

## Original Article

# The adherence of packaged food products in Hyderabad, India with nutritional labelling guidelines

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**Background:** India is experiencing a nutrition transition with the consumption of processed foods rapidly increasing. Nutrition labels are essential if consumers are to understand the healthiness of these products. The Food Safety and Standards Authority of India have recently introduced regulation defining national nutrition labelling requirements and Codex Alimentarius recommends a global standard. **Objectives:** To quantify the adherence of the declared nutrients on Indian packaged foods with national and global requirements. **Methods:** The presence or absence of data for seven required nutrients was recorded for all food products available for sale. Branches of three major retail chains and three smaller stores in Hyderabad, India between October and November, 2010 were surveyed. **Results:** Data were collected for 4166 packaged products that fell into 14 different food groups. 52% of products displayed nutrient information on energy, protein, carbohydrate, sugar and total fat, meeting the minimum requirements of the Food Safety and Standards Authority of India. Only 27% met the minimum criteria defined by Codex which also requires the reporting of saturated fat and sodium. There was significant variation in compliance for leading brands, country of manufacture and food group ( $p < 0.01$  for all). **Conclusions:** The majority of Indian packaged foods do not meet national and international nutrient labelling guidelines. With the Indian population likely to consume much more packaged food over coming years full and effective food labelling will be essential. The failure of Indian legislation to require labelling of sodium and saturated fat may warrant review.

**Key Words:** nutritional labelling, processed foods, Codex Alimentarius, India, labelling regulation

## INTRODUCTION

Chronic diseases are the leading cause of premature death and disability in the world and cause the greatest proportion of disease burden in all but the least developed countries.<sup>1</sup> These diseases are substantively attributable to poor diet, with over-nutrition a major cause of diet-related ill health.<sup>1,2</sup> Many low and middle income countries around the world are now experiencing a “nutrition transition”, where the consumption of processed foods high in energy density, saturated fat, sugar and salt is increasing.<sup>3-5</sup>

Traditionally, the Indian population has consumed a diet based upon fruits, vegetables and unprocessed cereals.<sup>6</sup> National Nutrition Surveys done over the past 20 years show that consumption patterns are now changing, particularly in high- and middle-income groups.<sup>7</sup> Increases in per capita disposable income, alterations to lifestyle and changes in the food environment are driving consumers towards highly processed products.<sup>6</sup> With this shift from the preparation and consumption of whole foods comes a need for food labelling such that the content of processed foods can be relayed to consumers.

The latest assessment on the status of nutrition labelling (defined in this paper as the declaration of nutrients

on product packaging) in India published in 2009 by the Ministry of Health identified food labelling as “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 pack”.<sup>8</sup> This assessment included one small market survey in Hyderabad in 2009 where data were collected for 815 products. This study looked mainly at compliance with local labelling standards but did not explore the types of nutrients that were displayed on products. The kinds of nutrition information made available for consumers on packaged foods is important, particularly as research has shown that 37% of Indians always check the nutritional information when buying packaged food and that only 5% Indians never check nutrition labels.<sup>9</sup> Also, with only 59% Indi-

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ans understanding the food labels that they read, it is important to ensure that all food manufacturers are displaying sufficient and comparable nutrition information on their products.<sup>9</sup>

Prior to 2006, the information requirement for packaged food products in India was governed by the 1954 Prevention of Food Adulteration Act which provided for the provision of basic data such as product name and expiry date, but not nutritional information. Labelling requirements are now the remit of the Food Safety and Standards Authority of India which in 2011 introduced new packaging and labelling regulations that require core information on nutritional content.<sup>10</sup> In parallel, Codex Alimentarius, the international body governing food labelling, established by the Food and Agriculture Organization and the World Health Organization in 1963, has also revised its guidelines on nutrition labelling.<sup>11</sup> The objective of this study was to define the extent to which packaged food products available for purchase in a sample of Indian stores in the State of Andhra Pradesh met these guidelines prior to the 2011 legislation coming into effect.

## METHODS

This study comprised a survey of processed foods for sale at selected retail outlets in Hyderabad, India with data collection done over a two month period between October and November 2010.

### *Retail outlets surveyed*

The survey included six stores in urban areas. The stores were three large chain retail outlets in Jubilee Hills frequented primarily by wealthier customers, and three small individually managed stores in two localities adjacent to Jubilee Hills where less affluent consumers buy their food products. The stores were purposefully selected to ensure that a broad range of packaged foods representative of all packaged products for sale in Hyderabad was included. Permission was obtained from each store.

