Consumer Awareness and Status of Food Labeling in Selected Supermarkets of Puducherry: An Exploratory Study

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INTRODUCTION

The WHO Global Strategy on diet, physical activity, and health, recommends to the food industry to provide consumers with simple, clear, and consistent food labels and evidence-based health claims that will help consumers to make informed and healthy choices.

A label serves the following three primary functions, namely, basic product information, health, safety, and nutrition information and it also acts as a vehicle for food marketing, promotion, and advertising (through label vignettes). In India, the food labeling act “Food Safety and Standards Regulations, 2011” gives guidelines for packaging and labeling of food items. A market survey conducted by the National Institute of Nutrition in Hyderabad showed that food packages were 100% compliant in displaying the basic regulatory requirements and 77% compliance was seen with instructions for use, storage conditions, and nutrition information per 100 g/serving. However, compliance with respect to nutrition claims and health claims were found in 10% and 29% of labels, respectively.

Merely regulating food labeling practices without assessing the awareness among the consumers regarding healthy choices and food labeling would make the whole exercise a futile one. A cross-sectional study conducted among 1832 consumers in two metro political cities of India, New Delhi and Hyderabad reported that 12% of the participants bought prepackaged food almost daily and almost 92% of the participants reported of referring the food labels for checking quality and genuineness. Only one-fifth of the participants reported that they will check food labels for nutritive values. Around 58% of the participants felt that nutritive information given on the food label was inadequate.

However, in India, not many studies have been conducted to assess the food labeling practices and its impact on the purchasing behavior of the consumers. Assessing the consumer’s knowledge and utilization of the food labeling serves as a proxy measure for the public’s involvement on ensuring food safety. Along with consumer’s knowledge on food labeling, compliance of food products according to the guidelines has to be assessed frequently to ensure the food producers compliance to the legislation. Hence, this study was aimed to find the proportion of consumers who use/check food labels before purchasing the food and to estimate the proportion of consumers utilizing the components of the label. The study also assesses the various categories of prepackaged foods for compliance with food labeling regulations.

METHODOLOGY

A cross-sectional study was carried out from May to August 2016. Around seven supermarkets are there in urban area of Puducherry and three of them were randomly selected for the study. All the supermarkets are situated in the main areas of the town in different geographic locations and on an average around 250–300 people are visiting these supermarkets daily. The people visiting the selected supermarkets were approached for the study. The sample size of 153 was calculated with 90% proportion of study participants read the labels in the study conducted in India, 5% absolute precision, and 10% nonresponse rate.

The information on consumer’s sociodemographic characteristics, purchasing behavior, and use and understanding of the food labels were collected using a pretested semi-structured questionnaire. The questionnaire was
originally prepared in English based on previous literature and linguistically validated in Tamil language by translation-back translation by two separate bi-linguistic persons. The consumers leaving the supermarket were approached for participation in the study. From each supermarket, 51 consumers were selected through convenient sampling, and informed consent was obtained from them. Verbal consent was obtained from the shop owners regarding the study, and the consumers were engaged outside the supermarkets and requested to complete the questionnaire on their own. The doubts regarding the contents of the questionnaire were clarified by the interviewer. The data were collected only on Saturdays since most of the people in the urban area tend to do shopping in weekend [Figure 1].

The compliance of food items according to the “Food Safety and Standards (Packaging and Labelling) Regulations, 2011” India was checked using a checklist.[2] Indian food code and categorization system were used to classify food items. The participants were requested to select one food item under each of these fifteen categories which they commonly use. The most common food item reported under each category was chosen after collecting data from all the participants. For each of these food items, one branded and one locally made product was selected, and compliance was checked with checklist. The checklist collected details on general requirements in the food label, ingredients, declaration regarding vegetarian or nonvegetarian food, food additives, added colors manufacturing, and expiry dates.

