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Examining the Prevalence of Food-Label Use by University Students

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Results from a random sample of 441 university students suggest that 31.3 percent of the participants read food labels frequently, while 28.6 percent read labels sometimes. The three nutrients read most frequently are calories, total fat, and sugars. Overall, juniors and seniors read labels more frequently than do freshmen and sophomores.

The Nutrition Labeling and Education Act Congress passed in 1990 mandated that food manufacturers place standardized Nutrition Facts labels on most processed food products by mid 1994 (Temple et al. 2010). The labeling legislation resulted from mounting scientific evidence linking diet and health to the rising medical costs for treating diet-related diseases. On implementation the new Facts labels were to contain standardized ingredient labeling, portion sizes, and the Percent Daily Value of the recommended intake in a serving of a specific food item (Neuhouser, Kristal, and Patterson 1999). Specifically, the new labels were to contain information on serving size, servings per container, amount of calories per serving, and Percent Daily Value for recommended intake of total fat, cholesterol, sodium, total carbohydrates, dietary fiber, sugars, and protein, among others. The main tenet of the Act was that if consumers had easier access to standardized nutritional information on nutrients linked to chronic diseases, they would make healthier dietary decisions—and if diets improved, the population would become healthier.

Kreuter et al. (1997) argue that dietary change can occur if consumers read and understand nutritional labels. Their findings suggest that patients who consume lower levels of fats and greater levels of fruits, vegetables, and fiber are more likely to be frequent readers of food labels than are patients who read labels infrequently. Neuhouser, Kristal, and Patterson (1999) observe that participants

who used labels consume less fat, but use did not increase consumption of fruits and vegetables. To these researchers, label use was related to beliefs about the importance of following a low-fat diet, beliefs about the association between diet and cancer and at which stage of change participants found themselves. Those in the maintenance stage of change were more likely to read food labels. Similar results were found by Satia, Galanko, and Neuhouer (2005), who intimated that the strongest predictors of nutrition label use were healthful eating self-efficacy, strong belief in a diet-cancer relationship, and whether respondents were trying to lose weight.

The effectiveness of food labels in changing the diet of young adults is mixed. Huang et al. (2004) studied the relationship between reading nutrition labels and percentage of calorie intake from fat and found that adolescent boys who read labels had a higher intake of fat. In the case of adolescent girls, there was no difference between fat intake and frequency of reading labels. Thus reading Nutrition Facts panels did not lead to healthier eating habits among adolescents (Huang et al. 2009). Gerend observed that female college students were more likely to choose lower-calorie items and cheaper meals when calorie information was provided to them than when information was absent. Male students' selections, however, were not influenced by availability or unavailability of information on calories or prices. Other researchers found that students who read nutrition labels consumed less energy from both low- and high-energy-density food sources (Temple et al. 2010). Adolescents who showed good self-control ate greater amounts of fruits and vegetables, participated more in sports, and were involved in less sedentary behavior. However, those who exhibited poor self-control or greater impulsiveness consumed greater amounts of saturated fat

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and were less involved in physical activities (Wills et al. 2007).

Despite mixed results on the effectiveness of the Nutrition Facts labels in changing eating habits, it is an indisputable fact that 16 years after implementation the number of obese and overweight persons in the United States has grown rapidly and the costs for treating weight-related diseases have skyrocketed. For example, an August 2010 report from the Centers for Disease Control and Prevention (2010) indicates that more than 72 million adults in the United States are now obese, that medical costs are \$1,429 higher for obese individuals than for those of normal weight, that between 2007 and 2009 about 2.4 million adults became obese, that in every state more than 15 percent of the adults are obese, and that in nine of these states obesity rates exceed 30 percent. Medical care costs associated with obesity are estimated at around \$147 billion annually.

Louisiana's obesity rate now stands at 33 percent, and the largest growth rate is among 18–24 year olds. Louisiana spends an estimated \$2,906,143,070 annually treating obesity-rated diseases, and this total is expected to rise for the foreseeable future (24/7 Wall Street 2010). Given the state's budget challenges, expenditures for treating health-related illnesses, and rising overweight and obese rates, Louisiana residents must begin to take greater responsibility for their health. Because Louisiana residents between the ages of 18 and 24 are becoming obese at the fastest rate, this group should be a prime target for nutritional intervention. A large percentage of undergraduate students in Louisiana are between the ages of 18 and 24; therefore, every effort should be made to expand nutritional knowledge and awareness in this segment of the population.

Smith, Taylor, and Stephen (2000) argue that studying the food choices of university students is important because they are in the process of transitioning from home, where they often had minimal control over their food choices to being in charge of these choices. Furthermore, food selection skills and habits developed in college can have long-term health effects. Because a university campus is such a fertile ground for nutrition educators to sow seeds for healthier lifestyles and eating habits, our study assesses the level of food-label use among a group of university students in Louisiana.

