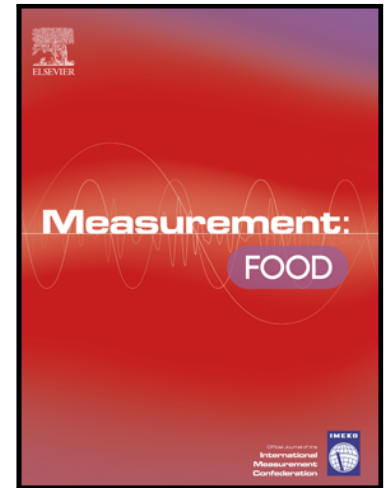


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Examining claims on food packages in India: Are they inadequate and deceptive?

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Highlights

- The present study finds that ‘natural’ is the most commonly used word claim used on food packages.
- Unhealthy foods (high in fat, sugar, and sodium) are found to carry word claims as well nutrition claims.
- The food packages are also found to carry prohibited claims or offer claims which do not fulfil the conditions specified for using them.
- A large majority of word claims present on food packages cannot be verified against the guidelines provided by FSSAI.
- A large number of claims on foods with high content of fat, sugar and salt is strongly misleading for consumers.

Examining claims on food packages in India: Are they inadequate and deceptive?

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Thanks and Best regards.

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Abstract

This study examines the presence of claims on 230 food packages marketed in India and the extent of compliance with guidelines provided by the Food Safety and Standards Authority of India (FSSAI). The results reveal that word claims (natural) and nutrient content claims are most popularly used on food packages. Still, a large number of claims used on food packages cannot be classified or verified due to the absence of clear definitions from the regulator. In addition to this, unhealthy foods carry claims and foods also contain claims which have been stated as prohibited. These findings call for timely necessary actions on part of the regulator to protect the health of consumers.

Keywords: Food packages, claims, India, regulation, deception

Introduction

Consumers perceive health information on food labels as truthful and backed by scientific evidence (Bosman et al., 2012). Food packages carry labels to depict detailed nutrition information by specifying the content of each nutrient in the food. Disclosure of nutrition information has increased owing to legislative measures and growing interest of consumers in nutrition information. Marketers use nutrition information to highlight the presence of nutrients and promote the food brand. Referred to as nutrition marketing, the prominently used nutrition marketing techniques include health claims, structure/function claims, nutrient content claims and statement of facts (Colby et al., 2010; Kasapila and Shaarani, 2013; Hieke et al., 2016). For example, Colby et al. (2010) found that nutrition marketing was used on 49 percent products. They included health claims (8.6%), nutrient content claims (75.7%), statement of facts (67.1%) and structure/function claims (5.8%). Word claims (such as low fat) on packages attract greater consumer attention (Gezmen-Karadag and Turkozu, 2018), are easy to understand (Shangguan et al., 2019) and influence consumer choice (Gezmen-Karadag and Turkozu, 2018). Consumers also think that the claims offer sufficient and credible information to make purchase decisions (Shangguan et al., 2019). So, they seldom refer to detailed nutrient information to confirm the truthfulness of claims (Chandon and Wansink, 2007). A claim stating that the food does not contain added sugar is perceived to be healthy by consumers (c.f. Lwin et al., 2015). However, mixed results have been obtained regarding presence of nutrition claims on food packages and

conformance of foods to nutrition composition information. Pereira et al. (2022) reported that nutrition claims were in conformance with nutrition composition of the marketed food. However, Kaur et al. (2016) confirmed that the foods carrying health claims aiming at disease reduction or specific nutrient functions contained low fat and sugar but high content of sodium meaning that they were only slightly healthier than the unhealthy foods. Al-Ani et al. (2016) also found that claims were widely used on healthy as well as unhealthy foods. Scholars (Talati et al., 2016) uphold that the presence of claims on unhealthy foods create perceptions of healthfulness of those foods which can potentially mislead consumers.

Claims are popularly placed on the front of food packages (FOP) as FOP attract a lot of consumer attention. Use of a green dot to suggest that the food is vegetarian and a red dot to identify non-vegetarian foods is one of the most commonly sought information from front of pack labels. Presence of claims on the front of a package work as a signpost and help consumers focus on summary information and make an informed choice (Van Kleef and Dagevos, 2015). When marketers use food images to make consumers remember health claims along with text-based information, consumers make false interpretations based on food images and forget about the text-based message suggesting that the food is unhealthy (Delivett et al., 2022).