### *Data collection*

Data collection was done by three trained persons who visited the stores and recorded the label data onto a standard data collection sheet.<sup>12</sup> All packaged food products that were available for sale in each store during the period of data collection were recorded. Where exactly the same food was presented in different packaging or different serving sizes or was present in multiple stores, only one set of information was collected unless the product was marketed as a different brand. The data entry process was verified by taking a random sample of 10% of entries and comparing the information on presence or absence of nutritional labels in the database against the original data source in-store. In no case was there an error whereby information about a nutrient was recorded incorrectly as being present or absent on the label.

### *Food categories and variables collected*

The food categories used here were based on those developed by the Global Food Monitoring Group.<sup>12</sup> Accordingly, foods were categorized into 14 food groups. For each food item, the brand name, product name, serving size,

presence of nutritional information per 100 g (or per 100 mL for fluids), manufacturer name and country of manufacture were the minimum data sought.

### *Data analysis*

The number and percentage of products displaying information on the package for energy, protein, carbohydrate, sugar, total fat, saturated fat and sodium were calculated for each food group. The percentage of products displaying the minimum nutrient information requirements by the Food Safety and Standards Authority of India (energy, protein, carbohydrate, sugars and total fat) and Codex Alimentarius (energy, protein, carbohydrate, sugars, total fat, saturated fat and sodium) were calculated overall, for each food group, for products manufactured in India versus imported products, and for products marketed by leading brands. Leading brands were defined as those which had more than 50 products in the database. Pearson's chi-squared tests were used to examine the proportions of products complying with labelling criteria between groups. All statistical analyses were done using IBM SPSS Statistics Version 19 and a  $p$  value of  $<0.05$  was considered unlikely to have arisen by chance alone.

## RESULTS

Data were collected for 4166 products in 14 food categories. Seventy five percent of products were manufactured in India with the remaining products imported from 21 other countries. Packaged fruit and vegetable products were the category with the largest number of products comprising 19% of the total, followed by cereal and cereal products with 12%. Fish and fish products were the least in number making up just 1% of the total. Twelve brands had more than 50 products in the database and together the leading brands covered 1278 different food items.

### *Overall compliance with labelling requirements*

Fifty two per cent of products displayed the minimum nutritional information required by the 2011 Indian labelling legislation (energy, protein, carbohydrate, sugar and total fat) but only 27% complied with the minimum recommendations of Codex, which suggests the additional reporting of saturated fat and sodium (Table 1). Sugar, saturated fat and sodium were each reported on about half of products while the other data were reported for about three quarters (Table 1).

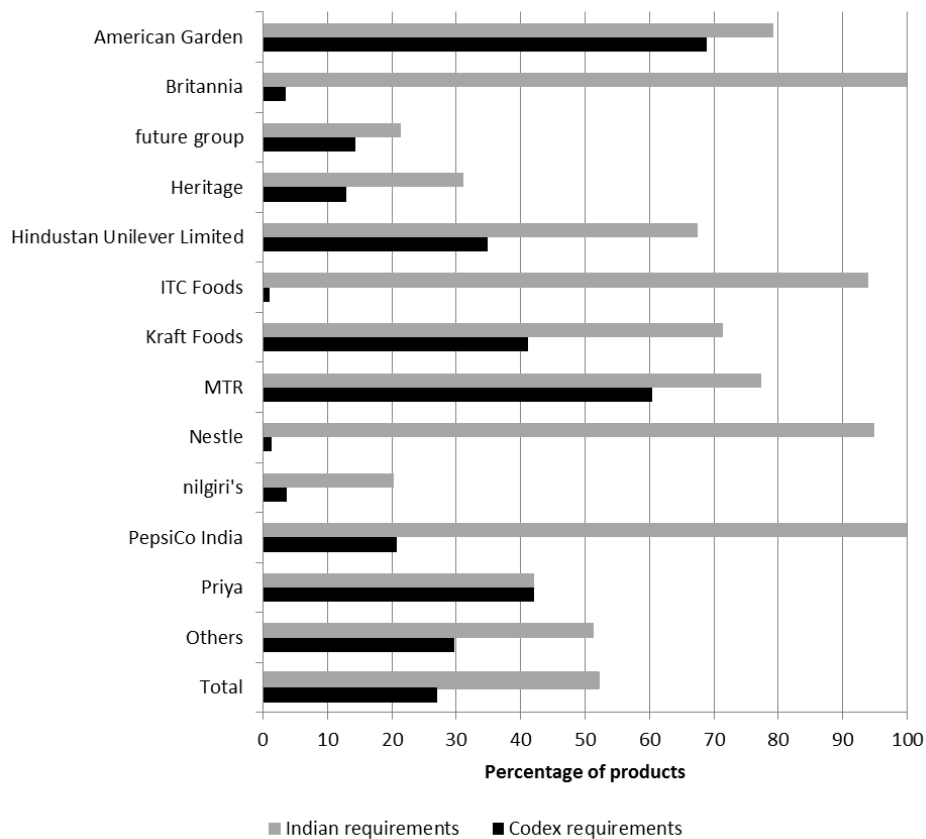
### *Completeness of labelling by brand, food category and country of manufacturer*

