Testing Warning Labels to Discourage Red Meat Consumption (#43439)

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1) Have any data been collected for this study already?

No, no data have been collected for this study yet.

2) What's the main question being asked or hypothesis being tested in this study?

The overall purpose of this study is to identify the health and/or environmental warning labels that are most effective at discouraging red meat consumption. The primary objectives of this study are to:

1. Identify the warning messages that most discourage red meat consumption

2. Identify the population subgroups for which these warning messages are most effective.

We will test these warnings by showing participants warning labels on food products. Participants will first complete a choice experiment, then view warning labels on a variety of food items and answer questions about their assigned label.

     We have the following specific hypotheses:

Hypothesis 1 (Choice Experiment): We hypothesize that those in any of the warning label conditions will be less likely to choose red meat options as their preferred item than those in the control condition. We further hypothesize that those in warning label conditions will be more likely to correctly identify red meat as the most damaging to health and to the environment. We do not have a hypothesis about differences between label conditions in the experimental arm.

Hypothesis 2 (Moderation by Usual Red Meat Consumption): We hypothesize that the relationship between label condition and product selection in the choice experiment will be moderated by usual red meat consumption such that as red meat consumption increases, the difference in likelihood of selecting the red meat product and the no-label control and the label conditions will increase. We do not have a specific hypothesis about differential effects between warning label conditions.

Hypothesis 3 (Moderation by Climate Change Belief): We hypothesize that the relationship between label condition and product selection will be moderated by belief in climate change such that as belief in climate change increases, the difference in likelihood of selecting the red meat product and the no-label control and the label conditions will increase for the combined and environmental conditions.

Hypothesis 4 (Warning Label Perceived Message Effectiveness (PME): We do not have a hypothesis for the between-label conditions for PME or secondary outcomes.

3) Describe the key dependent variable(s) specifying how they will be measured.

The primary outcome is selection of the product other than red meat, in the choice experiment (measurement below).

Which one of these products would you most like to buy if it were available?

(1=Red meat item; 2= Chicken item; 3= Vegetarian item)

Secondary outcomes are:

Choice Experiment:

A) Identification of the red meat product as the most damaging for health

B) Identification of the red meat product as the most damaging for the environment

Warning Label Effectiveness:

A) Perceived message effectiveness (PME)

B) The most discouraging warning label in each category (health and environmental)

C) Intentions to limit red meat consumption over the next 30 days

D) Warning label believability

E) Negative reaction to warning label

F) Perception of health risks of daily red meat consumption

G) Perception of environmental risk of daily red meat consumption

H) Learning something new from the warning label

I) Warning label grabs attention

4) How many and which conditions will participants be assigned to?

This is a multi-part between-subjects experiment.

First, participants will complete a choice experiment. In this experiment, participants will be shown three burritos in random sequence: beef, chicken, and vegetarian. The chicken and vegetarian burritos will have no warning label in any condition. For the beef burrito, participants will be randomized to one of four conditions: control (no label), health warning label, environment warning label, or a combined health and environment warning labels. They will be asked to choose which product they would most want to buy, which item is the most harmful to health, and which is the most harmful for the environment.

Then participants will remain in the same condition and view the choice experiment label on a series of products. Participants randomized to the control group in the choice experiment will be re-randomized to one of the 3 intervention groups: health, environment, or combined. They will see the same warning label on 6 red meat products. They will then rate the warning label on PME and secondary outcomes.

5) Specify exactly which analyses you will conduct to examine the main question/hypothesis.

Hypothesis 1 (choice experiment): Analyses will use logistic regression, regressing outcomes on indicator variables for the health and environmental warning label conditions, and an interaction variable between health and environment warning labels (combined condition). Hypothesis 1 will be supported if participants in the warning label conditions are statistically significantly less likely to select the red meat item than participants in the control condition. We will repeat the analyses in this paragraph for the secondary and other outcomes; we may exclude the interaction terms from analyses of secondary outcomes if the interactions were not significant in analyses of the primary outcome.

For hypothesis 2 (moderation of the relationship in Hypothesis 1 by usual red meat consumption): We will include interaction terms for red meat consumption and experiment condition (collapsing all warning conditions together if there are not significant differences in Hypothesis 1 above). This hypothesis will be supported if the coefficients of the interaction term is positive and statistically significant. If there are statistically significant differences between warning label conditions, we will include 3 way interactions. The interaction terms will only be retained in final models if they are statistically significant to achieve model parsimony.

For hypothesis 3 (moderation of the relationship in hypothesis 1 by belief in climate change): We will follow the same pattern as described in hypotheses 2.

Hypothesis 4 (PME): Analysis will use OLS to examine statistical differences between warning label condition. We will include an indicator variable for health and environmental warning label conditions, and an interaction between health and environment warning labels (combined condition). We will repeat the analyses in this paragraph for the secondary and other outcomes.

In exploratory analysis, we will examine predictors of the choice experiment and average PME across all warning conditions. We will examine the following as predictors: income, education level, age, race/ethnicity, gender, political leaning, climate change belief, and red meat consumption. This analysis will use logistic regression for the choice experiment and OLS for PME analysis. We will use a two-sided critical alpha of 0.05 to conduct all statistical tests. We will use complete case analysis to handle any missing data. We will descriptively report unadjusted means (and standard deviations) and percentages for the primary and secondary outcomes. In experimental analyses, we will also report results when controlling for any participant demographic characteristics found to be unbalanced across treatment arms in balance tests, if these results differ substantively from unadjusted results.

6) Describe exactly how outliers will be defined and handled, and your precise rule(s) for excluding observations.

We will identify duplicate Prime Panels IDs and retain only the first record for each ID.

7) How many observations will be collected or what will determine sample size? No need to justify decision, but be precise about exactly how the number will be determined.

We will collect survey responses until ~1000 participants have completed the survey. Inclusion criteria are: being of adult age (18 years old) and any consumption of red meat in a typical month.

8) Anything else you would like to pre-register? (e.g., secondary analyses, variables collected for exploratory purposes, unusual analyses planned?)

NA