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Nutrition labelling: Historical evolution, current practices, and consumer understanding in India

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Abstract
The production, sale, and consumption of pre-packaged foods in India have increased substantially in recent years, underscoring the growing importance of effective food labelling as a population-level public health strategy. Nutrition labelling plays a crucial role in enabling consumers to make healthier food choices by providing essential information on food packaging. Evidence from Indian studies suggests that while a majority of consumers report reading nutrition labels, their consistent and effective use remains limited. A cross-sectional study from New Delhi reported that only about one-third of consumers always read nutrition labels during the purchase of ultra-processed foods, with female consumers using labels more frequently than males. Similar findings were observed among upper-middle and high-income adults in Delhi, where a high proportion of participants reported reading food labels and noticing nutrient claims, and women demonstrated better understanding of nutrition information than men. Recent research from Coimbatore further indicates that consumers are increasingly relying on nutrition labels to guide purchasing decisions and adopt healthier eating habits; however, the impact of labels is moderated by variations in comprehension and trust. Overall, the existing literature highlights a paucity of comprehensive, India-wide research examining awareness, understanding, usage practices, and the influence of nutrition labels on consumer behaviour. Future studies across diverse income groups, age categories, genders, and regions are essential to inform the development of clearer, standardized, and more interpretable nutrition labelling systems and to support evidence-based policy formulation in India.

Keywords: Ultra-Processed Food, Nutrition Label, Nutrition Label Awareness, Consumer Behaviour

Introduction

The primary purpose of food labels is to inform consumers and help sell the product. However, the information provided by food labels has changed over time. In recent years, the goals of food labeling have become more numerous and complex due to food laws, food companies, retailers, public authorities, and consumers. (Cheftel JC, 2005) [3] According to the World Health Organization (WHO), food labelling includes "any written, printed or graphic matter that is present on the label, accompanies the food, or is displayed near the food, including that for the purpose of promoting its sale or disposal (Hawkes C, 2004) [10].

Food labels inform consumers about the composition and nature of products to prevent confusion and protect them from misuse, risk, and abuse. Marketing information, including the selling price, brand name, and commercial offers, is provided along with details on safe storage, preparation, and handling of the food product (Cheftel JC,2005 [3], Van der Merwe D *et al*., 2014) [20]. Nutrition labelling is the section of information on a food label that specifically declares nutrient content (Bovell-Benjamin A *et al*., 2010) [2] According to the *Codex Alimentarius*, nutrition labelling is effective when it provides the consumer with information about a food to help him or her to make healthy food choices (Food and Agriculture Organization of the United Nations, WHO).

Nutrition labelling is considered a population-based approach (Bovell-Benjamin A *et al*., 2010) [2] and if well designed, can potentially have a positive influence on the diet of consumers (Temple NJ,2014) [18] and therefore contribute to the achievement of public health objectives (Hawkes C. 2004) [10]. The nutrition labels are the part of broader public health strategies. It helps people making informed and healthier choices, better dietary awareness and nutrient intake, reduction of unhealthy nutrient consumption, contribute to public health policy impacts and enabling food comparisons and smart consumer decision.

