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Evaluation of grocery shopper's awareness about the requirements of the food labeling in Semnan, Iran

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ABSTRACT

Awareness of people about food labeling can enhance cautious about the safety and quality of food products. This study aimed to measure the reported use of food labeling by grocery shoppers in Semnan city, Iran. In this descriptive cross-sectional study, 339 people were selected by a cluster random sampling plan from a chain store in Semnan city. For each of the participants, a demographic questionnaire and performance about food and labels were completed. Data were analyzed by SPSS. The study samples consisted of 139 (41%) males and 200 (59%) females. The average age of the participants was about 32 years. About 86.4% of respondents based on observation interviewing looked at information on the package before making a selection. However, in self-reported behavior, 98.5% of consumers said that looked at food labeling. Our study results propose that self-reported behavior when compared to measures based on observation interviewing on the actual purchase, lead to overreporting. Therefore, research on consumer attention to food labeling is an immediate need.

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1. Introduction

The food label is defined as any mark, pictorial or other descriptive topics, written, printed, signed, and eminent or attached to, a container of food. Food labels provide a lot of information to select food by consumers. Food labels also help to promote and maintain public health and consumer safety by providing information such as time consumed, components, conditions of storage and preparation, and recommendations and warnings (1,2). According to the international standard; Package should be presented in a way that it does not cause mistakes on any label and not to be descriptive in a way that is misleading, false and deceiving the consumer. On the other hand, packaged food should not be described on any label by words, pictorial or other devices which might be confused for consumers (3-5).

The Codex has provided more than 4000 standards, guidelines and recommendations in a variety of fields for individual foods, food additives, food labels, food contaminants, pesticide residues, hygiene practices, and other issues related to traded foodstuffs (6). Consumers, governments, and food processors play an important role in describing food information on food labels (5,7). One of the important principles in promoting the health of a community is the creation of supportive environments that consumers can have a healthy selection of food choices (8). Food labelling is mandatory in most countries because of two significant reason; it supports consumers for having a healthy choice, and protects consumers and their rights (9). Since health forms one of the important dimensions of the life of each person, attempts to change eating patt-

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erns by informing consumers about the link between diet and health have been difficult (10). Consumers usually consider information on these attributes in their purchasing decisions and habits, while governments and companies choose labelling options (11). Although consumers are constantly, being exposed to more labels and specifications, but consumers' awareness of the information on the labelling is relatively little (12).

Existing labelled nutrient formats have been defined by guidance and legislation to help trade and consumers. International guidelines were recently updated in 2001, in the form of the Codex general standard for the labelling of foods (3).

The Food and Drug Administration (FDA), along with the Center for Food Safety and Applied Nutrition, monitor the implementation of the food label (4). In addition, monitoring has the important impact on the behavioral aspects of the public response. Most of the studies carried out based on self-reported retrospective behavior, which can lead to a considerable overreporting with regard to behaviors that are regarded as socially suitable. The present study contributes to whether people actually say or over report. It has been conducted in Semnan, Iran.

2. Materials and methods

The study comprises two sections: in-store observation and in-store interview. In this study of descriptive cross-sectional, 339 people were selected by a cluster random sampling from chain stores like Farhang Iran, Refah, Khanevade and Etka in Semnan. When they chose a product for purchase, they tended for interview about their particular purchase. Shoppers who were observed to have selected at least one product from one of the categories and put it into their trolley were then recruited for the interview part of the study. For each of that, demographic questionnaire and performance about food labels was completed. Demographic items contend for sex, age, education and job in which each customer was registered. Food labelling use and demographic items were pilots tested with 33 customers typical of the study sample, based on comments and questions of reliability posed by these respondents. It is noteworthy that, no major changes were made to the questionnaire.

Consumers' levels of interest in food labels were assessed individually. In the first stage based on observations of the interviewer, the level of interest labels and their components was evaluation in two aspects. First, a 3-point scale (1. never check; 2. sometimes check; 3. frequently check) was used to estimate the relative importance of food labels when consumers are exposed for the first time. Then, the purpose of consumers' levels of interest in food labels based on observations of the interviewer was to record whether shoppers looked at the label of food products before choosing them, and for how long to consider the extent of over-reporting according to customer' opinions.

2.1 Statistical Analyses

The statistical analysis of the results was performed by SPSS 21 software. Descriptive statistics were computed for all survey items in frequency and percentage. P value <0.05 was considered significant for all statistical tests.

3. Results

3.1. Demographic characteristics

The study samples consisted of 139 (41%) males and 200 (59%) females. About 68.7% of the participants were 20-40 years old. The mean age of the participants was about 32 years (range: 18-70 years). Educational level of consumers consisted of 2.9% illiterate, 87% high school and 10% university. Association of demographic characteristics with the use of food labels among Semnan consumers based on self-report and observation interviewing is given in table 1 and table 2. In the survey of over-reporting, the interviewer observed consumers and evaluated their attention to food labelling, based on table 3 and kappa value (0.342) match was poor. When purchasing a food in store (before buy) and consuming it at home (before consumption) respectively: 1.5%, 2.1% of consumers never checked the nutrition label, 36%, 32.2% sometimes did, and 62.5%, 65.8% frequently checked it. However, based on observations of the interviewer 13.6% of consumers never checked the nutrition label, 52.2% sometimes did, and 34.2% frequently checked it. The frequencies of checking the nutrition label check were significantly higher in the female, consumers <20 years, higher education level and housekeeper ($p<0.001$, Table 1). About 46.3% of consumers in the study, said that the best place for labeling of the food products is on the cap, 23.9% the middle place, 11.8% upper body and only 2.4% of consumers liked that the label to be placed on the lower body. Approximately, 88.8% of consumers did not care at all about food brands, 8.8% had low and 2.4% had high attention to the product brands. A large number of consumers (81.4%) looked at the expiration date and 9.2% did care

