

The Influence of Nutrition Label Placement on Awareness and Use among College Students in a Dining Hall Setting



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ABSTRACT

Background Nutrition labels may be important predictors of dietary selections among college students; however, awareness and use are not well understood in this population.

Objective The aim of this work was to investigate the influence of label placement on label awareness and use, including influences over time. We also aimed to identify predictors of awareness and use, preferred label information, and reasons for label nonuse.

Design Cross-sectional surveys were administered in three 1-week waves over 3 months.

Participants/setting Two thousand seven hundred twenty-nine students aged 18 years or older in four university dining halls.

Intervention Nutrition labels were placed on sneeze guards in two dining halls and directly in front of food in two comparator dining halls.

Main outcome measures Label awareness and use were measured using 5-point Likert scales. Reasons for label nonuse and preferred types of information were assessed by response frequencies.

Statistical analysis performed Logistic regression was used to determine predictors of label awareness and use. To test for differences in information preferences between label users and nonusers, χ^2 tests were used.

Results Nutrition label awareness and use did not vary by label placement or over time. Awareness was related to being obese, having higher perceived stress, taking nutrition classes, having good/excellent eating habits, eating breakfast, tracking food intake, and exercising five or more times per week. Use was related to being a woman, being overweight, having higher perceived stress, having good/excellent eating habits, eating breakfast, tracking food intake, and exercising three or more times per week. Information preferences differed by use, but calories, fat, and protein were the most preferred pieces of information overall. Not caring, already having a good idea about nutrition information, and not having time were the top reasons for label nonuse.

Conclusions Label awareness and use did not change with label placement or over time. Making labels easy to read and including preferred information may encourage greater awareness and use.

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THE TRANSITION FROM HIGH SCHOOL TO COLLEGE can be a challenging time for many young adults, characterized by developing routines, habits, and preferences—many of which persist throughout adulthood.¹ Large cross-sectional and longitudinal surveys have shown the transition from adolescence to adulthood is associated with decreased fruit and vegetable consumption, increased fast-food and soft drink consumption, and reduced levels of physical activity.¹ Further, many young adults gain weight over the course of their college years,² particularly during their first year.³

Nutrition labeling at the point of purchase (or point of selection/service) is a common tool to promote healthier food

choices on college campuses (and in the general population) and has been implemented in many dining halls, restaurants, and on-campus convenience stores. Christoph and colleagues⁴ reviewed several studies that surveyed US college students' use of food labels; however, findings were highly variable, with reported label use ranging from 35% to 88%, depending on the definition of label use and type of nutrition label considered. For example, some studies focused exclusively on using the Nutrition Facts Panel, whereas others examined general label use or calorie label use in restaurants.

Beyond disagreement in defining label use, previous studies have largely failed to consider how the presentation of nutrition information influences label awareness and/or

label use. As with many educational efforts, how the information is presented can often be as important as which information is presented.⁵ In many dining hall settings, posted nutrition information is often located above the food (generally on or above the sneeze guards). However, when students make selections, their focus is generally on the food itself (thus, looking downward), which may result in limited awareness and/or use of nutrition information when making food choices. Therefore, it may be possible to increase label awareness or use by simply increasing the visibility of nutrition labels by moving them directly in front of, rather than above, food.

Another important gap is whether—and if so, how—label awareness and/or label use change over time. The majority of previous studies (in both college and general adult populations) examined label use via a single cross-sectional sample. Although this provides a snapshot of use prevalence, it is unable to capture whether use behavior persists over time. In a dining hall setting, students may initially focus on getting oriented with the dining facility environment, the food, and their fellow diners—leaving little time to notice nutrition labels. However, with daily exposure to nutrition labels, awareness and use may increase over the course of a semester as students become more comfortable with the dining hall and develop their own routines. Conversely, comfort and familiarity may also cause label awareness and use to decrease over time. Dining halls often have a menu rotation, so it is possible that students can learn the information for the food items they select, negating the need to use the labels in subsequent dining trips. In addition, students may become increasingly desensitized to nutrition labels over time, being more concerned with choosing foods that taste good or are convenient. Unfortunately, the current literature cannot provide insight on the likelihood of any of these scenarios—a gap the present study aims to address.

