Evaluasi kesadaran pembeli makanan tentang persyaratan label makanan di Semnan, Iran

Gholamreza Jahed Khaniki, Ebrahim Molaee Aghaee, Najmeh Ebrahimi *, Samaneh Nabizadeh, Naiema Vakili Saatloo, Mahmood Alizadehsani

Jurusan Teknik Kesehatan Lingkungan, Sekolah Kesehatan Masyarakat, Universitas Teheran Ilmu Kedokteran, Teheran, Iran

INFO ARTIKEL

ABSTRAK

Kesadaran orang tentang pelabelan makanan dapat meningkatkan kewaspadaan tentang keamanan dan kualitas produk makanan. Penelitian ini bertujuan untuk mengukur penggunaan label makanan yang dilaporkan oleh pembeli bahan makanan di kota Semnan, Iran. Dalam studi cross-sectional deskriptif ini, 339 orang dipilih oleh rencana pengambilan sampel cluster acak dari rantai toko di kota Semnan. Untuk masing-masing peserta, kuesioner demografi dan kinerja tentang makanan dan label diselesaikan. Data dianalisis oleh SPSS. Sampel penelitian terdiri dari 139 (41%) laki-laki dan 200 (59%) perempuan. Usia rata-rata peserta adalah sekitar 32 tahun. Sekitar 86,4% responden berdasarkan wawancara observasi melihat informasi pada paket sebelum membuat pilihan. Namun, dalam perilaku yang dilaporkan sendiri, 98,5% konsumen mengatakan bahwa mereka melihat label makanan. Hasil penelitian kami mengusulkan bahwa perilaku yang dilaporkan sendiri jika dibandingkan dengan langkah-langkah berdasarkan wawancara observasi pada pembelian aktual, mengarah pada pelaporan yang berlebihan. Oleh karena itu, penelitian tentang perhatian konsumen terhadap pelabelan makanan adalah kebutuhan mendesak.

1. Pendahuluan

Label makanan didefinisikan sebagai setiap tanda, bergambar atau topik deskriptif lainnya, ditulis, dicetak, ditandatangani, dan terkemuka atau melekat pada, wadah makanan. Label makanan memberikan banyak informasi untuk memilih makanan oleh konsumen. Label makanan juga membantu mempromosikan dan menjaga kesehatan masyarakat dan keselamatan konsumen dengan memberikan informasi seperti waktu dikonsumsi, komponen, kondisi penyimpanan dan persiapan, serta rekomendasi dan peringatan (1,2). Menurut

standar internasional; Paket harus disajikan dengan cara yang tidak menyebabkan kesalahan pada label apa pun dan tidak bersifat deskriptif dengan cara yang menyesatkan, salah dan menipu konsumen. Di sisi lain, makanan kemasan tidak boleh dijelaskan pada label apa pun dengan kata-kata, bergambar atau lainnya perangkat yang mungkin membingungkan bagi konsumen (3-5).

Codex telah menyediakan lebih dari 4000 standar, pedoman, dan rekomendasi di berbagai bidang untuk makanan individu, zat tambahan makanan, label makanan, kontaminan makanan, residu pestisida, praktik kebersihan, dan masalah lain terkait dengan bahan makanan yang diperdagangkan (6). Konsumen, pemerintah, dan pengolah makanan memainkan peran penting dalam menggambarkan informasi makanan pada label makanan (5,7). Salah satu prinsip penting dalam mempromosikan kesehatan masyarakat adalah penciptaan lingkungan yang mendukung agar konsumen dapat memiliki pilihan makanan yang sehat (8). Pelabelan makanan wajib di sebagian besar negara karena dua alasan signifikan; ini mendukung konsumen untuk memiliki pilihan yang sehat, dan melindungi konsumen dan hak-hak mereka (9). Karena kesehatan membentuk salah satu dimensi penting dari kehidupan setiap orang, upaya untuk mengubah pola makan dengan menginformasikan kepada konsumen tentang hubungan antara diet dan

kesehatan yang sulit (10). Konsumen biasanya mempertimbangkan informasi tentang atribut-atribut ini dalam keputusan dan kebiasaan pembelian mereka, sementara pemerintah dan perusahaan memilih opsi pelabelan (11). Meskipun konsumen terus-menerus, terkena lebih banyak label dan spesifikasi, tetapi kesadaran konsumen akan informasi mengenai pelabelan relatif sedikit (12).

