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A Comparative Study of Eight Selected Front-of-Pack Labelling Systems in Different Countries and Exploring the Importance of the Potential Harmonization

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ABSTRACT

The accelerated transition to ultra-processed diets is a major contributor to the globally emerging non-communicable diseases (NCDs). Front-of-pack Labelling (FOPL) schemes have emerged worldwide as a policy measure to combat obesity and diet-related NCDs, though they create challenges as non-tariff barriers in global trade. This study aimed to provide a comprehensive overview and comparative analysis of eight selected FOPL systems to explore a framework for harmonization. A study was conducted on eight commonly available and well-documented front-of-pack Labelling (FOPL) systems, selected after reviewing 30 open-access articles from electronic databases and consulting international guidelines (CODEX, WHO, UNICEF) and policies from countries using these systems. Information was qualitatively analyzed to compare their presentation, aims, regulations, effectiveness, and limitations. FOPL schemes are categorized as interpretive, non-interpretive, nutrient-specific, and summary indicators, with interpretive, color-coded systems shown to be more effective. Variations in systems stem from country-specific nutritional needs, regulations, and priorities, with each approach offering unique strengths and limitations. Global harmonization is challenging due to these differences; however, regional harmonization appears more feasible. The study highlights the need for international standards aligned with World Trade Organization trade policies to prevent trade barriers and support effective implementation. Government involvement, public awareness, research, and continuous monitoring are critical for successful FOPL systems. Mutual recognition of standards and requirements between countries can foster a globally harmonized framework, balancing trade facilitation and public health objectives.

INTRODUCTION

The global shift towards unhealthy diets due to modern lifestyles and processed food consumption, leading to health issues like obesity and non-communicable diseases (NCDs) (Jones et al., 2019; Pettigrew et al., 2022; UNICEF, 2021). Nutrition labeling on food packages is seen as crucial in empowering consumers to make healthier choices, and the World Health Organization (WHO) recommends it to help meet the global targets on nutrition and combat NCDs (Al-Jawaldeh et al., 2020).

In essence, FOPL is a form of supplementary nutrition information. It presents simplified nutritional data on the front of pre-packaged foods using symbols, graphics, text, or a combination thereof, to provide an overview of the food's overall nutritional value (Codex Alimentarius Commission, 2021; Eufic, 2022; European Commission, 2020). The primary aim of FOPL policies is to provide consumers with salient, readily understood nutrition information on food products. This enables them to make healthier food choices. A secondary aim is to stimulate reformulation among food producers, thereby improving the quality of the food supply (Figure 1). The WHO first proposed FOP nutrition labeling as a policy measure to improve diet and health. Subsequently, it has been promoted as part of a comprehensive policy response to the global epidemic of obesity and diet-related NCDs, with numerous public and private FOP nutrition labeling initiatives currently in place. Moreover, access to easily understandable nutrition information is considered a fundamental human right by the United Nations due to the strong relationship between diet and health. Indeed, FOPL systems have been defined as one of the few cost-effective strategies for supporting a healthy dietary pattern that reduces the burden of future NCDs. They are also indirectly beneficial for the economy, saving government healthcare costs through a shift towards consuming healthier diets (Jones et al., 2019; Khandpur et al., 2018; UNICEF, 2021).

