

Consumers Awareness on Front of Package Food Labels (FOPL) and Practices While Buying Packaged Food in Warangal

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Abstract:

Background: In our fast-paced lives, the consumption of packed and processed food is on the rise. Front of Packed food Label (FOPL) can be a population-based strategy and a potential instrument for effective nutrition communication by assisting consumers to make healthy food choices at a glance. Hence, FOPL are essential to decrease the consumption of unhealthy processed food.

Aim of the Study: To assess the knowledge, perception and practices about FOPL among the consumers in Warangal district.

Materials: A cross-sectional study was conducted among 330 residents under urban training health center of a medical college in Warangal, Telangana from June 2023 to November 2023. Data was collected using self-administered questionnaire and interview after obtaining informed consent by systematic random sampling technique. Collected data was entered into Excel sheet and analysed using SPSS V 20. Descriptive and inferential statistical test were used for analysis. P value <0.05 was considered statistically significant.

Results: Approximately two-thirds (64%) of the sample population had a strong understanding of FoPL. 89.4% of the participants saw packaged food as beneficial. Only 25.8% of participants considered packaged food to be healthy. 72.7% respondents would read food labels while buying packaged food.

Conclusions: Awareness regarding Front of Package Labelling was good among 64% respondents. Among the various food labels, Multiple Traffic light seemed quick to understand by 56.4% respondents. 72.7% Respondents in the study read the food labels while buying packaged food. Majority respondents (>92%) who shopped looked only at the brand name, manufacturing date, and expiration date.

Keywords: Processed Food, Packaged Food, Front of Package Food Label (FoPL).

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Introduction

According to World Health Organization (WHO), non-communicable disease (NCD) accounts for 41 million deaths. Of which, four million is accounted to obesity. About 1.8 million annual deaths have been attributed to excess salt/sodium intake [1,2]. In past few years, with the advent of epidemiological shift India has witnessed a surge in the prevalence of overweight and obesity, along with non-communicable like diabetes and hypertension. National Family Health Survey 5 reports nearly 1 in 4 adults and 1 in 20 children as overweight or obese [3]. Sustainable Development Goal (SDG) 3 targets, specifically SDG 3.4 aims to reduce premature mortality from NCDs [4]. Unhealthy dietary practices make up a major contributor modifiable factor, accounting for more than 20% of adult fatalities [5]. Modern

globalization and urbanization have led to a rise in the consumption of packaged and processed foods. The total per capita sales of packaged and processed foods in India increased from USD 31.3 in 2012 to USD 57.7 in 2019 [6]. Processed and packaged food have become more ubiquitous in diets due to their affordability, accessibility, and ease of preparation [7]. They have a voluminous amount of sugars, salt, saturated fats, and refined carbohydrate in them. Overindulgence in ultra-processed meals and these nutrients raises the risk of obesity and associated NCDs [8]. As a result, numerous public health initiatives have been designed and leveraged across the world to assist individuals in changing their dietary habits. WHO, the World Bank, and FAO have advocated front-of-package labelling (FOPLs) to lower the

consumption of packaged goods high in added sugar, salt, saturated fat, and trans fats [9]. FoPLs provide quick insight into the products that customers purchase. FOPLs have two main objectives: to enhance the nutritional quality of food purchases and to quickly and easily inform customers about the nutritional quality of food [10]. The Food Safety and Standards Authority of India (FSSAI) released a draft on Food and Safety Standard regulation on 2022 for implementation of a front-of-package warning labelling system [11]. UK's traffic light and Australia's healthy stars, Chile's black octagonal labels to identify products high in certain nutrients, has demonstrated significant positive effects. There is a notable decrease in purchases of sugar-sweetened beverages and a reduction in total calories, sugar, and sodium consumption from unhealthy foods [12-14]. Awareness and reading the Front of Package Label (FoPL) helps in reducing non-communicable diseases and lead a healthier lifestyle. Therefore, this study was focused at assessing the awareness and practices related to Front of Package Label (FoPL) while buying packaged goods in Warangal District, Telangana State, India. This study also investigated consumer's perception related to various types of food labels and consumption of various packaged food items.