Format label nutrisi yang ada ditentukan oleh pedoman dan peraturan untuk membantu perdagangan dan konsumen. Pedoman internasional baru-baru ini diperbarui pada tahun 2001, dalam bentuk standar umum Codex untuk pelabelan makanan (3). Food and Drug Administration (FDA), bersama dengan Pusat Keamanan Pangan dan Nutrisi Terapan, memantau penerapan label makanan (4). Selain itu, pemantauan memiliki dampak penting pada aspek perilaku respons publik. Sebagian besar penelitian dilakukan berdasarkan perilaku retrospektif yang dilaporkan sendiri, yang dapat menyebabkan pelaporan yang cukup besar sehubungan dengan perilaku yang dianggap cocok secara sosial. Penelitian ini berkontribusi pada apakah orang benar-benar mengatakan atau melaporkan berlebihan. Itu telah dilakukan di Semnan, Iran.

2. Bahan dan metode

Penelitian ini terdiri dari dua bagian: observasi di dalam toko dan wawancara di

dalam toko. Dalam studi cross-sectional deskriptif ini, 339 orang dipilih oleh cluster random sampling dari rantai toko seperti Farhang Iran, Refah, Khanevade dan Etka di Semnan. Ketika mereka memilih produk untuk dibeli, mereka cenderung mewawancarai tentang pembelian khusus mereka. Pembeli yang diamati telah memilih setidaknya satu produk dari salah satu kategori dan memasukkannya ke troli mereka kemudian direkrut untuk menjadi bagian wawancara penelitian. Untuk masing-masing itu, kuesioner demografis dan kinerja tentang label makanan diselesaikan. Data demografis meliputi jenis kelamin, usia, pendidikan, dan pekerjaan di mana setiap pelanggan terdaftar. Penggunaan pelabelan makanan dan data demografis adalah contoh yang diuji dengan 33 tipe pelanggan sebagai sampel penelitian, berdasarkan komentar dan keandalan pertanyaan yang diajukan oleh responden ini. Perlu dicatat bahwa, tidak ada perubahan besar pada kuesioner.

Tingkat minat konsumen pada label makanan dinilai secara individual. Pada tahap pertama berdasarkan pengamatan pewawancara, tingkat minat label dan komponennya adalah evaluasi dalam dua aspek. Pertama, skala 3 poin (1. tidak pernah memeriksa; 2. kadang-kadang memeriksa; 3. sering memeriksa) digunakan untuk memperkirakan kepentingan relatif label makanan saat konsumen pertama kali membeli.

Kemudian, tujuan tingkat minat konsumen pada label makanan berdasarkan pengamatan pewawancara adalah untuk mencatat apakah pembeli melihat label produk makanan sebelum memilihnya, dan untuk berapa lama mempertimbangkan sejauh mana pelaporan berlebihan menurut pendapat pelanggan.

2.1 Analisis Statistik

Analisis statistik hasil dilakukan oleh perangkat lunak SPSS 21. Statistik deskriptif dihitung untuk semua item survei dalam frekuensi dan persentase. Nilai $P < 0,05$ dianggap signifikan untuk semua tes statistik.