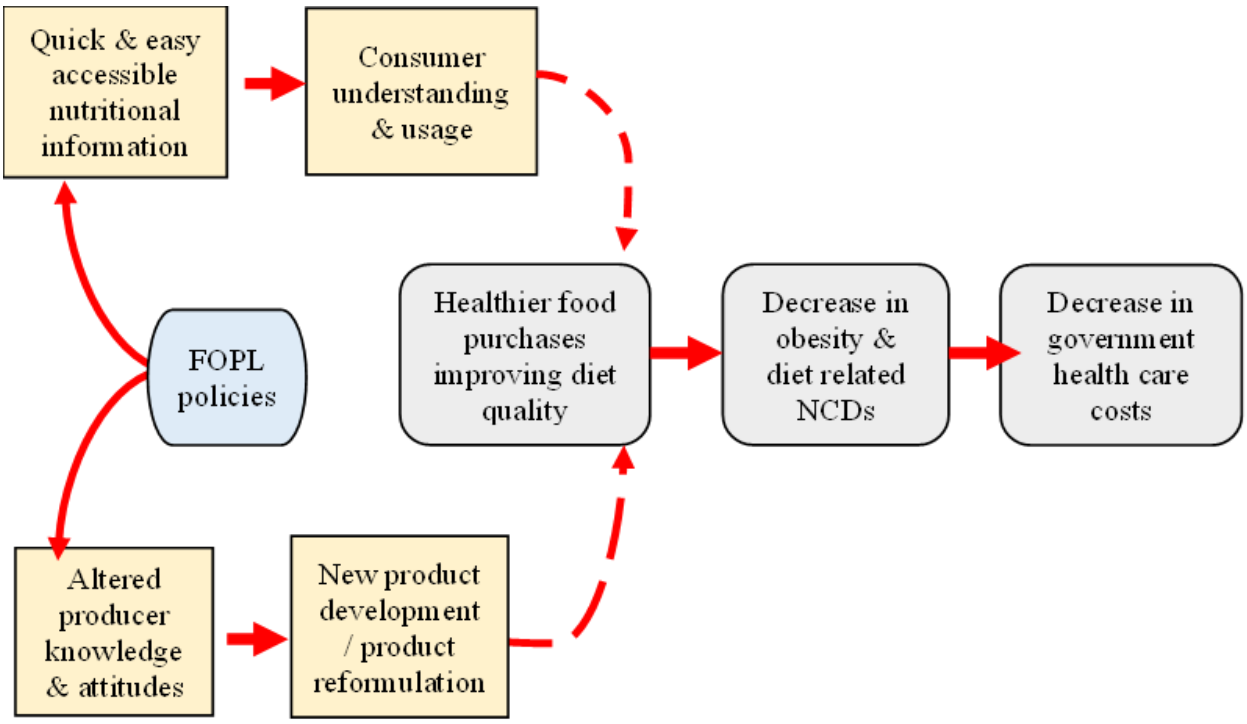

Figure 1. Health outcome of front-of-pack labelling policies - UNICEF 2021

FOPL systems vary globally, classified as interpretive and non-interpretive, and further categorized based on the type of information they provide: either nutrient-specific or summary indicators. Various FOPL designs exist, such as traffic light symbols, warning labels, numeric-only labels, and endorsement logos (Egnell et al., 2018; European Commission, 2020; Jones et al., 2019; Pettigrew et al., 2022; Roberto et al., 2021; Thangavel, 2021; UNICEF, 2021; WHO, 2019). Table 1 summarizes the classification of these FOPL systems. Some types of these FOPL systems are mandatory with legislation, diminishing the commercial incentive for companies to display information that discourages consumption on a voluntary basis and some are voluntary where the industry applies it voluntarily (UNISEF'2014; UNISEF,2021).

Table 1. Classification of Front-of-Pack Labelling Systems

Nutrient-specific		**Summary indicators**
Interpretive	**Non-interpretive**	**Interpretive**
Colour coded: Traffic light symbols	Numeric only: Reference Intakes label, Guideline Daily Amount label	Spectrum rating: Nutri-Score, Health Star Rating system
Warning labels		Endorsement logos: Nordic Keyhole logo, Healthier Choice logo

The efficacy of FOPL systems depends on consumer understanding and interpretation. Research suggests FOPLs influence consumer perceptions and purchasing behavior positively. The study aims to compare eight selected FOPL systems for their presentation, usage, and adherence to country-specific regulations, exploring potential global harmonization (European Commission, 2020; Franco-Arellano et al., 2020). This study aimed to provide a comprehensive overview and comparative analysis of the systems, offering a potential framework for harmonization.

