

## Development of Nutrition Profiling System for Indian food and diets

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### Abstract

Food plays a pivotal role in survival through maintenance of numerous physiological functions such as homeostasis, growth, overall health, in addition to being a pleasure. Consumption of diversified balanced diet in appropriate portions is critical for healthy wellbeing. Increased industrialization, urbanization led rapid changes in lifestyle including food consumption patterns lead to altered food preferences. India has a triple burden of malnutrition viz., over nutrition, undernutrition and micronutrient deficiencies associated with wide range of highly prevalent disorders, from stunted growth to cardio-metabolic syndrome. Multiple factors such as sedentary lifestyle, consuming nutritionally imbalanced foods, disproportionate portion sizes have been recognized as major contributors to non-communicable diseases. Scientific evidences show nutritional interventions to modulate health positively and several countries follow their own health and nutrition policies based on appropriate requirements of the respective population. Nutrient profiling system is one such science-based methodology that guides innovation, reformulation and marketing strategy and has been adopted by food manufacturers globally. In view of India's diverse food habits and dietary recommendations, and to support FSSAI's The Eat Right Movement (TERM), ITC Foods Division, a leading food manufacturer in India has developed a Nutrition Profiling System (NPS), which is reviewed here.

### Keywords

Diet, Health, Nutrient, Nutrition Profiling System,

### Introduction

Food is one of the fundamental requirements of life and food habits are one of the most complex aspects of human behaviour, determined by multiple motives and controlled by multiple

stimuli. Food acceptance, a complex reaction, is influenced by multiple factors such as physiological, psychological, cultural, social and educational<sup>1</sup>. Role of precise analysis of culture to enhance the effectiveness of nutrition science in implementing effective nutritional interventions has emerged<sup>2</sup>, along with food culture measurement enriching public health practice related to food and nutrition<sup>3</sup>. While food not only provides satiation, the nutrients in food help in normal physiological functions such as homeostasis, providing energy, growth and repair<sup>4</sup>. A healthy diet is thus an optimal balance of macronutrients (i.e., carbohydrates, proteins, and fats), sufficient micronutrients (i.e., vitamins and minerals) and hydration, consumed in appropriate proportions to support energy requirement, growth, development, metabolism, and normal physiological functioning<sup>5</sup>.

World Health Organisation (WHO) defines health as “state of complete physical, emotional, and social well-being, not merely the absence of diseases or infirmity”<sup>6</sup>. Balanced nutritional intake is one of the major factors that is shown to affect long-term health promotion and maintenance<sup>7</sup>. While dietary deficiency of energy and nutrients are extensively spreading amongst the poorer populations, excessive consumption of energy-dense foods rich in fat, salt, added sugar and decreased physical activity are rapidly rising amongst the urban population<sup>8</sup>. World faces a double burden of malnutrition (DBM) that includes both undernutrition and over-nutrition, especially in low- and middle-income countries<sup>9</sup>. Undernutrition is lack of sufficient and optimal nutrient intake leading to muscle wasting and stunted growth<sup>10</sup>. Over-nutrition is due to excessive intake of nutrient and accumulation of body fat leading to being overweight/obese<sup>11</sup>. While poverty, food insecurity, and infection are linked with undernutrition, obesity is linked with affluence, dietary richness, and sedentary behaviour and more importantly both forms of malnutrition co-occur within communities, households and even individuals making them both stunted and overweight<sup>12</sup>. India showed an increase in double burden malnutrition levels mainly due to overweight/obesity<sup>13</sup> however, the over-nutrition rates have declined marginally among those with 18 or more years of schooling<sup>14</sup>. Interestingly India also experienced a rapid decline in child and adult undernutrition between 2006 and 2016 across genders and areas of residence<sup>14,15</sup>. In addition, triple burden of malnutrition (TBM) also exists, that refers to the coexistence of over-nutrition, under-nutrition and micronutrient deficiencies<sup>16</sup>.

Nutrition has a crucial role to play in the prevention of non-communicable diseases (NCDs)<sup>17</sup>. According to WHO, “Noncommunicable diseases (NCDs), also known as chronic diseases, tend to be of long duration and are the result of a combination of genetic, physiological, environmental and behavioural factors”<sup>18</sup>. Research suggests that factors such as population aging, globalization, urbanization, self-management, genetics, physical inactivity, overweight and obesity, increased fat and sodium consumption, medical conditions such as uncontrolled blood pressure, blood glucose and cholesterol levels, socio-economic demographics, cultural, political and environmental determinants are risk factors of NCDs<sup>19,20,21</sup>. In the past decade, calories obtained from consumption of foods high in meat, sugar, oils and fats have increased while those obtained from foods rich in fibre like wholegrains, pulses, fruits and vegetables have reduced drastically. This shift in the nutritional transition alters the dietary patterns and increases the risk of developing NCDs<sup>22</sup>.

Every year, of the 17 million NCD premature deaths 86% occur in low- and middle-income countries<sup>23</sup>. Earlier, Shetty<sup>24</sup> showed a clear evidence of demographic, epidemiological and nutrition transition leading to NCDs particularly in urban India. Analysis of household food consumption from 1993 to 2012 in India suggested, diversification of diet moving away from cereal to milk consumption, however micronutrient deficient due to lesser consumption of fruits, vegetables, milk, meat, and egg<sup>25</sup>. In a more recent study, consumption of micronutrients

has been shown to improve in 2019, however with increased total calorie intake linked to consumption of dairy and processed foods but below the average recommended intake<sup>26</sup>.

Food systems are undergoing notable growth as well as changes every decade and these changes have a significant impact on our health and wellbeing, by affecting the nutritional value of foods that are acceptable, accessible and affordable to consumers. Especially in growing economies such as India, food habits and lifestyle have drastically changed in recent decades. With changing scenarios that impact socio-economic status such as less physical work, leisure, easier commutes, increased affordability, convenience foods, advent of internet and social media, NCDs are on the rise. According to the 2019 EAT-Lancet Commission report, dietary consumption patterns of Indians are still considered unhealthy as daily nutrient intakes are significantly lower than the recommended amounts<sup>27</sup>.

### Global Nutrient Profiling Systems

Longevity and healthy have often been used interchangeably. Albeit NCDs have multi-factorial etiology, considerable attention has been given to role of nutrition due to variety of reasons, including available scientific literature which suggests that improved intake for certain nutrients may play an essential role in reducing progress of NCDs along with dementia, loss of vision during aging<sup>28,29</sup>. Authors have also indicated the need to shift beyond focusing on removal of excess unhealthy nutrients. This is required not only to support intake of beneficial nutrients but also to support healthy ageing since current diets are not sufficient to ensure healthy ageing in a population. Such objectives while designing a nutrition profiling system will help in preventing diseases over treating them. With advancements in modern nutrition science, research evidences for cause and effect between nutrients and health conditions, various dietary guidelines, and food policies/ regulations came in place to define and recommend nutrient consumption<sup>30</sup>. A nutrition profiling system is developed with the purpose of promoting health and prevention of disease. The common perspective across various nutrition profiling systems is that food is not a mere sum of its nutrients. Various factors including quality, processing etc. are also important factors that decide the overall score. The western diet is rich in carbohydrate foods which are major source of energy. Recent recommendations from dietary guidelines for Americans (DGA) recommend to “avoid added sugars” and “increase dietary fiber”, along with a few specific food group recommendations such as to favor “dark green; red and orange” vegetables and “whole fruit”, and “make half your grains whole grains”. Although RDA limits are defined yet the need for carbohydrate quality metrics has been an important consideration given the low fiber carbohydrate composition of American diet. The Quality Carbohydrate Coalition-Scientific Advisory Council (QCC-SAC), proposed a scoring system which included multiple components related to carbohydrate food quality, such as fiber, free sugars, sodium, and potassium as well as a component assessing whole grain content in case of grains, which is a recommended dietary component in the 2020–2025 DGA<sup>31</sup>. Such recommendations by authors to focus on carbohydrate source and quality beyond quantity, have been factored in the reviewed NPS for India, wherein source of nutrients in context of traditionally consumed cuisines.

In addition to nutrient quality, nutrient processing is another approach that has been used in food scoring. One such system is the NOVA system which was originally laid out in 2009 by Monteiro et al and later refined, which classifies food according to “the nature, extent, and purposes of the industrial processes they undergo.” It includes foods that are unprocessed or minimally processed, those that contain culinary ingredients, those that contain processed foods and those that contain ultra-processed foods<sup>32</sup>. However, some studies have reported low consistency of the NOVA system for robust and functional food assignments<sup>33</sup>. FSA-NPS,

Food Standards Agency nutrient profiling system, is another nutrition profiling system developed by the UK Food Standard Agency. FSAm-NPS is a modified version of the FSA-NPS with application in the French context and FSAm-NPS DI is a dietary index developed to validate the algorithm underlying the score on front of pack label. A prospective cohort study showed that consumption of food items with a higher FSAm-NPS DI was associated with increased levels of several major risk factors for cardiovascular disease (CVD) such as adiposity and fasting glucose levels albeit without any significant associations with critical risk factors like low density lipoproteins (LDL) and high-density lipoproteins (HDL)<sup>34</sup>. While UK NPS system as describes above, has shown to be useful in population studies to understand the impact of high and low nutritional quality on disease risk factors, we observe that the system is based on per 100g or 100ml servings rather than near actual consumed portion sizes.