In India, nutrition labelling is a relatively recent phenomena as Indians prefer to eat home cooked meals. However, urbanization, time poverty, emergence of supermarkets and convenience of food delivery offered by food apps and aggregators have led to higher consumption of more processed and packaged foods. So, the Foods Safety and Standards Authority published the first draft regulations on food labelling in 2012. Thereafter, front-of-pack food labelling regulations were published in 2018. The regulator is still trying to identify the best symbol and text combination of displays on front-of-pack food labels to make it understandable for the masses (Pande et al., 2020). Due to lack of nutrition literacy, many shoppers do not use food labels. The ones who try to seek information find it ambiguous or difficult to comprehend due to information inadequacy (Khurana and Dhingra, 2021). While it is known that nutrition and health claims are used on food packages in India (Manthena et al., 2012), the manner in which claims comply with the regulations to offer sufficient and substantial information needs to be established. So, the present study aims to uncover the presence of claims on food packages, its conformance to

FSSAI regulations and the extent to which they promote unhealthy foods. This study will help the policy makers bring adequacy in the nutrition labelling requirements for food marketers.

Methods

Selection of food companies and food categories

Fourteen leading packaged food companies have been considered for selection of food products to record presence of nutrition information as defined in the report of Indian Food Processing Industries given by India Law Offices (Available at http://www.indialawoffices.com/ilo_pdf/641469785421.pdf). Nine relevant food categories have been selected from the “Indian Food Code” for categorization of food defined by Food Safety and Standards Authority of India (FSSAI). As data regarding food labelling was required, nine food categories related to packaged foods only were considered for this study. Other food categories relating to unprocessed foods such eggs, meat, fish, fruits and vegetables were not included as they did not carry nutrition information. The selected food categories were: Bakery, Beverages excluding Dairy Products, Cereals and Cereal Products, Confectionary, Dairy Products and Analogues, Fats and Oils and Fats Emulsions, Foodstuffs Intended for Particular Nutritional Uses, Ready-To-Eat Savouries and Salt, Spices, Soups, Sauces, Salads and Protein Products. Foods belonging to these categories have also been found to be highly marketed in India (Soni, 2016).

Sampling

Websites of selected fourteen companies were visited and available brands were listed. All the variants of a product were considered as unique but flavors were counted as one product. This led to a sample of 230 products. The sample foods were purchased from a leading retailer in Amritsar city (India).

Data collection

The draft report of “Regulations on labelling (claims)”, 2012 given by FSSAI has been used to prepare code book that defines the nutrient information extracted from packaged foods. Accordingly, the examined claims are categorized as—words or phrases as part of claims/brand or fancy name/trademark, nutrition claims and disease risk reduction claims. The presence and extent of disclosure of three types of claims has been examined based on the conditions provided

in the draft report. Two coders independently coded the items (inter-coder reliability 92%). Data collected through content analysis has been compiled and analyzed using SPSS.

Data analysis

The extent of disclosure of these claims on packaged foods and the place of presence of disclosed claims i.e., on the front and the back of food packages has been recorded. These claims have been further compared with the conditions specified for using these claims given by the FSSAI in order to check the level of compliance with regulatory guidelines.

Findings

According to FSSAI, companies can use some specific words or phrases on product packages. These words are—natural, pure, fresh, premium/finest/best/ authentic/genuine/real, traditional and original. Nutrition claims highlight the nutrient properties of a food such as low fat, low cholesterol, source of protein etc. Disease risk reduction claim relates to the consumption of nutrient leading to the risk factor of a disease. For example, sodium consumption leads to hypertension. It helps the consumers to choose foods as per their dietary needs. Use of these claims have been identified from foods and listed in Table 1.