MATERIALS & METHODS

A systematic search of electronic databases (Google Scholar, PubMed, ScienceDirect, and ResearchGate) was conducted using the key terms "Nutrition labelling," "Front of pack labelling (FOPL)," "Front of pack labelling schemes," "Non-communicable diseases prevention," "Food supply chain," and "FOPL harmonization." An initial list of FOPL systems was prepared and eight systems currently in use were selected based on accessibility and availability from various sources, excluding those that are not in use or with limited information. From the retrieved articles, 30 open-access, English-language full-text articles were selected after removing duplicates. The other sources included international guidelines from authoritative bodies (CODEX Alimentarius, WHO, UNICEF, IYCF, and EU), country-specific food labelling policies, and authoritative governmental and organizational websites. Information on the selected FOPL systems was extracted and analyzed under themes of presentation, aims, regulations, similarities, differences, limitations, effectiveness, and noteworthy aspects. A qualitative comparative analysis was performed, and the potential for global FOPL harmonization was evaluated, highlighting benefits, challenges, and possible solutions based on regulatory and contextual variations among the systems.

RESULTS AND DISCUSSION

Reference intake labels

The Reference Intake (RI) label, previously known as GDAs, is a non-interpretive, nutrient-specific scheme mandated by the EU Food Information for Consumers regulation in 2016. It provides information on energy alone or energy plus nutrients (fat, saturates, sugars, and

salt) per 100g/100ml or per portion of food, along with percentages of daily RI values (Supplementary material file 1-Figure 1). These values are calculated based on an average-sized woman engaging in average physical activity (Table 2), aiming to prevent overconsumption among those with lower energy requirements and offering clear information on labels (Eufic, 2022; Food Standards Agency, 2016; IGD, 2020).

RIs are widely used in the EU, Thailand, and the Philippines, often in monochrome format, though some countries like Portugal and Spain may add color coding (Supplementary material file 1-Figure 2). This labeling employs numerical information to quantify nutrients in relation to recommended daily intake, requiring more cognitive effort to interpret healthiness. It only indicates negative nutrients like fat, sugars, and salt, excluding positive ones like fiber. While RI values vary among individuals due to differing energy and nutrient needs based on age groups, they offer a useful indication of an average person's energy requirements and how specific nutrients contribute to daily diet (Eufic, 2022; IGD, 2020; UNICEF, 2021a).

Table 2. Reference intake values of an average person as part of a healthy balanced diet

Nutrient	RI values for an adult
Energy	2000 kcal
Total fat	70 g
Saturated fat	20 g
Carbohydrates	260 g
Total sugars	90 g
Protein	50 g
Salt	6 g

The percentage reference intake (RI) values of a particular food are calculated according to these values

Traffic light labels

The Traffic Light Labeling (TLL) scheme is an interpretive labeling system that provides consumers with a quick understanding of a food product's nutritional content using traffic light colors: green for low, yellow/amber for medium, and red for high levels of nutrients like total fat, saturated fat, sugar, and sodium (Kanter et al., 2018; Kelly et al., 2008; Rowett Institute of Nutrition and Health, 2023). Below are provided three different countries that use TLL.

Ecuador**:** Introduced in 2014 as part of efforts to combat obesity, Ecuador's mandatory TLL system applies to processed packaged foods and drinks. It displays horizontal bars indicating levels of total fats, sugar, and salt per 100g/ml (Supplementary material file 1-Figure 3). The bars are color-coded and must be proportional to the package's principal panel. Cut-off points for nutrient concentrations were adjusted to reflect Ecuadorian consumption patterns (Freire et al., 2017; UNICEF, 2021).

Sri Lanka: Implemented in 2016 to address diet-related NCDs, Sri Lanka's mandatory TLL system initially targeted sugar-sweetened beverages (SSBs). Circular labels indicate sugar content per 100ml (Supplementary material file 1- Figure 4). The purpose of the regulation was to educate the public on the sugar content in SSBs and it included carbonated beverages, ready to serve beverages other than milk-based products, fruit Nectar and fruit Juices excluding widely consumed sweetened milk-based products. The scheme

was implemented for solid and semi-solid products as well. Square labels indicate fat, sugar, and salt levels per 100g for solid and semi-solid foods (Supplementary material file 1- Figure 5) excluding certain products such as primary agricultural goods and single-ingredient items (Jayawardena, 2022; Ministry of Health, Nutrition and Indigenous Medicine of Sri Lanka, 2016, 2019; WHO Country Office for Sri Lanka, 2020; "Sri Lanka to implement traffic light labeling system for packaged food," 2019). The nutrient cut-off values for both TLL of SSBs and solid and semi-solid products is mentioned in Supplementary material file-2.

