PAHO
Pan American Health Organization · **World Health Organization** REGIONAL OFFICE FOR THE **Americas**

JAMAICA 🇯🇲
Superior Efficacy of Front-of-Package Warning Labels in Jamaica

HIGH IN SUGAR
Ministry of Health

OCTAGONAL WARNING LABELS PERFORM BEST
IN IMPROVING THE CAPACITY OF CONSUMERS TO MAKE HEALTHIER FOOD DECISIONS IN JAMAICA

The Ministry of Health and Wellness of Jamaica, the University of Technology, Jamaica, and the Pan American Health Organization conducted a randomized controlled trial to examine the best performing front-of-package labelling (FOPL) in Jamaica. The study is the first to take place in the Caribbean and contributes to the evidence that has been accumulated in the region of the Americas.

The study compared the octagonal warning labels (WRN) included in the CARICOM Regional Organisation for Standards and Quality (CROSQ) proposal for adoption by the Caribbean Community (CARICOM), the "high in" single icon FOPL system known as the magnifying-glass (MGG), and the traffic-light labelling (TFL), using nutrition facts up front as a control (CTR).

Three crackers (24 g) contains

| Energy 452 kJ 108 kcal | Fat 3.5 g | Saturated Fats 1.6 g | Sugars 0.5 g | Sodium 80 mg |

Typical values (as sold) per 100 g:
Energy 1883 kJ / 450 kcal

(CTR)

Three crackers (24 g) contains

| Energy 452 kJ 108 kcal | Fat 3.5 g | Saturated Fats 1.6 g HIGH | Sugars 0.5 g LOW | Sodium 80 mg HIGH |
| 5% | 5% | 8% | 1% | 3% |

Typical values (as sold) per 100 g:
Energy 1883 kJ / 450 kcal

(TFL)

High in
Saturated Fats
Sugars
Sodium
Ministry of Health

(MGG)

HIGH IN SATURATED FATS Ministry of Health
HIGH IN SUGARS Ministry of Health
HIGH IN SODIUM Ministry of Health

(WRN)

Methods

A **total of 1,206 adult shoppers** at popular supermarkets across Jamaica of varying socioeconomic and education status, gender, and age participated in the study. They were **randomly placed in one of four groups** (see figure above). Interviews took place **between December 2020 and February 2021 in nine parishes countrywide**.

The FOPL schemes were applied to mock-up products presented in a random order to successive respondents, who were asked to: (i) select the option they would buy; (ii) select the least harmful option; and (iii) identify the nutrients that were in excess in the products.

• Participants were randomly placed in 4 groups

• They were asked to select:
(i) what they would buy;
(ii) the least harmful option;
(iii) identify the nutrients that were in excess

Participants in one group only saw products with one FOPL. For instance, participants randomly placed in the control group only saw products with the nutrition facts up-front icon. Participants placed in the traffic-light group only saw products with traffic-light labelling icon. Participants in the magnifying-glass group only saw products with the magnifying-glass icon, and participants in the octagonal warning labels group only saw octagonal warning labels. Mock-up products used for each group were exactly the same except for the different FOPL icons.

Task 1

To examine how the FOPL would influence the purchase intention of consumers, each participant was shown four sets of three mock-up products (three different yogurts, three different cream crackers, three different chocolate milks, and three different corn-flakes), one set at a time. For each category of product, the participants were asked to choose which of the three products they would buy.

Participants also had the option to say they would not purchase any of the three. The categories of products were shown to participants in random order. For instance, some participants were asked about the yogurts, then about the cream crackers, then about the chocolate milks, and then about the corn-flakes. Others were asked about the cream crackers, then the corn-flakes, then the chocolate milks, and then the yogurts. In addition, the order in which the products within the categories were shown was also random. The products were also assigned random numbers (see practical example below).

Task 2

In a second task, participants were shown another four sets of the same three mock-up products. The order of the categories and the order of the products within each category were different from the ones seen in the previous task. Participants were asked to select the least harmful option out of the three products from each of the four categories.

Task 3

For the last task, participants were shown one product from each category (one yogurt, one cream cracker, one chocolate milk and one corn-flakes), one at a time. The order of the products shown was also random. Participants were asked to indicate for each product whether the product contained sugars, sodium, fats, saturated fats and/ or trans fats in quantities higher than recommended for a healthy diet. Participants could select more than one nutrient. They could also answer that the product contained none of the nutrients in quantities higher than recommended.

Task 1 - Example

626   114   942

Some participants saw the products lined up so that the **one on the left was yogurt 626**, the one in the **middle was yogurt 114**, and the one on the **right was yogurt 942**.

942   114   626

Other participants saw **yogurt 942 on the left**, yogurt **114 in the middle**, and yogurt **626 on the right**.

• **More examples of mock-up products presented to participants in different comparison and control groups.**

695   351   516   964

Results

Consumers shown the octagonal warning labels performed the three experimental tasks best.