While the above profiling systems take into account country specific and culture specific considerations, it is challenging for the FMCG industry to factor in a common system for packaged and whole foods sold globally. Interestingly, ANPS, the Ajinomoto Group Nutrient Profiling aimed at profiling cooked dishes culturally specific to Japan, unlike most other systems which look at individual foods. It was based on ingredients like proteins and vegetables which are encouraged and sodium and saturated which are to be limited<sup>35</sup>. Unilever developed a globally applicable nutrition score method wherein nutrients with convincing undesirable health effects were selected as key nutrients (trans fat, saturated fat, sodium and sugars), and nutrient benchmarks were based on conversions of dietary recommendations of daily calorie intake<sup>36</sup>. The focus of this system was restricted to reducing intake of harmful nutrients alone. Similarly, Nestlé Nutritional Profiling System (NNPS) is a category-specific system that calculates nutrient targets per serving as consumed, based on age-adjusted dietary guidelines. It is based on reformulation of food<sup>37</sup>. While NNPS like Unilever's NPS, focuses on limiting nutrients of concern, it also claims to ensure that reducing excess of such nutrients is not a manner of compensating increasing the intake of beneficial nutrients. PNC i.e. PepsiCo Nutrition Criteria is based on stepwise imposition of incremental nutrition criteria which includes defining limits of general nutrients to limit including saturated fat, added sugars, sodium, partially hydrogenated vegetable oils and industrially-produced trans fatty acids. Similarly, food groups to encourage and category specific guidelines were defined<sup>38</sup>.

In an ageing world and in context of the recent focus on 'Decade of Healthy Ageing', ITC has attempted to design an exhaustive profiling system which is built on factors including limiting nutrients of concern, increasing consumption of nutrients to be encouraged, diet and cultural context, portion sizes as well as RDAs. Similarly, as emphasised by NOVA system that processed and ultra-processed foods are to be limited, the proposed system addresses such concerns by means of including wholegrains, fruits, nuts, legumes etc as part of regular daily diet. One of the NPS that is conceptually similar to the reviewed NPS is the ANPS which factors in culturally relevant dishes in Japan. Albeit, the scoring system is different and is derived on a 10-point system for four nutrient categories. To sum up, while all profiling systems focus on improving the overall health of the population to ensure healthy ageing, the current focus is restricted to specific isolated areas such as few nutrient groups, energy intakes, processing levels, serving sizes, either limiting or encouraging nutrients. An approach that attempts to include most of these factors has been proposed by Pepsico NPS and the currently reviewed ITC NPS for India. Each of these systems can be further reviewed and revised to keep them updated to the dynamic changes in food quality, source of nutrients, disappearing boundaries of availability and consumption of dishes in localised regions, etc.

## Nutrition and Health in India

In India, there is a dual burden of malnutrition (overweight/obesity & undernutrition) as well as increased prevalence of non-communicable diseases such as diabetes and cardiovascular health. NCDs contribute to around 38 million (68%) of all the deaths globally and to about 5.87 million (60%) of all deaths in India<sup>20</sup>. In a recent study, almost about 50% of North Indians had lower physical activity, whereas, prevalence of metabolic risk factors such as obesity (12.5%), raised fasting blood glucose (21.2%) was higher in South India. Both North and South India had raised blood pressure (above 35%)<sup>39</sup>. This scenario of increasing NCDs like diabetes and hypertension rate in India, due to factors like poor dietary habits, lack of awareness on portion control, sedentary lifestyle and inadequate physical activity is worrisome. India is often referred to as the 'Diabetes Capital of the World', as it accounts for 17% percent of the total number of diabetes patients in the world<sup>40</sup> and recently Cardiologist Society of India warned India to be the chronic heart disease capital of the world<sup>41</sup>. Scientific literature suggests nutrients to play a major role in maintenance of health, prevention of NCDs and more recently medical nutrition therapy that may help in reversal of NCDs via nutrigenomics and epigenetic studies<sup>42</sup>. Recent evidence demonstrates role of dietary nutrients in modulation of epigenetic changes suggesting nutrition as an effective tool in control and reversal of NCDs<sup>43</sup>.

Reformulation of the foods along with portion control is currently being seen as the key strategy for lowering the incidence of diet related disorders like NCDs, obesity and overweight<sup>44</sup>. These reformation initiatives work by aiming to reduce the salt, saturated fatty acids, trans-fatty acids, sugars, and total energy contribution of different food categories. All foods, in right portions have a unique and critical place in a diversified, balanced diet. Nutritional Profiling System can be instrumental in guiding these reformulation goals, and can serve as a scientifically viable tool<sup>37,38</sup>. Food products tend to have greater impact on health benefits<sup>45</sup>. Micronutrients, protein and fibres may have positive metabolic health benefits over NCDs. Prevention of NCDs typically has been approached either by reducing the intake of nutrient such as sugar, salt, and fat<sup>46</sup>, or by addition of nutrients such as fibers, proteins and micronutrients<sup>47,48,49</sup>.

## Nutrition Profiling System in Indian context

Evidences suggest that nutritional profiling improves consumer's ability to correctly classify foods according to nutritional quality, portion size choice, purchase intent thereby promoting and encouraging healthier food choices, especially among individuals suffering from cardiometabolic chronic diseases<sup>50</sup> and biomarkers of inflammation in middle to old aged population<sup>51</sup>. NPS is an effective tool that can also be used to guide product development and design marketing frameworks. However, currently India does not have its own validated NPS. Thereby it is critical for responsible food manufactures to develop their own scientifically designed NPS to guide innovation and renovation strategies. ITC Foods Division's Nutrition profiling system is an outcome of extensive review of already existing wide variety of Nutrient Profiling Systems available globally, like High Fat Sugar Salt (HFSS), used in the United Kingdom; NutriScore (NS), used in European countries; Health Star Rating (HSR), used in Australia and New Zealand; Chile warning logo; Healthy Choice Symbol, used in Singapore including those designed by FMCG companies like Unilever Highest Nutrition standards<sup>36</sup>, Nestle's Nutritional Profiling system<sup>37</sup> and PepsiCo Nutrition Criteria<sup>38</sup>. While each system has its own positive points, none of them were developed especially in Indian context. These systems are based mostly on their country specific dietary practices and associated health concerns or for internal use by the companies. A brief review of various Internationally accepted profiling system along with ITC Food Division's NPS is given in Supplementary Table S1.

The Food Safety and Standards Authority of India (FSSAI) is expected to publish India's front-of-package labeling (FOPL) regulation and currently a draft version is available as a reference, under discussion. Pre-existing NPS may not be directly implementable, as each of them have their own flaws example: HSR system has technical weaknesses, design flaws, governance limitations resulting in reductionist interpretation of nutrition science misrepresenting the healthiness of new packaged food products and creating a risk for behavioural nutrition<sup>52</sup>. Also, HSR may not be directly applicable in Indian context due to the algorithm usage of nutrients to be encouraged and to be reduced. Hence, having an Indian profiling system based on Indian dietary patterns, will not only provide credible nutritional and food intake patterns of consumers but also help to improve the product's healthiness.

### **ITC Foods Division's Nutrition Profiling System**

Given the vast diversity in food patterns, availability, accessibility, along with cultural and socio-economic conditions, a nutrition profiling system aligned to India's nutritional needs and challenges, was developed<sup>53</sup>. The foods business division of ITC Ltd, one of the leading fast moving consumer goods companies developed a NPS with multidisciplinary approach from nutritionists, product development experts, food technologists, regulatory experts, research scientists as well as external independent nutrition scientists and advisors. The NPS was based on scientific principles as defined in dietary recommendations from ICMR-NIN along with review of WHO, other leading global authorities and published scientific research<sup>38,54,55</sup>. In an endeavour to ensure and provide safe and nutritious food to consumers to consume balanced diet, ITC Foods Division earlier pledged to continuously work towards evaluating and improving the nutrient profile of their product portfolio (ITC Food Division's TERM commitment).

The Nutrition Profiling System would help to map towards better nutrition strategy, marketing practices in addition to developing future product portfolio that provides for sustainable, affordable and accessible food choices. The transparent disclosure and this review is also consistent with the Access to Nutrition Initiative (ATNI) goals that encourages food companies to improve the nutrient density of their product portfolios<sup>56</sup>. A balanced diet is incomplete without adequate intake of macronutrients like protein, carbohydrates, fats, dietary fiber and micronutrients like vitamins and minerals. Sourcing of macronutrients and micronutrients are from basic four food groups per day<sup>54</sup>. A step wise approach to check compliance to ITC Food Division's NPS was created for mapping all the products under various categories in the form of a flow chart (Figure 1). ITC Foods Division's profiling system acknowledges the importance of balanced diet by enhancing diet diversity, enrichment by value addition via macro and micro nutrients (critical vectors of fortification) and food groups to encourage like wholegrains, fruits, vegetables, nuts, legumes etc., along with management of reduction of nutrients to be reduced like sugars, sodium, saturated fat and trans-fat along with energy (Table 1).

