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A Perspective Paper

Discussing Avenues of Sugar Intake Reduction in Egypt – A Multi-Stakeholder Endeavor

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Non-Eligible for Peer-Review.

Contents

1. Background

Egypt faces a significant public health challenge due to high sugar consumption, which is closely linked to rising rates of obesity and non-communicable diseases (NCDs).

According to the Global Nutrition Report: 44.7% of adult women and 25.9% of adult men in Egypt are living with obesity, while diabetes affects 23.4% of adult women and 18.8% of adult men[1].

Excessive sugar intake is associated with various health issues, including obesity, type 2 diabetes, cardiovascular diseases, and dental problems. These conditions place a substantial burden on Egypt's healthcare system and underscore the need for effective interventions to reduce sugar consumption.

This paper aims to review the range of regulatory interventions that food regulatory authorities can employ to curb sugar consumption. It reviews international experience, with emphasis on guidance provided by the Codex Alimentarius Commission—the international food standard-setting body—to address the health risks posed by excessive sugar intake, focusing exclusively on measures within the remit of food regulatory agencies. Approaches such as beverage and food taxation, campaigns to promote physical activity, and infrastructure changes

[1] https://globalnutritionreport.org/resources/nutrition-profiles/africa/northern-africa/egypt/

that facilitate exercise **fall outside this scope**, as they lie beyond the jurisdiction of food regulators.

Instead, our discussion concentrates on the strategies and considerations available to agencies with mandates comparable to the Egyptian National Food Safety Authority (NFSA).

2. Objective

The World Health Organization (WHO) recommends that adults consume 5% of daily energy intake from free **sugars**.

3. Dietary Estimates of Sugar Intake

Current survey data indicate that average free-sugar intake in Egypt is roughly 12–16% of total energy intake, substantially above the World Health Organization's conditional recommendation of <5% of energy from free sugars[2]. For example, a study of urban Egyptian women (aged 19–30) reported mean total sugar consumption of **98 ± 54 g/day**, equivalent to **about 16 % of their total energy intake**, whereas WHO suggests reducing free sugars to below 5 % of energy for optimal health benefits. Likewise, broader population surveys in Egypt have found that free sugars contribute approximately 12 % of total dietary energy[3].

However, recent data is lacking as to the exact contribution of the various foods to the high sugar intake. Documenting the dietary sources of sugar intake in Egypt is essential for designing and evaluating targeted, evidence-based public health interventions. By systematically identifying which foods and beverages that contribute most to added and free sugars—whether traditional desserts, sugary drinks, or processed snacks—researchers and policymakers can pinpoint the highest-impact opportunities for interventions. Accurate consumption data also enable the monitoring of trends over time, the assessment of intervention effectiveness, and the allocation of resources to populations or regions with the greatest need. Ultimately, mapping sugar sources within Egyptian diets provides the **factual foundation** necessary to develop culturally appropriate strategies that reduce sugar consumption and improve health outcomes.

4. Mandatory Nutrition Labelling

Mandatory Nutrition labelling plays a vital role in promoting public health by empowering consumers to make informed dietary choices. By clearly displaying nutritional information such as sugar, salt, fat, and calorie content, labels help individuals understand what they are consuming and encourage healthier eating habits. This transparency not only supports efforts to reduce the risk of diet-related non-communicable diseases—such as obesity, diabetes, and heart disease—but also motivates food manufacturers to improve product formulations.

As a public health measure, mandatory nutrition labelling is a cost-effective tool that fosters a more health-conscious society and contributes to national strategies aimed at improving population well-being.

[2] Curr Dev Nutr. 2020 Jan 6;4(2):nzz143. doi: 10.1093/cdn/nzz143

[3] Salwa M Saleh et al., Bulletin of the National Nutrition Institute of the Arab Republic of Egypt June 2024(63) 101 - https://bnni.journals.ekb.eg/article_361572_b44db78da21129a28981f6d921b3f390.pdf

Countries such as Canada, the United States, and members of the European Union have successfully implemented mandatory nutrition labelling, resulting in measurable public health benefits. In the U.S., the introduction of the **Nutrition Facts label** led to increased consumer awareness and pressure on manufacturers to reformulate products with lower sugar, sodium, and trans fats.

Canada's mandatory labelling system, which includes front-of-pack requirements for high-risk nutrients, has driven both product innovation and healthier consumer choices. Similarly, the EU's harmonized labelling regulations, including nutrient reference values and allergen declarations, have strengthened consumer protection and facilitated healthier dietary patterns. These experiences demonstrate **that clear, standardized nutrition labelling** not only informs individuals but also drives broader improvements in the food environment, contributing to national health objectives.

