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## Nutritional knowledge and consumers use and understanding of food labels

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### Abstract

A food label should be easy and simple to read so that the consumer understands it and trusts it. Food labels are informative to consumers. The study was conducted with a view to know about nutritional knowledge and consumers use & understanding of food labels. Various supermarkets of Srinagar city were surveyed and information was obtained from 5 supermarkets (Almadina seven/eleven, C-Mart and Dar Brothers from different areas of Srinagar viz., Sanat-nagar, Rawalpura, Baghat, and Hyderpora (Srinagar). The number of consumers included in the study was 51. An interviewer administered questionnaire was used to collect information from consumers. From the results, it was revealed that consumers did not fully understand the food labels on food products. Reading food labels was mostly done at home & in the supermarkets during the time of shopping; however consumers didn't understand each information on food label. Overall, consumers had varied views about food labeling. Some found reading food labels time consuming whereas others believed that it was useful. The results from this study indicated that students were more inquisitive in reading food labels than professionals and businessman. Consumers were not fully clear after reading food labels; they could not understand the nutrition table & nutritional declarations of the food label. Majority of the consumers were satisfied with the nutritional information provided on food items. In conclusion, nutritional knowledge and consumers with highly educated background is seen to increase the probability of using food labels, but these factors may be offset by the current health status.

**Keywords:** Food label, nutrition knowledge, consumers, supermarkets

### Introduction

Food labels are widely used for the promotion and advertisement of food products, beverages, cosmetic and electronics. Labels include the information like bar codes, manufacturing and expiry date, batch number, its ingredients and universal information of the product. Food labels are a prerequisite in any food item. It provides an awareness and understanding of a food label (Grunert *et al*, 2010) [17]. While purchasing products, food labels play an important role (Aygen, 2012) [18]. Food labels show the amounts of such nutrients as fat, sodium and fiber in specific products. It provides information on food products to reinforce healthy eating practices and support consumer's in their efforts to improve their food choices. It is essential for consumers to know the nutrition information because it can help them to choose healthier food. It also avoids contents or ingredients that they are allergic. Consumers need to know what nutritional contents of foods are so they can purchase foods of better nutritional quality such as less sugar and fat content. (Simona *et al*, 2010; Ashley *et al*, 2006) [19, 20]. Food labelling allows consumers to make an informed judgment of a product's overall value. (Bandra *et al*, 2016) [21]. The objective of nutrition food labeling is to provide consistent, understandable and usable labels that can help consumers to make informed and healthier food choices (Nayga, 1996) [22]. Nutrition labelling is found to affect the consumer purchase behaviour significantly. Consumers with higher education found labels easier to read as compared to those who were not so highly educated (Manisha, 2010) [23]. Consumer's awareness towards nutrition label and depth of knowledge about it affects the usage of nutrition labels. Knowledge significantly affect the use of nutritional information and nutritional & health claims on food labelling (Carillo *et al*, 2010; Petrovici *et al*, 2012) [25]. Consumers with more knowledge towards nutrition label would be more likely to use nutrition label (Cooke and Papadaki, 2014) [26]. The consumers with higher nutritional knowledge frequently use the nutrition label more

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frequently (Carillo *et al.*, 2012). It is very essential to read food labels keenly as they provide useful information on various nutrients, food standards and ingredients. The aim of this study was to find out if consumers have knowledge of nutritional information on food package labels when shopping and to what extent they use that knowledge to choose food to buy.

American research found that on the whole, consumers want labels to be in a short, easy-to-read, easily interpreted format (Levy *et al.*, 2001) [4]. Bender and Derby (1992) found that older people tend to read only the ingredient list, while younger people tend to read both the nutritional labels and ingredient lists, or just the nutritional labels. Households with preschool children and married consumers are more likely to search for nutrition information (Feick *et al.*, 2001). Hawthorne *et al.*, (2006) found that nutrient information does affect food choice. Baltas (2001) [2] found that nutritional information affected brand choice. Variyam (2000) found that label users generally had healthier diets than non users, i.e., lower percentage of calories from fat and saturated fat, lower cholesterol and sodium intake, and higher fiber intake. Kim *et al.*, (2000) [10] analyzed the effect of consumer label use on selected nutrient intakes, indicating that nutritional label use reduces individual's intake of calories. Drichoutis *et al.* (2005) confirm in their studies that consumers with higher nutrition knowledge are more likely to use nutrition labels when food shopping. The study entitled "Nutritional knowledge and consumers use & understanding of food labels". The present study was carried out to know "the general purpose of labels is comprehensively convectional as a way of identification that helps people recognizes one product from another".