Nutrients to be reduced and their thresholds for a day, are mapped for adults and children as recognized (Table 2) by FSSAI<sup>57</sup>, ICMR-NIN<sup>58</sup> and WHO<sup>59</sup>. Thresholds of nutrients/ingredients to be encouraged, are set basis FSSAI claims regulations<sup>60</sup>, Recommended Dietary Allowances for Indians<sup>58</sup> and Dietary Guidelines for Indians as defined by ICMR-NIN<sup>54</sup> (Table 3). Based on claims criteria, as specified in Food Safety and Standards (Advertising and Claims) Regulations, 2018<sup>60</sup>, for Protein, Fibre, Vitamins and Minerals, Monounsaturated fatty acids (MUFA), polyunsaturated fatty acids (PUFA), docosahexanoic acid (DHA), Probiotics and Prebiotics, respective nutrients are considered for their positive contribution. Dietary Guidelines for Indians has been referred for Dairy, Nuts, seeds, Cereals (Millets, Oats, Suji), Legumes/pulses and Fruits & Vegetables towards appropriate portion

guidance of different food groups. For each food group, minimum half of the recommended portion to be able to contribute in a positive manner in a daily diet was considered<sup>61</sup>. For whole-grains half the portion of criteria set for cereals was considered in the profiling system<sup>62</sup>.

Nutrients to be reduced and nutrient/ingredients to be encouraged were mapped and product categories were defined based on Indian diets (Table 4). In total, nine categories were defined to include majority of foods consumed in India. For example, in the Indian context, flours, pulses, vegetarian/non-vegetarian gravies form part of the main meals and was kept as part of the main meal; while a noodle preparation forms part of a light meal hence was categorized accordingly. Similarly, national and regional accompaniments like papad (Indian protein wafer), chutney, pickles which are an integral part of Indian plate (thali), were also built into the products categories. In addition, both savoury and sweets snacks, fresh dairy (with no added sugar/salt) were categorized as an important part of Indian plate, as they contribute positively on essential macro & micronutrients<sup>63</sup>. Furthermore, beverages such as lassi (sweetened or salted probiotic drink), chaach (Buttermilk), coffee etc. were also defined and mapped as a part of Indian diet. Appropriate threshold allocation and portion guidance was based on mapping of Indian food menu in detailed manner, to ensure a balanced diet and inclusion of food varieties.

### Category Specific Thresholds

In the NPS each product category was assigned a specific threshold for energy, added sugars, saturated fats, trans fatty acids (originating from hydrogenated fat) and sodium (Table 5). Using the dietary principle of distributing the entire day's requirements<sup>64</sup> of energy and nutrients, for different meal occasions, the category specific thresholds were allocated. Thresholds were classified under two broad heads- Nutrients to reduce and Nutrients and/or Ingredients to encourage (Table 5). The average daily energy requirement for an adult is 2,000 kcal, as recommended by ICMR-NIN and FSSAI<sup>57</sup>. Energy thresholds for different product categories were set on the basis of these recommendations respectively. Main meals which are consumed as part of the three major meal occasions (i.e., breakfast, lunch and dinner) and should have a greater amount of energy contribution, have threshold per serve for energy as  $\leq 25\%$  of reference daily value; for lighter meals, the threshold was set at  $\leq 20\%$ , since light meals have a smaller contribution of energy than main meals. Generally, 10-12% of energy requirement is obtained from snacks<sup>64</sup>, therefore, for snacks category, the threshold for energy was set at  $\leq 12.5\%$ . For cooking aids/ accompaniments, consumed to complement main meals energy threshold was kept at  $\leq 5\%$ , as nutritional contribution is minimal. Beverage category includes products typically consumed between meals with energy contribution threshold of  $\leq 12.5\%$ . The category of treats, including chocolates, sweets and desserts contribute minimal energy based on recommended small serves at energy threshold of  $\leq 5\%$ . In India, for added sugars, the threshold allocation is based on product category. Categories like main meal dishes, light meal dishes have smaller contribution to added sugars, as mostly composed of savoury dishes except for certain regions of Gujarat, hence allocated threshold is  $\leq 10\%$ . Whereas for categories such as Beverages (including fruit juices, tea, coffee, sweetened/salted lassi), treats and sweet snacks, the threshold was set at  $\leq 25\%$ , as they are consumed in between or at the end of a main meal. However, fresh dairy category including dairy products such as milk, paneer, curd with no added sugars had a cut off of  $\leq 22\%$ . The maximum recommended daily intake for Sodium is 2000mg i.e., 1 mg/kcal, as per recommendation by FSSAI<sup>57</sup>, ICMR-NIN<sup>54</sup> and WHO<sup>64</sup>. Hence the threshold of sodium for each of the 9 categories have been set at par with energy requirement; except for the category of accompaniments at a slightly higher threshold of  $\leq 7.5\%$ , as such products require higher sodium for taste/ shelf life and are served

in small portions. The threshold for saturated fat for the product categories ranged between 5-20% depending on overall contribution of that particular product category in daily diet. For trans-fat, "trans-fat free" criteria on per-serving basis is as per accordance with FSSAI claim regulations<sup>60</sup>.

### **Compliance to Nutrition Profiling System**

Each product has to be mapped for compliance to the profiling system basis, overall adherence to the applicable thresholds and category. A product is deemed compliant, if the 'as sold nutritional values' is within threshold for all nutrients to be reduced and has at least one nutrient to be encouraged and/or ingredient except in treats category. The products are profiled basis per serve/portion. The compliance to profiling system contributes to renovation and innovation as well as marketing strategy<sup>65</sup>. The ITC Food Division's Nutrition profiling system also specifies, product categories that are out of scope such as (a) Semi-finished products/products intermediary to a final dish or a product (which do not reach directly to consumers for consumption) e.g. dehydrated chicken powder (b) Products that are not meant for direct sale to consumers (c) Products that do not carry Nutrition Information Panel (NIP) e.g. Sugar, Salt and (d) Products that have inherently negligible energy contribution in context of a balanced diet, e.g. Spices, based on both usage and contribution in a balanced diet concept.

### **Conclusion**

The ITC Food Division's Nutrition Profiling System is based on nutrition science principles, Indian dietary recommendations, national and international nutritional reference values to define threshold for Ingredients/ nutrients- to be encouraged as well as Nutrients to be reduced for various categories of food products. This NPS will help to evaluate and benchmark the nutritional composition of food product portfolio against scientifically established references. Ingredients such as salt and sugar play a pivotal role in defining various physico-chemical attributes, structure, stability, shelf-life, taste and acceptance of the product. As reformulation and innovation of foods have sensory and technological challenges, strategies towards reduction of nutrients to be reduced, without affecting the sensory and organoleptic properties of the food product is critical. The NPS is intended to have positive impact on improving the nutritional intakes of the population leading to nutritious and affordable food choices. Implementation of such a profiling system, will not only help in the reformulation of the existing product, but also feed into a nutritionally sound innovation pipeline and support future marketing strategies. Furthermore, the NPS will support the TERM commitments and the Enhanced Nutrition Commitments made by ITC Foods Division, under its Nutrition strategy to Help India Eat Better. Future direction of NPS will evolve with emerging changes in national health and nutritional priorities, along with changes in statutory requirements as appropriate.

**Conflict of Interest:** The authors declare no conflict of interest.

**Funding:** No external funding was received for this work.

**Author Contributions:** All authors contributed to the design of this research, analysis of the data, writing, reading, and approval of the final manuscript.