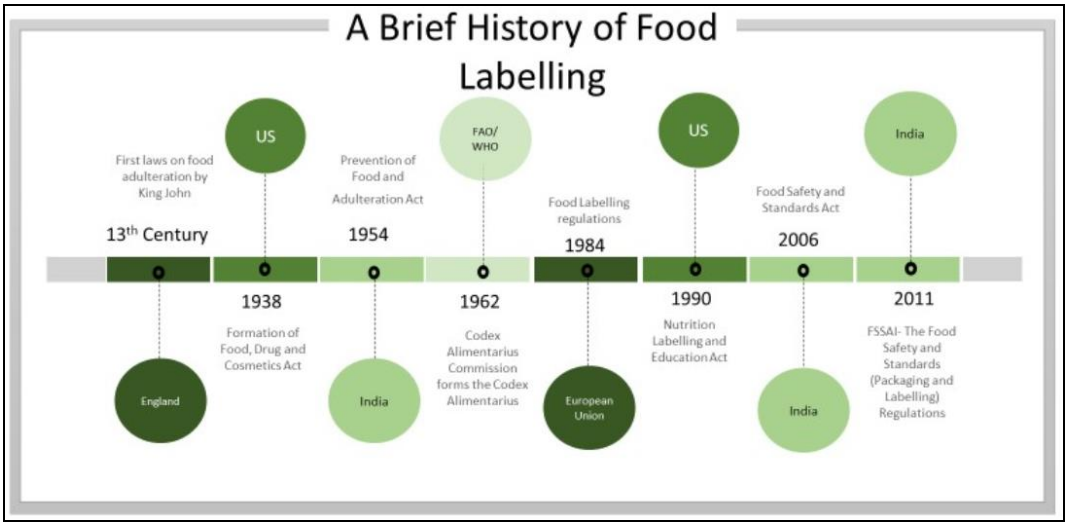
History of Food Labelling

The earliest record of food regulations can be traced back to the 13 th century when King John of England enacted the '*Assize of Bread'*, which regulated the price of bread sold. Later in the 14th and 15th centuries, bread, wine and butter also were regulated which required these items to have a '*mark of the manufacturer'* to prevent them from adulteration. Food Labelling actually began with these *marks* on food products and later in the 19th century with the era of Industrialization, consumers became more reliant on food labels as sources of information on quality and safety. This led to various countries establishing their own food labelling laws. Although European countries seemed ahead of the US in enacting food adulteration laws, however, it was the US that first brought out food labelling laws robustly, including the importance of stating nutritional information on labels. In 1973 FDA established regulatory guidelines on nutrition labelling. However, this was not mandatory for all food manufacturers. This led to some manufacturers adopting the nutrition labels while others did not. In 1990 The nutrition Labelling and Education Act was enacted that set a gold standard for nutrition labelling in the US that very elaborately gave guidelines for mandatory labelling. The Food labelling system began only in the

second half of the 20th century in the Europe Union (History of Food Labelling, 2022).

Emerging Food Labelling system of India

The Indian food regulatory system began in 1954 with the Prevention of Food and Adulteration Act. This Act set minimum guidelines for labeling, including the food's name, manufacturer, batch or code number, and net weight. Following this, various other acts such as the Fruit Products Order and Meat Food Products Order were enacted. Additionally, horizontal bodies like the Bureau of Indian Standards (then ISI) and Agmark were established to govern specific categories of food products and set their own standards. It was only after the passage of the Food Safety and Standards Act, 2006, that there was a significant shift in India's food regulatory system. This Act replaced all previous food-related legislation. Under this, the Food Safety and Standards Authority of India (FSSAI) was launched in 2011, becoming the main regulatory body. FSSAI operates under the Ministry of Health & Family Welfare, Government of India. It introduced various mandatory regulations, including 'The Food Safety and Standards (Packaging and Labelling) Regulations, 2011'. These regulations provide comprehensive guidelines on packaging and labeling of food products. Currently, the nutrition labelling of packaged foods in India is governed by this regulation. Despite this extensive framework, the Indian food labelling system is still evolving. New guidelines, such as mandatory color codes for high sugar, high fat, and high sodium products, as well as Front of Pack (FOP) labelling, are still under review (*FSSAI,2011*).



(**Source:** History of Food Labelling, 2022)

Global overview of government-endorsed nutrition labeling policies of packaged foods

A total of 95 countries have policies on nutrient declaration. By region, the highest are in Europe, followed by America, the Western Pacific, and Africa. Eastern Mediterranean and South-East Asia are the regions with the fewest countries having a nutrient declaration policy. Most countries in Europe are members of the European Union (EU). Starting from December 13, 2016, EU Regulation 1169/2011 on the "Provision of Food Information to Consumers" made it mandatory to provide a list of nutrients and information on energy value, and amounts of fat, saturates, carbohydrates, sugars, protein, and salt, specified per 100 g or 100 ml, on most pre-packaged foods' back labels (European Commission. Nutrition Labelling). All 27 EU member countries comply with the mandatory nutrient declaration for packaged products. In the American region, 19 countries, including the USA, Canada, and Mexico, have adopted these regulations. Seven countries in the Eastern Mediterranean region have a nutrient declaration policy. Six of them—United Arab Emirates, Bahrain, Oman, Kuwait, Qatar, and Saudi Arabia—share a common regulation under the Gulf Cooperation Council (GCC), with Iran being the remaining one. Five countries in South-East Asia, including Bangladesh, also have a nutrient declaration policy. The Western Pacific region comprises fourteen countries, such as Australia, China, and Japan. All these policies mandate ingredient declaration on pre-packaged food labels, with most requiring the listing of nutrients and their amounts. The declaration of nutrients on food packaging is compulsory in both developed and developing countries across various regions. The majority of countries with nutrition claim policies are from the WHO European region and the Americas, with an equal number from each of the Eastern Mediterranean and Western Pacific regions. Africa and South-East Asia have the fewest countries with rules on nutrition claims. The importance of regulating nutrition claims lies in ensuring they accurately reflect a product's nutritional quality. Under these regulations, nutrition claims are permitted only if the product meets specific nutrient profile criteria, such as limits on sugar, fat, or sodium content. This helps consumers make informed choices based on trustworthy information and reduces the risk of being misled by claims that do not align with the overall healthfulness of the product. Mandatory front-of-package labelling (FOPL) policies are mainly found in the American region, with 11 countries, including Argentina, Bolivia, Brazil, Canada, Chile, Colombia, Ecuador, Mexico, Peru, Uruguay, and Venezuela. Israel (Europe), Iran (Eastern Mediterranean), Sri Lanka, and Thailand (South-East Asia), along with Singapore (Western Pacific), also have mandatory FOPL policies. Notably, Singapore and Thailand have policies that are both mandatory and voluntary depending on the scheme. In the Western Pacific, six countries—Australia, Brunei, Malaysia, New Zealand, the Philippines, Singapore, and South Korea—have adopted