Materials:

A Community based cross sectional study was done among residents of Ursu which comes under urban training health center of Kakatiya Medical College, Warangal district, Telangana State. Houses were recruited from June 2023 to November 2023. Those who were resident for more than 5 years and above 20 years were included in the study. Those who did not give consent were excluded from study. Sample size was estimated using the Cochran's formula, $n = Z^2pq/d^2$. With prevalence of 74% [15], absolute precision of 5%, 95% confidence interval (CI) and 10% response rate, it was estimated to 330. After line listing all the houses from the ward by systematic random

sampling every 4th house was taken till the required sample size was achieved. Data was collected by administering a pretested and semi structured questionnaire and interview method.

Inclusion Criteria: Participants of both genders were included. Participants aged above 19 years and below 79 years were included. Participants who were responsible for the family purchasing were included. Participants who were students, employed or unemployed populations were included. Participants belonging to populations of all the socio-economic strata were included. Participants belonging to all the religions were included. Participants residing in the catchment area of the urban health center were included.

Exclusion Criteria: Participants aged below 19 years and above 79 years were excluded. Participants who were chance visitors to the urban health center were excluded. Participants not willing to participate in the study were excluded. Participants unable to understand the questionnaire were excluded. The questionnaire was divided into 4 parts which consisted of:

a) Socio-demographic factors: Age, gender, education, occupation, socioeconomic status classified using modified B.G. Prasad scale, type of family;

b) Awareness regarding Food labeling: It was assessed by basic questions like whether food items come with label, location of label, purpose and helpfulness of front of package food labels.

c) Perception about food labelling: Details for MTL (multiple traffic lights), WL (warning labels), HSR (health star ratings) and RI (reference intake) were given to the respondents along with coloured pictures of various FoPL labels. The respondents were then asked to rate the various types of FoPL labels they liked best; (Figure A) and

d) Practices followed regarding food labelling: Consumption of packaged and processed food, verifying expiry date, manufacturing date, veg and non- veg symbols and the nutritive value.



Figure 1: Various Types of FoPL Labels That Were Assessed

Data was collected after obtaining informed consent in vernacular language. Data was entered in MS Excel and exported to IBM SPSS Statistics for Windows, Version 20.0. Armonk, NY: IBM Corp. for analysis. Descriptive statistics like frequency and percentages was used express baseline characteristics. Categorical variables were analysed using chi-square test, p-value <0.05 was considered statistically significant.

Results

In this study, total of 330 consumers were surveyed with mean age group of 33.35 ± 13.79 , minimum age was 19 years and maximum age 79 years. The Majority of the respondents were male 54.2% and females were 45.8%. Over half of the respondents were unmarried 57%. Out of 330 respondents, 22.7% were unemployed, employed 42.1% and

students 35.2%. Socioeconomic distribution of study participants was 55.2%, 17.6%, 14.2%, 7.9% and 5.2% in upper, upper middle, middle, upper lower and lower, respectively. Approximately, three-fifth of the respondents held graduate degrees 64.2%. Responsibility of shopping was shared by 53.3% and self by 46.7%.

Gender, religion, socioeconomic status and responsibility of shopper was statistically significant with awareness of FoPL, p-value <0.05. [Table 1] Awareness about FoPL was good among 64% and majority 89.4% believed FoPL to be helpful. [Table 2] Among the various food labels Multiple Traffic light seemed quick to understand by 56.4% respondents. Reference index was difficult to understand by 33.8% and 44.8% would like to implement Warning Label. [Figure 1]

Table 1: Socio-demographic Characteristics and Association with Awareness Regarding FoPL (n=330)

