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POSITION STATEMENT

"Front-of-pack" nutrition labeling

SINU Scientific Board, SINU Scientific Committee [1]

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Abstract Excess intake of energy, sugars, salt and saturated fats is an important causal factor of obesity and related non-communicable diseases. In order to help consumers to make healthy food choices, many European countries have developed proposals for "front-of-pack" food labeling, intended as an integration to the nutritional information provided by the mandatory nutritional declaration. Based on the European strategic program "Farm to Fork", the intention is to achieve a harmonized front-of-pack label proposal by Q4 2022.

Among the different proposals, the one which received most attention by experts and greater feedback by the EU member countries is the Nutri-Score, a tool based on an algorithm whereby a "quality" category ranging from A to E is assigned to each single food on a background colored from dark green to dark orange. As an alternative to Nutri-Score, the NutrInform Battery has been developed by Italy in association with a few other EU member states: this proposal is objectively alternative to the Nutri-Score proposal due to a different underlying philosophy, in particular for its informative and educational intent rather than purchase orientation.

The present document, prepared by the Scientific Board and reviewed by the Scientific Council of the Italian Society of Human Nutrition, represents the scientific-based position of the Society in relation to the general theme of front-of-pack labeling and in particular to the dualism created between the Nutri-Score and NutrInform Battery proposals.

Introduction

Non-communicable diseases are the main cause of reduced quality of life, disability and premature death in societies with higher economic development, and malnutrition due to excess intake of energy, sugars, salt and saturated fats is an important causal factor [1]. Overweight, obesity, hypertension and diabetes, largely due to poor dietary habits, are causal factors of cardiovascular events, neoplastic diseases, cognitive decline and other chronic degenerative diseases [2].

It is clear that institutions must implement effective actions to address the challenge associated with the increasing prevalence of these diseases. Indeed, several actions have been taken to improve dietary practices and habits at the population level. The most popular approach has been to develop and disseminate food-based guidelines that reflect knowledge about the components of a healthy diet known to be associated with reduced risk of diet-related diseases [3]. In recent years, also following what is already provided for by Art. 35 of Regulation of the European Union (EU) 1169/2011, many European countries have developed a series of proposals for "front-of-pack" labeling, intended as an

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integration to the nutritional information provided by the mandatory nutritional declaration, in order to further help the consumer to make informed and possibly healthy food choices. Based on the European strategic program "Farm to Fork", the intention is to achieve a harmonized front-of-pack label proposal by Q4 2022 [4].

Proposals of front-of-pack labeling

Many labeling proposals have been put forward, which differ from each other for being mainly informative or interpretative and directive, extremely synthetic or nutrient specific. The proposal which received most attention and feedback by the member countries of the EU and by an uncoordinated series of experts and non-experts in the sector is the so-called Nutri-Score, a tool which is based on an algorithm whereby a "quality" category is assigned to each single food, ranging from A to E, on a background colored from dark green to dark orange [5]. This proposal, in particular, has been the subject, in recent years, of a significant number of scientific studies which evaluated the comprehension by the consumer and the effects on food choices and habits in numerous populations [5].

As an alternative to the Nutri-Score proposal, Italy has developed a proposal called NutrInform Battery, through an initiative coordinated by the Ministry of Economic Development, with the collaboration of the Ministries of Health, Foreign Affairs and Agricultural, Environmental and Forestry Policies, under the technical supervision of the Centre for Research and Economic Development in Agriculture (*CREA Alimenti e Nutrizione*) and the National Institute of Health (*Istituto Superiore di Sanità*), and in association with a few other EU member states. This proposal is objectively alternative to the Nutri-Score proposal due to a different underlying philosophy, in particular for its informative and educational intent rather than purchase orientation [6,7].

In relation to the general theme of front-of-pack labeling, and in particular to the dualism created between the Nutri-Score and NutrInform Battery proposals, after an extensive discussion that involved the components of the Scientific Board and the Scientific Committee, the Italian Society of Human Nutrition (SINU) deemed it appropriate to represent its position on this subject.

First of all, according to SINU, any proposal of front-of-pack labeling should make it clear the objective which is being pursued to the benefit of the consumer, in addition to the information provided by the mandatory label placed on the back of the package. In this regard, the proposals having mainly informative character are at risk to just duplicate what is already exposed in the mandatory label, whereas synthetic proposals tend to simply orient the consumer choice in an "ultra-simplified" way disregarding the concept that the overall diet is the result of the consumption of a combination of foods, both in quantity and in quality, with potentially synergic effects. While a person's diet can be qualified as relatively healthy or unhealthy, it is not as simple to qualify individual foods, which are only a fraction of the diet. According to the Italian Healthy Eating Guidelines 2018 revision, no food is harmful or toxic per se, just as no food can be represented as a universal panacea; it is the habitual combination of different foods that leads to a healthy diet or to a more or less inadequate and potentially harmful one [8].

Designating foods as "healthy" or "unhealthy" *tout court* is a dangerous simplification that could produce unintended consequences in terms of eating behavior or food-related anxiety. Some research conducted on consumer behavior suggests, for example, that consumers often tend to convert ordinal scales into binary indications or have difficulty interpreting labeling in the middle range of an ordinal scale, resulting in inappropriate consumption of some foods over others [9]. Ideally, an information system should educate on the proper use and combination of foods, taking into account not only the compositional characteristics of foods but also portion sizes and frequency of consumption.