Table 1: Presence of claims on packaged foods

Claims	Details of claims	Major food categories using them	Companies		χ^2 -value
			Indian companies	MNCs	
Words or phrases as part of claims	Natural 24(10.43)	Fats and oils, and fats emulsions(33.3%) Beverages, excluding dairy products(26.0%)	37 (57.8)	27 (42.2)	0.963
	Pure 19(8.26)	Cereals and cereal products (36.0%)			
	Premium/finest/best/authentic/Genuine/real 19(8.26)	Beverages, excluding dairy products(22.2%)			
	Traditional 11(4.78)	Cereals and cereal products(32.0%)			

	Original 5(2.17)	Cereals and cereal products(8.0%)			
Nutrition claims	Low fat (3.48%)	Salts, spices, soups, salads and protein products(25.0%)	27 (41.5)	38 (58.5)	4.454*
	Low cholesterol (0.87%)	Fats and oils, and fats emulsions(16.7%)			
	Cholesterol free (3.48%)	Fats and oils, and fats emulsions(8.3%)			
	Low saturated fat (0.87%)	Fats and oils, and fats emulsions(8.3%)			
	Trans-fat free (9.57%)	Bakery products(31.6%)			
	Low sugar (0.87%)	Bakery products(3.5%)			
	With no added sugar/without added sugar (2.61%)	Foodstuffs intended for particular nutritional uses(28.6%)			
	Source of protein (2.17%)	Cereals and cereal products(16.0%)			
	Source of dietary fibre (2.17%)	Cereals and cereal products(12.0%)			
	High in dietary fibre or rich in dietary fibre (1.74%)	Bakery products(5.3%)			
	Source of (name of vitamins and /or name of minerals (3.04%)	Fats and oils, and fats emulsions(8.3%)			
	Contains (name of the nutrients or other substance (13.91%)	Confectionary(53.3%)			
Disease risk reduction claims	Sodium and hypertension (0.87%)	Cereals and cereal products(4.0%)	1 (33.3)	2 (66.7)	0.453
	Dietary saturated fat and cholesterol and risk of coronary heart disease (0.87%)	Cereals and cereal products(8.0%)			
Total			65	67	

*p<0.05

Table 1 depicts that the word ‘Natural’ is most commonly used word claim used on packaged foods as recorded on 10.43 percent of all foods, 33.3 percent fats and oils, and fats emulsions and 26.0 percent of beverages, excluding dairy products. Use of the words ‘pure’ and ‘premium/finest/best/authentic/genuine/real’ is also observed on 8.26 percent foods each. The word ‘pure’ is recorded on 36.0 percent cereals and cereal products and ‘premium/finest/best/authentic/genuine/real’ is observed on 22.2 percent beverages, excluding dairy products. The words ‘traditional’ (4.78%) are seen on cereals and cereal products (32.0%). The claim ‘original’ (2.17%) has low presence whereas the word ‘fresh’ is not at all used on any of the sampled foods. About nutrition claims, the claim ‘contains (name of the nutrient or other substance)’ is the highest used claim on sampled foods presented on 13.91 percent foods and is highly disclosed on confectionary products (53.33%). It is followed by ‘trans-fat free’ claim, found on 9.57 percent of foods and popularly used on products of bakery products. Nearly three percent foods are found with claims on the food packages about ‘low fat’, ‘cholesterol free’ and ‘source of (name of vitamins and/or name of minerals)’. Presence of other claims is also noted during the analysis but to a limited extent. For example, disclosure of claims—with no/without added sugar (2.61%), source of protein (2.17%), low cholesterol (0.87%) and low saturated fat (0.87%) is found to be very low. Regarding dietary fiber, two type of claims i.e., ‘source of dietary fibre’ and ‘high/rich in dietary fiber’ are noticed on food packages. Both claims are found on approximately two percent of products. Bakery foods and foods from the category ‘fats and oils and fat emulsions’ are found to carry highest claims showing that the food is trans-fat free, cholesterol free, contains low cholesterol, low fat and low saturated fat etc. Most of the cereal and cereal products (16.0%) claim that they are a good source of protein and dairy products and analogues (7.89%) claim that they contain ‘low fat’. Ready-to-eat savories (2.44%) claim that they are trans-fat free and beverages excluding dairy products (7.41%) claim that they do not contain added sugar.

Table 1 clearly depicts that the disclosure of disease risk reduction claims is negligible. Only four such claims have been found on food labels. These claims have been grouped as per the FSSAI guidelines i.e., ‘sodium and hypertension’ and ‘dietary saturated fat and cholesterol and risk of coronary heart disease’. Both these claims have been used for beverages and cereals.

