Studying the impact of product packaging in a virtual store environment

Protocol and Informed Consent

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PROTOCOL TITLE: Protocol for a study examining the impact of product packaging in a virtual store environment

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I confirm that I have read this protocol and understand it.

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Date: 3/23/2021

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PROTOCOL SYNOPSIS

Study Title	Studying the impact of product packaging in a virtual store environment
Funder	Robert Wood Johnson Foundation NIH National Heart, Lung, and Blood Institute
Study Rationale	High intake of added sugars is a major contributor to diet-related chronic diseases including obesity, heart disease, type II diabetes, and cancer. Two potential policies to lower consumption of added sugar include 1) removal of misleading nutrition-related claims and 2) addition of nutrient warning labels to products high in added sugar. This study examined the impact of nutrition-related claims and nutrient warning labels on parents' product selection for their children ages 1-5 years.
Study Objective(s)	Primary • To examine the impact of nutrition claims on parents' decisions to purchase fruit drinks in a randomized controlled trial in an online virtual convenience store (task 1) and examine the impact of added sugar warnings on parents' snack purchasing decisions (task 2) in a randomized controlled trial in an online virtual convenience store. Secondary • To determine the impact of nutrition-related fruit drink claims (task 1) on perceptions about and reactions to fruit drinks and to determine the impact of nutrient warning labels on perceptions about and reactions to snacks high in added sugar (task 2).
Study Design	Participants will electronically acknowledge their consent to participate in the study and Qualtrics will randomize each participant to one of 12 versions of a virtual convenience store (iShoppe), where the participants will complete two shopping tasks in the store. They will select two beverages (task 1) for their child 1-5 (if more than one child 1-5, the one who had their birthday most recently), and they will select a snack (task 2) for that same child. After completing the shopping tasks, the participant will complete a survey in Qualtrics. The survey will ask a series of questions about the beverages and snacks (e.g., perceived healthfulness, perceived appeal, intentions to consume products). Questions will also include standard demographic and health related variables.
Subject Population	Inclusion Criteria 1. 18 years old or older

key criteria for Inclusion and Exclusion:	2. Currently reside in the U.S. 3. Have at least one child aged 1-5 years old 4. Child (1-5) with the most recent birthday must have consumed at least one fruit drink in the previous week (7 days) 5. Self-identify as non-Hispanic white, non-Hispanic Black, or Hispanic any race
Number Of Subjects	Approximately 2,175
Study Duration	Each subject's participation will last approximately 15-20 minutes The entire study is expected to last 2-4 months
Study Phases Screening RCT	(1) Screening: screening for eligibility and obtaining consent (2) Randomization: Randomly assigning participants to one of twelve conditions (3) Shopping task: Instruct participants to complete three shopping tasks in a virtual convenience store (iShoppe) (4) Survey: Direct participants to a Qualtrics survey measuring perceptions and reactions as well as standard demographics.
Statistical And Analytic Plan	In all models, the predictor will be a dummy variable indicating whether the participant was randomized to one of the three intervention nutrition claim conditions (task 1) or whether the participant was randomized to one of the two intervention nutrient warning conditions (task 2). For predictions with dichotomous outcomes (primary outcomes), we will use logistic regression. We will examine skewness of the residuals and run ordinal models in sensitivity analyses if residuals are skewed, retaining the logistic models if the pattern of results does not change.
DATA AND SAFETY MONITORING PLAN	The research study will not collect any identifying information from participants, and Qualtrics will be programmed to not collect IP addresses. Researchers will store the study data on a remote terminal server, and only research investigators and staff will have access to the data.

BACKGROUND AND RATIONALE

Introduction

High intake of added sugars is a major contributor to diet-related chronic diseases including obesity, heart disease, type II diabetes, and cancer.[1-4] Two top contributors of added sugar in the diets of young children aged 0 to 5 years include sweetened beverages and ready-to-eat cereals.[5] Thus, strategies to reduce consumption of such products may begin to reduce childhood obesity. Policies to reduce consumption of added sugars are critical to address public health concerns. Two potential policies include removing misleading nutrition-related claims from products[6-8] (task 1) and adding

nutrient warning labels (task 2) to products high in added sugar.[9] This study will assess the impact of both policies in an RCT in a virtual convenience store (iShoppe).

