency of fast-food consumption; and questions on awareness and use of menu labels, modified from previous studies.^{18,23} This study was considered exempt from review by the Institutional Review Board at Arizona State University.

Of the 1,159 customers asked, data were collected from 330 participants, for a response rate of 28%, lower than that of previous studies.^{17,19,23,36} After excluding one participant from analysis because he did not physically enter a restaurant location, the final sample size consisted of 329 participants.

Outcome and Predictor Variables

The primary predictor variable for this study was using menu labels to inform purchase decisions. This variable was measured with a survey question. Participants who answered “yes” to noticing menu labels before ordering were asked, “Did the calorie information affect your food/beverage purchases today?” Those who reported using menu labels for food or beverage purchases were categorized as menu labeling users (coded as 1, vs others coded as 0).

Outcome variables of interest were side, beverage, and entrée purchases. These variables were measured by using participant-itemized receipts. All items were considered separately; if a combination meal was purchased, it was broken down into respective side, beverage, and entrée categories. Sides and beverages were categorized into one of three groups: healthier, less healthy, and did not purchase. Healthier items were defined as those consistent with the 2015 DGA, containing fruits (including 100% fruit juice), vegetables, low-fat dairy, and being low in solid fat and added sugar.³⁵ For example, healthier sides included apple slices, side salads, and yogurt parfaits. Less-healthy sides included ice cream

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