Variable		Awareness Regarding FoPL		Chi-square value	p - Value
		Poor	Good		
Gender	Male	82 (45.8)	97 (54.2)	17.21	<0.01*
	Female	36 (23.8)	115 (76.2)		
Marital Status	Married	56 (39.4)	86 (60.6)	1.46	0.22
	Unmarried	62 (33)	126 (67)		
Religion	Hindu	71 (27.6)	186 (72.4)	34.34	<0.01*
	Christian	13 (56.5)	10 (43.5)		
	Muslim	34 (68)	16 (32)		
Occupation	Unemployed	33 (44)	42 (56)	5.081	0.079
	Employed	52 (37.4)	87 (62.6)		
	Student	33 (28.4)	83 (71.6)		
Education	Illiterate	10 (45.5)	12 (54.5)	3.79	0.285
	Primary	16 (47.1)	18 (52.9)		
	Secondary	23 (37.1)	39 (62.9)		
	Graduate	118 (35.8)	212 (64.2)		
Socioeconomic status	Upper class	65 (35.7)	117 (64.3)	10.72	0.03*
	Upper middle	16 (27.6)	42 (72.4)		
	Middle	23 (48.9)	24 (51.1)		
	Lower middle	12 (46.2)	14 (53.8)		
	Lower	2 (11.8)	15 (88.2)		
Responsibility of shopping	Self	67 (43.5)	87 (56.5)	7.54	0.006*
	Shared	51 (29)	125 (71)		
Read FoPL	Yes	78 (32.5)	162 (67.5)	4.065	0.044*
	No	40 (44.4)	50 (55.6)		

* Statistically Significant with p-value <0.05

Various packaged food like Breakfast cereals like cornflakes and muesli was consumed daily by 49.1% respondents. Weekly consumption of breads and buns (41.2%), namkeen and chip (38.5%), cookie/biscuit (45.2%), chocolate (45.5%) and aerated beverages (34.5%) were also observed. Pasta/noodles, package juice (Maza, Badam milk, milk-shakes) and frozen food item (frozen paratha, frozen potato/corn/green peas) were consumed monthly by 41.8%, 40.6% and 33% respectively. [Figure 2]

Table 2: Awareness Regarding Front of Package Food Label (FoPL) (n=330)

Variables	Frequency (%)	
Food items comes with FoPL	Yes	293 (88.2)
	No	37 (11.2)
FoPL serves any purpose	Yes	287 (87)
	No	43 (13)

Location of FoPL	Front/back/side	294 (89.1)
	Don't Know	36 (10.9)
Are packaged food healthy	Yes	85 (25.8)
	No	245 (74.2)
Will it be helpful to have FoPL	Yes	298 (89.4)
	No	35 (10.6)
Awareness Grading	Good	212 (64)
	Poor	119 (36)

Daily consumption of various packaged food was predominantly seen in participants more 33 years, which is statistically significant ($\chi^2=31.89$, $df=3$, p -value <0.001). Ready to cook food items like 2-minute upma, oats, idly/Dosa batter were used almost equally by males (54.2%) and females (45.8%). Different labels like manufacturing date (70.6%), expiry date (75.2%) and brand name (87.6%) is almost seen always by majority of the respondents. [Table 3]

Table 3: Consumers' Practice While Buying Packaged Food

Food Labels	Always (%)	Sometimes (%)	Never (%)
Brand name	248 (75.2)	46 (13.9)	36 (10.9)
Manufacturing date	223 (70.6)	70 (21.2)	27 (8.2)
Expiry date	289 (87.6)	23 (7)	18 (5.5)
Sugar/Calories	44 (13.3)	162 (49.1)	124 (37.6)
Salt	56 (17)	134 (40.6)	140 (42.4)
Protein	69 (20.9)	131 (39.7)	130 (39.4)
Saturated Fats	57 (17.3)	149 (45.2)	124 (37.6)
Trans fat	74 (22.4)	139 (42.1)	117 (35.5)
Allergen	80 (24.2)	77 (23.3)	173 (52.4)
Veg/Non veg	159 (48.2)	77 (23.3)	94 (28.5)
ISI Mark	92 (27.9)	123 (37.3)	115 (34.8)
AGMARK	79 (23.9)	126 (38.2)	125 (37.9)
FSSAI License	84 (25.5)	121 (36.7)	125 (37.9)

Nutritional information like calorie, salt, protein, saturated fats and trans-fat is predominantly (81.4%) seen by less than 33 years age group, which was significant with p -value 0.05 ($\chi^2=12.051$, $df=2$, p -value =0.002). Most common reason for consumption of packaged food was easy to prepare (36.6%) and tasty (33.3%) followed by long shelf-life (18.6%). [Table 4]

Table 4: Reason for Consumption of Packaged Food

Variables *	Frequency (%)
Easy to Prepare	210 (36.6)
Tasty	191 (33.3)
Affordable	66 (11.5)
Long Shelf Life	107 (18.6)

* Multiple responses variables

The participant's perception regarding various food labels in terms of 1. the label being best helps to choose, 2. Like to try the quality of the food, 3.