Task 1

Policies to reduce marketing on fruit drinks are an important strategy for decreasing children's intake of SSBs,[10] as fruit drinks are the most consumed sweetened beverage among infants and young children aged 0 to 5 years old.[11,12] However, much of the research and policy focus has been on reducing child-directed marketing, with much less attention on marketing to parents. Reducing SSB marketing to parents is critical, as parents are the primary purchasers of beverages for children and influence children's food choices through their own food attitudes and choices.[13,14] In addition, SSB marketing to parents is common: a recent study found that 73% of televised SSB advertisements were parent-directed,[15] and parent-directed ads were more likely to contain nutrition- and health-related messages.

Nutrition claims on fruit drink packages are also very common. A 2014 report found that 100% of children's fruit drinks contain nutrition-related messages and 88% of other fruit drinks contain nutrition-related messages.[16] Nutrition claims can be problematic because a claim on a single nutrient can lead consumers to mistakenly infer that the whole product is healthy, regardless of its overall nutritional profile (i.e., the "health halo effect"), and increase intentions to purchase the product.[17-19] Nutrition claims also reduce the likelihood consumers will seek additional nutritional information (e.g., the nutrition facts panel on the back of the package).[17, 20] One study found that parents were more likely to choose an unhealthy product if it included a nutrition claim,[21] but this study focused only on sweetened milks, snacks, and processed foods. To our knowledge, no studies have examined the effect of nutrition claims on parents' choice of fruit drinks for their child.

Furthermore, there has been little research on the effects of specific claim types on fruit drinks, which is important for informing emergent policies at the Food and Drug Administration (FDA), who has regulatory authority over claims. For example, the FDA has recently announced plans to formally define "natural" claims,[22] which appear on 50% of fruit drinks.[16] Despite evidence from tobacco showing that natural claims reduce perceptions of a product's health harms and increase purchasing intentions,[23-26] there is little evidence on whether these claims impact perceptions or purchases of fruit drinks. For example, "natural" claims could lead parents to believe that a fruit drink has nothing added (when in fact, sweeteners have been added) or reduce their perception of the disease risks associated with drinking SSBs. Research on this topic is urgently needed to inform the FDA's new definition of "natural" claims.

In addition, scientific evidence is needed to inform legal actions to reduce deceptive nutrition claims.[27] By law, deceptive claims are prohibited. Claims are considered deceptive if they are likely to mislead consumers and when they contain a message that influences a consumer's purchasing decision.[27,28] For example, "no high fructose corn syrup (HFCS)" claims could lead parents to believe a beverage contains less added sugar, while "made with real fruit juice" claims could lead parents to believe a beverage contains more fruit juice than it actually does. Evidence showing that such claims lead to greater misperceptions and decisions to purchase fruit drinks can inform legal actions, such as a requirement to carry a front-of-pack disclosure on the amount of added sugar or the actual percent of fruit juice contained in the beverage. Similarly, implicit low sugar claims like "lightly sweetened" or "just a tad sweet" are not currently authorized by the FDA. Evidence that these claims lead to misperceptions about a drink's added sugar content and affect parents' purchasing decisions could inform regulations on these claims on high-sugar products, including fruit drinks.

Evidence on nutrition claims has been hindered in part by methodological barriers. Randomized controlled trials (RCTs) are needed to test the causal impact of nutrition claims on decisions to purchase fruit drinks and understand the mechanisms through which behavioral changes occur. However, it can be logistically burdensome and expensive to test the effects of nutrition claims in a real food retail environment. This study will address this methodological gap by examining the causal impact of nutrition claims on parents' decision to purchase fruit drinks in an RCT in an online virtual food store. This controlled but realistic food store environment allows for rigorous experimental control while maintaining high external validity.[29-31]

Task 2

Another promising but understudied policy in the United States for addressing childhood obesity is requiring a nutrient warning on the front of foods high in added sugar. Sugar nutrient warnings in the US are a viable childhood obesity prevention policy option at the local, state, and federal level.[32,33] Such warnings have been implemented in many other countries including Chile, Peru, Israel, and Mexico[34] and have been found to effectively decrease added sugar purchases in Chile.[9] Gathering more evidence on added sugar nutrient warnings in the US context will ensure that future policies are evidence-based and therefore likely to withstand legal challenges. Furthermore, all nutrient warnings that have been implemented are either text only or text and an icon. Pictorial nutrient warnings have not be implemented in any country. The impact of pictorial nutrient warnings compared to a text warning in real-world food retail environments on purchasing behavior is unknown.

Randomized controlled trials (RCTs) are needed to test the causal impact of nutrient warnings on decisions to purchase snacks high in added sugar and

Potential Risks and Benefits

There are no direct risks or benefits to participating in the research study.