The data were entered in Microsoft Excel and analyzed using EpiData Analysis software.[3] Results, such as consumer’s awareness regarding food label, frequency of checking and purchasing food items with labels, and information checked on the label, were reported as proportions. The continuous variable such as age was described as mean (standard deviation [SD]). The association between consumer characteristics and awareness on food label was analyzed using Chi-square test. \(^{2}\lt 0.05\) was considered for statistical significance. The compliance of food items was scored under each food labeling components through area of principle display, instructions for use, date of manufacture/expiry, net quality and batch code, manufacturer address, food additives, declaration of vegetarian or nonvegetarian food, nutritional information, and labeling requirement based on the required and obtained score and the percentage was obtained for both branded and locally made food items. The study was cleared by the Institute Ethics Committee.

**Results**

A total of 153 individuals participated in the study. The mean (SD) age participants was 38.05 (11.67) years, and among them, 52.2% were female. Majority of the participants were graduates (80.4%) and none of them illiterates. More than half of the participants were employed (62.1%), and almost 85% of the participants were married and living with family. One in every four participants had a family member with noncommunicable disease.

Table 1 shows the food purchasing and food labeling-related awareness and practices of the study participants. The awareness of food labels on prepacked food items was reported by 92.2% of the participants and 99.3% preferred food items with label. However, only 76% of the study participants checked for food labels every time during purchase and only 7.2% reported that understanding the food label was easy. The cost, instructions for use, ingredients, manufacture, and expiry date were checked by the majority of the participants. The reason for checking the food labels were health related (69.3%), pregnancy/under-five/noncommunicable disease (NCD) in family members (11.8%), weight reduction plan (9.1%), purchasing the food item for the first time (12.4%), and preferring organic food products (29.4%). The responses were obtained through open-ended question.

Participants suggested that simple, attractive food labels with bigger letter font will help in better utilization of them. There was no significant association between the consumers’ characteristics such as, age, gender, education, occupation, presence of NCD/pregnant/under five family member, and awareness of food label.

In the study, majority of the participants (68%) themselves were the major purchaser of the groceries to the family. At least once in a week, 84% of the participants purchased prepacked food items, which showed the intrusion and usage of prepacked food items into everyday life.

The compliance and completeness of the food label as per the guidelines was observed in 15 branded, and 15 locally made food items, each under one of the 15 Indian food categories. Among these food items, 100% completeness was found on manufacturer information and date of manufacture, expiry, or best before use. Branded items scored better in all the components except in the declaration of vegetarian or nonvegetarian food [Figure 2]. Provision of nutritional information such as fats, vitamins, energy value, nutritional claim, and health claim was not followed in both branded and locally made food items. The compliance of food items in all the components of food

![Figure 1: Study procedure and selection of study participants](image-url)
A discussion on food labeling in prepackaged foods with reference to consumer awareness about the information on the food label, purchasing practices and also the compliance of various categories of branded and locally made prepackaged food to the Food Safety and Standards Regulations, 2011. The study showed high level of awareness of consumers about the food labels of prepacked food (92.2%); however, the practice of referring to such label (76.5%) was comparatively less. The study also found that the complete compliance of food labels according to the standards was 70.2% in branded items and 62.8% in locally made food items.

**Discussion**

The current cross-sectional study focuses on various aspects of food labeling of prepackaged foods with reference to consumer awareness about the information on the food label, purchasing practices and also the compliance of various categories of branded and locally made prepackaged food to the Food Safety and Standards Regulations, 2011. The study showed high level of awareness of consumers about the food labels of prepacked food (92.2%); however, the practice of referring to such label (76.5%) was comparatively less. The study also found that the complete compliance of food labels according to the standards was 70.2% in branded items and 62.8% in locally made food items.
A mixed method study conducted in two metrocities New Delhi and Hyderabad, India in 2012 reported that almost 68% of the participants were purchasing prepacked foods items at least once in a week and 40% of them checked food items every time they purchase. However, in the current study, the frequency of purchasing prepacked food items was reported to be 84% and similarly checking the food labels during every purchase was 76%. Comparatively higher rates may be due to the factors, such as time, globalization, improved literacy, increased availability, and preference for prepacked food items. The study has similar results as the current study regarding information checked on the food labels such as cost, expiry date, and ingredients of food items. The increased utility of prepacked food items calls for awareness creation among the public and regulation of manufacturers and marketers in India for provision of information on the food they consume where the epidemic is happening in NCDs. Studies conducted elsewhere in the world reported varied results. In China, 28.7%, 70% in Potchefstroom, South Africa, 9%–16% of the US adolescents, and 72%–80% of Zimbabwe respondents checked the food labels every time they purchase and 12.2% of participants checked labels only in some occasions in Trinidad, West Indies.

