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Evaluating the Nutrition Label: Its Use in and Impact on Purchasing Decisions by Consumers

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Nutrition labels on food products—which are required for most prepared foods, such as breads, cereals, canned and frozen foods, snacks, desserts, drinks, etc.—were first mandated in the early 1970s. They were revised extensively in 1992 as part of the Nutrition Labeling and Education Act (NLEA). Recently the Food and Drug Administration called for public comment on proposed changes to the program and solicited research related to the use and impact of the current label. In response to this request, a short consumer survey was conducted with 160 persons to see if they use the label, and, if so, which parts they use and their opinions about the usefulness of the current label. The majority of the respondents said they read the label most of the time before purchasing food, with 21% stating they almost always do so. Parts of the label read most frequently were the calorie, fat, sugar, and fiber contents. Percentages of daily values were read less often, as were the health-related statements and the list of ingredients. Approximately half of those who consumed candy, bakery products, chips, or sodas—foods known to be high in calories—stated that they did not read the calorie content. Over two-thirds of the consumers felt confident that they understand how to read labels and said using a food label was better than relying on their own knowledge. However, the majority also thought additional information about the label would be valuable. Most persons did not know the maximum calorie content of a low-calorie food, and stated that they would probably eat their favorite snack food even if it contained 400 calories per serving. Therefore, the calorie content of the food does not appear to have a major impact on the decision-making process. In conclusion, it was clear that the majority of the respondents used the label and perceived themselves as knowledgeable regarding its use. However, a more comprehensive survey is needed to measure the full extent of their knowledge and understanding.

Limited information is available about consumer willingness to actually read food labels or whether what they read influences their food purchases. Since the introduction of the new food labels in 1994, per-capita consumption of fat- and calorie-rich foods has been increasing, along with the number of overweight and obese Americans. Given these statistics, it is necessary to evaluate the effectiveness of food labels in disseminating nutrition information and in changing buying and eating habits (McLean 2001). An understanding of the food label could point to a change in purchasing patterns by consumers with the power to improve health.

Some authors believe that the U.S. Food and Drug Administration mandate to provide nutrition information on packaged foods appears to be a useful way to conduct point-of-purchase nutrition education (Satia, Galanko, and Neuhouser 2005) since the nutrition label is required for most prepared foods such as canned and frozen foods. Consumers may be aware that they should read the nutrition label, but time may be a hindrance in a society that has multiple jobs and tasks to perform. It is possible that the diet quality of employed label users is lower because they do not have as much time as the unemployed to spend on food shopping to make the more appropriate decisions regarding the quality of foods they need to buy (Kim, Nayga, and Capps 2001) People look at food labels for different reasons. Whatever the reason, many consumers would like to know how to use this information more effectively and easily (Center for Food Safety and Applied Nutrition 2004)

Neuhouser, Kristal, and Patterson (1999) found that the most frequently read component of the label was grams of fat, followed by calories and cholesterol; less than 39% read %DV for fat. There were large differences in label use by sex. The study of respondents in this study replied that they read the label most of the time, with 21% stating that they almost always read the nutrition label. Use of the food label to choose a food was significantly associated with serum carotenoids and higher nutrient intakes, as well as with the Healthy Eating Index

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(Murphy et al. 2001). In another study, items found to be read most often were calorie, fat, sugar, and fiber contents. Additionally, females used food labels more frequently than males (Obayashi, Bianchi, and Song 2003). The majority of those interviewed felt that additional information was needed and would be informative for the food label. In April of 2005 the FDA requested public comments on the use of the nutrition labels to assist with its investigation of what, if any, changes to make to the label. Additionally, an FDA officer indicated that they were looking for additional studies that showed consumers' use and opinions of the current label (Baxter 2005). This study was conducted in response to these requests.

Methodology

Students in the Advanced Nutrition course at Tennessee State University in the Spring of 2005 were challenged to respond to the FDA's call for comments. The course professor and an experienced student designed the survey instrument, which consisted of various of questions designed to obtain data on consumers' food-label usage and their opinions of the value of using the label. The primary goal was to understand the frequency with which the label was read and the likelihood that the individuals thoroughly examined the label during the reading. Using a Likert-type scale, participants were asked to rate the level at which they agreed or disagreed with a given statement that described their confidence and understanding in using the nutrition label to make healthy food choices. Researchers also investigated if participants were aware of the number of calories they needed daily, and their perception of their current weight, i.e., if they needed to gain, lose, or maintain their weight. Data was collected on participants' frequency of consuming such high-calorie food items as cakes; cookies; brownies; donuts; chips; cheese curls; candies; soda; or box, soft, sports, or fruit drinks; and if they read the calorie content on the label on the selected "snack foods." Survey participants were also asked to assume that they noticed on the label that their favorite snack contained 400 calories and indicate whether they would still eat it. Finally, participants were asked for demographic information: age, gender, race, and national origin.

Each student was instructed to complete a minimum of 20 surveys during a one-week period. Respondents had to be at least 18 years old. No other demographic characteristics were specified. Interviews were completed at work, gyms, children's schools, stores, churches or any other place where the students would interact with people. A total of 158 completed surveys were collected. Data was entered into SPSS-PC, and chi-square analysis was conducted.

Results and Discussion

Females reported reading nutrition labels significantly more often than did males (Table 1). The majority of both genders said they read the label most of the time; however, a significant percentage of females (28.6%) said that they almost always read the label. This is in agreement with the earlier study by Neuhouser, Kristal, and Patterson (1999). A higher percentage of white respondents always read the label compared to the other ethnic categories, although the difference was not significant.