Difficult to understand the label, 4. the label helped to understand quickly about the quality of food were rated in the categories of Health star rating, reference index, warning label and multiple traffic light was shown the Figure. 1 below. "Multiple traffic light" category labels were found to be

helpful in quickly understanding the type and quality of the food package selected in 56.40% of the participants.

The next common category was "Warning label" helped the participants to try the quality of the food in 44.80% of the participants [Figure 1]. Also, figure 3 showed the Consumption of various types of Packaged Food and their frequency of purchase in a bar chart.

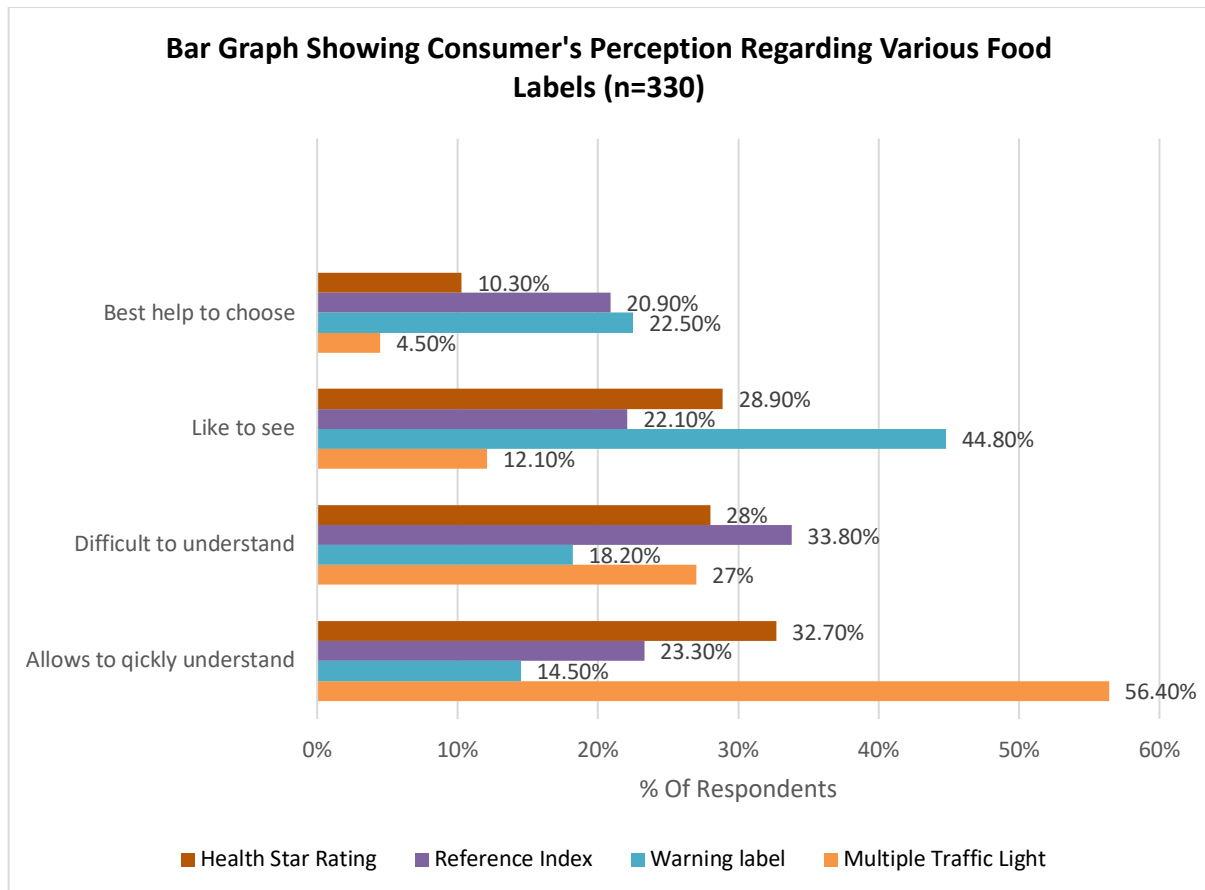


Figure 2: Bar Graph Showing Consumer's Perception Regarding Various Food Labels (n=330)