STUDY OBJECTIVE

The purpose of this study is to examine the impact of nutrition-related claims on parents' decisions to purchase fruit drinks in a randomized controlled trial in an online virtual convenience store (task 1) and to examine the impact of nutrient warnings on parents' decisions to purchase granola snacks high in added sugar in an online virtual convenience store (task 2).

Primary Outcome

Task 1: Percent of participants who select a grape-flavored fruit drink rather than 100% grape juice

Task 2: Percent of participants who select a lower sugar granola snack compared to a granola snack higher in sugar.

Secondary Outcomes

Task 1: To determine the impact of nutrition-related fruit drink claims on perceptions about and reactions to fruit drinks.

Task 2: To determine the impact of nutrient warning labels on perceptions about and reactions to snacks high in added sugar (task 2).

Task 1:

- Percent of participants who misperceive that the fruit drink does not have added sugar
- Percent of participants who misperceive that the fruit drink is 100% fruit juice
- Number of teaspoons of added sugar participants think the fruit drink contains
- Percentage of fruit juice participants believe the fruit drink contains
- Perceived misleadingness of fruit drink
- Perceived product healthfulness of fruit drink for child's daily consumption
- Interest in giving the fruit drink to one's child
- Percent of participants who select an apple-flavored fruit drink rather than bottled water
- Perceived appeal of fruit drink
- Interest in consuming the fruit drink
- Relative harm of the fruit drink compared to soda
- Relative harm of the fruit drink compared to 100% fruit juice

Task 2:

- Perceived product healthfulness of snack
- Product appeal of snack for one's child
- Participant intentions to give snack to one's child
- Intentions to purchase the snack
- Intentions to consume the snack
- Percent of participants able to identify the healthier snack
- Percent of participants able to identify the snack with higher amount of added sugar
- Percent of participants who intend to purchase the snack with higher added sugar
- Perceived message effectiveness of snack
- Social reactions to snack
- Percent of participants who learned something new about the snack
- Snack grabbed the participant's attention
- Label on snack makes participant feel scared
- Thinking about the health effects of the snack

INVESTIGATIONAL PLAN (brief overview)

Study Design

The study design is a between-subjects randomized controlled trial. Qualtrics will randomize participants to one of 12 study arms where they will see one of four versions of fruit drinks and one of three versions of granola snacks upon entering into a virtual convenience store (iShoppe).

Fruit drink versions (task 1):

1. control (no nutrition-related claim)
2. “100% Vitamin C daily value” claim
3. “100% All Natural” claim
4. “No artificial sweeteners” claim

Granola snack versions (task 2):

1. control (neutral barcode label)
2. “WARNING: High in added sugar” text warning label
3. warning label with an image of sugar cubes in a cup along with the text "WARNING: High in added sugar"

12 Study Arms

Arm	Label	Cooler A	Cooler B	Snack 1	Snack 2
1	Control (no claim)	Grape fruit drink v. grape juice	Apple fruit drink v. water	No label	Text
2	Control (no claim)	Grape fruit drink v. grape juice	Apple fruit drink v. water	No label	Barcode
3	Control (no claim)	Grape fruit drink v. grape juice	Apple fruit drink v. water	No label	Graphic
4	Claim 1 – No Artificial Sweeteners	Grape fruit drink v. grape juice	Apple fruit drink v. water	No label	Text
5	Claim 1 – No Artificial Sweeteners	Grape fruit drink v. grape juice	Apple fruit drink v. water	No label	Barcode
6	Claim 1 – No Artificial Sweeteners	Grape fruit drink v. grape juice	Apple fruit drink v. water	No label	Graphic
7	Claim 2 – 100% Vitamin C	Grape fruit drink v. grape juice	Apple fruit drink v. water	No label	Text
8	Claim 2 – 100% Vitamin C	Grape fruit drink v. grape juice	Apple fruit drink v. water	No label	Barcode
9	Claim 2 – 100% Vitamin C	Grape fruit drink v. grape juice	Apple fruit drink v. water	No label	Graphic
10	Claim 3 – 100% All Natural	Grape fruit drink v. grape juice	Apple fruit drink v. water	No label	Text
11	Claim 3 – 100% All Natural	Grape fruit drink v. grape juice	Apple fruit drink v. water	No label	Barcode
12	Claim 3 – 100% All Natural	Grape fruit drink v. grape juice	Apple fruit drink v. water	No label	Graphic

In iShoppe, participants will be asked to complete a shopping task for their child aged 1-5 (if more than one child aged 1-5, they will shop for the child who celebrated their birthday most recently).They will have to select between a grape fruit drink and a 100% grape fruit juice (primary outcome, task 1), and they will also have to select between an apple fruit drink and bottled water (secondary outcome, task 1). Both the apple and grape fruit drink will contain the same nutrition claim that the participant was randomized to (if randomized to control, neither fruit drink will have a claim). Participants will also be asked to select between two granola snacks (one experimental, based on randomized arm, and one control with no label) (primary outcome, task 2). After completing the three selection tasks, participants are redirected to a Qualtrics survey measuring reactions to and perceptions of the fruit drinks and granola snack as well as standard demographics.