Objectives

This study determines the frequency of label use by a randomly selected group of university students in Louisiana, examines the labeling information they read most often, and assesses whether frequency of label use is associated with academic classifications.

Data and Procedures

Data were compiled from a random sample of 441 university students during spring and fall of 2008. The survey captured students' general attitudes toward health and diet; food-label use; perceptions of their health status; and demographic characteristics (age, academic classification, household size, marital status, family's total annual household income, race, and gender). The nutrition-label-related survey items were divided into three sections. The first question inquired about the prevalence of label use. Response options to the question on how often students read food labels were as follows: often, sometimes, rarely, or never. Those who read the Nutrition Facts labels were asked how frequently they read the labeling information on serving size, calories, sodium, total fat, trans fat, saturated fat, cholesterol, potassium, total carbohydrates, sugars, dietary fiber, and protein. The final set of questions measured respondents' level of agreement or disagreement with information pertaining to the usefulness of labels, levels of confidence in knowledge about labels, degrees of difficulty in interpreting labeling information, and interest in learning more about labels. The chi-squared test statistic is used to determine whether decisions to read food labels are independent of students' academic ranks (freshmen, sophomores, junior, senior).

Empirical Results and Discussion

The average age of students in the survey was 20 years old, the majority of the participants were freshmen (35 percent), the average household size was about four persons, 83 percent of the students were unmarried, women comprised 58 percent of the sample, 87 percent of respondents were African-Americans; and average reported household income ranged from \$25,000 to \$34,999. For food-label use, 31.3 percent of the participants read food la-

bels often; 28.6 percent read labels sometimes; 16.8 percent rarely read labels; 11.8 reported that they had never read labels, while 11.6 percent refused to answer the question. Labeling information read most often was, in decreasing order, calories (32.9 percent); total fat (30.2 percent); sugars (28.8 percent); serving size (27.4 percent); saturated fat (25.2 percent); cholesterol (24.9 percent); trans fat (23.8 percent); total carbohydrates (23.6 percent); protein (23.6 percent); sodium (20.2 percent); potassium (14.5 percent); and dietary fiber (14.3 percent). The results also suggest that less than 50 percent of the participants read food labels on a regular basis—a finding consistent with Satia, Galanko, and Neuhouser's (2005) study on African-Americans in North Carolina.

The chi-square coefficients in Table 1 suggest that the frequency of reading labels depends on academic classifications for serving size, calories, sodium, trans fat, saturated fat, cholesterol, potassium, total carbohydrates, sugars, dietary fiber, and protein. The decision to read the labeling information for total fat is independent of academic classifications. Juniors and seniors are more likely to use labels sometimes or often than are freshmen and sophomores and thus are also more likely to read most of the nutritional information on the food labeling packages.

Conclusion

The statistics reported in Centers for Disease Control and Prevention (2010) are sobering reminders of the enormous health care issues facing the United States. Adult obesity now cuts across all racial, ethnic, and socioeconomic groups. Therefore each of us must begin to take greater responsibility for what we eat. Food labels provide an easy access to nutritional information. However, it appears that only a small fraction of undergraduate students in Louisiana read food labels on a regular basis. Given the rising overweight and obesity rates among young adults in Louisiana, annual budget shortfalls, and rising health care costs, we will continue our efforts to help undergraduate students learn how to use food labels and how to use the information to make healthier food choices.

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Table 1. Frequency of Food Label Use by Academic Classifications (%).

Categories	Never	Rarely	Sometimes	Often	Refused	X ²
Use labels						
Total	11.8	16.8	28.6	31.3	11.6	53.119***
Freshmen	19.2	23.1	24.4	23.1	10.3	
Sophomores	15.6	12.2	33.3	30.0	8.9	
Juniors	4.1	13.5	29.7	43.2	9.5	
Seniors	5.3	12.8	31.9	39.4	10.6	
Refused	0.1	18.5	22.2	22.2	37.0	
Serving size						
Total	15.6	16.6	29.5	27.7	10.7	31.243**
Freshmen	23.7	15.4	26.9	20.5	13.5	
Sophomores	17.8	16.7	26.7	26.7	12.2	
Juniors	6.8	16.2	31.1	39.2	6.8	
Seniors	10.6	19.1	31.9	33.0	5.3	
Refused	3.7	14.8	40.7	22.2	18.5	
Calories						
Total	12.2	15.0	29.3	32.9	10.7	27.664**
Freshmen	17.3	15.4	26.9	26.9	13.5	
Sophomores	13.3	16.7	26.7	30.0	13.3	
Juniors	9.5	10.8	32.4	41.9	5.4	
Seniors	3.2	17.0	34.0	40.4	5.3	
Refused	18.5	11.1	25.9	25.9	18.5	
Sodium						
Total	13.4	24.5	30.4	20.2	11.6	31.761**
Freshmen	19.2	27.6	23.7	14.7	14.7	
Sophomores	12.2	25.6	30.0	18.9	13.3	
Juniors	10.8	18.9	39.2	24.3	6.8	
Seniors	5.3	25.5	33.0	29.8	6.4	
Refused	18.5	14.8	37.0	11.1	18.5	
Total fat						
Total	10.9	14.3	34.0	30.2	10.7	22.330
Freshmen	17.3	14.1	28.2	26.9	13.5	
Sophomores	7.8	13.3	35.6	31.1	12.2	
Juniors	6.8	14.9	41.9	29.7	6.8	
Seniors	6.4	16.0	35.1	37.2	5.3	
Refused	11.1	11.1	37.0	22.2	18.5	