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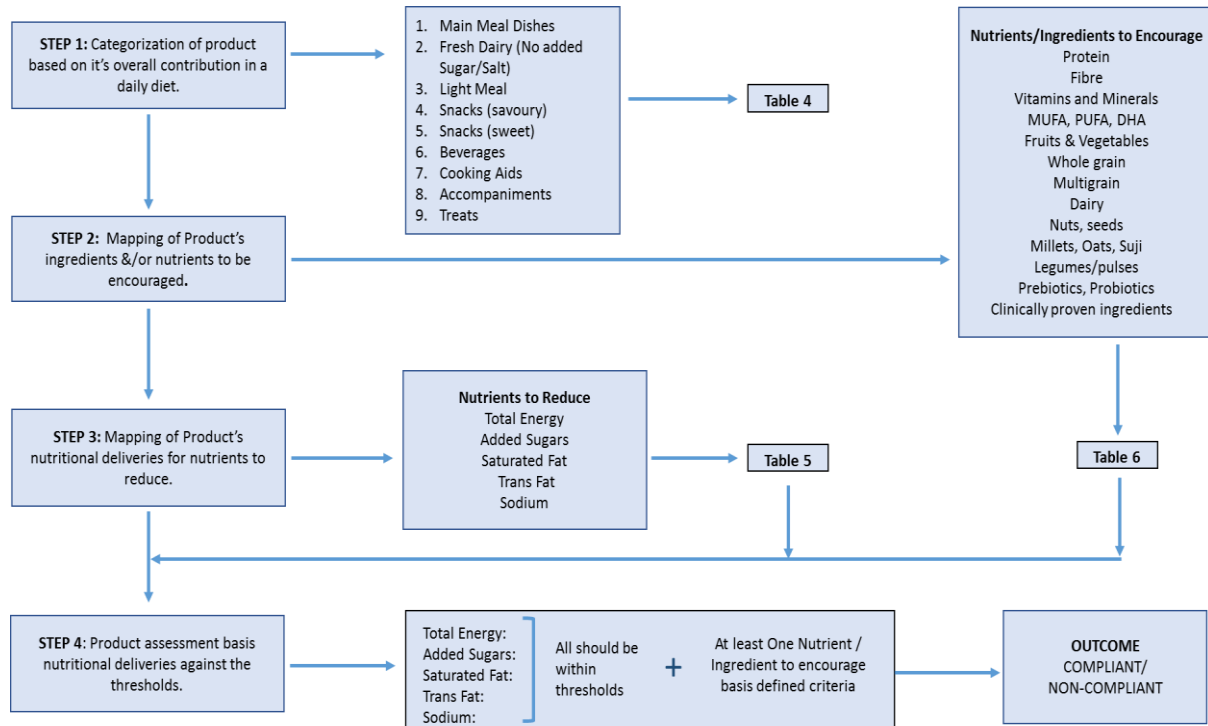
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Figure and Tables

FIGURE 1: STEP WISE APPROACH TO CHECK COMPLIANCE TO ITC FOOD DIVISION'S NUTRITION PROFILING SYSTEM



**TABLE 1: Nutrients/Ingredients forming the basis of Profiling System**

<b>INGREDIENTS &amp;/OR NUTRIENTS TO BE ENCOURAGED (EXAMPLES)</b>	<b>NUTRIENTS TO BE REDUCED</b>
<ul style="list-style-type: none"> <li>▪ Protein</li> <li>▪ Fibre</li> <li>▪ Fruits &amp; Vegetables</li> <li>▪ Whole grain</li> <li>▪ Multigrain</li> <li>▪ Dairy</li> <li>▪ Nuts, seeds</li> <li>▪ Millets, Oats, Suji</li> <li>▪ Legumes/pulses</li> <li>▪ Clinically proven ingredients</li> <li>▪ Prebiotics, Probiotics</li> <li>▪ Vitamins and Minerals</li> <li>▪ MUFA, PUFA</li> <li>▪ DHA</li> </ul>	<ul style="list-style-type: none"> <li>▪ Energy</li> <li>▪ Added Sugars</li> <li>▪ Saturated Fat</li> <li>▪ Trans Fat</li> <li>▪ Sodium.</li> </ul>

**TABLE 2: DAILY NUTRIENT REFERENCE VALUES FOR ADULTS AND CHILDREN FOR NUTRIENTS TO BE REDUCED**

<b>ADULTS</b>			
<b>S.No.</b>	<b>Nutritional Factors</b>	<b>Daily Reference Value</b>	<b>Source</b>
1	Energy	2000 kcal	JOINT FAO/WHO/UNU EXPERT consultation. Human Energy Requirements; FAO: Rome. Italy, 2001
			FOOD SAFETY AND STANDARDS (LABELLING AND DISPLAY) REGULATIONS, 2020
2	Added Sugars	10% of Energy	FOOD SAFETY AND STANDARDS (LABELLING AND DISPLAY) REGULATIONS, 2020
3	Saturated Fat	10% of Energy	JOINT FAO/WHO/UNU EXPERT consultation. Human Energy Requirements; FAO: Rome. Italy, 2001
			FOOD SAFETY AND STANDARDS (LABELLING AND DISPLAY) REGULATIONS, 2020
4	Trans Fat- from hydrogenated vegetable oil (HVO)	1% of Energy	WHO. Press release welcomes industry action to align with global trans-fat elimination targets 2019
			FOOD SAFETY AND STANDARDS (LABELLING AND DISPLAY) REGULATIONS, 2020
5	Sodium	2000mg	WHO Guideline; sodium Intake for adults and children; WHO; 2012
			FOOD SAFETY AND STANDARDS (LABELLING AND DISPLAY) REGULATIONS, 2020
<b>CHILDREN (2-3 YEARS)</b>			
<b>S.No.</b>	<b>Nutritional Factors</b>	<b>Daily Reference Value</b>	<b>Source</b>
1	Energy	1110 kcal	EAR's, NIN- ICMR 2020
2	Added Sugars	10% of Energy	FOOD SAFETY AND STANDARDS (LABELLING AND DISPLAY) REGULATIONS, 2020
3	Saturated Fat	10% of Energy	JOINT FAO/WHO/UNU EXPERT consultation. Human Energy Requirements; FAO: Rome. Italy, 2001
4	Trans Fat-	1% of Energy	WHO. Press release welcomes industry action to align with global trans-fat elimination targets 2019

	from hydrogenated vegetable oil (HVO)		
5	Sodium	1110 mg	WHO Guideline; sodium Intake for adults and children; WHO; 2012 WHO NUTRIENT PROFILE MODEL FOR SOUTH-EAST ASIA REGION;2017
<b>CHILDREN (4-6 YEARS)</b>			
<b>S.No.</b>	<b>Nutritional Factors</b>	<b>Daily Reference Value</b>	<b>Source</b>
1	Energy	1360 kcal	EAR's, NIN- ICMR 2020
2	Added Sugars	10% of Energy	FOOD SAFETY AND STANDARDS (LABELLING AND DISPLAY) REGULATIONS, 2020
3	Saturated Fat	10% of Energy	JOINT FAO/WHO/UNU EXPERT consultation. Human Energy Requirements; FAO: Rome. Italy, 2001
4	Trans Fat- from hydrogenated vegetable oil (HVO)	1% of Energy	WHO. Press release welcomes industry action to align with global trans fat elimination targets 2019
5	Sodium	1360 mg	WHO Guideline; sodium Intake for adults and children; WHO; 2012 WHO NUTRIENT PROFILE MODEL FOR SOUTH-EAST ASIA REGION; 2017
<b>CHILDREN (7-9 YEARS)</b>			
1	Energy	1700 kcal	EAR's, NIN- ICMR 2020
2	Added Sugars	10% of Energy	FOOD SAFETY AND STANDARDS (LABELLING AND DISPLAY) REGULATIONS, 2020
3	Saturated Fat	10% of Energy	JOINT FAO/WHO/UNU EXPERT consultation. Human Energy Requirements; FAO: Rome. Italy, 2001
4	Trans Fat- from hydrogenated vegetable oil (HVO)	1% of Energy	WHO. Press release welcomes industry action to align with global trans fat elimination targets 2019
5	Sodium	1700 mg	WHO Guideline; sodium Intake for adults and children; WHO; 2012 WHO NUTRIENT PROFILE MODEL FOR SOUTH-EAST ASIA REGION; 2017
<b>CHILDREN (10-12 YEARS)</b>			



1	Energy	2220- 2060 kcal	EAR's, NIN- ICMR 2020
2	Added Sugars	10% of Energy	FOOD SAFETY AND STANDARDS (LABELLING AND DISPLAY) REGULATIONS, 2020
3	Saturated Fat	10% of Energy	JOINT FAO/WHO/UNU EXPERT consultation. Human Energy Requirements; FAO: Rome. Italy, 2001
4	Trans Fat- from hydrogenated vegetable oil (HVO)	1% of Energy	WHO. Press release welcomes industry action to align with global trans fat elimination targets 2019
5	Sodium	2220- 2060 mg	WHO Guideline; sodium Intake for adults and children; WHO; 2012 WHO NUTRIENT PROFILE MODEL FOR SOUTH-EAST ASIA REGION; 2017
<b>CHILDREN (13-15) YEARS</b>			
1	Energy	2400- 2860 kcal	EAR's, NIN- ICMR 2020
2	Added Sugars	10% of Energy	FOOD SAFETY AND STANDARDS (LABELLING AND DISPLAY) REGULATIONS, 2020
3	Saturated Fat	10% of Energy	JOINT FAO/WHO/UNU EXPERT consultation. Human Energy Requirements; FAO: Rome. Italy, 2001
4	Trans Fat- from hydrogenated vegetable oil (HVO)	1% of Energy	WHO. Press release welcomes industry action to align with global trans-fat elimination targets 2019
5	Sodium	2400- 2860 mg	WHO Guideline; sodium Intake for adults and children; WHO; 2012 WHO NUTRIENT PROFILE MODEL FOR SOUTH-EAST ASIA REGION; 2017
<b>CHILDREN (16-18) YEARS</b>			
1	Energy	2500- 3320 kcal	EAR's, NIN- ICMR 2020
2	Added Sugars	10% of Energy	FOOD SAFETY AND STANDARDS (LABELLING AND DISPLAY) REGULATIONS, 2020
3	Saturated Fat	10% of Energy	JOINT FAO/WHO/UNU EXPERT consultation. Human Energy Requirements; FAO: Rome. Italy, 2001