### Methodology

The study was carried out at 5 supermarkets of various sizes throughout the Srinagar city. The sample surveyed was obtained from a combination of 5 supermarkets i.e Almadina seven/eleven, C-Mart and Dar Brothers from different areas of Srinagar viz., Sanat-nagar, Rawalpura, Baghat, and Hyderpora. The geographical locations of the supermarkets were chosen with the aim of having the maximum socio-economic scattering of consumer's characteristics. The survey was carried out during both week days and week end during throughout the morning and afternoon hours. After obtaining permission from the owner of the stores, a visit was made in each supermarket and consumers were interviewed inside the stores. The consumers were approached and interviewed using a specific pattern. The consumers were approached randomly and if willing was asked to participate in the study. After the interview was completed with the respondents, the tenth consumer entering the store was approached. If did not agree to participate, the next consumer entering was approached and so on, until a respondent was found again. Following this pattern, a sample of 55 consumers was obtained. Individuals who failed to respond to a question or to report their socio economic and demographic information were dropped from the sample; hence the number of consumers used in the analysis was 51.

### Tools and Techniques

A interview administered questionnaire was used as a tool to collect data from the consumers. The questionnaire consisted of 34 questions, it includes questions about socio demographics, nutritional knowledge, attitude and practices

relating to using food labels, factors affecting the use of food labeling and consumer understanding and preferences for different nutrition information formats. The questionnaire was designed to address the knowledge and attitudes toward diet, health and nutritional labels. During the interview, participants were shown a food label model and presented with several common food packages and asked how often they used the nutrition facts panel, list of ingredients, serving size information or health claims when deciding to buy a food product with possible responses being "often", "sometimes", "Rarely," or "Never".

### Pre –Testing of questionnaire

Before the actual administering of questionnaire, a pilot study was conducted to see the reliability of the interview schedule to the participants. A group of fifteen consumers, belonging to the sample were interviewed. Its purpose was to see whether there was any difficulty in the language and other aspects of the interview schedule while collecting data. Local language (Kashmiri) was also used along with English and Urdu.

### Data Analysis

Data was analyzed and presented in Tables in the form of percentages and numbers.

### Results and Discussion

A food label motivates the consumer to make healthy choices (Roberto *et al.*, 2011) [28].

#### Gender

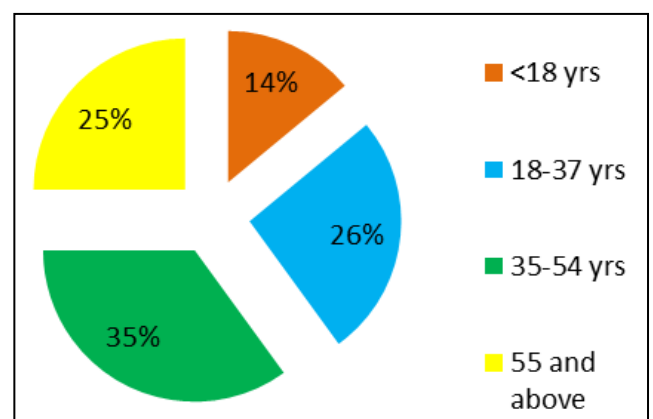
**Table 1:** Distribution of consumer's as per Gender

Gender	N	%
Male	21	41.17
Female	30	58.82
Total	51	100

Table 1 shows gender wise distribution of consumers. As clear from the table, 41.17% of consumers were males whereas the 58.82% were females.

#### Consumer's age

Fig 1: shows age wise distribution of consumers. As clear from the figure, the maximum consumers, 35.29% were seen in the age group of 35-54 years, whereas the 25.49% were from group of 55 years and above .Moreover 25.49% of consumers were seen in the age group of 18-37 years and 13.72% of consumers were less than 18 years of age.



**Fig 1:** Distribution of consumer's as per age

**Consumers locality**

Table 2 shows locality wise distribution of consumers. As is clear from the table, maximum numbers of consumers 52.94% were from urban areas whereas minimum number of consumers 47.05% belonged to rural areas.

