# The Comedy of Labels:
# How Calorie Counts and Exercise Equivalents Fail to Nudge Healthy Choices

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**Introduction:**
The global obesity epidemic continues to escalate, with alarming projections suggesting that by 2035, one in two individuals will be overweight, and one in four will be classified as obese. This crisis is not merely a matter of individual health but represents a significant public health challenge, placing immense strain on healthcare systems and economies worldwide. Among the countries facing this issue, Mexico stands out, with an anticipated obesity rate of 47% by 2035. In response, numerous initiatives have been launched, including the introduction of mandatory nutritional labeling on food products to encourage healthier consumer choices.

However, a critical question persists: Do these labels genuinely influence consumer behavior, or are they merely a well-intentioned but ineffective tool? Our study seeks to answer this question, examining whether the inclusion of exercise-equivalent information—such as the number of steps required to burn off calories—can effectively motivate healthier eating habits or increased physical activity. Surprisingly, the findings reveal that while the labels may provide valuable information, they often fail to produce the intended changes in behavior. This paper dissects the data and explores the implications of these findings, challenging the optimistic assumptions surrounding current labeling practices and providing an honest assessment of their true impact—or lack thereof.

**The Problem:**
Obesity is a growing global health crisis affecting individuals across all ages, genders, and socioeconomic backgrounds. This issue has reached epidemic proportions, with over 2.6 billion people aged five and older classified as overweight in 2020, according to the World Obesity Atlas 2023. Of this population, more than 35% are considered obese. The outlook for the future is grim: by 2035, it is projected that one in two individuals will be overweight, and one in four will be obese.

The consequences of obesity are severe and widespread. Individuals suffering from obesity are at significantly higher risk for numerous health conditions, including diabetes, cardiovascular diseases, and certain types of cancer. Furthermore, the economic impact is profound, as treating obesity-related illnesses places a substantial burden on healthcare systems, potentially limiting the availability of care for other medical needs.

Mexico has been particularly affected by this global epidemic. In recent years, the country has consistently ranked among those with the highest obesity rates. Projections indicate that by 2035, 47% of Mexico's population will be obese, nearly double the global forecast of 24%. In response to this growing problem, several initiatives have been introduced in Mexico to promote healthier behaviors. In 2020, a new regulation (NOM-051-SCFI/SSA1-2010) mandated updated labeling

requirements for pre-packaged, non-alcoholic foods and beverages. These labels provide detailed information on calories, carbohydrates, fats, fiber, protein, and vitamins per serving, with the intention of helping consumers make more informed choices.

Yet, the fundamental question remains: Do these labels effectively drive healthier consumer habits, or are they an idealistic but ultimately ineffective measure?

**Methodology:**
To evaluate the impact of nutritional labels, we conducted a series of behavioral experiments. These experiments used images of popular Mexican market products, including Coca-Cola and Sabritas for Experiments 1 and 2, and Sabritas/Lays, Garden Veggie Straws, and Snickers chocolate for Experiments 3 and 4.

**Experiments 1 and 2:**
Participants—referred to as "potential consumers"—were shown two sets of images:

- **Group A & C (1c):** Images 1 and 3, showing products with standard labeling.
- **Group B & D (1d):** Images 2 and 4, showing products labeled with additional information on the physical activity required to burn the consumed calories.

Participants were then asked whether the labels influenced them to: a) Consume less fatty food.
b) Substitute their consumption for healthier alternatives.
c) Increase physical exercise.
d) Make no changes.

These experiments aimed to determine whether adding exercise-equivalent information to nutritional labels could significantly impact consumer behavior.

## Image 1


## Image 2

Image 3


Image 4


**Experiments 3 and 4**

In Experiments 3 and 4, participants were asked to imagine attending a TED talk on issues affecting Mexican society, with a particular focus on nutrition, mobility, and obesity. The presentation revealed alarming statistics: only 30% of the population engages in regular exercise, over 70% are overweight, and 50% are classified as obese.

The purpose of these experiments was to test the effectiveness of a public awareness campaign designed to go beyond traditional nutritional labels. This campaign aimed to raise awareness about the real-life implications of being overweight or obese, highlighting how these conditions can negatively affect daily activities, future quality of life, and the importance of incorporating regular exercise into one's routine.