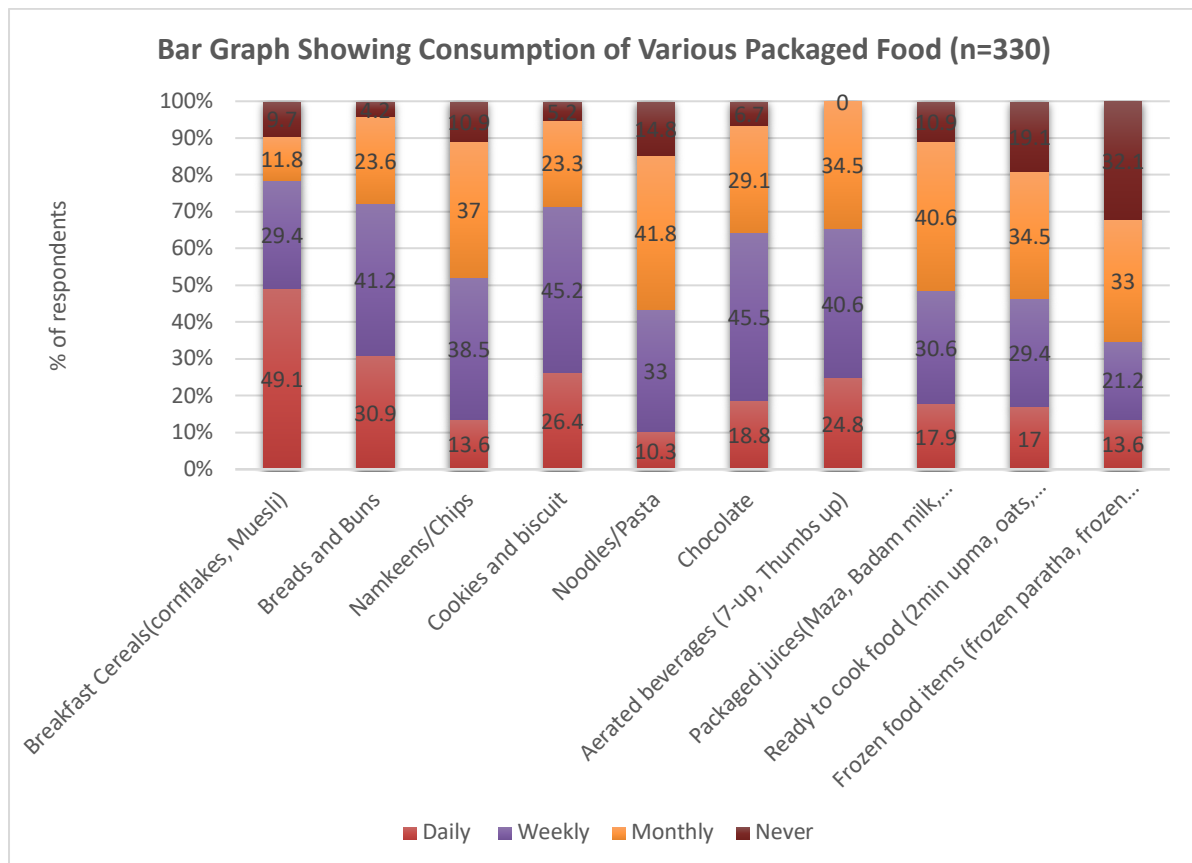


Figure 3: Bar Graph Showing Consumption of Various Packaged Food (n=330)

Discussion

India's Food Safety Standards Authority (FSSAI) implemented nutrition labelling requirements in 2011, which were later amended in 2018 and 2020. However, the execution of these standards is not strong enough. This current study explored the awareness about Front of Package Label (FoPL) and practices followed by consumers while buying packaged foods. Our study found that around two-thirds (64%) had a strong understanding of FoPL and 89.4% saw packaged food as beneficial. Only 25.8% of participants considered packaged food to be healthy.