Table 1. Frequency of Food Label Use by Academic Classifications (%) (Continued).

Categories	Never	Rarely	Sometimes	Often	Refused	X ²
Trans fat						
Total	13.8	21.3	29.9	23.8	11.1	28.255**
Freshmen	20.5	21.2	25.0	18.6	14.7	
Sophomores	8.9	22.2	31.1	25.6	12.2	
Juniors	10.8	18.9	37.8	25.7	6.8	
Seniors	7.4	24.5	30.9	31.9	5.3	
Refused	22.2	14.8	29.6	14.8	18.5	
Saturated fat						
Total	13.4	20.2	29.9	25.2	11.3	30.442**
Freshmen	20.5	18.6	24.4	22.4	14.1	
Sophomores	10.0	18.9	31.1	27.8	12.2	
Juniors	9.5	20.3	40.5	23.0	6.8	
Seniors	6.4	26.6	28.7	31.9	6.4	
Refused	13.4	20.2	29.9	25.2	11.3	
Cholesterol						
Total	13.8	23.4	26.5	24.9	11.3	24.117*
Freshmen	19.2	23.1	22.4	20.5	14.7	
Sophomores	13.3	28.9	21.1	23.3	13.3	
Juniors	12.2	18.9	33.8	28.4	6.8	
Seniors	7.4	23.4	31.9	31.9	5.3	
Refused	11.1	18.5	29.6	22.2	18.5	
Potassium						
Total	20.9	24.7	28.1	14.5	11.8	26.012*
Freshmen	25.6	23.7	24.4	10.9	15.4	
Sophomores	21.1	31.1	22.2	13.3	12.2	
Juniors	17.6	20.3	35.1	20.3	6.8	
Seniors	14.9	22.3	39.4	16.0	7.4	
Refused	22.2	29.6	11.1	18.5	18.5	

Table 1. Frequency of Food Label Use by Academic Classifications (%) (Continued).

Categories	Never	Rarely	Sometimes	Often	Refused	X ²
Total carbohydrates						
Total	15.4	19.7	28.8	23.6	12.5	27.449**
Freshmen	20.5	18.6	24.4	21.2	15.4	
Sophomores	17.8	23.3	28.9	15.6	14.4	
Juniors	10.8	16.2	33.8	31.1	8.1	
Seniors	6.4	20.2	34.0	31.9	7.4	
Refused	22.2	22.2	22.2	14.8	18.5	
Sugar						
Total	11.6	15.9	32.9	28.8	10.9	31.115**
Freshmen	16.7	10.3	30.8	27.6	14.7	
Sophomores	12.2	20.0	28.9	26.7	12.2	
Juniors	9.5	21.6	32.4	31.1	5.4	
Seniors	2.1	18.1	41.5	33.0	5.3	
Refused	18.5	11.1	29.6	22.2	18.5	
Dietary fiber						
Total	22.9	27.7	23.4	14.3	11.8	43.496***
Freshmen	32.1	26.3	17.3	8.3	16.0	
Sophomores	26.7	27.8	20.0	13.3	12.2	
Juniors	13.5	33.8	29.7	17.6	5.4	
Seniors	10.6	25.5	31.9	24.5	7.4	
Refused	25.9	25.9	22.2	7.4	18.5	
Protein						
Total	13.8	20.4	30.6	23.6	11.6	34.212***
Freshmen	19.9	15.4	23.1	26.3	15.4	
Sophomores	12.2	25.6	33.3	15.6	13.3	
Juniors	9.5	20.3	37.8	25.7	6.8	
Seniors	6.4	22.3	38.3	27.7	5.3	
Refused	13.8	20.4	30.6	23.6	11.6	