**Table 2:** Distribution of consumer’s as per Locality

Locality	N	%
Rural	24	47.05
Urban	27	52.94
Total	51	100

**Consumer’s educational level**

**Table 3:** Distribution of Consumers as per educational level

Educational level	N	%
Upto matric	11	21.56
Graduation	26	50.98
Post Graduation	14	27.45
Total	51	100

Table 3 shows distribution of consumers as per their educational level. It is evident from the table that 27.45% consumers were Post Graduates. However, 27.45% were Graduates and 21.56% were upto matriculates.

**Consumers knowledge of balanced diet and nutrients**

**Table 4:** Distribution of consumers as per checking knowledge of Balanced diet and nutrients

Statements	Yes (%)	No (%)
Checking knowledge about balanced diet	33.33	66.66
Naming few Nutrients	72.54	27.45

Table 4 shows knowledge wise distribution of consumers. As clear from the table 4, majority of consumers (33.33%, 72.54%) had a acute knowledge about balanced diet. However (66.66% and 24.45%) of rest could not name all the nutrients. Thus it can be concluded that consumers in general had a very less nutritional knowledge, the distribution of consumers is not uniform (p-value<0.01).

**Consumers knowledge about food standards**

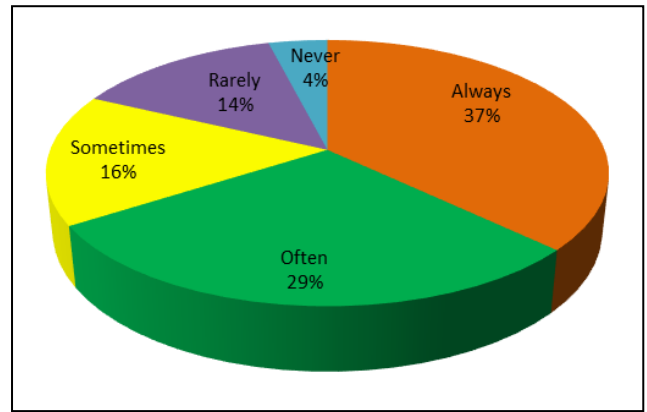
**Table 5:** Distribution of consumers as per their knowledge about food standards

Food standards	%
Prevention of food adulteration	55.88
Fruit product order	78.4
Codex alimentarius	1.96
None of these	13.72

Table 5 shows distribution of consumers as per their knowledge about food standards. The majority of consumers 78.43% had known Fruit product order. Also it is clear that least follow Codex Alimentarius because it is an international code used for raw food items.

This is because fruit product are generally deemed as having high levels of purity, tolerable levels of nutritious and generally low levels of fats.

**Reading of food labels**



**Fig 2:** Distribution of consumers as per the reading of food labels

Figure 2 shows distribution of consumers as per the reading of food labels. The figure depicts that majority of consumers, 37% stated that they “always” read food labels because they think reading food labels helps them to make healthier food choices. 16% said that they “sometimes” read food labels, 29% however said that they “often” read items on food labels, 14% consumers said that they rarely read food labels and only 4% “never” read food labels while shopping.

**Consumers practice of reading a food label**

**Table 6:** Distribution of Consumer’s as per their Practice of reading food Labels

Components of Food Table	Often %	Sometimes %	Rarely %	Never %
List of ingredients	64.70	19.60	11.76	3.92
Serving size	19.60	27.45	27.45	25.49
Health claims	35.29	27.45	21.56	15.68
Expiry date	94.11	1.96	0	3.92
Manufacturing date	80.39	13.72	1.96	3.92
Addition of any preservatives	29.45	19.60	13.72	41.17
Nutritional facts	50.98	31.37	5.88	11.76
Net contents	33.33	29.41	17.64	19.60
Price	100	0	0	0
Coloring matter	13.72	35.29	17.64	33.33
Calories	50.98	35.29	7.84	5.88
Proteins	49	3.13	0.39	15.68
Total fat	45.09	15.68	17.64	21.56
Vitamins and minerals	49	15.68	9.80	25.49
Cholesterol	47	19.60	7.84	5.88
Fibre	47	19.60	11.76	21.56
Sodium salt	35.29	5.88	11.76	100
Sugar	41.13	23.52	7.84	25.49
Carbohydrates	43.13	23.52	7.84	25.49

Table 6 shows distribution of consumers as per their practice of reading a food label. It is revealed from the table that majority, 64.70% of the consumers stated that they (often) check the list of ingredients on the label while shopping. However 3.92% stated that they (never) read food labels for the list of ingredients.