A comparison has been made between Indian companies and MNCs about use of nutrition marketing techniques on food labels using the χ^2 test. The results reveal that there are statistically significant differences in use of nutritional claims on packaged foods between these companies ($p < 0.05$). Use of these claims is higher in case of MNCs as compared to Indian companies. While, in case of ‘use of words and phrases as part of claims’ and ‘disease risk reduction claims’, no statistically significant differences are found.

Besides information identified as ‘claims’, other nutrition information has also been noted on food packages. This information is summarized in Table 2.

Table 2: Other nutrition information on food labels

S. No.	Statements	Frequencies
1.	This product/milk is not to be used as infant/breast/mother’s milk substitute	5
2.	Frozen dessert contains edible vegetable oil	4
3.	Allergen information	43
4.	No MSG	9
5.	Not a significant source of other micronutrients/ dietary fibre, vitamin, iron etc.	13
6.	100% vegetarian	7
7.	Contains caffeine	3
8.	Highlighting nutrients with their percentages	23
9.	Highlighting nutrients without percentages	23

The above table reveals that information regarding food allergies is highly labeled on foods. Forty-three products contain allergen information on the product packages. Twenty three packaged foods highlight nutrients ‘with percentages’ and ‘without percentages’ on the front of packages to attract attention of consumers. It is followed by the statement ‘not a significant source of other micronutrients/dietary fibre, vitamins, iron etc.’ which is seen on thirteen products. Nine products disclose ‘no MSG’ (mono sodium glutamate) and seven products claim that their content is 100% vegetarian. During the analysis, five milk products are noted with the statement ‘This product/milk is not to be used as infant/breast/mother’s milk substitute’ and four

products are found with the statement ‘Frozen dessert contains edible vegetable oil’. Few food packages (n=3) also state that the food ‘contains caffeine’.

The claims on packaged foods (refer Table 1) have been further analyzed according to their place of presence on food packages as—(a) front of pack only- claim disclosed only on front pack of the products, (b) back of pack only- claim disclosed only on back pack of the products, (c) both (front and back)- same claim is disclosed on front as well as the back pack of the products and the rest are categorized as others, (d) “Others”- along with front and back of pack, if the same claim is disclosed at any other place also (top, bottom, sides) or the claim is disclosed on either side of the package.

Table 3: Place of presence of claims on packaged foods

Claims	Place of presence				Total claims
	Front pack only	Back pack only	Both (front and back)	Others	
Words or phrases as part of claims	34 (38.64)	15(17.04)	12(13.64)	27(30.68)	88
Nutritional claims	33(28.95)	44(38.59)	10(8.77)	27(23.68)	114
Disease risk reduction claims	-	4(100)	-	-	04
Total	67	63	22	54	206

Table 3 depicts that in all 206 claims are found on sampled foods which include 114 nutrition claims, 88 words or phrases as part of claims and 4 disease risk reduction claims. Most of the times, words or phrases (38.64%) are shown on the front of the packages. In nearly thirty one percent cases, ‘others’ (sides of product packages) are also used for placing claims. Nearly seventeen percent claims are also found on the back of the packages. Few companies also use both front and back of the packages for disclosing claims as seen from 13.64 percent claims. Regarding nutrition claims, it is found that out of 114 nutrition claims, a majority of the claims (39.0%) are placed on the back of the package and nearly twenty nine percent claims on the front of the packages. There are 8.77 percent nutrition claims that are shown on both (front and back) sides of the product packages whereas 23.68 percent claims are categorized as ‘Others’. Table 2 reveals that all the disease risk reduction claims are presented on the back of packages. It may be due to the reason that these claims are in statement form and require large space on the packages.

Along with the list of approved claims (words or phrases as part of claims, nutrition claims and disease risk reduction claims) FSSAI has also specified conditions for using them on product packages. As these claims affect food choice of consumers, FSSAI tries to limit misleading claims on packaged foods through these conditions. The claims found on packages are analyzed against their conditions in order to examine the extent of compliance to the regulations.