The completeness of food labelling varied markedly between brands and food categories for both Food Safety and Standards Authority of India and Codex recommendations ( $p < 0.01$  for all). There were two brands with complete adherence to local requirements (Britannia and PepsiCo India with 109 products in total) but none with more than 70% of products meeting Codex recommendations (Figure 1). Convenience foods were the category most adherent to both local (80%) and Codex (46%) recommendations whilst edible oils, at the other end of the spectrum, were almost completely non-adherent (Figure 2). Imported products were more

**Table 1.** Proportion of Indian and imported products meeting Food Safety and Standards Authority of India and Codex guidance for nutrition labelling

	Indian products (%)	Imported products (%)	All products (%)	<i>p</i> value* (Indian vs imported)
Energy	73	86	76	<0.01
Protein	73	85	76	<0.01
Carbohydrate	73	86	77	<0.01
Sugar	49	70	54	<0.01
Total fat	72	85	75	<0.01
Meet Food Safety and Standards Authority of India	47	68	52	<0.01
Saturated fat	42	58	46	<0.01
Sodium	31	69	41	<0.01
Meet Codex	19	50	27	<0.01

\* *p* values for comparisons obtained using chi-squared tests.

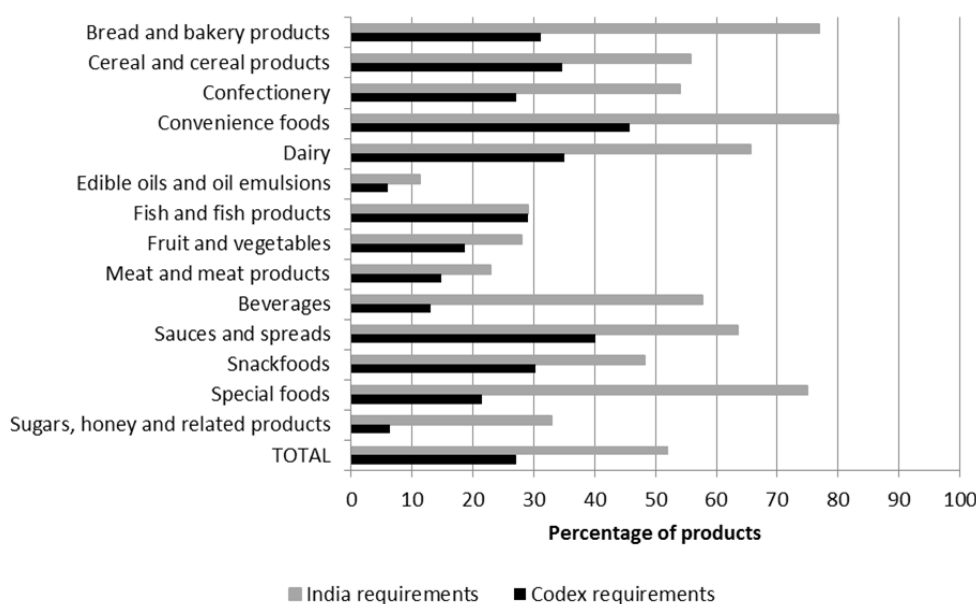
**Figure 1.** Percentages of products meeting Food Safety and Standards Authority of India and Codex requirements for nutrition labelling overall and by leading brands

adherent by both measures than locally manufactured foods with 52% vs 47% ( $p < 0.01$ ) and 27% vs 18% ( $p < 0.01$ ) meeting Food Safety and Standards Authority of India and Codex recommendations respectively (Table 1).

Large numbers of packaged food products available in Indian stores fail to display the nutritional information that consumers require to make informed choices. This represents a major public health issue as consumers are eating more and more processed foods without access to basic information about their healthiness. Since processed foods generally have higher levels of energy, saturated fat, sugar and salt than their unprocessed counterparts, this is likely to result in serious adverse health outcomes for the population.<sup>13</sup> With India already suffering an enormous

burden of premature death and disability this is something that the country can ill afford.<sup>14</sup> India is not alone in the lack of nutrition information being displayed on food packages, but is “on par” with a number of other developed and developing countries.<sup>8</sup> Previous Indian research has indicated that consumers have difficulty interpreting the nutritional information on foods,<sup>8</sup> and it is therefore important to ensure that all food manufacturers are displaying sufficient and comparable nutrition information on their products, particularly with international research showing that nutrition labels are the key source consumers turn to when trying to evaluate a product’s healthiness.<sup>8</sup>