HIGH IN SUGAR · HIGH IN SATURATED FATS · HIGH IN SODIUM · HIGH IN FAT · HIGH IN TRANS FATS

CORRECT IDENTIFICATION OF THE LEAST HARMFUL OPTION

The results from the ordered logistic regression, which in this case considers that the more often the participants correctly identified the least harmful option the better, showed the following:

Compared to the control group, the chances of correctly selecting the least harmful option more often were:

- **108% (2.1 times) higher when the octagonal warnings were applied (OR: 2.08, 95%CI 1.56-2.78);**
- 15% higher when the magnifying-glass icon was applied (OR: 1.15, 95%CI 0.87; 1.51 - not statistically significant);
- 10% higher when the traffic-light icon was applied (OR: 1.10, 95%CI 0.83; 1.47 - not statistically significant).

> ✔ **Best performance: octagonal warning labels**
> ✘ **Worst performance: traffic-light icon and magnifying-glass icon (equally the worst)**

INTENTION TO PURCHASE THE LEAST HARMFUL OPTION OR NOT PURCHASE ANY OF THE OPTIONS

The results from the ordered logistic regression, which in this case considers that the more often the participants selected the least harmful option to purchase the better, showed the following:

Compared to the control group, the chances of deciding more often to purchase the least harmful option or none of the options were:

- **91% (1.9 times) higher when the octagonal warnings were applied (OR: 1.91, 95%CI 1.43; 2.54);**
- 60% higher when the magnifying-glass icon was applied (OR: 1.60, 95%CI 1.20; 2.13);
- 23% higher when the traffic-light icon was applied (OR: 1.23, 95%CI 0.93; 1.64 - not statistically significant).
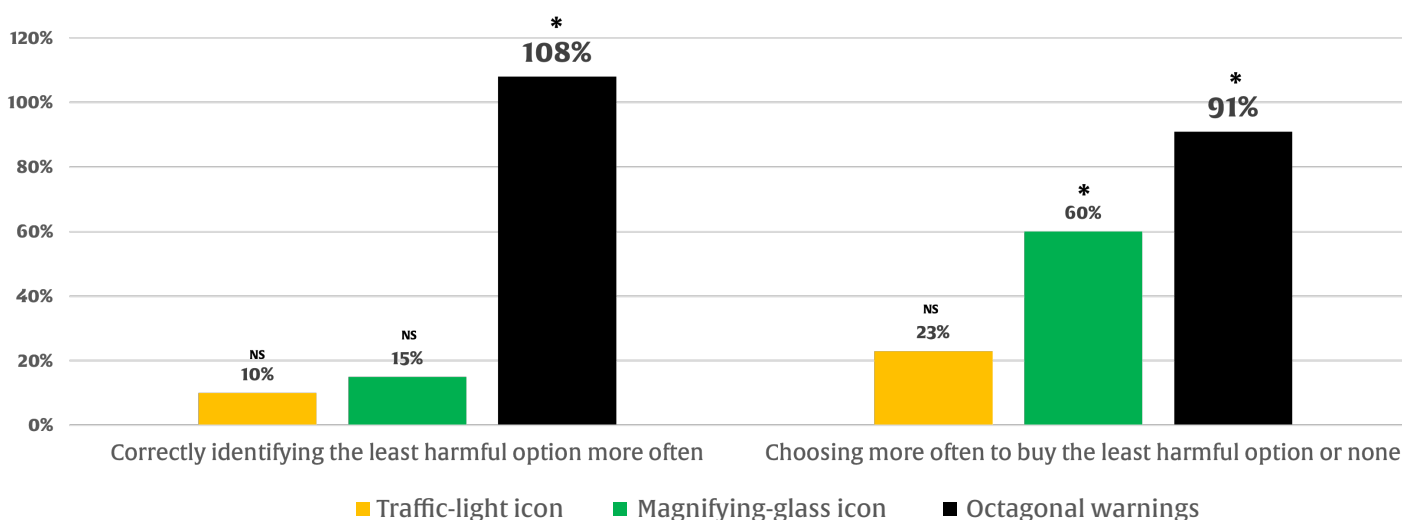
> ✔ **Best performance: octagonal warning labels**
> ✘ **Worst performance: traffic-light icon**

Figure 1 illustrates the results described above

Figure 1 Proportional improvement in performance measures due to FOPL systems, compared to control

* Significantly different from the control I **NS**: not significantly different from the control

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CORRECT UNDERSTANDING ABOUT THE NUTRIENT CONTENT

The results from the ordered logistic regression, which in this case considers that the more often the participants correctly identified the least harmful option the better, showed the following:

Compared to the control, the chances of correctly identifying when a product contains excessive amounts of critical nutrients (sodium, sugar, saturated fats) more often were:

- **9.0 times higher when the octagonal warnings were applied (OR: 8.96, 95%CI 6.61; 12.19);**
- 5.8 times higher when the magnifying-glass icon was applied (OR: 5.77, 95%CI 4.29; 7.79);
- 3.4 times higher when the traffic-light icon was applied (OR: 3.42 95%CI 2.56; 4.57).