voluntary FOPL policies. Zambia is the only African country with a voluntary FOPL policy. Saudi Arabia and the United Arab Emirates (Eastern Mediterranean), as well as Indonesia and Thailand (South-East Asia), have voluntary FOPL policies as well. (Afroza, U *et al*., 2024) [1].

Nutrition Labelling in India

In India, packaged food products are legally required to display a Nutritional Information Panel (NIP) as per the FSSAI (Labelling and Display) Regulations, 2020. The NIP must include energy (calories), macronutrients (fat including saturated and trans fats, carbohydrates with sugars, proteins), and sodium per 100 g/100 ml and per serving. A draft amendment was proposed in India to include Front -of -Pack Labelling which is in process yet. (Understanding Food Labelling: Definitions, Requirements, and Scope,2025) [19].

Consumer Understanding and Use of Nutrition Labels in India

The production, sale and consumption of pre-packaged foods have witnessed a major surge in recent years in India (Euromonitor (2009) [4]. Food labelling is one of the important population-based approaches that can help consumers make healthy food choices by providing the necessary information about the food on the packaging.(Mahan KL & Escott-Stump S (editors) (2004) [12].According to a cross sectional study conducted by Shamim *et al*., 2020 in New Delhi suggested that most of the consumers do read nutrition labels during purchase of UPF but its usage frequency is not up to the mark.Only about one third of the consumers read nutrition labels always whereas female consumer uses nutrition label more frequently than male consumers. A study conducted among adults belonging to upper middle income and high income groups in Delhi to assess food label reading habits and understanding of nutrition information on food labels found that 79% of the particpants read food labels and 76% noticed the nutrient claims on food labels. Female participants were more likely to understand nutrition information as compared with male participants (Mediratta, S., & Mathur, P. (2023) [13].

Effect on Purchasing behaviour

According to one of the study conducted by R. Suresh & Nitheesh Kumar in 2025 in Coimbatore City in India suggested that consumers are increasingly depending on labels to make informed choices about their purchases. Awareness of nutritional information affects their choices, leading to healthier eating habits. Nonetheless, the effectiveness of labels is influenced by differing levels of comprehension and trust regarding them. By providing clear, precise, and standardized labeling, consumer confidence can be bolstered and demand for healthier products can be stimulated.

Research Gaps and Future Directions

Conclusion There is very limited research in India regarding the awareness of the Nutrition Label, understanding of the Nutrition Label, the practice of using these labels and the influence of the Nutrition Label on the purchasing behavior of the consumers. A wide range of study should be carried out in future to assess the awareness of the Nutrition Label among different income groups, different age groups, gender and different regions of India. This will enable to formulate better techniques of Nutrition Labelling, promoting easier way for interpretation of the label and help to make focused policies.

Conclusion

The rapid increase in the production and consumption of pre-packaged foods in India has highlighted the importance of nutrition labelling as a population-based strategy to promote healthier dietary choices. Evidence from Indian studies indicates that although a majority of consumers report reading nutrition labels, their regular and effective use remains limited. Female consumers consistently demonstrate higher label usage and better understanding than males. Research from urban settings such as Delhi and Coimbatore suggests that nutrition label awareness positively influences purchasing decisions and healthier eating behaviours; however, variations in comprehension, trust, and frequency of use reduce overall effectiveness. The limited scope of existing Indian research underscores the need for large-scale studies across diverse socio-demographic groups to inform clearer, standardized, and consumer-friendly nutrition labelling policies.

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