Awareness of FoPL was found to be statistically significant with gender, religion, socioeconomic status, and responsibility of the shopper. Labels like Multiple Traffic light was found to be easy understandable by 56.4% participants and reference index difficult by 33.8%. Study done by Bhattacharya et al in 14 states in India showed higher 95% awareness about FoPL, 88.6% considered it helpful and 55.4% believed packaged food to be healthy. The majority of consumers favoured Warning labelling (WL) over Multiple Traffic Lights on food labelling [16]. Gomathi et al study in Puducherry showed 92.2% awareness and no significant association with age, sex, education and occupation [17]. In this study, 72.7% had practice of reading FoPL like manufacturing date (70.6%), expiry date (75.2%) and brand name (87.6%) while buying packaged food. Similar finding of 74.2% was observed in a study conducted by Indian Council of Medical Research – National Institute of Nutrition (ICMR-NIN) [15]. Study by Vemula et al., 92% of urban consumers practiced reading food labels. Best before dates/expiry dates were seen by 81% and 60% ready quality symbols. Food safety, especially shelf life, was their main concern by majority consumers' [18]. A study in Indore, India, found that 9.3% of shoppers use nutrition information [19].

An in-store observational study by Grunert et al, found that 27% of UK buyers checked nutrition labels [20]. In Portugal study by Gomes et al, 41.2% of food buyers did not verify nutritional value [21]. Higher education is linked to a healthy diet in several studies. Highly educated customers read food labels better than less educated ones [22,23]. We observed that employed people and age <33 years consumed more packaged food and beverages than unemployed and older individuals. In a FGD done by Subbha et al in Hyderabad among adolescents pointed out their familiarity with quality symbols like ISI and AGMARK, which they learned at school. However, this was not the case in Delhi. It is possible that nutrition-related subjects, especially topics like 'reading food labels', are not included in the current school

curricula in India [24]. In this study, breakfast cereals are consumed daily by almost half respondents. It was also seen that people consumed breads and buns (41.2%), namkeen and chips (38.5%), cookies and biscuits (45.2%), chocolate (45.5%), and aerated drinks (34.5%) once a week. In study done multi centric cross-sectional study, most respondents (51.7%) ate namkeen every day, whereas fewer than half (45.7%) ate cookies or biscuits. Most respondents ate morning cereals (34.1%), chocolate (46.6%), noodles (42.8%), and packaged juices (38.3%) monthly. Aerated drinks were consumed weekly by 43.7% of respondents [16].

In a study by Law et al, purchase of packaged and processed foods varies, and there are inconsistent trends over time and throughout the states' metropolitan regions in India. The surging purchase of sweet snacks, salty snacks, edible oils, and 'other processed foods', which increase sugar, salt, and fat intake, is a public health risk and may require more governmental initiatives to address [25]. The challenge is the lack of awareness regarding the efficient utilisation of nutrition labelling. Thus, understanding food labels and nutrition labelling regulations implemented by Government of India is crucial for minimising the burden of non-communicable diseases and promoting healthy lifestyle.

Conclusion

In this study awareness regarding Front of Package Labeling was good among 64% respondents. Among the various food labels Multiple Traffic light seemed quick to understand by 56.4% respondents, which is being used and implemented in countries like United Kingdom, Ecuador and Korea. Also, 72.7% respondents would read food labels while buying packaged food. Majority respondents who shop only look at the brand name, manufacturing date, and expiration date. Few customers also saw the nutritional information, despite the fact that it is essential to lower dietary intake of high-calorie, sugar, salt, and fat foods. This survey also shows that there has been a spike in the consumption of a variety of packaged foods. Thus, this study demonstrates that there is a limited awareness and enforcement of package labelling.

Recommendations

With rising non-communicable disease, our country urgently requires multisectoral engagement, involving public health, social welfare, food and agriculture departments, to educate the public and regulate food makers in order to enhance the health status of the population. Food labelling can also be a part of school curriculum, especially in nutrition related subjects.

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