It is encouraging, therefore, that the Food Safety and Standards Authority of India has now put in place regula-



**Figure 2.** Percentages of products meeting Food Safety and Standards Authority of India and Codex requirements requirements for nutrition labelling overall and by food group

tion defining minimum requirements for the labelling of the nutritional content of packaged foods.<sup>10</sup> However, the absence of sodium and saturated fat levels from the current requirement warrants review. The routine provision of sodium data on packaged food products will be vital for the effective implementation of salt reduction efforts in India, as it will be elsewhere in the world. Likewise, the absence of saturated fat from the Food Safety and Standards Authority of India requirements may also be an oversight that needs correction. Saturated fats are implicated particularly strongly in the causation of dyslipidaemia and vascular disease.<sup>15</sup> Another issue relating to the enforcement of the Indian food labelling regulation is that food safety regulators lack knowledge of the existing food labelling regulations because updates through government channels have not been forthcoming.<sup>16</sup>

Periodic follow-up surveys to assess the compliance of national and international corporations with this initiative of the Food Safety and Standards Authority of India will be an important aspect for the Indian government to take leadership in. It is also clear from the differences between the compliance achieved for different food categories and different food companies that better adherence to labelling requirements can be achieved if the drivers are right. A careful examination of the corporate policies behind brands like Britannia and PepsiCo India might help to identify the means by which compliance can be enhanced. Likewise, the systematically greater proportions of imported compared to local products that are compliant with recommendations suggest that multinational corporations might be able to provide insight into mechanisms for improving product labelling in India. For example, many multinational companies that import products to India will also operate in countries that have legislation requiring compliance with Codex, and it would be straightforward for these companies to provide full nutrition labels for the foods they market in India.

This paper represents an important insight into food labelling practices in local and imported packaged food products in India. Strengths of this study are its large size, the systematic evaluation of all products for sale in the stores included and the comparison of compliance against both national and international guidance. The restriction of the survey to Hyderabad was a limitation and it is unlikely that the products included in the survey are truly representative of all products available for sale in India. It is also possible that levels of compliance with labelling regulation may vary from other parts of Andhra Pradesh and between the other States and Territories of the country. However, many of the manufacturers with included products supply nationally and so it is likely that the products included in this study would be available in other parts of India. Local data suggest that packaged foods constitute a similar proportion of the food supply across multiple regions of India.<sup>17</sup> We also note that this study has focused only on the presence or absence of nutrient labels and does not address other aspects of labelling defined under Food Safety and Standards Authority of India and Codex requirements such as the date of manufacture, the ingredients statement, declared nutrient levels and contact information for the manufacturer.

The achievement of good food labelling in India will be an important part of the country's efforts to address the burgeoning non-communicable disease burden, and government leadership in this area will be vital. This paper has identified important problems with how nutrients are labeled on food packages in India. The results of this paper will be useful in informing government on the industry's adherence to labelling of required nutrients in India, and provide a baseline from which future improvements in Indian food labelling can be monitored. The enforcement of effective food labelling regulations will both help consumers to make better choices and facilitate the monitoring of industry compliance with the program.

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**AUTHOR DISCLOSURES**

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### 印度海得拉巴包装食品对营养标签指南的遵守

**背景：**印度正在经历一个加工食品消费量迅速增加的营养转型。营养标签是消费者了解这些产品是否健康必不可少的。印度食品安全和标准局最近推出条例，规定了国家营养标签要求和食品法典委员会建议的国际标准。**目的：**其目的是量化印度包装食品对国家和国际要求的营养素声称的遵守。**方法：**调查 2010 年 10 月到 11 月期间印度海得拉巴的三大连锁零售超市和三个小商店的所有在售食品，登记所要求的七大必需营养素资料是否存在。**结果：**共收集了 14 个不同的食物组，4166 种包装食品。其中 52% 的产品标示了能量、蛋白质、碳水化合物、糖和总脂肪等营养信息，满足了印度食品安全和标准局的最低要求。只有 27% 的产品报告了饱和脂肪和钠，满足食品法典委员会的最低标准。领导品牌、生产国家和食品组之间有显著差异 ( $p < 0.01$ )。**结论：**大多数印度的包装食品不符合国家和国际营养标签指南。随着印度人口在未来几年消费更多的包装食品，全面有效的食物标签是必不可少的。印度立法要求钠和饱和脂肪标签的失败可能值得审查。

**关键词：**营养标签、加工食品、食品法典委员会、印度、标签法规