As far as serving size is concerned, majority 27.45% of consumers revealed that they (sometimes) look into the label for serving size, but 27.45% consumers also stated that they rarely checked labels for serving size.

Twenty seven percent of consumers (sometimes) used to check health claims on food labels followed by 35.39% who (often) checked. Moreover none of the consumers said that they rarely looked for the Health claims.

Expiry date was the most important attribute, looked upon by consumers while making decision to purchase. It is clear from the table that majority, 94.11% consumers (often) checked the expiry date.

Manufacturing date and price were also given much importance in label readership as 80.39% and 13.72% of consumers stated that they (often) read these attributes respectively.

As far as nutritional value is concerned, majority of consumers were found to read information.

It is concluded from our study that labeling was not adequately understood, often confusing, and difficult for the consumers to put into practice, which is also supported by the studies of (Cowburn & Stockley, 2005; Mhurchu & Gorton, 2007).

**Advertisement for food items**

**Table 7:** Advertisement they prefer for food items

S. No	Preferred AD	N	%
1	Tv	10	19.60
2	Leaflet	1	1.96
3	Words of mouth	1	1.96
4	Radio	3	5.88
5	Outdoors	1	1.96
6	Facebook	6	11.76
7	Instagram	1	1.96
8	Whatsapp	5	9.8
9	Twitter	2	3.92
10	All of above	21	41.7
	Total	51	100

Table 7 shows distribution of consumers as per advertisements they prefer for food items. It is clear from the Table 7 that majority of 19.60% consumers prefer TV advertisements for food items, 1.96% prefer leaflet advertisement, 1.96% prefer word of mouth, 5.88% prefer radio advertisements, 1.96% prefer outdoor, 11.76% prefer face book advertisements, 1.96% prefer Instagram advertisement, 9.80% prefer Whatsapp advertisements, 3.92% prefer Twitter advertisements and 41.7% prefer all.

Consumers prefer advertising in TV because it offers a number of benefits to business by incorporating sound, images and movement to make the whole package interesting for consumers. It captures the attention of the audience which results in consumers starting appreciating the message as it essence and hence promotes the sale of food items.

**Buying food items**

**Table 8:** Distribution of reasons for buying food items of other countries/Traditions

S.no	Reasons	Upto matric		Graduate		P. G	
		No.	%	No.	%	No.	%
1	Existing to new things	6	54.54	12	46.15	9	64.28
2	Affecting by advertisements	3	27.27	13	50	5	35.71
3	Others	2	18.18	1	3.84	0	0

Table 8 shows reasons of consumers opting for buying food items of other countries / traditions. It shows that majority of 54.54% of consumers (upto matric) are excited to new things, majority of 50% of consumers (Graduate) are affected by advertisement and 64.28% of consumers (P.G) are also excited to new things.

It is evident that there is fascination for new products of other countries and traditions in these strata of the society.

**Effect of language or actor’s nationality**

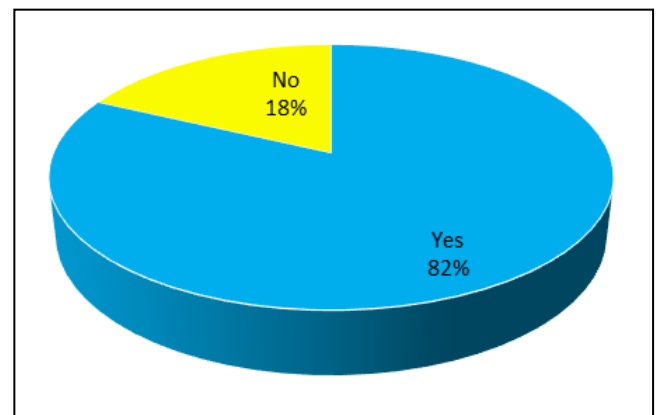
**Table 9:** Distribution of effect of language or actors nationality on purchase intent in association with Literacy Status

	Upto matric		Graduate		P. G	
	No.	%	No.	%	No.	%
Yes	5	45.45	14	53.84	8	57.14
No	6	54.54	12	46.15	6	42.85

Table 9 shows distribution of effect of language or actors nationality on purchase intent in association with literacy status. It shows majority of 54.54% of consumers (upto matric) have no effect of language or actors nationality on purchase intent, majority of 53.84% of consumers (graduate) have an effect of language or actor’s nationality and majority of 57.14% of consumers (P.G) also have its effect. This shows that people with higher qualification have effect of language in actors nationality on purchase intent.