4	Trans Fat- from hydrogenated vegetable oil (HVO)	1% of Energy	WHO. Press release welcomes industry action to align with global trans fat elimination targets 2019
5	Sodium	2500- 3320 mg	WHO Guideline; sodium Intake for adults and children; WHO; 2012 WHO NUTRIENT PROFILE MODEL FOR SOUTH-EAST ASIA REGION; 2017

**Table 3: Reference Values for Nutrients &/or Ingredients to be encouraged**

Positive Nutrient/Ingredient	Reference
Protein	FSSR claims criteria Ref: Food Safety and Standards (Advertising and Claims) Regulations,2018
Fibre	FSSR claims criteria Ref: Food Safety and Standards (Advertising and Claims) Regulations,2018
Vitamins and Minerals	FSSR claims criteria Ref: Food Safety and Standards (Advertising and Claims) Regulations,2018
MUFA, PUFA	FSSR claims criteria Ref: Food Safety and Standards (Advertising and Claims) Regulations,2018
DHA	FSSR claims criteria Ref: Food Safety and Standards (Advertising and Claims) Regulations,2018
Clinically proven ingredients	FSSR claims criteria Ref: Food Safety and Standards (Advertising and Claims) Regulations,2018
Probiotics	FSSR claims criteria Ref: Food Safety and Standards (Health Supplements, Nutraceuticals, Food for Special Dietary Use, Food for Special Medical Purpose, and Prebiotic and Probiotic Food) Regulations, 2022. [FSSAI (Nutra) Regulations, 2022
Prebiotics	FSSR claims criteria Ref: Food Safety and Standards (Health Supplements, Nutraceuticals, Food for Special Dietary Use, Food for Special Medical Purpose, and Prebiotic and Probiotic Food) Regulations, 2022. [FSSAI (Nutra) Regulations, 2022
Whole grain	Grains (e.g. ground, cracked, flaked or otherwise processed) after removal of inedible parts such as the hull and husk, where the three fractions endosperm, germ and bran are present in the same relative proportion as in the intact grains. Small loss of components that occur through Good Manufacturing Practices (GMP) (viz. cleaning, milling, sieving etc, ) consistent with safety and quality are allowed
Multigrain	More than 1 grain
Dairy	50 ml (fresh equivalence basis) per 100ml/g Ref: Basis Dietary Guidelines for Indian NIN-ICMR (minimum 50% of a recommended dairy amount)
Nuts, seeds	5g (fresh per 100g/ml equivalence basis) per 100ml/g
Cereals (Millets, Oats, Suji etc)	15 g (fresh equivalence basis) per 100g/ml Ref:Basis Dietary Guidelines for Indian NIN-ICMR; (minimum 50% of a recommended amounts)
Legumes/pulses	15 g (fresh equivalence basis) per 100g/ml

	Ref: Basis Dietary Guidelines for Indian NIN-ICMR; (minimum 50% of a recommended amounts)
Fruits & Vegetables	50 g (fresh equivalence basis) per 100g/ml; Excluding starchy roots & vegetables. Ref: Basis Dietary Guidelines for Indian NIN-ICMR; (minimum 50% of a recommended amounts)

**TABLE 4: DEFINITION OF THE PRODUCT CATEGORIES AND DESCRIPTION**

<b>PRODUCT CATEGORIES</b>	<b>DEFINITION</b>	<b>DESCRIPTION</b>
<b>Main Meal dishes</b>	Products that are consumed as part of the main meal (breakfast/lunch/dinner).	Flours, Dals, Pulses, Biryani, Pongal, Pulao, Ready to Eat dishes etc
<b>Fresh Dairy (No added Sugar/Salt)</b>	Milk and/ or products based primarily on milk with no added sugar/salt.	Milk, Paneer, plain yogurt etc.
<b>Light Meal Dishes</b>	Products consumed either in between main meals or as small meals. Their contribution towards energy is more than a snack, however less than the main meal.	Noodles, Pasta, Vermicelli, Poha, upma, RTE idli- sambhar, frozen snacks etc.
<b>Snacks (savoury)</b>	Products that have a smaller serving size and have a savoury flavour. These are generally consumed in between main meals.	Namkeen, chips, nachos, puffs, savoury Biscuits etc
<b>Snacks (sweet)</b>	Products that has a smaller serving size and have a sweet flavour. These are generally consumed in between main meals.	Biscuits, cakes & Cookies, sweet flavoured curds like Doi's etc.
<b>Beverages (sweet, salty, Sweet &amp; Salty)</b>	Products that are generally consumed in-between main meals and are generally consumed in liquid form.	RTD-Nectars, Fruit Beverages, cold coffee, lassi, chaach, their premixes etc. Products made with a base of water, milk, cereals, pulses, yogurt, fruits, vegetables or a mix of above.
<b>Cooking aids</b>	Products that are used in the preparation of main meal dishes.	Fruit, vegetable, nuts-based gravies, purees, Cooking Pastes, etc

<b>Accompaniments</b>	Products that complement a meal/snack/light meal and does not have major contribution of energy in a daily diet.	Chutneys, Conserves, Papad etc
<b>Treats</b>	Products that are generally sweet in taste and are usually consumed at the end of a meal or as an in-between snack.	Chocolates, Sweet Premixes, Confectionery, Dairy Sweet, Instant sweet mixes etc

**TABLE 5: CATEGORY BASED THRESHOLDS**

Product Categories	Energy (% reference value per serve)	Added sugars (% reference value per serve)	Saturated Fat (% reference value per serve)	Trans fat per serve	Sodium (% reference value per serve)	Positive Contribution
Main Meal Dishes	≤25%	≤10%	≤ 20%	< 0.2g trans-fat/serve (from HVO's)	≤25%	Minimum ONE basis qualifying criteria
Fresh Dairy (No added Sugar/Salt)	≤7.5%	Not Applicable	≤22% (only from dairy source)	< 0.2g trans-fat/serve (from HVO's)	≤7.5%	Minimum ONE basis qualifying criteria
Light Meal	≤20%	≤10%	≤ 15%	< 0.2g trans-fat/serve (from HVO's)	≤20%	Minimum ONE basis qualifying criteria
Snacks (savory)	≤12.5%	≤10%	≤ 15%	< 0.2g trans-fat/serve (from HVO's)	≤12.5%	Minimum ONE basis qualifying criteria
Snacks (sweet)	≤12.5%	≤25%	≤ 15%	< 0.2g trans-fat/serve (from HVO's)	≤12.5%	Minimum ONE basis qualifying criteria
Beverages	≤12.5%	≤25%	≤ 15%	< 0.2g trans-fat/serve (from HVO's)	≤12.5%	Minimum ONE basis qualifying criteria
Cooking aids	≤10 %	≤10%	≤ 10%	< 0.2g trans-fat/serve (from HVO's)	≤10%	Minimum ONE basis qualifying criteria

Accompaniments	≤5%	≤5%	≤ 5%	< 0.2g trans- fat/serve (from HVO's)	≤7.5%	Minimum ONE basis qualifying criteria
Treats	≤5%	≤25%	≤10% ≤20% (for chocolates, having minimum of 25% total fat from cocoa fat &/or milk fat).	< 0.2g trans- fat/serve (from HVO's)	≤5%	Not Applicable

**SUPPLEMENTARY TABLE S1: COMPARISION OF VARIOUS NURTIENT PROFILING MODELS**

<b>Nutrient Profiling Models</b>			
<b>Country, Implementation, Model</b>	<b>Methodology</b>	<b>Working/Algorithm</b>	<b>Summary of algorithm</b>



France,  
Voluntary  
Nutriscore

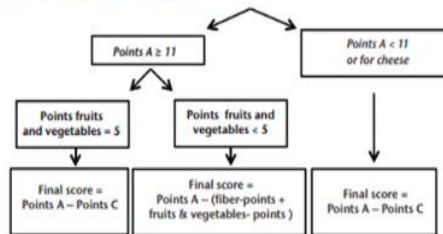


The calculation is based on the 100 g content of 4 negative elements: energy, simple sugars, saturated fatty acids and salt. Points of 1 to 10 are assigned to each item based on the quantities present. This score may be minimized by subtracting nutritional elements considered as positive: fruits or vegetables (and nuts), fibers and proteins. Points ranging from 1 to 5 are assigned. The theoretical scores of the score range from -15 (most favorable) to +40 (worst). Colors and letters are assigned based on the final score. classifies the nutritional quality of products in one of 5 classes (A to E)