Table 1. Association of demographic characteristics with the use of food labels among Semnan consumers

	Total		Never check nutrition label		Sometimes check nutrition label		Frequently check nutrition label		
	N	%	N	%	N	%	N	%	P
Sex									
Male	139	41	1	0.7	74	53.2	64	46	<0.01
Female	200	59	4	2	48	24	148	74	
Age									
< 20	34	10	0	0	9	26.5	25	73.5	<0.01
20-40	233	68.7	1	.4	79	33.9	153	65.7	
>40	72	21.2	4	5.6	34	47.2	34	47.2	
Education									
Illiterate	10	2.9	4	40	4	40	2	20	<0.01
High school	295	87	1	0.3	106	35.9	188	63.7	
University	34	10	0	0	12	35.3	22	64.7	
Occupation									
Housekeeper	105	31	4	3.8	21	20	80	76.2	<0.01
Employee	88	26	0	0	37	42	51	58	
Worker	146	43.1	1	0.7	64	43.8	81	55.5	

Table 2. Association of demographic characteristics with the use of food labels based on observations of the interviewer among Semnan consumers

	Total		Never check food label		Sometimes check food label		Frequently check food label		
	N	%	N	%	N	%	N	%	P
Sex									
Male	139	41	25	18	87	62.6	27	19.4	<0.01
Female	200	59	21	10.5	90	45	89	44.5	
Age									
< 20	34	10	1	2.9	25	73.5	8	23.5	<0.01
20 - 40	233	68.7	30	12.9	122	52.4	81	34.8	
>40	72	21.2	15	20.8	30	41.7	27	37.5	
Education									
Illiterate	10	2.9	8	80	0	0	2	20	<0.01
High school	295	87	37	12.5	160	54.2	98	33.2	
University	34	10	1	2.9	17	50	16	47.1	
Occupation									
Housekeeper	105	31	10	9.5	50	47.6	45	42.9	<0.02
Employee	88	26	5	5.7	54	61.4	29	33	
Worker	146	43.1	31	21.2	73	50	42	28.8	

Table 3. Correlation between consumer report and results observation interviewer

			Consumer report			Total
			Never check food label	Sometimes check food label	Frequently check food label	
Observation interviewer	Never Check food label	count	5	37	4	46
		% within	10.9%	80.4%	8.7%	100%
	sometimes Check food label	count	0	85	92	177
		% within	0%	48%	52%	100%
	Frequently Check food label	count	0	0	116	116
		% within	0%	0%	100%	100%
Total		count	5	122	212	339
		% within	1.5%	36%	62.5%	100%

Table 4. Symmetric measures

	Value	Asymp. Std. Error	Approx. T	Approx. Sig
Measure of Agreement Kappa	0.342	0.037	8.519	.000
N of Valid Cases	339			

about it. About standard and legal permissions 8.6%, 17.4% of consumers never checked, 26.5%, 43.4% sometimes did, and 64.9%, 39.2% frequently checked them, respectively.

4. Discussion

Approximately 86.4% of respondents had looked at information on the package before making a selection. Results showed that self-reported behavior (98.5%) are effectively, compared to measures based on observation interviewing on the concrete purchase, lead to over-reporting. About 46.6% of consumers had high attention to nutritional information. Most of the people checked vitamins (33%) and energy (29.5%).

The fiber and sugar with 1.2%, 3.8% were less, respectively. Grunert and Wills (2007) reported that the percentages of consumers that always or occasionally checked nutritional information was 52% in the United Kingdom, 65% in Ireland, 50% in Sweden, and 63% in France (10). On the contrary, it has been shown that in this study, nutritional information on food labels was less important to consumers than storage procedure (62.5%), standards (64.9%) or expiration date (81.4%). Vildana et al. (2012) asked the consumers if they read nutritional information and they found that only 16% of them (both genders) read this information. Regarding to health claims, the situation was better, where 27% of all consumers read the health claims. In both groups, the females were again more interested in such information.

The results showed that there is a statistically significant difference between genders according to interest for nutritional information on the food products (13). It was found that the females are more responsible; 69.8% of them checked food labelling while only 30.2% of the men did. Stran and Knol (2011) found that females had higher food label use scores than males. Younger females with education greater than high school had significantly higher scores than older females with less grade education. Males who were trying to manage their weight or who perceived their diet as good had significantly higher scores than those who were not concerned with their weight or perceived their diet as poor (14). Many studies have shown that females were positively correlated with interest in labels due to higher educational levels, and higher social strata (13-15), which was also supported in this study, nutrition education could improve label use by increasing consumer knowledge and improving attitudes toward food labels (15-19).

Since educational programs play an important role in consumer awareness of food labels, therefore these programs must be well planned and explain the terms, statements, and symbols related to the labels. Nutritionists can also educate their clients and the public about the significance and use of nutrition labels. Policymakers should also focus on developing an effective format for nutrition labelling, including the clear presentation of expressions, terms, statements, symbols and logos, measurement units, font size, and color (1,8,20).

5. Conclusion

The food label can be a useful tool to help people to choose foods with nutritional characteristics to minimize their risk of long-term diet-related diseases like heart disease and cancer. However, the ability to use food labeling to lower the risk of disease requires basic knowledge in a variety of areas. Raising the awareness of consumers through training program can be effective.

Conflict of interest

The authors have no conflict of interest.

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