In the current study, the most common reason for checking food labels was due to health-related reasons followed by pregnant women/under five/NCD in family member and weight reduction. Similar reasons were observed studies conducted in Trinidad, West Indies. As the public interest is focus on selecting the healthier food items, it is the duty of the health system and food department to provide easy and understandable information about the food products.

The current study showed that only 7% of the participants found that understanding the food labels was easy. The situation will be worse in rural areas were literacy level is low; however, the population is more. Studies conducted in Zimbabwe reported that 40.9% of study participants were able to understand the food labels, whereas 14.6% of the study participants from Trinidad, West Indies reported that the information in the food label is very confusing. In the current study, the participants suggested that the label should be simple, easy to understand, and attractive with bigger font size. Apart from these suggestions, studies from other parts of the world reported that the food labels should contain valid, truthful information, information on allergens, nutritional information on the front side of the pack, traffic signaling for the nutritional content, and better contrast for the label.

Although the current study attempted to find the factors influencing the knowledge of the consumers, none of the factors were significantly associated. More extensive study with larger sample size would reveal the factors which influence the consumer’s knowledge and behaviors. A study conducted in Texas, USA, reported that increasing age, higher education, and high income is associated with increased utilization of food labels.

The study reported that compliance of food items was 70.2% in branded items and 62.8% in locally made food items. The nutritional information was provided in 59.5% of the branded items and 34% of the locally available items. Similar observation (52%) was reported by a study conducted in Hyderabad in 2010. Although there is an improvement over the years, it is not so high. Robust surveys of all kind of food items for their compliance to regulations have to be made more rigorous.

The study has few implications. First, the awareness and preference of the food items with labels are high among the consumers. It has to be utilized to improve the purchasing behavior of the participants in a healthy manner through provision of information involving health sectors and media. Currently, none of the health programs in India focus on enlightening the public regarding food labeling and healthier food choices. Second, the understanding of the food labels was reported as difficult by most of the participants. Hence, innovative techniques have to be identified, tested and implemented to make the food labeling into a fruitful regulation. Third, the locally made food items scored less than branded items in most of the food labeling standards.

The current study has few strengths. First, this study in one of its kind to access knowledge and practices of the consumers and compliance of the food labels according to the standards. Very few studies are available in India in this regard. Second, assessment of consumers’ knowledge and practice after while leaving the shop helps in unbiased estimates the truth. Third self-reporting of the questionnaire reduces desirability bias. Fourth, assessment of food labels for the standards together with consumer’s knowledge helps in better understanding of the situation.

The study has few limitations. The food labels were checked for very few selected items, which may either under or overestimate the compliance of food items as per the standards. The study population visiting supermarkets were literates with better socioeconomic status. Hence, the study results cannot be applied to poor or rural population. As the questionnaire used is not a validated one, there may some degree of bias in the response obtained.

Conclusion

The study reported high level of awareness of food labels and preference of the food items with the food labels. However, the ease of understanding of the food label was reported very less. Multisectoral involvement, such as public health, social welfare, food and agriculture department in education the public as well as regulating the food manufacturers, is in the dire need of the country to improve the health status of the population.
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Conflicts of interest

There are no conflicts of interest.

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