Short Report

Use of information on pre-packaged foods among residents of an urban village of south Delhi, India

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ABSTRACT

Background. With rapid urbanization and hectic lifestyle, there is a growing demand of pre-packaged food items. 'Food label', present on most packaged food items provides information about the contents, their nutritive value and other information that can help the consumer to make an informed choice. Few studies in India have assessed the consumer's knowledge and practices related to information on a food label.

Methods. We assessed the awareness, perceptions and practices related to the use of information on food labels among residents of an urbanized village of south Delhi. House-to-house visits were made and information gathered using a pre-designed, pre-tested, semi-structured questionnaire. Descriptive analysis was done and logistic regression performed to document the determinants of 'reading food label' by the study participants.

Results. A total of 368 individuals were interviewed. The mean (SD) age of the participants was 29.1 (9.7) years. Around one-fourth (97/368; 26.4%) of all participants reported buying pre-packaged foods daily. A majority (222/368; 60%) of participants bought pre-packaged foods because they liked the taste, and also because they were easily available (153/368; 41.7%). A total of 64.1% (236/368) reported that they read food labels, but a majority checked only for the manufacture and expiry dates (203/236; 86%). Educational status, socioeconomic status and body mass index of the study participants were found to be significantly associated with reading of labels.

Conclusions. The intention of promoting healthy food choices through the use of food labels is met inadequately at present. Awareness generation activities would be required to improve this behaviour.

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INTRODUCTION

Most packaged foods have information on a label that includes the ingredients; net weight; date of manufacture and expiry; carbohydrate/sugar, protein and fat/fatty acid content along with the calorific value, etc.[1,2] This information is displayed to help the consumer make an informed decision while purchasing the product. With rapid urbanization and hectic lifestyle, there has been an increase in consumers of packaged foods worldwide, including India.[3,4] In India, where overweight, obesity and non-communicable diseases are on an increase,[5] food labels on pre-packaged foods could be a useful tool to help people choose what they eat in an informed manner. Regulatory frameworks globally have been primarily set up to achieve the objective of ensuring food safety and protection of consumer interests. However, in India, labelling for nutrition is still in its infancy. The Food Safety and Standards Authority of India issued food safety and standards (packaging and labelling) regulations in 2011, which have to be followed by all manufacturers of pre-packaged foods.[6] According to this regulation, a food label must largely contain the details of 'best before', date of manufacture and packaging, lot number, pre-packed, vegetarian and non-vegetarian food, expiry date, ingredients and nutritional value.[6]

Few studies in India have assessed the consumer's knowledge and practices related to the information on food labels and have shown that the intention to promote healthy food choices through food labels is not being met adequately.[7–9] We did this study to assess the awareness, perceptions and practices related to the use of information on food labels among residents of an urbanized village of south Delhi, India.

METHODS

Study area and study population

This cross-sectional study was done among the residents of Aliganj, Kotla Mubarakpur, New Delhi, in 2015. Aliganj is one of the field practice areas of the Department of Community Medicine, Vardhman Mahavir Medical College and Safdarjung Hospital, New Delhi. According to a survey in the study area, conducted by our department, the population of Aliganj in 2014 was about 6500. In our study, both men and women residents of Aliganj more than 15 years of age were included as this age distribution included the youth and adults.

Sample size and sampling technique

Sample size calculations were based on the findings of a prior study by Vemula *et al*. among urban consumers in New Delhi and Hyderabad.[7] For all sample size calculations, an error of 5% and 10% non-response rate were considered. A list of all households was available for the study area. From this list, one house was randomly selected and thereafter every consecutive household was approached till a sample size of 368 was achieved. One eligible member from each household was selected randomly as a study participant.