1. Attribution of points, based on the content of nutrients and other elements per 100 g of a food/beverage

Points	Specific cut-offs: beverages			Specific cut-offs: fats			Sodium (mg)	Specific cut-offs: beverages					
	Energy (kJ)	Sugars (g)	Saturated fat (g)	Energy (kJ)	Sugars (g)	Saturated fat (g)		Points	Fruits, veg (%)	Fiber (g)	Protein (g)		
0	≤ 335	≤ 4.5	≤ 0	0	≤ 1	< 10	< 90	0	≤ 40	≤ 40	≤ 0.7	≤ 1.6	
1	> 335	> 4.5	≤ 30	≤ 1.5	> 1	< 16	> 90	1	< 40		> 0.7	> 1.6	
2	> 670	> 9	≤ 60	≤ 3	> 2	< 22	> 180	2	> 60	> 40	> 1.4	> 3.2	
3	> 1,005	> 13.5	≤ 90	≤ 4.5	> 3	< 28	> 270	3	–		> 2.1	> 4.8	
4	> 1,340	> 18	≤ 120	≤ 6	> 4	< 34	> 360	4	–	> 60	> 2.8	> 6.4	
5	> 1,675	> 22.5	≤ 150	≤ 7.5	> 5	< 40	> 450	5	> 80		> 3.5	> 8.0	
6	> 2,010	> 27	≤ 180	≤ 9	> 6	< 46	> 540	6					
7	> 2,345	> 31	≤ 210	≤ 10.5	> 7	< 52	> 630	7					
8	> 2,680	> 36	≤ 240	≤ 12	> 8	< 58	> 720	8					
9	> 3,015	> 40	≤ 270	≤ 13.5	> 9	< 64	> 810	9					
10	> 3,350	> 45	≤ 270	> 13.5	> 10	≥ 64	> 900	10		> 80			
0-10 (a)		0-10 (b)		0-10 (b)		0-10 (c)		0-5 (a)		0-5 (b)		0-5 (c)	
Total		Points A = (a) + (b) + (c) + (d) [0 – 40]											

2. Final score: -15 to 40 points




3. Attribution of colors


Foods (points)	Beverages (points)	Color
min to -1	water	green
0 to 2	min to 1	light green
3 to 10	2-5	yellow
11 to 18	6-9	orange
19 to max	10 to max	dark orange



Green: highest quality  
Red: lowest quality


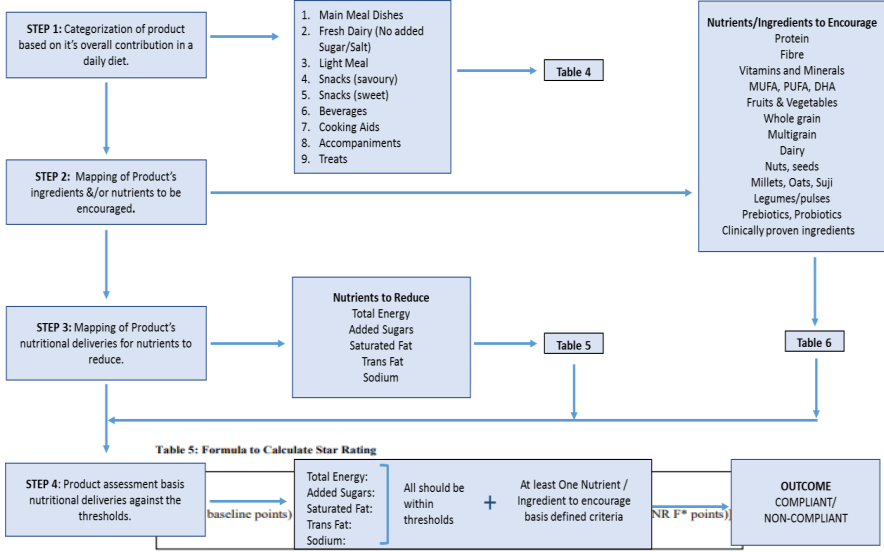
1. Per 100 g basis  
2.4 negative elements: energy, simple sugars, saturated fatty acids and salt  
3. positive attributes: fruits or vegetables (and nuts), fibers and proteins.  
The positive attributes compensate for negative attributes.  
algorithm underpinning the Nutri-Score label is derived from the Food Standard Agency (FSA) nutrient profile model, originally a binary model developed to regulate the marketing of foods to children in the UK.

<p>Australia &amp; New Zealand, Voluntary Health Star Rating</p> 	<p>Australian governments, and the government of New Zealand, endorsed the voluntary Health Star Rating (HSR) interpretive front-of-pack-labelling system, developed jointly by health groups, industry and government, which applies to all packaged, manufactured or processed foods ready for sale, except for agreed exemptions. The HSR allows to compare the nutritional properties of foods within the same category of packaged and processed goods. The system uses stars, from half to five stars, to provide at-a-glance overall health rating of packaged and processed food and is being implemented over five years.</p>	<p>The Calculator takes into account four aspects of a food associated with increasing the risk factors of chronic diseases, these are energy, saturated fat, sodium and total sugars content. Certain “positive” aspects of a food such as fruit, vegetable, nut and legume content, and in some instances, dietary fibre and protein content are also considered. Taking these components into account, points are allocated based on the nutritional composition of 100g or 100mL, following the units used in the Nutrition Information Panel of a packaged food. The points are converted to a star rating (from ½ to 5 stars). The Calculator should be used in conjunction with the Guide for Industry to the Health Star Rating Calculator.</p>	<p>1.Per 100g or 100mL basis                  2.Negative aspects: energy, saturated fat, sodium and total sugars                  3.Positive aspects:fruits, vegetables, nuts and legumes (fvnl) including coconut, spices, herbs, fungi, seeds and algae.                  The positive attributes compensate for negative attributes.                  Mostly aligned with the Australian Dietary Guidelines and the Eating and Activity Guidelines for New Zealand Adults.</p>
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	<p>As part of the HSR symbol, nutrient information on saturated fat, sugars, sodium and one optional positive nutrient relevant to the food can be displayed along with the optional use of the word 'high' or 'low' where relevant criteria are met. The HSR Calculator has been developed to calculate the Health Star Rating for packaged food products.</p>		
<p>Singapore, Voluntary Healthier Choice Symbol</p> 	<p>The Healthier Choice Symbol (HCS) on packaged food products indicates that they are healthier options, helping consumers to make informed food choices when grocery shopping. Products carrying the HCS are generally lower in total fat, saturated fat,</p>	<p>The HCS consists of 12 main product categories with a total of more than 70 sub-categories and the nutrition guidelines are set according to each product category. All the products carrying HCS logo contain at least 25% lower in certain nutrients as compared to regular food product in the same category. It is mandatory to have the comparative claim on pack for products which endorsed HCS logo. E.g. 25% lower in sodium as compared to regular soup and broth.</p>	<p>1.per 100ml prepared or ready to consume for beverages or per 100g for food. 2.Food products may carry the HCS if they meet nutritional standards set by HPB. Evaluation will be based on the nutritional values; particularly fat, saturated fat, sodium,sugar, calories, dietary fibre, wholegrain and calcium depending on the category.</p>