South Korea: Introduced in 2011 as a voluntary measure for children's food, South Korea's TLL scheme targets total fat, saturated fat, sugar, and sodium levels per serving. The labels use colors and shapes to make it easier for children to recognize nutrient levels (Supplementary material file 1-Figure 6). The scheme applies to products like confectionery, bread, dairy products, and beverages (Eufic, 2017; Kim & Chang, 2021; Korea Legislation Research Institute, 2014). The cut-off values for the labelling scheme are mentioned in Supplementary material file-2.

Each country's TLL system aims to provide clear and consistent information to consumers, though the specific implementation and cut-off values vary.

Multiple traffic light labelling

In the United Kingdom, a hybrid of the Traffic Light Labeling (TLL) scheme called Multiple Traffic Light Labeling (MTL) is utilized. While MTL is voluntary, businesses are encouraged to provide it on products where the information would be useful to consumers. Most major supermarkets and many food manufacturers adhere to government recommendations by offering MTL. This labeling system displays four separate color-coded lights indicating the levels of fat, saturated fat, sugar, and salt, along with energy content per 100g/ml or per serving, or both (Supplementary material file 1-Figure 7). Additionally, percentage Reference Intake (RI) values are included (British Nutrition Foundation, 2021; European Commission, 2020; Food Standards Agency, 2016; UNICEF, 2021). The separate colour thresholds for the nutrients of solid foods and beverages mentioned in Supplementary material file-2.

MTL does not differentiate between the nutritional qualities of different types of fat, sugar, and salt. Overall, TLL, including MTL, provides consumers with a quick indication of a product's healthiness, but it lacks nuance in distinguishing between nutritional qualities (Smith, 2018).

Warning labels

Warning labels (WLs) are a type of interpretive front-of-pack labeling (FOPL) system that indicates foods high in critical nutrients like sugar, salt, saturated fat, and calories, which should be consumed in moderation (European Commission, 2020; Kanter et al., 2018). Below is provided details of WLs used in four different countries.

Chile: Chile introduced mandatory black and white octagonal stop sign labels on unhealthy prepackaged products high in calories, saturated fat, sodium, or sugar per 100g/ml. Products with these labels cannot use marketing strategies directed at children and must comply with strict regulations on health claims (Supplementary material file 1-Figure 8). The regulations were implemented in June 2016 with separate nutrient thresholds for solids versus liquids (mentioned in Supplementary material file-2) becoming stricter in June 2018 and June 2019 (Roberto et al., 2021; UNICEF, 2021).

Uruguay: Uruguay implemented mandatory octagonal stop sign labels for foods exceeding nutrient thresholds for sugar, total fat, saturated fat, and sodium (Supplementary material file 1-Figure 9). This regulation applies to all products sold in Uruguay, with exceptions for certain categories like infant formula and dietary supplements (Michail, 2020; UNICEF, 2021).

Canada: Canada introduced a mandatory WL featuring a magnifying glass to identify foods high in saturated fat, sugars, or sodium (Supplementary material file 1-Figure 10). This symbol is required on most prepackaged foods sold in Canada that exceed threshold levels, except for certain categories like infant formulas and nutritional supplements (Health Canada, 2022).

Israel: Israel implemented mandatory red warning symbols for foods high in sugars, sodium, and saturated fats (Supplementary material file 1-Figure 11). These symbols are prominently displayed on the label and highlight high nutrient content exceeding threshold values per 100g/ml. The threshold values for the solid and liquid products have become stricter since 2021 and the values are mentioned in the Table 3. The labeling shall not apply with regard to foods such as food additives, infant formulas, food composed of a single ingredient, and spices (Ministry of Health, Israel, 2017; Romagnoli, 2020; Southey, 2020).