Table 4: Analysis of claims against regulatory provisions

Types of claims	Claims not analyzed	Prohibited claims	Conditions violated	Conditions satisfied	Total claims
Words or phrases as part of claims	83	05	-	-	88
Nutritional claims	34	-	20	60	114
Disease risk reduction claims	-	-	02	02	04
Total	117	05	22	62	206

It is shown in Table 4 that out of a total of 88 words or phrases as part of claims found on food packages, 83 claims could not be verified for compliance as the guidelines given by FSSAI for these words are define qualitatively and there are no quantitative criteria to measure it. Further, FSSAI has clearly described the words that should not be used as claims on food packages as a claim. Five food packages are found with these prohibited claims. For example, it is specified that words such as “natural goodness”, “naturally better” and “nature’s way” should not be used on food packages. But five products have been found to carry the claim—‘naturally good’. Four dairy products and analogues and one package for fats and oils, and fats emulsions. Cereals and cereal products were found to carry 26 claims viz. original, natural, pure, traditional and real which cannot be verified as FSSAI has provided only qualitative criteria for their use. Similarly, beverages, excluding dairy products were found to carry 21 claims viz. Natural (7), real (6), pure (3), naturally (5), which are not verifiable due to absence of quantitative criteria.

Out of 114 nutritional claims, twenty claims do not fulfill the conditions specified for using them. The conditions of claims used are violated either due to the presence of more content of nutrient in the food then their threshold or due to non-disclosure of content of claimed nutrients in the nutrition information panel (supplementary file). Prohibited claim is also recorded on one food package which does not fulfil the condition for using the claim. The presence of such

claims is recorded on cereals and cereal products (n=5) followed by bakery products (n=4), dairy products and analogues (n=3), fats and oils, and fats emulsions (n=3), foodstuffs intended for particular nutritional uses (n=2) salts, spices, soups, sauces, salads and protein products (n=2) and beverages, excluding dairy products (n=1). Sixty claims found on food packages have fulfilled the conditions specified by the regulatory authority for using them. Nutrient content of these claims is found within the defined limits and also the claimed nutrients are disclosed in the nutrition information panel. Thirty-four nutrition claims have also not been analyzed due to absence of quantitative criteria. About disease risk reduction claims, two claims have met the conditions laid for them while two have not as the content of claimed nutrient is more than the specified limit of using it as a claim.

Furthermore, three types of claims (words and phrases claims, nutrition claims and disease risk reduction claims) identified on food packages have been analyzed for the extent to which the products contain nutrition marketing on unhealthy foods (which contain high content of sugar, fat, saturated fat and sodium).

Table 5: Use of claims on unhealthy foods

Use of claims	High content of total sugars, total fat, saturated fat and sodium				
	Total sugars	Total fat	Saturated fat	Sodium	Total
Words or phrases as part of claims	10	13	17	06	46
Nutritional claims	24	26	26	02	78
Total	34	39	43	08	124

The results reveal that 124 unhealthy products contain nutrition marketing on food packages. Out of these products, maximum products (43) are high in saturated fat followed by total fat (39), total sugars (34) and sodium (8). It is also found that companies prefer to disclose nutrition claims on products high in content of these four nutrients as the presence of claims are found on seventy-eight products. Presence of forty-six words or phrases as part of claims has been noticed on foods with high content of total sugars, total fat, saturated fat and/or sodium. Few products (seven) are also noticed during the analysis on which nutrition claim is used but the concerned nutrients are not disclosed in the nutrition facts panel.

Products high in content of total sugars, total fat, saturated fat and sodium are further analysed across food categories to identify top two food categories with high content of negative nutrients that also contain nutrition marketing. The results are visualized in figure 1.