	<p>sodium and sugar. Some are also higher in dietary fibre and calcium compared to similar products within the same food category. There are 30 HCS variants which focus on a particular nutritional aspect of the product. A product that satisfies the nutritional guidelines can carry one or two nutrient specific claims.</p>	<p>Table 2: Criteria for 100g of food (whether or not it is sold by volume)</p> <table border="1"> <thead> <tr> <th>Text</th> <th>LOW<sup>8</sup></th> <th>MEDIUM</th> <th colspan="2">HIGH</th> </tr> <tr> <th rowspan="2">Colour code</th> <th rowspan="2">Green</th> <th rowspan="2">Amber</th> <th colspan="2">Red</th> </tr> <tr> <th>&gt;25% of RIs</th> <th>&gt;30% of RIs</th> </tr> </thead> <tbody> <tr> <td>Fat</td> <td>≤ 3.0g/100g</td> <td>&gt; 3.0g to ≤ 17.5g/100g</td> <td>&gt; 17.5g/100g</td> <td>&gt; 21g/portion</td> </tr> <tr> <td>Saturates</td> <td>≤ 1.5g/100g</td> <td>&gt; 1.5g to ≤ 5.0g/100g</td> <td>&gt; 5.0g/100g</td> <td>&gt; 6.0g/portion</td> </tr> <tr> <td>(Total) Sugars</td> <td>≤ 5.0g/100g</td> <td>&gt; 5.0g to ≤ 22.5g/100g</td> <td>&gt; 22.5g/100g</td> <td>&gt; 27g/portion</td> </tr> <tr> <td>Salt</td> <td>≤ 0.3g/100g</td> <td>&gt; 0.3g to ≤ 1.5g/100g</td> <td>&gt;1.5g/100g</td> <td>&gt;1.8g/portion</td> </tr> </tbody> </table> <p>Note: portion size criteria apply to portions/serving sizes greater than 100g</p>	Text	LOW <sup>8</sup>	MEDIUM	HIGH		Colour code	Green	Amber	Red		>25% of RIs	>30% of RIs	Fat	≤ 3.0g/100g	> 3.0g to ≤ 17.5g/100g	> 17.5g/100g	> 21g/portion	Saturates	≤ 1.5g/100g	> 1.5g to ≤ 5.0g/100g	> 5.0g/100g	> 6.0g/portion	(Total) Sugars	≤ 5.0g/100g	> 5.0g to ≤ 22.5g/100g	> 22.5g/100g	> 27g/portion	Salt	≤ 0.3g/100g	> 0.3g to ≤ 1.5g/100g	>1.5g/100g	>1.8g/portion	
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<p>UK, Voluntary Color Coded GDA</p>	<p>Nutritional values are be given on a per portion basis for energy (kJ and kcal), fat, saturates, sugar and salt, both in actual numbers as in % of the Reference Intake (RI). The portion must be clearly described above. And beneath the energy values (kJ and kcal) for 100g/ml must be provided. For assigning the colour coding (green, amber,</p>	<p>Table 3: Criteria for drinks (per 100ml)</p> <table border="1"> <thead> <tr> <th>Text</th> <th>LOW<sup>9</sup></th> <th>MEDIUM</th> <th colspan="2">HIGH</th> </tr> <tr> <th rowspan="2">Colour code</th> <th rowspan="2">Green</th> <th rowspan="2">Amber</th> <th colspan="2">Red</th> </tr> <tr> <th>&gt;12.5% of RIs</th> <th>&gt;15% of RIs</th> </tr> </thead> <tbody> <tr> <td>Fat</td> <td>≤ 1.5g/100ml</td> <td>&gt; 1.5g to ≤ 8.75g/100ml</td> <td>&gt; 8.75g/100ml</td> <td>&gt;10.5g/portion</td> </tr> <tr> <td>Saturates</td> <td>≤ 0.75g/100ml</td> <td>&gt; 0.75g to ≤ 2.5g/100ml</td> <td>&gt; 2.5g/100ml</td> <td>&gt; 3g/portion</td> </tr> <tr> <td>(Total) Sugars</td> <td>≤ 2.5g/100ml</td> <td>&gt; 2.5g to ≤ 11.25g/100ml</td> <td>&gt; 11.25g/100ml</td> <td>&gt; 13.5g/portion</td> </tr> <tr> <td>Salt</td> <td>≤ 0.3g/100ml</td> <td>&gt;0.3g to ≤0.75g/100ml</td> <td>&gt; 0.75g/100ml</td> <td>&gt; 0.9g/portion</td> </tr> </tbody> </table> <p>Note: Portion size criteria apply to portions/serving sizes greater than 150ml</p>	Text	LOW <sup>9</sup>	MEDIUM	HIGH		Colour code	Green	Amber	Red		>12.5% of RIs	>15% of RIs	Fat	≤ 1.5g/100ml	> 1.5g to ≤ 8.75g/100ml	> 8.75g/100ml	>10.5g/portion	Saturates	≤ 0.75g/100ml	> 0.75g to ≤ 2.5g/100ml	> 2.5g/100ml	> 3g/portion	(Total) Sugars	≤ 2.5g/100ml	> 2.5g to ≤ 11.25g/100ml	> 11.25g/100ml	> 13.5g/portion	Salt	≤ 0.3g/100ml	>0.3g to ≤0.75g/100ml	> 0.75g/100ml	> 0.9g/portion	<p>1. per portion basis if serve size greater than 100 g/150 ml otherwise basis 100g/100ml.                  2. Nutrients of concern basis which color codes are allocated: for fat, saturates, sugar and salt. No criteria for positive attributes. There is Nutrient specific guidance.</p>
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	<p>red) there is a criteria that must be met per 100g/ml, one for solid foods and one for fluids, as described below. The lozenges must be filled with colour for at least 1/3. The colours may be accompanied by the wording ‘high, med/medium, low’.</p>	<p>Table 1. Baseline reference values for Food risk factors and minimum percentage of positive factor per 100 gm or 100 ml on ‘as sold’ basis.</p> <table border="1"> <thead> <tr> <th>Food Risk Factors</th> <th>Solid Foods</th> <th>Liquid Foods (non-dairy)</th> <th>Positive Factors</th> <th>Minimum, %</th> </tr> </thead> <tbody> <tr> <td>Energy, kcal</td> <td>400</td> <td>30</td> <td>Fruits &amp; vegetables</td> <td>10 (solid foods) &amp; 5 (liquid foods)</td> </tr> <tr> <td>Total Sugars, g</td> <td>21</td> <td>6</td> <td>Nuts, legumes &amp; millets</td> <td>10</td> </tr> <tr> <td>Saturated fat, g</td> <td>5</td> <td>3</td> <td>Dietary Fibre</td> <td>3</td> </tr> <tr> <td>Sodium, mg</td> <td>450</td> <td>100</td> <td>Protein</td> <td>1.5</td> </tr> </tbody> </table>	Food Risk Factors	Solid Foods	Liquid Foods (non-dairy)	Positive Factors	Minimum, %	Energy, kcal	400	30	Fruits & vegetables	10 (solid foods) & 5 (liquid foods)	Total Sugars, g	21	6	Nuts, legumes & millets	10	Saturated fat, g	5	3	Dietary Fibre	3	Sodium, mg	450	100	Protein	1.5																																																																																																																																																																																																																															
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<p>Indian Nutrition Rating (INR) - Draft regulation In draft stage and under discussion for final adoption. As per proposal, Compliance shall be voluntary until a period of 48 months from the date of final notification of these regulations and mandatory thereafter.</p>	<p>The food products would be given baseline points based on contribution of energy and content of saturated fat, sugar, sodium and positive points based on fruit and vegetables (FV), nuts, legumes, and millets (NLM), dietary fibre, and protein per 100 g of solid or 100 ml liquid foods. For liquid foods, the baseline points based on contribution of energy, sugars and positive points based on fruits,</p>	<p>Table 2. INR Baseline points for Category-I: Solid Foods (Incl. Dairy products and beverages) per 100 g</p> <table border="1"> <thead> <tr> <th rowspan="2">Baseline points</th> <th rowspan="2">Energy, kcal</th> <th rowspan="2">Sat. fat (g)</th> <th rowspan="2">Total sugars (g)</th> <th rowspan="2">Sodium (mg)</th> <th colspan="4">Positive Point</th> </tr> <tr> <th>FV</th> <th>NLM</th> <th>Dietary