WLs provide a clear signal of high-risk nutrients in food products, aiding consumers in making healthier choices. Despite their negative tone, WLs have been shown to effectively influence consumer behavior. However, they may not assist consumers seeking specific nutrient information like salt or sugars(IGD, 2020; Scapin & Chan, 2020)

Nutri-score

The Nutri-score is an interpretive, summary indicator type of front-of-pack labeling (FOPL) scheme used in France. It grades foods from A to E with colors ranging from green to red based on their overall nutritional quality. It was previously known as the 5-Colour Nutrition Label and is currently voluntary. The Nutri-score relies on a nutrient profiling system derived from the United Kingdom's Food Standards Agency. It assesses both foods and beverages using one set of criteria for all pre-packaged items, with modifications for specific categories like cheese, fats, and non-alcoholic drinks. Foods and beverages are ranked based on healthy and unhealthy nutrients, with points allocated accordingly. Positive points (0-10) are given for energy, total sugar, saturated fatty acids, and sodium, while negative points (0-5) are given for fruit, vegetables, nuts, fiber, and protein content (Supplementary material file 1-Figure 13). This results in a scale from -15 (most healthy) to +40 (least healthy), with products categorized into five colored categories from A to E, representing higher to lower nutritional quality (Supplementary material file 1-Figure 12) (Eufic, 2022; European Commission, 2020; IGD, 2020; Julia & Hercberg, 2017; UNICEF, 2021).

Unlike other color-coding schemes like Multiple Traffic Light Labelling (MTL), Nutri-score considers positive nutrients such as dietary fiber and fruit and vegetable content in its evaluation. However, it doesn't directly address specific nutrients like salt or sugars, which are health concerns for some consumers. Another drawback is the potential for consumers to overestimate the healthiness of a product and consume it excessively, leading to excessive calorie intake(IGD, 2020; Pugle, 2022)

NutrInform Battery

Italy recently introduced the Nutrinform battery labelling scheme in January 2021 as an alternative to the Nutri-score system. This scheme allows food producers, including olive oil bottlers, to voluntarily place the Nutrinform label on their products. The Nutrinform label presents the calories, fat, saturated fats, sugar, and sodium contents in a single food portion and compares the percentage of those contents with what is expected in a healthy daily nutritional intake. It quantitatively indicates the energy and nutrient contents in numbers with battery symbols indicating the percentages of those contents in relation to the recommended daily intake (Supplementary material file 1-Figure 14). Overall, the Nutrinform battery label is a nutrient-specific, non-interpretive FOPL, similar to the Reference Intake (RI) system. However, it has some disadvantages. The homogenous color of the label may make

it less visually appealing and less likely to be read by consumers. Additionally, the use of the charged battery symbol to express excesses in energy, fats, saturated fats, sugar, and salt may be misleading to consumers, as the battery symbol is commonly associated with physical and mental energy and health. Moreover, the use of symbols may make it harder for consumers to compare various products and may require additional effort to understand the healthiness of a particular product (DeAndreis, 2020; Dongo, 2020; Peparini, 2020).

Health star rating

The Health Star Rating (HSR) is a voluntary front-of-pack labelling system introduced in Australia and New Zealand in 2014. It aims to assist consumers in making healthier choices by rating the overall nutritional profile of packaged foods on a scale from ½ a star to 5 stars. The HSR is determined using a calculator that assesses positive nutrients (such as fruit, vegetables, nuts, and legumes) and risk/negative nutrients (including energy, saturated fat, sodium, and total sugars) in food per 100g/ml. The algorithm for the calculator was developed in consultation with the Food Standards of Australia, New Zealand, and other technical and nutrition experts. Negative components are offset by positive components to calculate a final score, which is then converted to a star rating (Figure 2). Packaged products can display the HSR symbol by itself or alongside additional nutritional information (Supplementary material file 1-Figure 15), including the energy icon and nutrient icons for three negative nutrients plus one optional positive nutrient (such as fiber or calcium). The star ratings range from ½ star (least healthy) to 5 stars (most healthy). In general, the more stars a product has, the healthier the choice. However, the system does not assess how "natural" or "pure" a product is, focusing solely on its nutritional profile. Overall, the HSR system provides consumers with a quick, easy, and standardized way to compare similar packaged foods based on their nutritional content. However, it does not consider factors beyond nutritional content, such as the presence of additives or processing methods (Clemons, 2023; Food Standards Australia New Zealand, 2021; UNICEF, 2021).