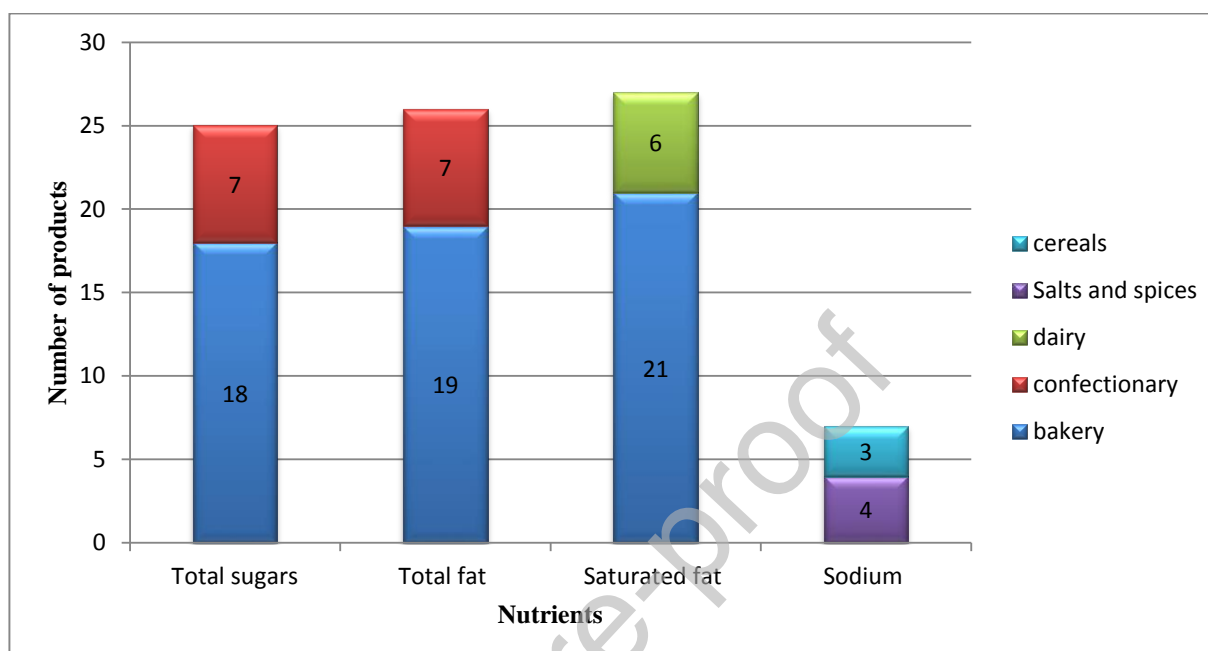


Figure 1: Analysis of claims on unhealthy foods across food categories

The figure reveals that highly unhealthy products that use claims belong to the bakery category. It was found that 18 bakery products are high in total sugars, 19 products are high in total fat and 21 products are high in total saturated fat that use claims on the product packages. Beside bakery products, claims are identified on the categories— ‘confectionary’, ‘cereal and cereals products’, ‘dairy products and analogues’, and ‘salts, spices, soups, salads and protein products’.

Discussion

This cross-sectional study presents the frequency and nature of claims used on packages of nine food categories in India, the extent to which they are used on unhealthy foods and the use of prohibited claims. The findings suggest that ‘natural’ is the most commonly used word claim used on food packages. Nutrient content claims are used to disclose information on nutrients which have been marked as mandatory by FSSAI as well as other nutrients which are disclosed by the marketers voluntarily. It is seen that the claim ‘trans-fat free’ is most commonly used on foods. FSSAI has identified disclosure of energy, protein, total carbohydrates, total sugars, added sugar, total fat, saturated fat, trans-fat/ cholesterol and sodium as mandatory on food labels. This

study finds that low fat, low cholesterol, cholesterol free, low saturated fat, trans-fat free, low sugar, with no/without added sugar, and source of protein are the claims used for nutrients identified as mandatory by FSSAI. Source of dietary fiber, high/rich in dietary fiber, source of vitamins and minerals, contains nutrient or other substance are claims used on nutrients which can be disclosed voluntarily. The voluntary claims are found on cereals and cereal products wherein 20 percent products carry the claim ‘contains (name of nutrients or other substance)’, 12 percent foods carry the claim—source of dietary fiber and 4 percent products are related to high/rich in dietary fiber and source of vitamins and minerals each. It is also noticed that companies prefer to use the claim ‘contains (name of nutrients or other substance)’ across various food categories as this claim is found on seven food categories viz. confectionary (53.33%), foodstuffs intended for particular nutritional uses (42.86%), fats and oils, and fats emulsions (33.33%), cereals and cereal products (20.0%), bakery products (15.79%), beverages, excluding dairy products (7.41%) and dairy products and analogues (2.63%). To summarize, bakery foods and cereals and cereal products carry large number of claims for nutrients described in the mandatory as well as the voluntary list.