Fibre</th> <th>Protein</th> </tr> </thead> <tbody> <tr><td>0</td><td>≤80</td><td>≤1.0</td><td>≤4.2</td><td>≤90</td><td>≤10</td><td>≤10</td><td>≤3</td><td>≤1.5</td></tr> <tr><td>1</td><td>&gt;80</td><td>&gt;1.0</td><td>&gt;4.2</td><td>&gt;90</td><td>&gt;10</td><td>&gt;10</td><td>&gt;3</td><td>&gt;1.5</td></tr> <tr><td>2</td><td>&gt;160</td><td>&gt;2.0</td><td>&gt;8.4</td><td>&gt;180</td><td>&gt;15</td><td>&gt;15</td><td>&gt;6</td><td>&gt;2.0</td></tr> <tr><td>3</td><td>&gt;240</td><td>&gt;3.0</td><td>&gt;12.6</td><td>&gt;270</td><td>&gt;20</td><td>&gt;20</td><td>&gt;9</td><td>&gt;2.5</td></tr> <tr><td>4</td><td>&gt;320</td><td>&gt;4.0</td><td>&gt;16.8</td><td>&gt;360</td><td>&gt;25</td><td>&gt;25</td><td>&gt;12</td><td>&gt;3.0</td></tr> <tr><td>5</td><td>&gt;400</td><td>&gt;5.0</td><td>&gt;21</td><td>&gt;450</td><td>&gt;30</td><td>&gt;30</td><td>&gt;15</td><td>&gt;5</td></tr> <tr><td>6</td><td>&gt;480</td><td>&gt;6.0</td><td>&gt;25.2</td><td>&gt;540</td><td>&gt;35</td><td>&gt;35</td><td>&gt;18</td><td>&gt;7</td></tr> <tr><td>7</td><td>&gt;560</td><td>&gt;7</td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>8</td><td>&gt;640</td><td>&gt;8</td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>9</td><td>&gt;720</td><td>&gt;9</td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>10</td><td>&gt;800</td><td>&gt;10</td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>11</td><td></td><td>&gt;12</td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>12</td><td></td><td>&gt;14</td><td>&gt;50.4</td><td>&gt;1080</td><td></td><td></td><td></td><td>&gt;35</td></tr> <tr><td>13</td><td></td><td>&gt;16</td><td>&gt;54.6</td><td>&gt;1170</td><td></td><td></td><td></td><td>&gt;40</td></tr> <tr><td>14</td><td></td><td>&gt;18</td><td>&gt;58.8</td><td>&gt;1260</td><td></td><td></td><td></td><td>&gt;45</td></tr> <tr><td>15</td><td></td><td>&gt;20</td><td>&gt;63</td><td>&gt;1350</td><td></td><td></td><td></td><td>&gt;50</td></tr> <tr><td>16</td><td></td><td>&gt;22</td><td>&gt;67.2</td><td>&gt;1440</td><td></td><td></td><td></td><td></td></tr> <tr><td>17</td><td></td><td>&gt;24</td><td>&gt;71.4</td><td>&gt;1530</td><td></td><td></td><td></td><td></td></tr> <tr><td>18</td><td></td><td>&gt;26</td><td>&gt;75.6</td><td>&gt;1620</td><td></td><td></td><td></td><td></td></tr> <tr><td>19</td><td></td><td>&gt;28</td><td>&gt;79.8</td><td>&gt;1710</td><td></td><td></td><td></td><td></td></tr> <tr><td>20</td><td></td><td>&gt;30</td><td>&gt;84</td><td>&gt;1800</td><td></td><td></td><td></td><td></td></tr> <tr><td>21</td><td></td><td>&gt;32</td><td></td><td>&gt;1890</td><td></td><td></td><td></td><td></td></tr> <tr><td>22</td><td></td><td>&gt;34</td><td></td><td>&gt;1980</td><td></td><td></td><td></td><td></td></tr> <tr><td>23</td><td></td><td>&gt;36</td><td></td><td>&gt;2070</td><td></td><td></td><td></td><td></td></tr> <tr><td>24</td><td></td><td>&gt;38</td><td></td><td>&gt;2160</td><td></td><td></td><td></td><td></td></tr> <tr><td>25</td><td></td><td>&gt;40</td><td></td><td>&gt;2250</td><td></td><td></td><td></td><td></td></tr> </tbody> </table>	Baseline points	Energy, kcal	Sat. fat (g)	Total sugars (g)	Sodium (mg)	Positive Point				FV	NLM	Dietary Fibre	Protein	0	≤80	≤1.0	≤4.2	≤90	≤10	≤10	≤3	≤1.5	1	>80	>1.0	>4.2	>90	>10	>10	>3	>1.5	2	>160	>2.0	>8.4	>180	>15	>15	>6	>2.0	3	>240	>3.0	>12.6	>270	>20	>20	>9	>2.5	4	>320	>4.0	>16.8	>360	>25	>25	>12	>3.0	5	>400	>5.0	>21	>450	>30	>30	>15	>5	6	>480	>6.0	>25.2	>540	>35	>35	>18	>7	7	>560	>7							8	>640	>8							9	>720	>9							10	>800	>10							11		>12							12		>14	>50.4	>1080				>35	13		>16	>54.6	>1170				>40	14		>18	>58.8	>1260				>45	15		>20	>63	>1350				>50	16		>22	>67.2	>1440					17		>24	>71.4	>1530					18		>26	>75.6	>1620					19		>28	>79.8	>1710					20		>30	>84	>1800					21		>32		>1890					22		>34		>1980					23		>36		>2070					24		>38		>2160					25		>40		>2250					<ol style="list-style-type: none"> <li>per 100 g/100 ml basis</li> <li>Nutrients of concern: energy and content of saturated fat, sugar, sodium</li> <li>Positive aspects: fruit and vegetables (FV), nuts, legumes, and millets (NLM), dietary fibre, and protein</li> </ol> <p>The positive attributes compensate for negative attributes.</p>
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	<p>vegetables and protein. The total score is determined by reducing positive points from baseline points. Based on above points and similar to HSR scores are provided. Lesser the score, better is the star rating (5-0.5).</p>	<table border="1"> <thead> <tr> <th rowspan="2">Baseline points</th> <th rowspan="2">Energy (kcal)</th> <th rowspan="2">Total sugars (g)</th> <th colspan="2">Positive Points</th> </tr> <tr> <th>FV</th> <th>Protein</th> </tr> </thead> <tbody> <tr><td>0</td><td>≤6</td><td>≤0.1</td><td>≤5</td><td>≤1.5</td></tr> <tr><td>1</td><td>&gt;6</td><td>&gt;0.1</td><td>&gt;5</td><td>&gt;1.5</td></tr> <tr><td>2</td><td>&gt;12</td><td>&gt;1.6</td><td>&gt;10</td><td>&gt;2.0</td></tr> <tr><td>3</td><td>&gt;18</td><td>&gt;3.1</td><td>&gt;15</td><td>&gt;2.5</td></tr> <tr><td>4</td><td>&gt;24</td><td>&gt;4.6</td><td>&gt;20</td><td>&gt;3.0</td></tr> <tr><td>5</td><td>&gt;30</td><td>&gt;6.1</td><td>&gt;25</td><td>&gt;3.5</td></tr> <tr><td>6</td><td>&gt;36</td><td>&gt;7.6</td><td>&gt;30</td><td>&gt;4.0</td></tr> <tr><td>7</td><td>&gt;42</td><td>&gt;9.1</td><td>&gt;35</td><td>&gt;4.5</td></tr> <tr><td>8</td><td>&gt;48</td><td>&gt;10.6</td><td>&gt;40</td><td>&gt;5.0</td></tr> <tr><td>9</td><td>&gt;54</td><td>&gt;12.1</td><td>&gt;45</td><td>&gt;5.5</td></tr> <tr><td>10</td><td>&gt;60</td><td>&gt;13.6</td><td>&gt;50</td><td>&gt;6.0</td></tr> <tr><td>11</td><td></td><td></td><td></td><td>&gt;6.5</td></tr> <tr><td>12</td><td></td><td></td><td></td><td>&gt;7.0</td></tr> <tr><td>13</td><td></td><td></td><td></td><td>&gt;7.5</td></tr> <tr><td>14</td><td></td><td></td><td></td><td>&gt;8.0</td></tr> <tr><td>15</td><td></td><td></td><td></td><td>&gt;8.5</td></tr> </tbody> </table>	Baseline points	Energy (kcal)	Total sugars (g)	Positive Points		FV	Protein	0	≤6	≤0.1	≤5	≤1.5	1	>6	>0.1	>5	>1.5	2	>12	>1.6	>10	>2.0	3	>18	>3.1	>15	>2.5	4	>24	>4.6	>20	>3.0	5	>30	>6.1	>25	>3.5	6	>36	>7.6	>30	>4.0	7	>42	>9.1	>35	>4.5	8	>48	>10.6	>40	>5.0	9	>54	>12.1	>45	>5.5	10	>60	>13.6	>50	>6.0	11				>6.5	12				>7.0	13				>7.5	14				>8.0	15				>8.5	
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<p>ITC Food Division's NPS Mandatory evaluation for all products.</p>	<p>The profiling system acknowledges the importance of balanced diet by enhancing diet diversity, enrichment by value addition via macro &amp; micro nutrients (critical vectors of fortification) and food groups to encourage like wholegrains, fruits, vegetables, nuts and legumes along with management of reduction of nutrients of concern like sugars, sodium, saturated fat ,trans-fat as well as energy. Nutrients of</p>		<p>ITC nutrition profiling system mapped product categories not basis product format (like liquid/solid) or product composition (dairy/non dairy/fats) but basis meal occasion and dietary patterns of Indians. This allowed for appropriate mapping of thresholds for a day into different meal occasions. Nutrients of concern have been kept very similar to most of the government endorsed models. Positive attributes were mapped basis the above models as well as Indian dietary needs. The positive attribute does not compensate for negative</p>																																																																																							

	<p>concern and their thresholds for a day, are mapped for adults and children. For Protein, Fibre, Vitamins and Minerals, MUFA, PUFA, DHA, Probiotics and Prebiotics, to be considered for their positive contribution minimum claims criteria is used as per Food Safety and Standards (Advertising and Claims) Regulations, 2018. Dietary Guidelines for Indians has been referred for Dairy, Nuts, seeds, Cereals (Millets, Oats, Suji etc), Legumes/pulses and Fruits &amp; Vegetables. A product is deemed compliant if as sold value is within threshold for all nutrients of concern and has at least one nutrient</p>		<p>attributes. All products must be well within thresholds for all nutrients of concern and additionally have one positive attribute. The positive attribute criterias has to be additionally met. For sweet treats positive attribute was not mandated as they are not very credible source of positive nutrition in regards to their overall contribution in a balanced diet and their ideal portion sizes.</p>
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	<p>&amp;/or ingredient -except in treats. The positive attribute does not give any compensatory benefit. It is mandatory for a product to be within threshold for all nutrients of concern. The products are profiled basis per serves/portion in design and delivery of key nutrients.</p>		
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