3. Hasil

3.1. Karakteristik demografis

Sampel penelitian terdiri dari 139 (41%) laki-laki dan 200 (59%) perempuan. Sekitar 68,7% dari peserta berusia 20-40 tahun. Usia rata-rata peserta adalah sekitar 32 tahun (kisaran: 18-70 tahun). Tingkat pendidikan konsumen terdiri dari 2,9% buta huruf, 87% sekolah menengah dan 10% universitas. Asosiasi karakteristik demografi dengan penggunaan label makanan di antara konsumen Semnan berdasarkan laporan pribadi konsumen dan wawancara observasi , ditampilkan dalam tabel 1 dan tabel 2. Dalam pelaporan survei yang telah dilaporkan secara berlebihan, pewawancara mengamati konsumen dan mengevaluasi perhatian mereka pada label makanan, berdasarkan tabel 3 dan nilai kappa (0,342) kecocokannya sangat buruk. Ketika membeli makanan di toko

(sebelum membeli) dan mengkonsumsinya di rumah (sebelum konsumsi) masing-masing: 1,5%, 2,1% dari konsumen tidak pernah memeriksa label nutrisi, 36%, 32,2% kadang-kadang melakukannya, dan 62,5%, 65,8% sering memeriksa labelnya. Namun, berdasarkan pengamatan pewawancara, 13,6% konsumen tidak pernah memeriksa label nutrisi, 52,2% kadang-kadang melakukannya, dan 34,2% sering memeriksanya. Frekuensi pemeriksaan label nutrisi secara signifikan lebih tinggi pada wanita, konsumen <20 tahun, tingkat pendidikan tinggi dan pembantu rumah tangga (p <0,001, Tabel 1). Sekitar 46,3% konsumen dalam penelitian ini, mengatakan bahwa

tempat terbaik untuk pelabelan produk makanan adalah di atas tutup, 23,9% di tempat tengah, 11,8% pada bagian atas kemasan dan hanya 2,4% dari konsumen yang menyukai label yang akan ditempatkan pada bagian bawah kemasan . Sekitar, 88,8% konsumen tidak peduli sama sekali tentang merek makanan, 8,8% memiliki kepedulian merek rendah dan 2,4% memiliki perhatian tinggi terhadap merek produk. Sejumlah besar konsumen (81,4%) melihat tanggal kedaluwarsa dan 9,2% peduli tentang itu. Tentang izin standar dan hukum 8,6%, 17,4% konsumen tidak pernah memeriksa, 26,5%, 43,4% kadang-kadang memeriksanya, dan 64,9%, 39,2% sering memeriksanya,

Tabel 1. Karakteristik Demografis yang menggunakan label makanan diantara konsumen Semnan

	Total		Tidak pernah mengecek Label nutrisi		Kadang mengecek label nutrisi		Selalu mengecek label nutrisi		
	N	%	N	%	N	%	N	%	P
Jenis Kelamin									
Laki-laki	139	41	1	0.7	74	53.2	64	46	<0,01
Wanita	200	59	4	2	48	24	148	74	
Umur									
<20	34	10	0	0	9	26.5	25	73.5	<0,01
20-40	233	68.7	1	0.4	79	33.9	153	65.7	
>40	72	21.2	4	5.6	34	47.2	34	47.2	
Pendidikan									
Buta huruf	10	2.9	4	40	4	40	2	20	<0,01
Sekolah menengah	295	87	1	0.3	106	35.9	188	63.7	
Universitas	34	10	0	0	12	35.3	22	64.7	
Pekerjaan									
Pembantu Rumah Tangga	105	31	4	3.8	21	20	80	76.2	<0,01
Pengangguran	88	26	0	0	37	42	51	58	
Pekerja	146	43.1	1	0.7	64	43.8	51	55.5	

Tabel 2. Karakteristik Demografis yang menggunakan label makanan berdasarkan observasi dan wawancara diantara konsumen Semnan

	Total		Tidak pernah mengecek Label nutrisi		Kadang mengecek label nutrisi		Selalu mengecek label nutrisi		
	N	%	N	%	N	%	N	%	P
Jenis Kelamin									
Laki-laki	139	41	25	18	87	62.6	27	19.4	<0,01
Wanita	200	59	24	10.5	90	45	89	44.5	
Umur									
<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	
Pendidikan									
Buta huruf	10	2.9	8	80	0	0	2	20	<0,01
Sekolah menengah	295	87	37	12.5	160	54.2	98	33.2	
Universitas	34	10	1	2.9	17	50	16	47.1	
Pekerjaan									
Pembantu Rumah Tangga	105	31	10	9.5	50	47.6	45	42.9	<0,02
Pengangguran	88	26	5	5.7	54	61.4	29	33	
Pekerja	146	43.1	31	21.2	73	50	42	28.8	