Front-of-packs are popularly used to place claims. Words or phrases as part of claims are the most commonly used on front-of packs while nutrition claims are used on the back of food packages. Sides of food packages are also used to place these claims. A large majority of word claims present on food packages cannot be verified against the guidelines provided by FSSAI. The food packages are also found to carry prohibited claims or offer claims which do not fulfill the conditions specified for using them. Unhealthy foods (high in fat, sugar, and sodium) are found to carry word claims as well nutrition claims. The frequency of use of nutrition claims is more than that of word claims. ‘Bakery’, ‘confectionary’, ‘cereal and cereals products’, ‘dairy products and analogues’, and ‘salts, spices, soups, salads and protein products’ are found to carry claims in presence of high fat, sugar and salt. A large number of claims on foods with high content of fat, sugar and salt is strongly misleading for consumers. Such claims create an impression that the food can be safely consumed without a health risk. When the consumers perceive these foods to be healthy, they tend to safely substitute them with regular meals and drift into a state of energy/nutrition imbalance. Lack of information about the composition of food does not allow them to make informed choices. As, consumers rely on claims to make food

choice, these claims can further deter the need to delve deeper into the nutrition composition of the food described on the food label.

The present study also supports previous findings of scholars who found that food claims cannot be verified through nutrition information provided in the facts panel (Manthena et al., 2012; Soni, 2016) or that information is missing (Kumar and Ali, 2011). This study also confirms previous findings of (Al-Ani et al., 2016) that nutrient content claims (nutrition claims) are more frequently used and that the disease risk reduction claims are rarely used. This may be attributed to the fact that foods reducing disease risk are disease specific and may appeal to a smaller section of the total market. Hence, they are less popular. On the contrary, 'low fat' claims are more popular in the New Zealand and the United States (Al-Ani et al., 2016). This study suggests that 'contains a specific nutrient' and 'trans-fat free' is more frequently used in India. As opposed to Pereira et al.'s (2022) study conducted in Brazil, the present study finds that health and nutrition claims are frequently used on unhealthy foods. Foods marketed by multinational companies carry more claims as compared to foods marketed by Indian companies. These findings hold the results described earlier in a report by Consumers International (2008). This suggests that the MNCs should come to the fore and shoulder the responsibility of protecting the health of the consumers much ahead of others due to their stronger presence in various world markets. They can also think of bringing the effect of accurate delivery of information to consumers in developing markets like India and imbibing the habit of using it amongst consumers in countries instead of avoiding legislations.

These findings point to the need for stricter regulations and their implementation to ensure adequacy and comparability of nutrition information with the claims used on food packages. These measures are expected to help consumers build positive attitude towards seeking nutrition information which is trustworthy as well as reliable. Nutrition education programs, planned at the government level, can be effective only when the information offered on food packages is truthful. In absence of complete information, it is difficult for the consumers to build understanding of nutrients and nutrition composition of foods and match them with their needs. In addition to this, the regulations drafted by FSSAI in India must conform to globally accepted standards also as a large number of MNCs operate in India making it easier for the companies to comply and the regulator to monitor and check implementation.

The claims must also be clearly defined by FSSAI so that they can be suitably used by food marketers. The need for reformulation of foods such as use of healthier fats against the unhealthier ones, as stressed previously (Reyes; 2020; Pereira et al., 2022) must also be emphasized in India. The regulator must also devise suitable scoring or rating system which uses symbols in combination with textual information to mark the presence of key unhealthy nutrients viz. fat, sugar and salt in total values. This will help the consumers understand the total intake implications on their diet and health. Strict implementation of food regulations in Chile and the food reformulation impact on food consumption suggest that the food regulator and the food industry can come together to improve the packaged food environment in a country (Reyes, 2020).

Limitations and directions for future research

The present study limits itself to food packages and does not seek consumer responses relating to use of nutrition claims and the problems faced by them while making purchase decisions in absence of complete information. It also uses a sample of foods out of all brands available from fourteen leading food marketing companies in India. Future research may limit itself to foods sold to specific consumer segments (such as facing disease burden or children) or income segments such as bottom of pyramid consumers to analyze presence of nutrition claims. As the present study does not seek consumer responses, future research may gauge consumer response to presence of specific claims, their utility in decision making and use of nutrition facts panel along with claims in supermarket shopping vis-à-vis online grocery purchase situations.

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Declaration of interests

☐ The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

☐ The authors declare the following financial interests/personal relationships which may be considered as potential competing interests:

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