Process of data collection and statistical analysis

Information was gathered using a pre-designed, pre-tested, semi-structured questionnaire after obtaining informed consent. Data collection was done by trained personnel under the supervision of

the principal investigator. Socioeconomic status of the population was calculated using the Kuppuswamy scale modified for 2015.[10] The principal investigator randomly checked 10% of questionnaires to monitor the quality of data collected. Data were entered in Microsoft Excel 2010. All statistical analyses were done using SPSS software version 16 (Chicago, IL, USA). Tests of significance were applied for comparing variables and $p<0.05$ was considered statistically significant. Logistic regression was done to find factors associated with 'reading food labels' by the study participants.

This study has been conducted within the boundaries of the Helsinki Declaration. Permission to conduct the study was obtained from the department. Patient confidentiality was maintained and informed consent was obtained.

RESULTS

The mean age of the participants was 29.1 (9.7) years. Nearly two-thirds of the participants (239, 64.7%) were men (Table I). Around one-fourth (97) of all participants reported buying pre-packaged foods daily (Table II). A majority (222) of participants bought pre-packaged foods because they liked the taste (Table II).

Reading the information on food labels

Around 64% (236) of the study participants said that they read food labels. Of them, 38.1% (90/236) reported that they always checked food labels before buying pre-packaged foods. The majority of these respondents read the labels to check for manufacturing and expiry dates (203/236; 86%; Table III). Only 27.1% (16/59) checked for the presence or absence of trans-fats and only 13.8% (11/80) ever checked for the presence of monosodium glutamate (Table III). Around half the participants (190/368; 51.7%) suggested increasing the font size, 31% (114/368) the use of locally understandable language, 25.5% (94/368) the use of conventional graphics and symbols and 9.7% (36/368) suggested the use of terms that could be understood by common people.

Educational status, socioeconomic status and body mass index (BMI) of the study participants were found to be significantly associated with reading of labels (Table IV).

DISCUSSION

Our community-based study aimed to document the use and perceived importance of information on food labels of pre-packaged food products and assess the influence of information on food labels on purchasing patterns of pre-packaged food products among consumers. About 26% of respondents in our study said they bought pre-packaged foods every day. Similar observations were made by Ali and Kapoor.[11] Polasa *et al*. in their study in rural India reported that 59% of households buy pre-packaged foods.[12] In our study, 62% of participants reported buying pre-packaged foods either every day or more than once a week. This is indicative of the steady rise in consumption and projected per-capita expenditure on pre-packaged foods. This proportion (62%) is high and would in itself be an impetus to look at the factors that influence their purchasing of pre-packaged food and the factors they considered before opting for a particular food item(s).

About 64% of the participants read labels on the packaged food, but only 38% of them read it 'always'. The most common reason for reading labels was to ascertain the dates of manufacture and expiry, but other important information such as ingredients of the packaged food was often ignored as only 37% of those who read labels checked the ingredients and only 21% looked for the nutritional value. Among those who read food labels, they were familiar with just a few things to look for and that reflected in what they searched for in the labels. The most familiar terms were brand of the food, date of manufacture and best before/use by date. 'Big brands' could be related to quality and this is the reason why the study participants looked specifically at the brand of the food.

TABLE I. Sociodemographic characteristics of the participants

Variable	*n* (%)
Age (years)	
16–19	42 (11.4)
20–40	277 (75.3)
>40	49 (13.3)
Male sex	239 (64.7)
Education	
Illiterate	47 (12.8)
Up to primary	32 (8.7)
Up to middle school	81 (22.1)
Up to high school	150 (40.7)
Graduate and above	58 (15.7)
Type of family	
Nuclear	357 (44.5)
Joint	445 (55.5)
Socioeconomic status using the Kuppuswamy scale	
Upper	8 (2.2)
Upper middle	111 (30.2)
Lower middle	125 (34)
Upper lower	120 (32.5)
Lower	4 (1.1)

TABLE II. Responses to questions on buying pre-packaged foods and reading food labels (*n*=368)