Tabel 3. Korelasi antara laporan konsumen dan hasil observasi dari yang diwawancarai

			Laporan konsumen			
			Tidak pernah mengecek label	Kadang-kadang mengecek label	Selalu mengecek label	Total
Pengamatan yang diwawancara	Tidak pernah mengecek label	Angka Dalam %	5 10.9%	37 80.4%	4 8.7%	46 100%
	Kadang-kadang mengecek label	Angka Dalam %	0 0%	85 48%	92 52%	177 100%
	Selalu mengecek label	Angka Dalam %	0 0%	0 0%	116 100%	116 100%
Total		Angka Dalam %	5 1,5%	122 36%	212 62.5%	339 100%

Tabel 4 Angka Simetris

	Nilai	Standar Error	Rata-rata T	Rata-rata Sig
Angka kecocokan	0.342	0.037	8.519	0.000

kappa				
N kasus yg valid	339			

4. Diskusi

Sekitar 86,4% responden telah melihat informasi pada paket sebelum membuat pilihan. Hasil penelitian menunjukkan bahwa perilaku yang dilaporkan sendiri (98,5%) efektif, dibandingkan dengan langkah-langkah berdasarkan wawancara observasi pada pembelian konkret, menyebabkan pelaporan yang berlebihan. Sekitar 46,6% konsumen memiliki perhatian tinggi terhadap informasi gizi. Sebagian besar orang memeriksa vitamin (33%) dan energi (29,5%).

Serat dan gula dengan 1,2%, masing-masing 3,8% lebih sedikit. Grunert dan Wills (2007) melaporkan bahwa persentase konsumen yang selalu atau sesekali memeriksa informasi nutrisi adalah 52% di Inggris, 65% di Irlandia, 50% di Swedia, dan 63% di Prancis (10). Sebaliknya, telah ditunjukkan bahwa dalam penelitian ini, informasi nutrisi pada label makanan kurang penting bagi konsumen daripada prosedur penyimpanan (62,5%), standar (64,9%) atau tanggal kedaluwarsa (81,4%). Vildana et al. (2012) bertanya kepada konsumen apakah mereka membaca informasi nutrisi dan mereka menemukan bahwa hanya 16% dari mereka (kedua jenis kelamin) yang membaca informasi ini. Mengenai klaim kesehatan, situasinya lebih baik, di mana 27% dari semua konsumen membaca klaim

kesehatan. Pada kedua kelompok, wanita lebih tertarik pada informasi tersebut.

Hasil penelitian menunjukkan bahwa ada perbedaan yang signifikan secara statistik antara jenis kelamin menurut minat untuk informasi gizi pada produk makanan (13). Ditemukan bahwa perempuan lebih bertanggung jawab; 69,8% dari mereka memeriksa label makanan sementara hanya 30,2% pria yang melakukannya. Stran dan Knol (2011) menemukan bahwa perempuan memiliki skor penggunaan label makanan yang lebih tinggi daripada laki-laki. Wanita yang lebih muda dengan pendidikan lebih tinggi dari sekolah menengah memiliki skor yang jauh lebih tinggi daripada wanita yang lebih tua dengan pendidikan yang lebih rendah. Laki-laki yang berusaha mengatur berat badan mereka atau yang menganggap diet mereka baik memiliki skor yang jauh lebih tinggi daripada mereka yang tidak peduli dengan berat badan mereka atau menganggap diet mereka sebagai sesuatu yang buruk (14). Banyak penelitian telah menunjukkan bahwa perempuan berkorelasi positif dengan minat label karena tingkat pendidikan yang lebih tinggi, dan strata sosial yang lebih tinggi (13-15), yang juga didukung dalam penelitian ini, pendidikan gizi dapat meningkatkan penggunaan label dengan meningkatkan pengetahuan konsumen dan

meningkatkan sikap terhadap label makanan (15-19).