While mandatory nutrition labelling is a crucial step in promoting healthier food choices, its effectiveness can be limited by consumers' ability to understand and interpret the information presented. Many individuals struggle to make sense of complex nutritional data, such as grams of specific nutrients or daily value percentages, which can reduce the impact of the labels on purchasing decisions. Recognizing this, countries like Canada have implemented educational campaigns to help consumers better use % Daily Value (%DV) information—highlighting when a product is "high in" or "low in" key nutrients. Additionally, front-of-pack labelling (FOPL) systems, such as warning labels or color-coded schemes, serve as simple, visual tools that enhance label visibility and comprehension at a glance. These complementary measures are essential to maximize the public health benefits of nutrition labelling, especially among populations with limited nutrition literacy.

5. Front of Pack (FOP) Labelling

As part of broader efforts to address public health challenges linked to excessive sugar consumption, front-of-pack (FOP) nutrition labelling has become an increasingly common policy measure across the world. These labelling systems aim to inform consumers about the sugar and overall nutritional content of products at a glance, thereby encouraging healthier dietary choices and reducing intake of added sugars.

Principles and Recommendations for Front-of-Pack Labelling (FOPL) – Codex Alimentarius Overview

The Codex Alimentarius Commission's Guidelines on Nutrition Labelling (CAC/GL 2-1985) – first adopted in 1985 and revised multiple times – provide the international benchmark for nutrition labelling. In 2021, Codex adopted a new Annex (Annex 2) to these guidelines specifically addressing Front-of-Pack Nutrition Labelling (FOPNL) . FOPNL is defined as a form of supplementary nutrition information that presents simplified nutritional details on the front of pre-packaged foods, intended to help consumers better understand a food's nutritional value at a glance. Importantly, FOPNL is in addition to the detailed nutrient declaration on the back or side of packages, not a replacement for it. Codex guidance asserts that FOPL is a useful tool for public health – to facilitate healthier food choices – provided it adheres to key principles of clarity, accuracy, scientific validity, and consistency.

Codex's FOPL guidelines (CAC/GL 2-1985, Annex 2) lay out general principles and recommendations rather than mandating a specific label style. Countries are free to choose an

appropriate FOPL scheme (e.g. symbols, color-codes, rating systems), so long as it is evidence-based and aligned with Codex principles. Notably, Codex explicitly allows FOPL schemes to be implemented either voluntarily or made mandatory through national legislation, as deemed appropriate by governments.

Key Principles for Front-of-Pack Labelling (Codex Annex 2):

- Supplementary and Consistent Information: FOPL should supplement the standard nutrient declaration, never replace it. The front-of-pack information must be consistent with the back-of-pack nutrition facts – in other words, the values or judgments on the front should correspond to the actual nutrient content as declared. This ensures the FOPL does not mislead; it should reinforce, not contradict, the mandatory nutrition information. For instance, if a product's FOPL indicates a food is "high in salt" via a symbol, this must reflect the high sodium value in the nutrient declaration.
- Clarity and Simplicity: Codex emphasizes that FOPL should present nutrition information in a clear, simple format that is easy for the average consumer to understand and use in the purchase decision. The information needs to be provided in a way that facilitates at-a-glance interpretation – for example, using simple symbols, colours or words rather than lengthy text. The guidelines specifically state that the FOPL format should be supported by scientifically valid consumer research to confirm that people find it understandable.

  In practical terms, this principle drives the design of FOPL systems that use intuitive visual cues (such as color-coded ratings or straightforward icons) to communicate nutritional quality quickly. FOPL should also be clearly visible on the package at the point of purchase (e.g. on the front panel, in a prominent size/color), under typical shopping conditions.
- Scientific Basis (Nutrient Profiling and Dietary Alignment): An FOPL system must have a strong scientific foundation. Codex recommends that the criteria underlying FOPL schemes align with evidence-based nutrition policy – for example, a country's dietary guidelines or public health nutritional targets. The nutrients selected for front-pack display (or the algorithm that scores overall food healthfulness) should reflect consensus on which nutrients or food components are associated with healthy or unhealthy diets. In practice, many FOPL schemes rely on a nutrient profiling approach – i.e. they use scientifically derived nutrient thresholds or scoring systems to determine what gets displayed on the front (such as "high in sugar" statements or star ratings based on overall nutrient composition). Codex guidance implicitly supports this approach noting that FOPL should consider the nutrients and food groups that national dietary guidelines encourage or discourage. This ensures the label's evaluations are grounded in nutritional science and public health priorities. For example, if public health policy aims to reduce sugar and salt intake, the FOPL scheme might be based on profiling that flags products high in sugar or sodium. Any FOPL scheme chosen should be evidence-based and subject to rigorous validation – the Codex text leaves flexibility for different models but expects a sound scientific rationale behind the chosen format.
- Avoidance of Consumer Confusion: A key principle is that FOPL systems should not confuse or mislead the consumer. Codex's guidelines underscore a few strategies to ensure this:

- One Scheme Per Market: Ideally, only one official FOPL system should be recommended by authorities in a country or region. Competing or multiple front-of-pack systems on the same market can confuse consumers. This principle promotes clarity and avoids inconsistent labelling that could undermine consumer trust or understanding.
- Consistent with Regulations and Claims: FOPL content should respect existing Codex rules for nutrition claims and labelling. It is considered supplementary nutrition information under Section 5 of the Codex labelling guidelines, meaning it should not introduce unauthorized health claims or otherwise circumvent labeling standards. All information should be truthful and not misleading (a fundamental Codex labelling requirement and a general principle from the Codex General Standard for labelling CXS 1-1985). In short, FOPL should enhance consumer understanding, not confuse matters. The use of straightforward, interpretive graphics (as opposed to just numbers) is one way to simplify choices – provided those graphics are consistently applied and based on uniform criteria.
- Government Leadership and Stakeholder Input: The Codex FOPL guidance stresses that development of FOPL schemes should be government-led, in alignment with public health objectives. While food industry and other stakeholders (consumer groups, academia, health organizations) should be consulted in the design phase, the overall leadership and endorsement of the FOPL system come from public authorities. This principle helps ensure the scheme's primary goal remains health promotion and consumer benefit, rather than marketing. Codex also notes that the decision to implement FOPL can be made mandatory by governments – the guidelines explicitly allow mandating FOPL as a policy tool. Whether voluntary or mandatory, introducing FOPL should ideally be accompanied by public education campaigns. Codex recommends coupling FOPL rollout with consumer education programs to improve understanding and appropriate use of the new labels. In addition, authorities are advised to ensure FOPL is widely applied across products (broad availability) so that consumers see it regularly. Finally, monitoring and evaluation of any FOPL scheme is encouraged to assess its effectiveness and impact on consumer choices and health outcomes, allowing periodic refinements based on evidence.

In summary, **the Codex principles** call for FOPL systems that are simple, science-driven tools to inform consumers, implemented in a way that avoids confusion and complements existing nutrition labels. The emphasis is on clarity (easy for all to understand), honesty (not misleading), and relevance (focusing on key nutrients related to public health). FOPL schemes should be designed with consumer research, aligned to nutritional science (nutrient profiling/dietary guidelines), and ideally overseen by governments in the interest of public health.

Examples of Interpretive FOPL Systems

Codex does not prescribe a specific front-of-pack format, but it acknowledges a range of interpretive labelling approaches that fulfill these principles. "Interpretive" FOPL means the label provides an evaluation or guidance about the product's nutritional quality, rather than just raw numerical data. Below are a few prominent examples of FOPL schemes – all of which align with Codex's overarching recommendations of being clear, science-based, and helpful to consumers:

- High-In Nutrient Warning Labels: These are typically nutrient-specific symbols that warn consumers when a product is high in nutrients of concern (such as sugars, sodium, saturated fat). For instance, several Latin American countries (Chile, Mexico, Peru, etc.) use bold octagon symbols on the front of packages stating "High in Salt", "High in Sugar", etc. Such FOPL systems are interpretive because they instantly signal that the product exceeds recommended thresholds for those nutrients. Codex discussions note that "'high in' statement labels" are considered an effective interpretive approach to inform consumers. These statements are grounded in nutrient profile models that define cutoff values for "high" levels. They embody Codex principles by focusing on critical nutrients (scientific/public health basis) and using a very direct, simple icon to convey risk (clarity). Such labels aim to raise awareness about over-consumption of foods high in sugars, salt or fats by making the information plain at a glance.
- "Traffic Light" Color-Coding: Originally popularized in the United Kingdom, the traffic light FOPL format displays key nutrient values (e.g. for sugar, salt, fat, saturated fat) with a color code: green for low, amber for medium, and red for high levels of each nutrient. This system is interpretive in that the colors provide an immediate judgment of the nutrient amounts (green = "good/low", red = "high, consume sparingly"). Traffic light labels exemplify Codex principles of simplicity and easy comparison: consumers can quickly scan colors on different products to choose healthier options (e.g. selecting a cereal with more greens and fewer reds). The scheme is backed by nutrient thresholds (a form of nutrient profiling) to assign the colors, and it presents the information in a non-technical, visual manner. Many countries have adopted or tested variants of traffic-light labelling to help consumers identify healthier products at a glance.
- Summary Indicator Systems (e.g. Star Ratings, Scores): Some FOPL formats distil the overall nutritional quality of a food into a single summary indicator. Examples include the Health Star Rating (HSR) system (used in Australia and New Zealand) which assigns a rating from 0.5 to 5 stars based on an algorithm scoring the product's nutrition profile, or the Nutri-Score system (adopted in France, Spain, Belgium, and others) which grades foods with a letter A through E and a corresponding color from green to red. These summary indicators consider positive and negative nutrients/ingredients to give an aggregate score or rating. They are interpretive by design – for instance, 5 stars or an "A" grade means the product is judged to be healthier, whereas 1 star or an "E" (red) means it's less healthy. Codex's guidance accommodates such systems: it requires that any rating or scoring method be evidence-based (using validated nutrient profiling algorithms) and understandable to consumers. By providing a single easy-to-see symbol (stars or letters), these schemes adhere to the Codex ideals of clarity and helping comparison between foods. A shopper can, for example, compare two brands of chips – if one has 2 stars and the other 4 stars, this summary label quickly suggests which is the healthier choice overall.
- Hybrid Approaches: Some front-of-pack labels combine elements of both nutrient-specific and summary systems. For example, the "Multiple Traffic Lights" used in the UK present color codes for several nutrients (nutrient-specific), but also often include percentage of daily intake, blending interpretive color cues with factual data. Another example is the "Facts Up Front" initiative (originally by industry in the US), which places four key nutrient amounts on the front, sometimes with interpretive text (like "High" or "Low"). While Codex primarily encourages formats that interpret or simplify the nutrient information, all

such systems – whether purely interpretive or semi-interpretive – should aim to meet the core Codex principles: they should be truthful, not cause undue confusion, and should help consumers make informed comparisons and choices.

It is worth noting that Codex's 2021 FOPL guidelines deliberately do not endorse one format over another, to allow flexibility for governments to choose what works best in their context. The common thread in all these examples is that they seek to present nutrition information in a user-friendly, readily interpretable way. Whether by an Icon on a label, a color code, or a star rating, the goal is to quickly communicate the healthfulness of foods. Codex recommends that whichever scheme is implemented, it should be accompanied by consumer education (so people understand what the symbols mean) and ongoing monitoring to ensure the label is effective and not misinterpreted.

6. Proposed Path Forward

The National Food Safety Authority of Egypt (NFSA), as Egypt's primary food regulator, is collaborating with various Egyptian government organizations in support of efforts to reduce sugar intake among the Egyptian population. NFSA aims to contribute to national efforts of sugar intake reduction, through the incremental development and adoption of evidence-based measures, in line with NFSA's food regulatory mandate, in a manner that is complementary to other initiatives carried out by all food partners and stakeholders and aligned with best practices in food regulatory policy development.

To this end, NFSA has identified the need to engage with its stakeholders to initiate discussions on current and future efforts intended to contribute toward driving sugar intake reduction by Egyptian consumers with the aim:

- To review and continue to gather the evidence supporting the characterization of sugar intake in Egypt, including its current impact on Egypt's public health system.
- To identify and address data gaps related to sugar intake enabling the formulation of evidence-based mitigation strategies.
- To initiate the review of approaches followed by other jurisdictions related to sugar intake, their effectiveness and their degree of applicability to Egypt.
- To present regulatory and non-regulatory levers that can be considered by Egypt in its efforts for sugar intake reduction, including those that would be under the mandate of NFSA.
- To initiate the discussion and possible recommendations related to NFSA's proposed interventions in support of Sugar intake reduction by the Egyptian population in a manner that is science and evidence-based, in line with best practices in food regulatory policy development and with Egypt's obligations under the Sanitary and Phytosanitary (SPS) and Technical Barriers to Trade (TBT) Agreements of the World Trade Organization (WTO).

To chart a path forward for collaborative action in the development of sugar intake reduction strategies in Egypt and propose effective governance for stakeholder involvement related to NFSA's oversight.