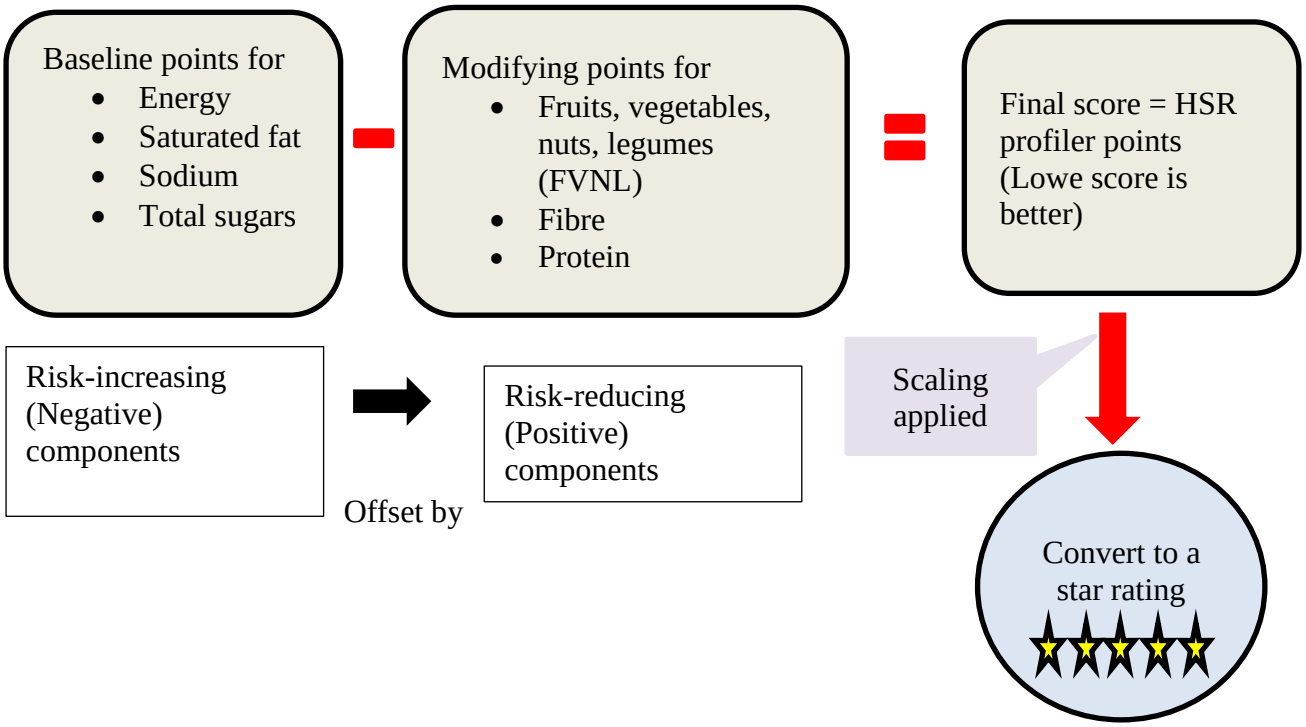

Figure 2: Calculation of health stars - Health Star Rating System of Food Standards in Australia & New Zealand

Endorsement Logos

The endorsement logos are a type of FOPL that evaluates overall healthier options within a food category, using symbols, words, and colors (European Commission, 2020; UNICEF, 2021a). Below is provided information about three endorsement logos.

Nordic Key-Hole logo: Introduced in Sweden in 1989, this voluntary scheme expanded to Denmark, Norway, Iceland, Lithuania, and North Macedonia. The Keyhole is divided into different product groups (33 food categories). As different foods contain different types of nutrition in different quantities, the requirements for the key-hole labelling differ for each group. The logo appears on products meeting specific criteria for fat, sugar, salt, fiber, whole grains, fruits, vegetables, and additives. It helps consumers identify healthier products within a category and considers positive nutrients like dietary fiber and whole grain (Supplementary material file 1-Figure 16) (Helsenorge, 2023; IGD, 2020; Öhrvik & Sjölin, 2018).