Dealing more specifically with the Nutri-Score and NutrInform Battery proposals, SINU attempted to focus their respective strengths and weaknesses, in order to provide useful suggestions and overcome the possible weaknesses.

Nutri-Score: strengths and weaknesses

Strengths of the Nutri-Score proposal:

- It is a well recognizable and clear proposal from a graphic point of view, with the use of colors that are in line with the indications reported by the European Commission document
- It has a real integrative value being not repetitive compared to the information provided in the mandatory nutritional declaration present on the side or on the back of the product
- Since its presentation, it has received wide diffusion and has been supported by a significant part of the international scientific community, with numerous studies carried out *ad hoc* for its validation [10].
- It seems to be effective especially in population groups with incorrect eating habits as it has been shown to effectively reduce the consumption of certain foods whose abuse is harmful to health [11].

However, the same proposal presents several weaknesses that in our opinion deserve particular attention:

- The main purpose of orienting the consumer choices, thus indirectly making pressure on food companies toward product reformulation, is quite apparent. An unintended consequence, however, might be that the reformulation could be minimal and made in a such a way to get the product a higher quality score with minimal if any improvement of its nutritional value
- The score is based on the consumption of 100 g of the product. This does not take into account the concept of portion and leads to an objective risk of distortion in nutritional terms, mostly for the products having reference portions largely different from 100 g

- The algorithm whereby the score is calculated is cumbersome and complex, almost impossible for the consumer to understand or even imagine.
- It is a non-educational system which, by its very nature, does not aim to improve consumer knowledge, the consumer being instead called upon to uncritically accept the score resulting from the application of the algorithm. Not surprisingly, among the many studies carried out, no evidence was found that this system can contribute to improving the consumer nutritional knowledge, for example helping him/her to understand how foods can be combined for the purpose of an overall improvement of the diet. Given its synthetic nature, moreover, it does not provide an assessment about the individual nutrients in the product (mostly sugars, salt and saturated fats), which are instead relevant in particular to certain categories of consumers (e.g., obese, hypertensive, hypercholesterolemic).

NutrInform battery: strengths and weaknesses

Major strengths of the NutrInform Battery proposal are:

- The concept of portion, which helps to assess the qualities and criticalities of foods in relation to their expected consumption in the context of the overall diet
- It aims at being strictly "informative" rather than orienting the user choices (although this can also be interpreted as a weakness)
- Somehow it envisions consumer nutrition education rather than product reformulation as its objective. It would therefore be interesting to evaluate the effectiveness of this tool in improving the consumer's knowledge and eating habits in addition to the information provided by the nutritional declaration

The same proposal, however, has some weaknesses:

- The consumer understanding of this graphic proposal has been tested so far by only two scientific studies [6,7]: therefore, further studies are warranted hopefully aimed at assessing its impact on the consumer food choices
- The information about the various nutrients provided in the battery is difficult to interpret by lay people, who could be oriented to believe that the greater the contribution provided for the individual components of the battery, the better.
- In the absence of an explicit comparison with the level of intake not to be exceeded for energy and for each of the nutrients considered (total fats, saturated fats, sugars, salt), the information provided through the battery system basically repeats what is already reported on the nutrition declaration usually placed on the back of the package, with little if any addition
- The values referred to as reference intakes are based on the Regulation (EU) n.1169/2011 but do not reflect the population needs as defined by the Italian National Reference Intake Levels (LARN) [12]. In particular, the 100 % level of intake for each nutrient should correspond for the Italian population to what is set by LARN in terms of reference intervals (RI) or reference intakes of the population (PRI) or standard dietary targets for prevention (SDT), depending on the nutrient: unacceptable in particular is the value of 6 g/day for salt consumption, which does not correspond to the target of 5 g shared by LARN [12], EFSA [13] and WHO [14], and equally unacceptable is the value of 90 g/day for sugar, also contrary to both national recommendations and those of supranational organizations [15].
- The concept of portion is not yet regulated at European level and its use in the context of a label could therefore seem in contradiction with the principle of free movement of goods. In turn, however, this could be seen as a merit, as it would encourage the regulation of this aspect.

Conclusions

In conclusion, while the primary goal of adding a front-of-pack label is reasonably to fight malnutrition by excess as a contributing factor to the development of obesity and chronic non-transmissible degenerative diseases, the NutrInform Battery proposal appears more focused in this regard than the other proposals in the field, including the Nutri-Score. It is however susceptible to refinement by overcoming the highlighted critical issues.

In any case, when considering single foods rather than the diet as a whole, the main tool available to the consumer at the time of purchase, in addition to the list of ingredients, is still the nutrition declaration present on the back of the package, providing detailed and precise numerical data about the quantity of energy and nutrients the product contains. It is important first of all that any further front-of-pack labeling does not reduce the interest of the consumer to carefully read the mandatory label which, by providing the actual composition of the product including its ingredients, has both an "educational" and informative function.

Appendix

(a) Composition of the SINU Scientific Board:

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Giulia CAIRELLA (Vice-President), Department of Prevention, Local Health Service Rome 2, Rome, Italy.

Francesco SOFI (Secretary), Department of Experimental and Clinical Medicine, University of Florence, Italy.

Daniela ERBA (Treasurer), Department of Food, Environmental and Nutritional Sciences (DeFENS), University of Milan, Italy.

Angelo CAMPANOZZI, Department of Medical and Surgical Sciences, University of Foggia, Italy.

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(b) Composition of SINU Scientific Committee:

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