Questions asked and responses	*n* (%)
Frequency of buying pre-packaged food	
Every day	97 (26.4)
More than once a week	133 (36.1)
Once a week	68 (19)
Less than once a week	70 (18.5)
Reasons for buying pre-packaged food	
Easy to use, taste good	222 (60)
Easily available	153 (41.7)
Easy to use	138 (37.5)
Consider it to be of good quality	98 (26.5)
Affordability and long shelf-life	30 (8)
Whether food labels on pre-packaged food are read	
Yes	236 (64.1)
No	132 (35.9)
Reasons for not reading the labels (n=132 who did not read labels)	
Lack of time	40 (30.3)
Do not feel the need	36 (27.7)
Difficulty in understanding information	9 (6.4)
Illiterate	47 (35.6)
Reasons for reading the label (n=236)	
Ascertain the manufacturing and expiry dates	203 (86)
Obtain information on its ingredients	88 (37.2)
Establish nutrition content of the food	51 (21.6)
Check whether the item was vegetarian or non-vegetarian	37 (15.6)
Check whether the food was an inferior product/place of manufacture of the product	34 (14.4)
Frequency of reading labels (n=236)	
Always	90 (38.1)
Often	75 (31.8)
Sometimes	71 (30.1)

Furthermore, they could be concerned more about the safety aspects of foods, especially related to their shelf-life. This probably is the reason why most of them looked for manufacturing and/or expiry dates. Only a small proportion of participants read instructions for use, food additive declaration, information on additives/artificial colour and sweeteners/monosodium glutamate and name and address of manufacturer. This is important considering that about 11% of all food items sold in India are thought to be adulterated.[13] The reasons cited by those who did not read the labels were that they did not feel the need to read them, they had difficulty in understanding the information provided or the print was too small. Thus, the intention of promoting healthy food choices through the use of food labels is not being met. Since the majority of people found it difficult to comprehend nutrition-related information, there is a need to generate awareness through educational activities and/or introduce new forms of labelling. The current format of food labels is text-intensive and is inherently biased towards literate consumers. Moreover, all educated consumers need not necessarily be nutrition-literate; therefore, symbol-based information display could be helpful in increasing the use of labels among consumers.

TABLE III. Responses related to reading of food labels and its associated themes (*n*=236)

Questions asked and responses	*n* (%)
Predominant food items for which food label was read	
Cereals and their products	169 (71.6)
Snack items/ready-to-eat food products/frozen eatables	136 (57.6)
Sugar-containing items and confectionary	96 (40.6)
Juices/health drinks and other beverages	80 (33.8)
Milk and dairy products	67 (28.3)
Legumes and pulses	60 (25.4)
Fats and oils	40 (16.9)
Participants look at food label for	
The name of the food	198 (83.8)
Date of manufacture or packing	139 (58.9)
Best before and use by date	98 (41.5)
List of ingredients	80 (33.8)
Nutritional information	59 (25)
Net quantity	58 (24.5)
Instructions for use	43 (18.3)
Vegetarian/non-vegetarian declaration	37 (15.6)
Name and address of manufacturer and packer	34 (14.4)
Food additives declaration	14 (5.9)
Country of origin in imported food items	11 (4.7)
Code number/lot number/batch number	2 (0.8)
Among nutritional information, participants looked for (n=59)	
Calorie content	33 (56)
Sugar content	33 (56)
Fat content	28 (47.5)
Trans-fatty acids	16 (27.1)
Salt content	5 (8.7)
Among ingredients information, participants looked for (n=80)	
Additives	35 (43.7)
Artificial sweetener	23 (28.8)
Preservatives	15 (18.8)
Artificial colouring	12 (15)
Artificial flavourings	11 (13.8)
Monosodium glutamate	11 (13.8)

We also tried to find factors associated with reading of the food labels. An association was found between the education level, socioeconomic status and BMI of the participants. Educated participants were probably more likely to know the importance of food labelling and hence read them more often. In addition, participants from the upper and middle classes read food labels more often than those from the lower class and this might be mediated through more exposure to media such as television and internet. The strength of our study is that it is community-based and one of the few from India that looked at the consumer's perspective of food labels.

The limitation of our study is that the findings cannot be generalized and extrapolated to the entire country.