During a simulated break in the TED talk, participants were offered a choice of free snacks: Lay's Chips, Veggie Straws, or Snickers chocolate. This setup provided a practical test to observe their decision-making in a controlled environment influenced by the information presented during the talk. Participants were divided into two groups:

- **Experiment 3 (Group E):** Participants viewed Image 5, which depicted the three snack options as they typically appear in retail stores, with standard labeling. This scenario was designed to replicate a typical consumer experience without additional health-related information beyond what is customarily available.
- **Experiment 4 (Group F):** Participants viewed Image 6, which featured the same snack options but included additional information on the physical activity required to burn the calories contained in each item. This detail aimed to provide a more concrete understanding of the consequences of their food choices, linking calorie intake directly to the amount of physical effort needed to burn them off.

A key element of the campaign was the inclusion of exercise equivalents, intended to enhance consumers' awareness of how food choices impact health beyond simple caloric content. By associating calories with specific amounts of physical activity, the goal was to make the concept of caloric intake more tangible and to encourage more mindful eating habits. The experiment aimed to assess whether this enriched information could more effectively convey the risks associated with unhealthy food choices and inspire healthier behaviors compared to standard labeling practices.

## Image 5

## Image 6


**Survey Methodology**
All surveys and interviews were conducted in Spanish.

**Pre-Planning**
During the planning phase, we reached out to a small sample of participants (two focus groups) via phone to determine their preferred method for receiving the survey. The majority (7 out of 8) preferred completing the survey via WhatsApp, while one participant expressed no preference.

After evaluating several platforms, we selected StrawPoll to conduct the surveys due to its user-friendly interface and ability to include images in the questions. However, we later discovered a significant limitation—StrawPoll only supports single-question surveys. This constraint was identified too late in the process, but it presents an opportunity for improvement in future research.

**Execution**

**Participant Awareness**
It is important to highlight that participants were unaware of the existence of different experimental groups. The data, as well as the information shown in the subsequent graphs, have been edited post-survey to improve clarity and understanding.

**Participation Rates**
We were pleasantly surprised by the high response rate, with nearly 300 participants in total. Group E had the highest number of responses (100), likely due to its distribution within larger

WhatsApp groups. Group B followed with 64 responses. The subsequent slides provide a detailed breakdown of the responses for each group.

| Encuestas | Participante |
|---|---|
| Group A - Por favor indicanos que efecto tiene en tu cons... 11 de mar de 2023 | 34 |
| Group F - Por favor indica que producto seleccionarias 11 de mar de 2023 | 54 |
| Group E Por favor indica cual de los productos seleccionar... 11 de mar de 2023 | 100 |
| Group D - Por favor Indicanos que efecto tiene en tu cons... 11 de mar de 2023 | 30 |
| Group C Por favor Indicanos que efecto tiene en tu consu... 11 de mar de 2023 | 11 |
| Group B - Por favor indicanos que efecto tiene en tu consu... 11 de mar de 2023 | 64 |

**Case-by-Case Analysis**

We focused on surveys with 31 or more responses, excluding Group C (11 responses) and Group D (30 responses) from Experiment 2. We believe this exclusion does not impact the core findings, as Experiments 1 and 2 tested the same hypothesis with only a difference in the product images—Coca Cola versus Sabritas.

**Experiment 1**

As it was mentioned, the primary objective of these experiments was to assess whether the current product labels (Group A) influence consumer behavior compared to labels that include information related to physical activity (Group B). Specifically, we aimed to determine if these labels would lead consumers to reduce consumption or increase exercise.

**Group A**

**Nutrition Facts**

**Serving Size** 1 Bottle

**Amount Per Serving**

**Calories** 240

% Daily Value

| | |
|---|---|
| **Total Fat** 0g | 0% |
| **Sodium** 75mg | 3% |
| **Total Carb.** 65g | 24% |
| Total Sugars 65g | |
| Incl. 65g Added Sugars | 130% |
| **Protein** 0g | |

Not a significant source of saturated fat, *trans* fat, cholesterol, dietary fiber, vitamin D, calcium, iron and potassium.