✔ **Best performance: octagonal warning labels**

✘ **Worst performance: traffic-light icon**

Figure 2 shows how the proportions of participants providing correct answers more frequently are higher, and how the proportions of no correct responses are lower in the group exposed to the octagonal warnings. The Wald statistics for homogeneity also confirm that the proportional distribution of the number of correct answers regarding the nutrient content of products is significantly improved when the octagonal warnings were used, compared to the control, the magnifying-glass icon, and the traffic-light icon.
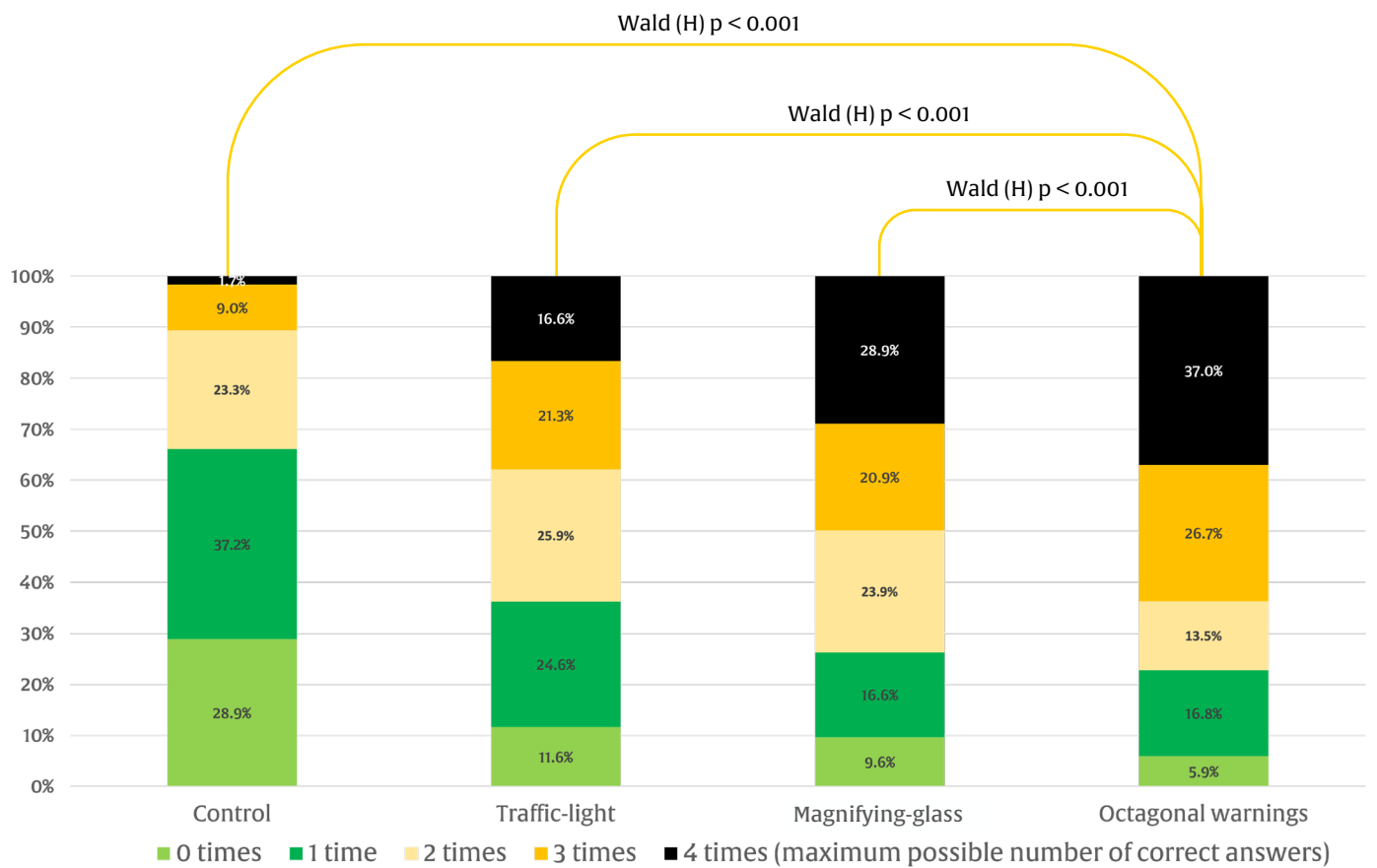
✔ **Best performance: octagonal warning labels**

✘ **Worst performance: traffic-light icon**

The results add more findings to the body of evidence and experience that has been accumulated in the past decade and demonstrates the efficacy and effectiveness of warning labels in improving the capacity of consumers to make informed choices and to promote healthier food decisions.

Figure 2 Proportion of the number of times answers about the nutrient content of products were correct, in control and comparison groups

Note: Wald (H) - Wald statistics for homogeneity indicating proportional distributions differ significantly.

Conclusions

Consumers who were assigned to the octagonal warning labels group, made the best choices in their intention to buy the least harmful products more often, and correctly identified the least harmful options and the nutrients in excess in products more often. Consumers shown the octagonal warning labels had the highest chances: of correctly identifying when products were excessive in sugars, sodium or saturated fats; of correctly identifying the least harmful option; and of choosing the least harmful or none of the products more often.

This study supports the conclusion that the current CROSQ proposal for a subregional standard on FOPL, which includes octagonal warning labels, provides the best option available for the population.

Acknowledgements