

Traffic Light System Can Increase Healthfulness Perception: Implications for Policy Making

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ABSTRACT

Objective: To evaluate how information about low nutrient content included in the traffic light labeling system influences consumers' perception of the healthfulness of products with high content of 1 key nutrient, and to compare the traffic light system with warnings in terms of the perception of healthfulness.

Design: Images of front-of-pack (FOP) nutrition labels (the traffic light labeling system with different numbers of nutrients with low content, and warnings) were evaluated in study 1, whereas product labels featuring the different FOP nutrition labels were evaluated in study 2.

Setting: Online studies conducted in Montevideo, Uruguay.

Participants: A total of 1,228 Uruguayan Facebook users.

Main Outcome Measures: Perception of healthfulness.

Analysis: The researchers used ANOVA to evaluate the influence of FOP nutrition labels on perceived healthfulness.

Results: The inclusion of information about low nutrient content in the traffic light system statistically significantly increased the perception of the healthfulness of products with high nutrient content. Nutritional warnings showed healthfulness ratings similar to those of the simplified version of the traffic light system.

Conclusions and Implications: Information about low nutrient content in the traffic light system might be used to infer health, and thus could raise the perception of healthfulness and decrease the traffic light system's efficacy in discouraging the consumption of unhealthy products. A simplified version of the traffic light highlighting only high-nutrient content or nutritional warnings seems to overcome this problem.

Key Words: front-of-package, nutrition information, nutrition labeling, warnings (*J Nutr Educ Behav.* 2018;■■:■■–■■.)

Accepted March 8, 2018.

INTRODUCTION

The wide availability of calorie-dense foods with a high content of nutrients associated with noncommunicable dis-

eases is one of the causes of the global obesity epidemic.¹ For this reason, changes in the food environment have been identified as a top priority for policy making.² Among these, nutri-

tion labeling is regarded as a critical public policy tool because consumers can enact their right to informed choice only if they have the information at hand.^{3,4} Moreover, nutrition information is not only an information tool: it can also nudge consumers to modify their purchase decisions, because it increases the salience of the nutritional composition of products at the time food is chosen.⁵ In this sense, and from a public health perspective, the main objective of nutrition labeling is to encourage consumers to make more healthful choices and discourage unhealthy choices⁶ via a more accurate perception of the healthfulness of foods.

Nutrition information in the form of nutrient declarations (detailed quantitative information about nutrient content) has been widely reported to be difficult to understand for consumers.^{4,7} The majority of

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Conflict of Interest Disclosure: The authors have not stated any conflicts of interest.

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<https://doi.org/10.1016/j.jneb.2018.03.005>

consumers do not invest the time and cognitive effort needed to read such information during their food purchases.^{8,9} For this reason, the inclusion of nutrition information in the form of simplified front-of-pack (FOP) nutrition labeling that assists consumers in understanding the nutritional value of foods has been suggested.⁶ The current study deals with the effectiveness of such schemes to encourage a clearer distinction in consumers' perception of the healthfulness of products with a high content of nutrients associated with noncommunicable diseases.

Front-of-Pack Nutrition Labeling Schemes

Several FOP nutrition labeling schemes have been developed worldwide⁷ and widely researched.^{3,4,6} Most of these schemes include simple graphical information, because this type of information has been shown to be more effective in modifying consumers' perception of risk and their behavioral intention.^{10,11} Two schemes that use graphical interpretational aids to highlight the high content of nutrients associated with noncommunicable diseases were considered in the current research: the traffic light system and nutritional warnings.

The traffic light system is 1 of the most studied FOP nutrition labeling schemes.^{3,6} It has been advocated by consumer organizations^{6,12} and has been implemented in the United Kingdom, Ecuador, and South Korea.¹³⁻¹⁵ It provides information about the content of key nutrients per 100 g/serving and uses text descriptors and a color code derived from traffic lights to classify nutrient content as low, medium, or high according to preestablished criteria.¹³ Research has shown that the traffic light system is easy for consumers to understand, and that it improves their ability to identify healthful products.^{6,16-19}

The traffic light system and its intuitive logic have great appeal for policy makers and consumer organizations.⁷ However, because it features a separate traffic light for each nutrient, it can be difficult for consumers to evaluate how healthful a specific product is. Consumers are required to evaluate the content of several nutrients simultaneously to

assess the overall product's healthfulness, which has been reported to be challenging.²⁰

The second scheme, nutritional warnings, has been implemented in Chile to highlight products with an unfavorable nutrient profile,²¹ on the grounds that these products are particularly prominent in Latin America and have a negative role in the sharp increase in obesity and overweight in the region.²² According to Chilean regulations, food products with a high content of calories, saturated fat, sugar, and sodium should include separate black-and-white octagonal warning signs that are similar in shape to the stop signs citizens are used to seeing on the streets, with the expression *High in ...*²¹

Nutritional warnings are heavily debated; the industry criticizes the warnings as being scary.²³ Policy makers suggest that they might be particularly well-suited to discourage unhealthy choices and thus improve diets. In fact, recent research has shown that nutritional warnings have advantages over the traffic light system in terms of their ability to simplify the search for nutrition information and discourage the selection of unhealthy products.^{24,25}

Although political discussion on FOP labeling is under way in several countries,⁷ the impact and relative advantages and disadvantages of the traffic light system and nutritional warnings are under-researched. Consensus about which scheme is most efficient in encouraging consumers to make more healthful food choices is lacking to support policy making.

Influence of FOP Nutrition Labeling Schemes on the Perception of Healthfulness

The influence of FOP nutrition labeling schemes on the perception of healthfulness is a key determinant of their effectiveness^{6,19} because they can be expected to modify consumers' food choices only if they modify their perception of healthfulness as a first step. In this sense, FOP nutrition labeling schemes that highlight the high content of nutrients associated with noncommunicable diseases are expected to discourage consumption by

making the unhealthfulness of a product more salient.²⁶

Previous studies have shown that symbolic information such as color and pictures influence people's information processing and evaluation of products.²⁷⁻³⁰ Green has been reported to elicit health-related associations and increase the perception of healthfulness when it is included in nutrition labels, whereas red elicits associations with danger and unhealthfulness.^{28,30,31} Therefore, the use of red to highlight a high nutrient content in the traffic light system might convey the idea that the product is not healthful, whereas green highlighting low nutrient content might elicit associations with healthfulness.^{28,30} Similarly, in the case of nutritional warnings, black and an octagonal shape have been reported to be associated with unhealthfulness.³⁰

However, evaluation of the healthfulness of a product might be complicated when FOP nutrition labeling includes multiple cues that indicate different and contradictory information. This is the case with the traffic light system, because it can include different types of information (low, medium, and high) for different nutrients in a single product. In the case of products with an unfavorable nutrient profile, the inclusion of green in the traffic light system to highlight low nutrient content might raise positive health associations that might override negative associations created by information about the high nutrient content. This effect may decrease the ability of the traffic light to modify consumers' perception of healthfulness and discourage unhealthy choices.

However, it is unclear how consumers reach an overall assessment of healthfulness when products have high content of 1 nutrient and low content of 1 or 2 other nutrients. Research on the consistency of cues suggested that matching cues interact to support judgment, but with nonmatching cues, the result may be that 1 cue dominates the overall assessment.³¹⁻³³

Objectives of the Study

The objectives of the current study were to (1) evaluate how information

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