**Group B**

**INFORMACIÓN NUTRIMENTAL**

**Tamaño de la porción: 200 ml.**

Cantidades por porción

**Calorías** 240

Hagamos Ejercicio

Caminar 8,000 Pasos

Nadar 48 min

% Valores Diarios

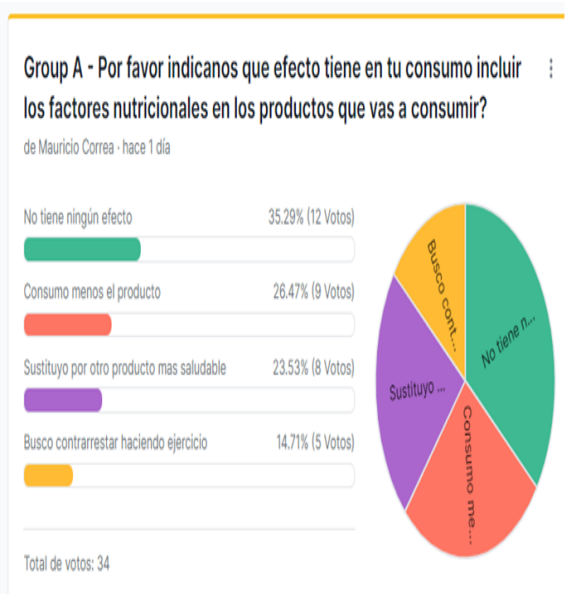
| | |
|---|---|
| **Grasas Saturadas** 0g | 0% |
| **Sodio** 75 mg | 3% |
| **Carbohidratos** 65 gr | 24% |
| Azúcares 65 gr. | |
| Incl. 65 gr. azúcares añadidas | 130% |
| **Proteína** 0g | |

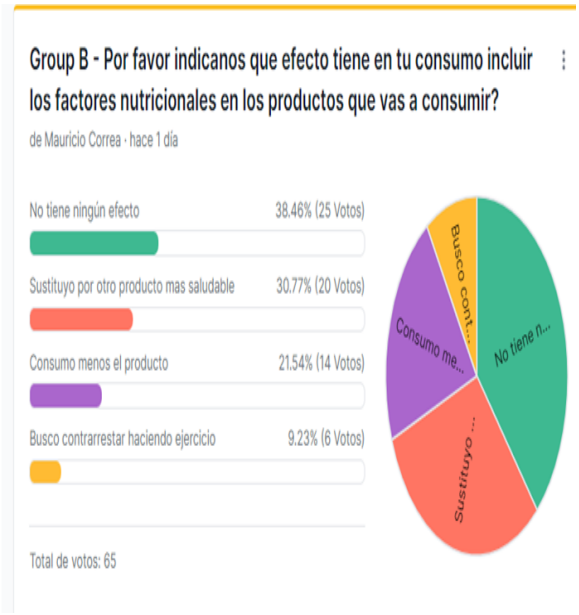
No es una fuente significante de grasas saturadas, grasas trans, colesterol, fibra dietética, vitamina D calcio, hierro y potasio.

**Results**

The findings reveal that neither the current labels nor the proposed labels had a significant impact on consumers' behavior concerning increased physical activity. In Group B, fewer than 15% of respondents reported an intention to exercise after viewing the labels, indicating that providing information about the physical activity required to burn calories does not effectively motivate exercise.

The most common response, selected by over 35% of participants in both groups, was that the labels did not influence their purchasing or consumption behavior. However, a notable trend emerged, with approximately 25% of respondents indicating that the labels prompted them to either consume less of the product or substitute it with a healthier option. At this stage of the experiment, it remains unclear whether this reflects a genuine intention to reduce consumption or simply an expressed intention without actual behavioral change.




**Experiment 3 and 4 Results**

**Background**

In these experiments, we simulated a nationwide campaign addressing the issues of inadequate physical activity and obesity in the Mexican population. Participants were presented with three products:

- **Experiment 3 – Group E:**
  - Product 1: Chips (Potato fries, 490 calories)
  - Product 2: Garden Veggie Straws (130 calories)
  - Product 3: Snickers (Chocolate, 250 calories)
- **Experiment 4 – Group F:**
  - Product 1: Chips (490 calories – equivalent to 25,000 steps or 120 minutes of swimming)
  - Product 2: Garden Veggie Straws (130 calories – equivalent to 4,000 steps or 20 minutes of swimming)
  - Product 3: Snickers (Chocolate, 250 calories – equivalent to 10,000 steps or 50 minutes of swimming)

The key difference between Experiments 3 and 4 was the inclusion of exercise equivalents in Experiment 4, where participants saw the number of steps or swimming time required to burn the calories (Image 6). In contrast, Experiment 3 displayed only the calorie counts (Image 5).

These experiments had the highest level of participation, with over 150 completed surveys.

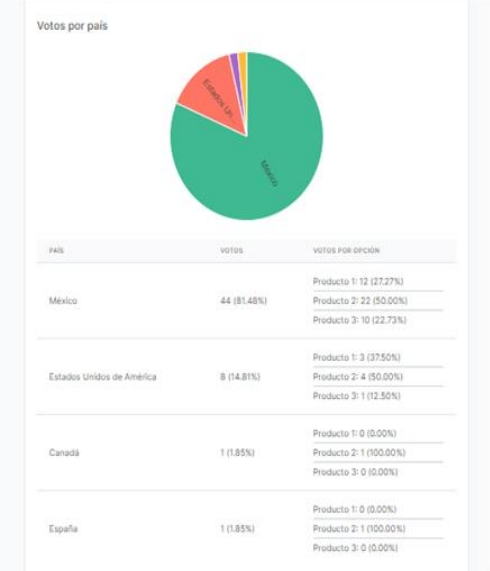
Image 5


Image 6


**Sociodemographic Information**

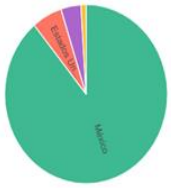
Consistent with previous experiments, most participants (90%) were located in Mexico. The average age was around 43 years old, with the 45-55 age group being the most represented.