Karena program pendidikan memainkan peran penting dalam kesadaran konsumen akan label makanan, maka program ini harus direncanakan dengan baik dan menjelaskan istilah, pernyataan, dan simbol yang terkait dengan label. Ahli gizi juga dapat mendidik klien mereka dan masyarakat tentang pentingnya dan penggunaan label nutrisi. Pembuat kebijakan juga harus fokus pada pengembangan format yang efektif untuk pelabelan nutrisi, termasuk presentasi yang jelas dari ekspresi, istilah, pernyataan, simbol dan logo, unit pengukuran, ukuran font, dan warna (1,8,20).

5. Kesimpulan

Label makanan dapat menjadi alat yang berguna untuk membantu orang memilih makanan dengan karakteristik gizi untuk meminimalkan risiko penyakit terkait diet jangka panjang seperti penyakit jantung dan kanker. Namun, kemampuan untuk menggunakan label makanan untuk menurunkan risiko penyakit membutuhkan pengetahuan dasar di berbagai bidang. Meningkatkan kesadaran konsumen melalui program pelatihan bisa efektif.

Konflik kepentingan.

Para penulis tidak memiliki konflik kepentingan.

Ucapan Terima Kasih

Referensi

1. Evans A, Miele M. Food labelling as a response to political consumption. Routledge Handbook on Consumption. Taylor & Francis. UK; 2017. p191-202.
2. Christoforou A. The determinants of discretionary front of package. Doctoral Theses, University of Toronto 2017.
3. Commission JFWCA, Programme JFWFS, Organization WH. Codex Alimentarius: General requirements (food hygiene): Food & Agriculture Org.; 2001.
4. Thedford K. Food labels: Who is being educated? J Americ Diet Associat 2005; 105:402-3.
5. Boza Martínez S, Guerrero M, Barreda R, et al. Recent Changes in Food Labelling Regulations in Latin America. World Trade Institute. Chile; 2017. p1-47.
6. Kalaitzandonakes N, Phillips PW. GM Food Labeling and the Role of the Codex. 2001.
7. Golan E, Kuchler F, Mitchell L, et al. Economics of food labeling. J Consum Polic 2001; 24:117-84.
8. Cowburn G, Stockley L. Consumer understanding and use of nutrition labelling: a systematic review. Pub Health Nutr 2005; 8:21-8.
9. Besler HT, Buyuktuncer Z, Uyar MF. Consumer understanding and use of food

and nutrition labeling in Turkey. J Nutr Edu & Behav 2012; 44:584-91.

10. Grunert KG, Wills JM. A review of European research on consumer response to nutrition information on food labels. J Pub Health 2007; 15:385-99.

11. Caswell JA. How labeling of safety and process attributes affects markets for food. Agri & Res Econom Rev 1998; 27:151-8.

12. Gaschler R, Mata J, Störmer VS, et al. Change detection for new food labels. Food Qual & Prefer 2010; 21:1407.

13. Alibabić V, Mujić I, Rudić D, et al. Labeling of food products on the B&H market and consumer behavior towards nutrition and health information of the product. Proced-Soc & Behav Sci 2012; 46:973-9.

14. Stran K, Knol L. Determinants of food label use among US adults. J Americ Diet Assoc 2011; 111:A91.

15. Lafrenière J, McNeil J, Provencher V, et al. The effects of food labelling on postexercise energy intake in sedentary women. J Obes 2017; Article ID 1048973, pp.10.

16. Misra R. Knowledge, attitudes, and label use among college students. J Americ Diet Assoc 2007; 107:21304.

17. Aryee G. Awareness and Use of Nutrition Labels on PrePackaged Foods among Consumers in Accra: University of Ghana; 2013.

18. Pettigrew S, Talati Z, Miller C, et al. The types and aspects of front-of-pack food labelling schemes preferred by adults and children. Appet 2017; 109:11523.

19. Darmon N, Sondey J, Azaïs-Braesco V, et al. The SENS algorithm—a new nutrient profilingsystem for food labelling in Europe. Europ J Clinic Nutr 2018; 72:23648.