Healthier choice logo: Implemented in Singapore since 1998, the HCS is part of the Nutrition Labelling Programme. Administered by the Health Promotion Board Food, it's voluntary and indicates products meeting nutritional standards for fat, saturated fat, sugar, sodium, and dietary fiber. Each food group has specific guidelines, and products may carry one or more of the 41 available taglines. For example a product can carry HCS with “higher in wholegrain” tagline when it contains at least 20% more wholegrains compared to a similar product from the same food category and a product can carry HCS with “Higher in calcium” tagline when it contains at least 25% more calcium compared to a similar product from the same food category (Supplementary material file 1-Figure 17) (Health Hub Singapore, 2023; Health Promotion Board Singapore, 2020; IGD, 2020).

Choices Programme logo: This global FOPL scheme originated in the Netherlands in 2006 and is also used in the Czech Republic, Argentina, and Nigeria. It assesses the level of energy, fatty acids, added sugar, salt, and dietary fiber in foods and beverages. Different product groups have specific nutrient criteria, allowing consumers to identify the healthiest option available (Supplementary material file 1-Figure 19) (Choices Programme, 2008; Gray, 2013; IGD, 2020).

These endorsement logos help consumers quickly identify healthier food options within a category, but they may vary in their coverage and consumer understanding, depending on the country and specific criteria.

The above detailed information of the eight FOPL systems is summarized in Supplementary material file-2.

Among these different types of FOPL systems that have been introduced worldwide, summary indicator systems like HSR and nutrient-specific systems like TLL are among the most commonly implemented FOPL systems worldwide (Franco-Arellano et al., 2020). Studies have shown that both types of systems are useful for consumers in making healthier food choices. For instance, traffic-light labeling has been found to help Ecuadorian and British consumers, while Australian consumers understand and use the Health Star Rating system. However, recent evidence suggests that nutrient-specific warning labels (WLs) may be more effective than other systems. While HSR and TLL systems are effective, they can sometimes create a "halo" effect in healthier drinks, where companies may reformulate products to improve their rating rather than reducing negative nutrients like sodium, saturated fats, and sugars. In contrast, WL systems can help counteract this effect by providing clear warnings about excess negative nutrient content. For example, Chile's warning label has been effective in reducing the "health halo" effect of health claims on regulated products. This indicates that WL systems could be a valuable alternative to improve consumers' understanding and encourage healthier choices (Freire et al., 2017; UNICEF, 2021).

FOPL harmonization

With advanced technology and the complex requirements of the people, food supply chains have become intricate in the modern world, making food an essential component of global trade. As part of this international trade, food labels often cross borders, and different countries use various labeling schemes with different requirements. This creates 'technical barriers' to the free movement of packaged foods across borders. To achieve the intended outcome of global trading, it will be necessary to agree on labels for traded food. As front-of-pack labeling (FOPL) is part of nutrition labeling, harmonizing FOPL schemes for international food trading is crucial(Rimpeekool et al., 2015; UNICEF, 2021a).

The FOPL schemes implemented around the world vary in designs, content, the type of judgment made (positive and/or negative judgments), and implementation mode (voluntary or mandatory). This lack of harmonization has resulted in the need for food industry actors to cater to different labeling requirements in different markets, even within the same trading region. These different FOPL requirements may create 'technical barriers,' meaning that labeling policies fall under the remit of World Trade Organization (WTO) agreements, the most relevant being the WTO Agreement on Technical Barriers to Trade (the 'TBT Agreement') (Thow et al., 2018, Thow et al., 2019).

Although implementing one FOPL scheme globally is not possible, resolving this lack of harmonization of FOPL around the world requires labeling policies to align with international standards. Trade policy usually relies on standards to guide definitions of what constitutes "necessary" and/or "least trade restrictive" requirements on traded goods. The Codex Alimentarius Commission constitutes the internationally recognized standards-setting body for foods, collaborating with the World Health Organization (WHO) and Food and Agriculture Organization (FAO) food standards program. The Codex is explicitly referenced by the WTO Agreement on Sanitary and Phytosanitary Measures and meets the criteria for a standards-setting body in the WTO Agreement on TBT. The function and purpose of the Codex are to guide and promote the elaboration and establishment of definitions and requirements for food, assisting in their harmonization, and facilitating international trade (Thow et al., 2019).