This positive relationship is because with better educational standards, people seem to be effected by the motivation of the celebrities and their expressions.

**Consumers who check the food standards**



**Fig 3:** Distribution of consumers who check the food standards while purchasing the food product

Figure 3 shows distribution of consumers who check the food standards while purchasing the food products. It shows that majority of 82% of consumers do check it while purchasing items because consumers are more conscious about health and want to be away from food adulteration/substandard products.

**Summary, Conclusion and Recommendations**

The study entitled “Nutritional knowledge and consumers use & understanding of food labels” was carried out among 51 consumers of Srinagar City. A questionnaire was distributed to all the consumers and the data collected was analyzed relative to the principal objectives of the study. The information gathered during the study is summarized as below:-

1. The study revealed that (41.17%) of consumers were

- males whereas the (58.82%) were females.
2. Majority of consumers (35.29%) were in the age group of 35-54 years, and the (25.49%) consumers were in the age group of 18-34 years and the (13.72%) consumers were in the age group of <18 years, whereas (25.49%) consumers were in the age group of 55 & above years.
  3. Majority of consumers (52.94%) were from urban area, whereas minimum number of consumers (47.05%) were from Rural area.
  4. A majority of consumers (50.98%) were graduates, and (27.45%) were post graduates. However (21.56%) were educated upto matric.
  5. The study revealed that all the consumers were having different occupation ranging from students (39.29%), business (11.76%), professional (39.21%) and (13.72%) were in the other category.
  6. It was found that majority of consumers (96.07%) did not suffer from any disease, whereas (3.92%) of consumers were suffering from health related problems.
  7. The survey further revealed that the consumers had a good knowledge about diet restriction in heart disease and in hypertension.
  8. It was observed that majority of the consumers (13.72%) rarely used to read food labels while making a decision to buy a food product.
  9. Majority of consumers (49.01%) didn't understand every info on food labels while as lesser (45.09%) of the consumers understand each item on food labels.
  10. Majority of consumers used to read food labels "both at home and in the super market" and minimum consumers read food labels "in the super market".
  11. The study showed that of the total consumers, (7.84%) of consumers were willing to pay extra for the huge information written on food labels, and (92.15%) of the consumers didn't want to pay extra for food labels. Moreover, it was observed from the study that education has a significant and positive association with willingness to pay for the label. Also the study revealed that as the income of the consumer increases, willingness to pay for the label does not increase.
  12. It is clear investigated from the study that it was the expiry date (94.11%) that most consumers looked upon, followed by manufacturing date (80.39%) and price (100%) while buying food products in the grocery store. Consumers were thus more aware about the safety of the food compared to price. As far as Nutrition information was concerned, carbohydrates checking was given little bit less importance than all the other nutrients while shopping.
  13. The great majority of consumers (82.35%) of consumers are using branded food items.
  14. A great majority of consumers were confused with the Nutritional Comprehension & Declaration of the food products while reading food labels. Surprisingly, maximum consumers could understand the list of ingredients and symbols on the food labels very well.
  15. It was observed from the study that the majority (19.60%) of consumers prefer TV advertisements for food items, (5.88%) refer radio advertisements and rest prefer other advertisements.
  16. It was revealed from the survey that the majority of consumers get affected by the celebrity endorsement of the product.
  17. There was also non-significant association between occupation and food label use. The data suggested that

students were more frequent users of food labels in comparison to professionals and business workers.

18. It is concluded from the survey that majority of 82.3% of consumers do check the food standards while purchasing item.

### Conclusion

Consumers did not fully understand the food labels, but were unaware that they understood it less well than gave themselves credit for label readership was mostly done both at home & in the supermarket; however consumers didn't understand each information on food label.

Overall consumers had mixed views on food labeling. Some found label readership time whereas others believed that it was useful. The results from this study indicated that students were more likely to read food labels than those who were Professional and in some sort of Business. Consumers were seemed to be little bit confused after reading food labels, they could not understand the Nutritional table & Nutritional declarations of the food label was very well understandable among consumers. A great majority of the consumers who were highly educated were willing to pay additional for the nutritional information provided on food items. In conclusion, being nutritionally knowledgeable and highly educated increases the probability of using nutritional labels, but these factors may be offset by the current health status.

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