The overall purpose of this study was to provide a more comprehensive understanding of how college students interact with nutrition information (ie, labels) in a dining hall setting. Our primary objectives were to determine whether nutrition label placement affected label awareness and use and whether label awareness and use changed over time. In addition to these contributions, we build on existing literature to further examine sociodemographic and behavior-related predictors of label awareness and use, preferred pieces of information on labels, and reasons for label nonuse.

MATERIALS AND METHODS

Participant Selection and Sampling Procedures

We surveyed 3,603 students over a 3-month period at a major university in the Midwest. All surveying took place in four university dining halls that serve more than 9,000 students with meal plans and are open to the general public. Each dining hall offers a broad array of food, including stations with several daily rotating entrées, hamburgers and grilled meats, international cuisine, pizza, pasta, vegetarian and vegan entrées and sides, a salad bar, dessert bar, and cereals. All items, with the exception of the salad bar items, had nutrition labels posted. Labels consisted of a 2- \times -3.5-inch card that included the dish title; serving size; number of calories; and grams of fat, carbohydrates, and protein. In

addition, locally sourced, vegetarian, and vegan items were denoted with special symbols. Figure 1 provides examples of the labels used.

Data collection occurred Monday through Thursday of Weeks 4, 8, and 12 of the 16-week semester, resulting in three waves of data collection. Week 4 was chosen as the first week of data collection because the university cafeterias follow a 4-week menu cycle. By waiting until Week 4, students had time to adjust to their dining environment while still allowing the researchers to capture students' awareness and use of labels during their first exposure to a new week of rotating sides and entrées in the dining hall that semester. In addition, this gave the researchers adequate time to train all data collectors and ensure that all dining halls were comfortable with the new labeling procedures. Two dining halls were surveyed at lunch (11:00 AM to 1:30 PM) and another two at dinner (5:00 PM to 7:00 PM) each day. Fridays were excluded for two reasons. First, Ellison, Lusk, and Davis⁶ previously found that people eat differently on Fridays relative to other weekdays. Second, because many students travel home on weekends, not all of the dining halls were open on Friday evenings.

Study investigators trained teams of undergraduate and graduate students on survey methods and protocol that were then pilot-tested with 150 students in a fifth dining hall (not used in this study) the week before data collection. Student assistants, in groups of one or two, approached diners immediately after they sat down and asked them to participate in a study for the university dining service. The incentive to participate was a chance to win a \$10 gift card to a nearby restaurant. Diners had to be aged 18 years or older to participate. Upon giving verbal assent, diners were given the survey to complete while they ate. Surveys were then either collected directly from diners or from the table at the conclusion of the meal. This study was approved by the Institutional Review Board at the University of Illinois at Urbana-Champaign.

Study Design

Each of the three waves was cross-sectional. Diners could repeat the survey across waves, but not within a wave (eg, Diner A could participate on Monday during Week 4 and Thursday during Week 8, but not on Monday and Thursday during Week 4); however, repeat participants were excluded from the current analysis. The four dining halls had two different formats: two had daily rotating options in hot and cold buffet lines (standard format), whereas the other two had themed multistation formats (eg, pizza, stir fry, hamburgers, pasta, and international cuisine). All dining halls had a salad bar, fruit, cereal, waffle, beverage, and dessert area. Two dining halls had labels placed directly in front of food, whereas labels were posted on or on top of sneeze guards in the two comparator dining halls (Figure 1). To control for dining hall format effects, we assigned one dining hall of each format type (standard and multistation) to each of the label location conditions (in front of food and above food).

Survey Instrument

The 1-page survey, which was evaluated for content validity by two registered dietitian nutritionists, included questions

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