Harmonization is the key for deep and durable progress for the benefit of consumers, the food industry, market traders, and all involved stakeholders as currently the global food supply chain is gradually complicating, integrating different countries worldwide. It is the ideal future solution and practical tool for improving the quality of food nutrition and fair international trade that avoids inequities due to inconsistencies in international law and noncompliance with regulations, policies, standards, or internal guidelines, procedures, and codes of practices (Vintilă, 2021).

Global FOPL harmonization is quite impossible due to several reasons. Among them, different nutritional needs among different populations are the major challenge. Different populations, even within the same country, may have different dietary habits and cultural preferences, leading to nutritional requirements that may not be compatible with those of another country. Although international CODEX standards are available as guidance, different countries may still have their own unique regulatory frameworks, leading to variations in FOPL requirements and standards. Additionally, different countries may prioritize different health concerns to address via FOPL, according to their experts' studies, which can be challenging in harmonization. Apart from that, different systems considering different nutrients, serving sizes, reference values, difficulty in comparing products, different nutritional parameters and profiles, and, in some cases, inability for application to all food categories also make FOPL harmonization difficult.

Although achieving complete global FOPL harmonization is challenging, efforts can be made to harmonize at least processed and ultra-processed packaged foods, which pose more health concerns. In that case, international guidelines for implementing FOPL schemes, mutual recognition of standards and requirements of different countries, and information sharing may be quite helpful. Furthermore, regional harmonization with similar dietary habits and requirements will be more feasible than worldwide harmonization, which needs more attention currently with more studies.

At the regional level, organizations such as the WHO Regional Offices, especially the WHO South-East Asia Regional Office (SEARO), could take the lead in developing FOPL systems that suit regional dietary habits. These offices could work with health ministries, food safety authorities, and public health experts from different countries to agree on common nutrient limits and label formats.

In addition, regional groups like the South Asian Association for Regional Cooperation (SAARC), Association of Southeast Asian Nations (ASEAN), and the African Union could help align regulations by including front-of-pack labelling standards in their regional food safety and trade policies.

While achieving global harmonization that may take time, strong regional leadership by WHO and organizations such as SAARC could be a realistic and effective step toward consistent front-of-pack labelling across countries that share similar diets and health challenges.

CONCLUSIONS

The role of **f**ront-of-**p**ack (FOPL) as a tool to combat diet-related non-communicable diseases (NCDs) by aiding consumers in making healthier food choices. It discusses various FOPL schemes globally, highlighting their strengths and limitations, such as interpretive labels being more effective than non-interpretive ones due to requiring less cognitive effort. Color-coded schemes like Traffic Light Labels (TLL), Multiple Traffic Lights (MTL), and Nutri-Score are considered efficient, while Warning Labels (WLs) provide direct messaging on unhealthy products. Clarity and legibility of FOPL elements are crucial for consumer understanding, and schemes should be tailored to each country's context, considering factors like education and income levels.

While aforementioned local adaptation is essential, it is equally important to consider regional harmonization of FOPL schemes, especially in areas like South Asia and South-East Asia, where countries share similar dietary habits and public health challenges. Drawing inspiration from models such as the European Union and Australia–New Zealand, which have successfully developed harmonized food regulations for their member states, countries within these Asian regions could also work toward creating unified FOPL frameworks. This could be achieved through the support of organizations such as the WHO Regional Offices and regional bodies like SAARC and ASEAN, promoting consistency and collaboration in food labelling practices.

Government-led education and awareness campaigns are also necessary to help the public understand FOPL messages and use them effectively when making food choices. Furthermore, continuous monitoring and evaluation of labelling schemes are vital to assess their impact and ensure ongoing improvement. Consideration of serving sizes and nutrient thresholds will further enhance the accuracy and usefulness of nutritional information provided to consumers.

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