As can be seen in Table 2, for those persons who reported that they always or almost always read the label, the most common items that were "almost always" read were the amount of fat (51.1%), amount of sugar (47.1%), and calories per serving (47.1%). The highest percentage of respondents said that they "sometimes" read the list of ingredients (47.2%) and the sodium content (41.3%). These findings are similar to those of Obayashi et al. (2003). A large percentage of respondents "rarely or never" read the health claims (42.1%), percent daily value (33.1%), or the amount of trans fat (31.4%), the newest item to be required on labels.

One of the reasons FDA called for comments on the current label is the rising incidence of obesity in this country (Baxter 2005). For this reason, several questions on our survey addressed the consumption of "snack-type" items. As seen in Table 3, participants were asked whether they read the calorie content on commonly consumed, traditionally high-calorie foods. The highest percentage (84.8) reported that they read the calorie content on beverages other than soft drinks, such as juices, sport drinks, and fruit-flavored drinks. It was interesting to note that persons who said they rarely or never read labels at all stated that they read the calorie content on beverages. This finding needs further study. Perhaps the respondents did not know what the nutrition label was earlier when asked if they read it. Smaller numbers read the calorie content

Table 1. Frequency with Which Respondents Reported Reading the Nutrition Label, by Gender and Ethnicity. [a]

	Frequency of action					
	Almost always		Most of the time		Rarely or never	
	N	%	N	%	N	%
Gender[b]						
Male	3	5.7	30	56.6	20	37.7
Female	30	28.6	58	55.2	17	16.2
Ethnicity						
White/Caucasian	19	25.7	41	55.4	14	18.9
Black/African-American	14	17.9	44	56.4	20	25.7
Other	1	20	1	20	3	60

[a] Gender: males = 53, females = 105; Ethnicity: white = 74, black = 78, other = 5

[b] Significantly different ($p \leq 0.05$)

Table 2. Frequency with Which Respondents Reported Reading Selected Items on the Label (N=121). [a]

	Frequency of action					
	Almost always		Sometimes		Rarely or never	
Item on label	N	%	N	%	N	%
List of ingredients	43	35.5	57	47.2	21	17.3
Calories/serving	57	47.1	45	37.2	19	15.7
Serving size	43	35.5	48	39.7	30	24.8
Health claims	22	18.2	48	39.7	51	42.1
Amount of fat	62	51.1	43	35.5	15	12.4
Amount of sodium	46	38.0	50	41.3	25	20.7
Amount of sugar	57	47.1	44	36.4	20	16.5
Amount of trans fat	45	37.2	36	29.8	38	31.4
Amount of fiber	47	38.8	43	35.5	31	25.7
Percent daily value	37	30.5	44	36.4	40	33.1

[a] Only persons who indicated that they read the label were to respond to these questions.

Table 3. Frequency with Which Respondents Read Calorie Content on Labels of Selected Foods.[a]

Food [b]	Frequency of action	
	N	%
Baked products (n=151)	69	45.7
Chips (n=145)	72	49.7
Candy (n=143)	64	44.8
Soft drinks (n=142)	67	47.2
Beverages (n=158)	134	84.8

[a] Some persons stated that they did not eat these foods; thus number of respondents varies by product

[b] Significantly different ($P \leq 0.05$)

on chips

In an effort to determine whether the information on the label had an impact on purchasing decisions, a question was asked that placed the purchaser in a situation where they discovered when reading the label that their favorite snack item contained 400 calories. An overwhelming majority (65%) said that they would still eat the snack, 26% said they probably would, and only a small number (9%) said they would not. Although not a conclusive finding, this indicates that personal preference probably has a stronger influence over food selection than does information shown on the label.

The majority of the persons in our study (89.1%) strongly agreed or agreed that reading the information on the nutrition label is better than relying on their own knowledge about the food (Table 4). They also were confident that they know how to use

Table 4. Participants' Opinions Concerning Knowledge and Use of Food Labels, in Percentagaes (N=121).[a]

Statement	Level of Agreement				
	Strongly agree	Agree somewhat	No opinion	Disagree somewhat	Strongly disagree
Confident know how to use food labels	35.5	42.1	<1	18.2	2.5
Food labels are hard to interpret	4.2	39.7	<1	38.8	15.7
Reading labels takes too much time	7.5	22.5	4.2	32.5	33.1
Want to learn more about labels	34.2	42.1	5.0	14.2	3.3
Better than relying on own knowledge	60.8	28.3	2.0	5.8	1.7

[a] Only those persons who reported that they read labels almost always or most of the time responded to this question.

food labels (35.5% strongly agreed; 42.1% agreed). In spite of that confidence, most (76.3%) strongly agreed or agreed that they would like to learn more about food labels. There was also a split in the responses to the statement "food labels are hard to interpret." An approximately equal percentage (39.7% and 38.8%, respectively) agreed somewhat or disagreed somewhat with this statement. One indicator of the perceived value of the label may be seen in the response to the statement "reading labels takes too much time." The majority of those in our study disagreed or strongly disagreed with this statement (65.6%).

Conclusions

The Food Products Association (2005) stated "any changes to food or nutrition labeling of calories or serving size must motivate consumers toward behavior change. Currently, there is not enough consumer research information to demonstrate that a labeling change will truly help consumer better understand the role of diet, coupled with physical activity, in achieving healthy lifestyles. Therefore, FPA urges FDA to conduct adequate consumer research and testing to evaluate any potential labeling options for calories and serving size before issuing any guidance or proposed rules." We concur with these statements and recommend that a more-comprehensive in-depth survey would be helpful before changing the current label. It is clear that there is some confusion as to what a nutrition label includes and how consumers should interpret and use that information.

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