20. Levy L, Patterson RE, Kristal AR, et al. How well do consumers understand percentage daily value on food labels? Americ J Health Promot 2000; 14:157-60.

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

Gholamreza Jahed Khaniki, Ebrahim Molaee Aghaee, Najmeh Ebrahimi*, Samaneh Nabizadeh, Naiema Vakili Saatloo, Mahmood Alizadehsani

Department of Environmental Health Engineering, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran

ARTICLE INFO	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.

Citation: Jahed Khaniki GH, Molaee Aghaee E, Ebrahimi N, Nabizadeh S, Vakili Saatloo N, Alizadehsani M. **Evaluation of grocery shopper's awareness about the requirements of the food labeling in Semnan city, Iran.** J Food Safe & Hyg 2018; 4(1- 2): 41-45

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-

* Corresponding author. Tel.: +982188954914
E-mail address: n-ebrahimi@alumnus.tums.ac.ir

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.

References

1. Evans A, Miele M. Food labelling as a response to political consumption. Routledge Handbook on Consumption. Taylor & Francis. UK; 2017. p191-202.
2. Christoforou A. The determinants of discretionary front of package. Doctoral Theses, University of Toronto 2017.
3. Commission JFWCA, Programme JFWFS, Organization WH. Codex Alimentarius: General requirements (food hygiene): Food & Agriculture Org.; 2001.
4. Thedford K. Food labels: Who is being educated? J Americ Diet Associat 2005; 105:402-3.
5. Boza Martínez S, Guerrero M, Barreda R, et al. Recent Changes in Food Labelling Regulations in Latin America. World Trade Institute. Chile; 2017. p1-47.
6. Kalaitzandonakes N, Phillips PW. GM Food Labeling and the Role of the Codex. 2001.
7. Golan E, Kuchler F, Mitchell L, et al. Economics of food labeling. J Consum Polic 2001; 24:117-84.
8. Cowburn G, Stockley L. Consumer understanding and use of nutrition labelling: a systematic review. Pub Health Nutr 2005; 8:21-8.

9. Besler HT, Buyuktuncer Z, Uyar MF. Consumer understanding and use of food and nutrition labeling in Turkey. J Nutr Edu & Behav 2012; 44:584-91.

10. Grunert KG, Wills JM. A review of European research on consumer response to nutrition information on food labels. J Pub Health 2007; 15:385-99.

11. Caswell JA. How labeling of safety and process attributes affects markets for food. Agri & Res Econom Rev 1998; 27:151-8.

12. Gaschler R, Mata J, Störmer VS, et al. Change detection for new food labels. Food Qual & Prefer 2010; 21:140-7.

13. Alibabić V, Mujić I, Rudić D, et al. Labeling of food products on the B&H market and consumer behavior towards nutrition and health information of the product. Proced-Soc & Behav Sci 2012; 46:973-9.

14. Stran K, Knol L. Determinants of food label use among US adults. J Americ Diet Assoc 2011; 111:A91.

15. Lafrenière J, McNeil J, Provencher V, et al. The effects of food labelling on postexercise energy intake in sedentary women. J Obes 2017; Article ID 1048973, pp.10.

16. Misra R. Knowledge, attitudes, and label use among college students. J Americ Diet Assoc 2007; 107:2130-4.

17. Aryee G. Awareness and Use of Nutrition Labels on Pre-Packaged Foods among Consumers in Accra: University of Ghana; 2013.

18. Pettigrew S, Talati Z, Miller C, et al. The types and aspects of front-of-pack food labelling schemes preferred by adults and children. Appet 2017; 109:115-23.

19. Darmon N, Sondey J, Azaïs-Braesco V, et al. The SENS algorithm—a new nutrient profilingsystem for food labelling in Europe. Europ J Clinic Nutr 2018; 72:236-48.

20. Levy L, Patterson RE, Kristal AR, et al. How well do consumers understand percentage daily value on food labels? Americ J Health Promot 2000; 14:157-60.

1