## Group E




| PAÍS | VOTOS | VOTOS POR OPCIÓN |
|---|---|---|
| México | 44 (81.48%) | Producto 1: 12 (27.27%)<br>Producto 2: 22 (50.00%)<br>Producto 3: 10 (22.73%) |
| Estados Unidos de América | 8 (14.81%) | Producto 1: 3 (37.50%)<br>Producto 2: 4 (50.00%)<br>Producto 3: 1 (12.50%) |
| Canadá | 1 (1.85%) | Producto 1: 0 (0.00%)<br>Producto 2: 1 (100.00%)<br>Producto 3: 0 (0.00%) |
| España | 1 (1.85%) | Producto 1: 0 (0.00%)<br>Producto 2: 1 (100.00%)<br>Producto 3: 0 (0.00%) |

## Group F




| PAÍS | VOTOS | VOTOS POR OPCIÓN |
|---|---|---|
| México | 89 (89.00%) | Producto 1: 19 (21.35%)<br>Producto 2: 38 (42.70%)<br>Producto 3: 32 (35.96%) |
| Estados Unidos de América | 6 (6.00%) | Producto 1: 1 (16.67%)<br>Producto 2: 3 (50.00%)<br>Producto 3: 2 (33.33%) |
| Canadá | 4 (4.00%) | Producto 1: 0 (0.00%)<br>Producto 2: 2 (50.00%)<br>Producto 3: 2 (50.00%) |
| Alemania | 1 (1.00%) | Producto 1: 0 (0.00%)<br>Producto 2: 1 (100.00%)<br>Producto 3: 0 (0.00%) |

**Results**

In both Experiment 3 and Experiment 4, the healthier option (Product 2 – Garden Veggie Straws) was the most frequently selected by participants. In Group F, where exercise-equivalent information (such as steps and swimming times) was included, 52% of participants chose the Veggie Straws, compared to 44% in Group E, which displayed only standard calorie labels.

A preliminary conclusion suggests that while adding exercise-equivalent information may not be the primary driver of healthier choices, it can reinforce positive outcomes when integrated into a comprehensive and large-scale strategy.

Interestingly, in Experiment 4, the second most selected option was Chips, which had the highest calorie content (2.4 times more than the chocolate). This suggests that the combination of products presented together can influence consumer choices. This finding emphasizes the need for further research on the impact of product placement and the role of marketing in consumer decisions. It highlights how the presentation of similar product categories can bias choices, potentially diminishing the effectiveness of health-oriented information.



**Conclusions**

Our study reveals a stark and unsettling reality: current labeling practices, even when enhanced with exercise-equivalent information, fail to inspire meaningful changes in consumer behavior. Despite well-intentioned efforts, the data expose a harsh truth— a significant portion of the population remains indifferent to the nutritional information presented. The inclusion of exercise equivalents, while innovative, does not translate into increased physical activity or a decisive shift towards healthier eating habits.

The persistence of the obesity epidemic, especially in Mexico, highlights the immense challenge of influencing dietary choices through information alone. As obesity and overweight rates continue to rise, they pose a growing threat to healthcare systems and erode the quality of life for millions. This study challenges the prevailing optimism that knowledge alone can drive behavioral change, underscoring the urgent need for a broader, more integrated approach.

To reverse these alarming trends, we must embrace a multifaceted strategy that extends far beyond labels. Future initiatives must include comprehensive public health campaigns, policies

that promote healthier food environments, increased access to nutritious options, and expansive support for physical activity. Crucially, further research is needed to discover more effective communication and intervention strategies that resonate deeply with the public and foster lasting behavioral change.

The battle against obesity is far from over, and it demands a unified, sustained effort from governments, healthcare providers, educators, and communities. By adopting a diverse range of actions, we can build a healthier environment that truly empowers individuals to make informed and healthful choices. The challenge ahead is immense, but the potential rewards—a healthier, more active society—make this mission both vital and urgent. The stakes are high, but the opportunity to reverse the tide of this epidemic is within our grasp.

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