Nutrition Profiling Models: To support the role of foods in healthy dietary patterns

The overarching objective of any nutrient profiling model (NPM) informing a front-of-pack nutrition label (FOPNL) should be to support an accurate, science-based model that improves diet quality, delivers meaningful public health outcomes and enables consumers to choose nutrient dense foods rather than energy dense, nutrient poor foods as outlined in dietary guidelines worldwide. NPM should be developed transparently, applied in a manner that does not misrepresent the healthfulness of foods, avoids misleading consumers and be supported by robust scientific evidence.

Nutrient profiling models must:

1. Be developed in line with country specific food-based dietary guidelines and/or science-based nutrition policy
2. Recognize the dietary contributions of nutrient dense foods and consider the health benefits from consuming whole foods not just nutrients in isolation
3. Develop food group or food category-based nutrient thresholds
4. Be science and evidence-based and include a clear mechanism for updating based on evolution of scientific evidence

1. Nutrient profiling models should be developed in line with country specific food-based dietary guidelines and/or science-based nutrition policy.

The 2010 WHO report on Nutrient Profiling states that as nutrient profile models classify foods based on their nutrient composition, these nutrient profile models (NPM) need to complement and support food based dietary guidelines (FBDG)[1]. FBDG provide context-specific advice and principles on healthy diets and lifestyles, which are rooted on sound evidence, and respond to a country's public health and nutrition priorities, food production and consumption patterns, sociocultural influences, food composition data, and accessibility, among other factors [2].

NPM has the potential to classify some foods as unsuitable than otherwise classified in FBDG. While dietary guidelines take a food-based approach, NPM so far mainly use specific criteria for nutrients to limit including total energy, saturated fat, sugar and/or sodium to assess the suitability of foods. NPM that focus solely on negatively associated nutrients can misrepresent the association between some foods and health outcomes and is not consistent with broader health strategies designed to reduce the risk of diet related non-communicable disease.

Therefore, any system considered will need to establish mechanisms to ensure that foods categories with proven health benefits, such as dairy, are recognized for their role within FBDG and are not characterized as less nutritious by established thresholds.

A review of countries reporting in the FAO dietary guidelines database [3] shows that nearly all of them advise consumption of milk and/or dairy foods. This is reflective of the overwhelming scientific evidence that dairy is an important component of a healthy dietary pattern and associated with positive health outcomes.

Misalignment of NPM with FBDG recommendations has the potential to discourage purchasing and intake of foods that have established, science-based food-health benefits, such as milk, cheese and yoghurt, and would increase the risk of impaired nutritional status.

The evidence for supporting the consumption of milk, cheese and yoghurt in a healthy dietary pattern and association with positive health outcomes is well established.Recent research shows the consumption of dairy is associated with a wide range of health benefits [4] in addition to the well-established benefits on bones and teeth. Several systematic reviews and meta-analyses have shown that increased dairy consumption may protect against weight gain and obesity [5]. Dairy may significantly reduce the risk of type 2 diabetes [6] and reviews suggest either a neutral or inverse association with CVD risk [7].

2. Recognize the dietary contributions of nutrient dense foods and consider the health benefits from consuming whole foods not just nutrients in isolation

Foods and food groups make up dietary patterns and are more than just a collection of nutrients. In addition, this complex mix of nutrients interact differently when presented as foods [8]. People eat whole foods rather than single nutrients in isolation and food-based recommendations are more practical for the general public than nutrient-based dietary advice [9].

This is addressed by Mozaffarian and Ludwig stating: "Nutritional science has advanced rapidly, and the evidence now demonstrates the major limitations of nutrient based metrics for prevention of chronic disease. The proportion of total energy from fat appears largely unrelated to risk of cardiovascular disease, cancer, diabetes, or obesity." [10]

The NPM that are to be used for front-of-pack nutrition labelling (FOPNL) should consider the whole diet and the whole food matrix. This means assessing foods not just based on their nutrient content, but also based on the type of food (e.g. a liquid in milk, or a solid fermented food in cheese) in which they are consumed and the scientific evidence of established health outcomes.

3. Develop food group or food category-based nutrient thresholds

The NPMs used for FOPNL must be developed with the objective and mandate of providing meaningful public health outcomes and enabling consumers to choose nutritious foods. These models must enable consumers to better understand the role and importance of the food (or categories of food) and its contribution to total diet quality.

Using "standardised" thresholds/scores applied horizontally to all food categories will lead to a certain nutritional incoherence and could mislead consumers about their food choices. NMP must consider the specific contributions and characteristics of food categories as well as scientific evidence supporting their role in the total diet in order to accurately inform consumers.

NPM, therefore, may assess nutrients of public health concerns (including total energy, saturated fat, sugar and/or sodium), but should also account for the positive contributions of other nutrients that contribute to a balanced diet. Calcium, for example is a shortfall nutrient in many countries/regions because it is under consumed. Highlighting foods high in this under consumed, essential nutrient will help consumers select foods that can improve their overall diet quality. Models focusing only on nutrients "to limit" inherently mischaracterize nutrient-dense foods, without considering their role in the diet and dietary patterns or their established food-health relationships.

Establishing thresholds that are category specific will minimize misconceptions about nutrient-dense foods and food groups that are important sources of under-consumed nutrients that make up healthy dietary patterns and help meet overall nutrient needs. (e.g. nutrient thresholds for the cheese category should take into account inherent fat and sodium levels and therefore a different threshold as from general foods should be set)

4. Be science and evidence-based and include a clear mechanism for updating based on evolution of scientific evidence

All NPM must be evaluated before and during use to ensure consistency with current scientific consensus and evolving scientific evidence, as well as consumer understanding and behavior. Assessing short term public health impact such as improving diet as well as improving population health by reducing prevalence of diet-related chronic diseases (long term public health impact) are essential to understand whether the intervention is working effectively and/or whether it needs to be adjusted. This type of evaluation is common with other public health interventions and must be a component of any NMP and FOPNL developed from that model.

References

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