Testing Ultraprocessed Front-of-Package Labels in Chile

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Study Protocol and Analytic Plan

Introduction

This study aims to examine the effects of a warning label signaling that a product is ultraprocessed among a sample of Chilean parents. This document pre-specifies our planned analytic approach prior to data collection.

Study Protocol

Participants will complete an online randomized experiment programmed in Qualtrics. After providing informed consent and completing a parent study, participants will be randomly assigned into 1 of 2 arms: a control arm or an ultraprocessed warning label arm. In the control arm, products will carry only nutrient warning labels per Chile's current policy, while in the ultraprocessed warning label arm, products will carry both nutrient labels and an ultraprocessed warning label.

Participants will see three different mock bags of potato chips with the same flavor (designed to mitigate confounding by product type or flavor) displayed in a random order. All three products will be ultraprocessed. One product will not be high in any nutrients of concern, one will be high in sodium, and one will be high in sodium and saturated fat. For each product, participants will rate their purchase intentions, perceived product healthfulness, and indicate whether they believe the product to be ultraprocessed.

Hypotheses

Correct identification of UPFs (co-primary outcome): We predict that, compared to the control arm, correct identification of products as UPFs will be higher among participants in the UPF warning label arm (H1).

Purchase intentions (co-primary outcome): We predict that, compared the control arm, product purchase intentions will be lower among participants in the UPF warning label arm (H2).

Perceived product healthfulness (secondary outcome): We predict that, compared the control arm, perceived product healthfulness will be lower among participants in the UPF warning label arm (H3).

Moderation hypotheses: We predict that the impact of the UPF label on purchase intentions (H4) and perceived product healthfulness (H5) will be greater for the product not high in any nutrients of concern than for the products high in one or two nutrients of concern.

Main Analyses

We will use a two-sided critical alpha of 0.05 to conduct all statistical tests. All confidence intervals presented will use a 95% confidence level. Analyses of the primary

and secondary outcomes will include all participants according to the trial arm to which they were randomized.

For correct identification of products as UPF (dichotomous outcome), we will first descriptively report unadjusted proportions of correct identification for each product and for all three products simultaneously (i.e., whether the participant identifies all three products as UPFs nor not) in each experimental arm. To test H1, we will fit a logistic mixed-effects regression model. The model will include random intercepts to account for repeated measures within participants. The model will regress identification of products as UPFs on indicator variables for experimental arm, indicator variables for product, and their interactions. After model estimation, we will test the joint statistical significance of the interaction terms, and, if not statistically significant, we will drop the interactions from the models. Regardless of the presence of the interaction terms in the final model, we will obtain predicted probabilities of correct identification of products as UPF by experimental arm for each separate product, which we will use to conduct a joint test of statistical significance of the differences in predicted probabilities across products. If such differences are jointly significant, we will report the average differential effect (ADE) of the UPF label (i.e., differences in predicted probabilities between experimental arms) for each product. Alternatively, if these differences are not jointly significant, we will report the ADE of the UPF label across products.

For purchase intentions and perceived healthfulness (continuous outcomes), we will first descriptively report unadjusted mean scores for each product and averaged across products in each experimental arm. To test H2 and H3, we will use linear mixed-effects regression models. Models will include random intercepts to account for repeated measures within participants. Models will regress each outcome on indicator variables for experimental arm, indicator variables for product, and their interactions. After model estimation, we will test the joint statistical significance of the interaction terms. If the interactions are jointly significant, we will keep them in the model and report the average differential effect (ADE) of the UPF label (i.e., differences in predicted means between experimental arms) for each product. Alternatively, if the interactions are not jointly significant, we will drop them from the models and report the ADE of the UPF label across products. We will use complete case analysis to handle any missing data.

Sample Size and Power

This study will occur in a survey that will follow a parent experiment. The total sample of 3,300 size was calculated based on the primary outcomes of the parent study. Using G*Power3.1, we determined that the minimum effect size we would be able to detect with this pre-determined sample size. With an alpha of 0.05, 80% power, and 1 degree of freedom, we would be able to detect an effect of d=0.06 or larger. We concluded that this sample size would be enough, given that, on a previous study using similar labels, we found an effect size of d=0.16 on correct identification of products as UPF.

Exclusions and Outliers

We will exclude participants who complete the survey implausibly quickly (defined as <1/3 of the median completion time) and those who completed less than 90% of the survey.

Interim Analyses

No interim analyses are planned.