The intention of promoting healthy food choices through the use of food labels is inadequately met at present. Educational counselling and awareness generation activities would be required. Focused nutrition-related behaviour change and communication can play an important role.

Conflicts of interest. None declared

REFERENCES

1 Food Safety and Standards Regulations; 2009. Available at *www.fssai.gov.in/Portals/0/FSSAI%20regulations.pdf* (accessed on 10 Jan 2016).
2 Mahan KL, Escott-Stump S (eds). Food labelling. In: *Krause's Food, nutrition and diet therapy*. 11th ed. Philadelphia, PA:Saunders; 2004:379–80.
3 Satterthwaite D, McGranahan G, Tacoli C. Urbanization and its implications for food and farming. *Philos Trans R Soc Lond B Biol Sci* 2010;**365:**2809–20.
4 Euromonitor. *Packaged: India Report*. London:Euromonitor International; 2009.
5 International Institute for Population Sciences (IIPS) and Macro International. *National Family Health Survey (NFHS-3), India, 2005–2006*. Mumbai:IIPS; 2008.

TABLE IV. Determinants of 'reading label' on the pre-packaged food products by the study participants (*n*=321)

Variables*	Read label	Do not read labels	Total	Adjusted odds ratio (95% CI)	p value
Education					
Graduate and above	49	9	58	2.508 (0.974–6.344)	0.057
High school and diploma	117	33	150	1.882 (1.055–3.417)	0.037
Primary and middle school (reference)	65	48	113	1	0.043
Socioeconomic status					
Upper	97	21	118	3.227 (1.251–5.548)	0.01
Middle	89	28	117	2.679 (1.337–4.771)	0.004
Lower (reference)	45	41	86	1	0.007
Body mass index					
<18.5 (reference)	18	16	34	1	0.015
18.5–22.9	88	32	120	2.557 (1.119–5.345)	0.019
23–24.9	60	10	70	4.337 (1.611–11.67)	0.002
≥25	65	32	97	1.683 (0.729–3.866)	0.236

*Other variables considered in the regression model were sex, age, total family income and presence of comorbid conditions but were not significant

6 Food Safety and Standards (Packaging and Labelling) Regulations, 2011. Food Safety and Standards Authority of India. Ministry of Health and Family Welfare; 2011. Available at *www.fssai.gov.in/Portals/0/Pdf/Food%20Safety%20and%20standards%20%28Packaging%20and%20Labelling%29%20regulation,%202011.pdf* (accessed on 14 Jan 2016).
7 Vemula SR, Gavaravarapu SM, Mendu VV, Mathur P, Avula L. Use of food label information by urban consumers in India—A study among supermarket shoppers. *Public Health Nutr* 2014;**17:**2104–14.
8 Saha S, Vemula SR, Mendu VV, Gavaravarapu SM. Knowledge and practices of using food label information among adolescents attending schools in Kolkata, India. *J Nutr Educ Behav* 2013;**45:**773–9.
9 Gavaravarapu SR, Vemula SR, Rao P, Mendu VV, Polasa K. Focus group studies on food safety knowledge, perceptions, and practices of school-going adolescent girls in South India. *J Nutr Educ Behav* 2009;**41:**340–6.
10 Oberoi SS. Updating income ranges for Kuppuswamy's socio-economic status scale for the year 2014. *Indian J Public Health* 2015;**59:**156–7.
11 Ali J, Kapoor S. Understanding consumers' perspectives on food labelling in India. *Int J Consum Stud* 2009;**33:**724–34.
12 Polasa K, Sudershan RV, Subba Rao GM, Rao MVV; Rao P; Sivakumar B. KABP study on food and drug safety in India—A report. Hyderabad:NIN, Food and Drug Toxicology Research Centre; 2006.
13 Gavaravarapu SM, Smith KC, Rimal RN. A case for refining the WHO Global Strategy on Food Safety: Perspectives from India. *Lancet Glob Health* 2013;**1:**e 254–5.