Study Duration, Enrollment and Number of Subjects

Participation in the study will last approximately 15-20 minutes. The entire study is expected to last a few months.

Study Population

Study population is non-Hispanic white, non-Hispanic Black, and Hispanic any race U.S.-based parents of children between the ages of 1-5 who consume fruit drinks

Inclusion Criteria

1. 18 years old or older
2. Currently reside in the U.S.
3. Have at least one child aged 1-5 years old

4. Child (1-5) with the most recent birthday must have consumed at least one fruit drink in the previous week (7 days)
5. Self-identify as non-Hispanic white, non-Hispanic Black, or Hispanic any race
6. Panel member on CloudResearch and/or Kantar

STUDY PROCEDURES (what will be done)

Study Steps

Panel Companies will reach out to panel members about this research study. If interested, panel members will complete a screener in Qualtrics to see if they are eligible. If they are not eligible, panel members will be redirected to a termination page indicating they are not eligible to participate. If they are eligible, panel members will be redirected to a consent form. If they agree to the consent form, they will acknowledge their consent by clicking an arrow to proceed to the study.

Qualtrics will randomize the participant to one of the twelve study arms and redirect the participant to iShoppe. In iShoppe the participant will be instructed to shop for their child who is between 1-5 years old. If they have more than one child aged 1-5, they will be instructed to think about the child who had their birthday most recently. They will then be instructed to select two beverages for their child. They will compare the two beverage options for each selection task (grape fruit drink vs. 100% grape fruit juice; apple fruit drink vs. water) and choose one of each. Once they have selected the two beverages, they will be instructed to select a granola snack (control snack with no label vs. experimental snack with label). Once all three products are in the participants' shopping basket, iShoppe will then redirect them to another Qualtrics survey. In the Qualtrics survey, participants will answer questions about their perceptions about and reactions to the fruit drinks and snack, as well as standard demographic questions (see measurements section for more detail). Upon completing the survey, participants will be redirected to a termination link where they will receive an incentive in a type and amount set by the panel company.

Subject Completion/ Withdrawal procedures

A study participant is determined to have completed the study when they have finished and exited the study survey. To withdraw their data from the study, a participant would have to contact the study team or the university IRB.

Screen failure procedures

Prior to entering into the study, individuals will complete a survey screener. If the individual is younger than 18 years old, does not live in the United States, does not have a child aged 1-5 who consumed at least one fruit drink in the previous week (if multiple children, this pertains to the child with the most recent birthday), or does not self-identify as non-Hispanic white, non-Hispanic black, or Hispanic, they will be deemed ineligible. Such participants will be redirected to a screen notifying them that they are ineligible for the study.

SCREENING AND MONITORING EVALUATIONS AND MEASUREMENTS (how measurements will be made)

Measurements will include results from selection tasks as well as subjective responses by participants. For the primary outcomes for task 1 and task 2, iShoppe will record which beverage (task 1) and which granola snack (task 2) the participant selects, as measured via the virtual store technology. Secondary outcomes for tasks 1 and 2 will include a variety of measurements including participant responses to additional selection tasks, 5-point Likert scale questions, yes/no questions, as well as questions asking participants what % juice the fruit drink is and how much added sugar it contains.

Question	Response Scale
Secondary measures: Task 1	
[Display one fruit drink per their assigned condition (randomly assign to apple or grape).] How healthy would it be for your [age] year old child to drink this beverage every day?	1=Very unhealthy 2=Somewhat unhealthy 3=Neither healthy nor unhealthy 4=Somewhat healthy 5=Very healthy
How appealing would your [age] year old child find this beverage?	1=Very unappealing 2= Somewhat unappealing 3=Neither appealing nor unappealing 4=Somewhat appealing 5=Very appealing
How likely would you be to give this beverage to your [age] year old child?	1=Not at all likely 2=A little likely 3=Fairly likely 4=Very likely 5=Extremely likely
How likely would <u>you</u> be to drink this beverage?	1=Not at all likely 2=A little likely 3=Fairly likely 4=Very likely 5=Extremely likely
[display based on assigned condition, skip for control] This product says, "insert claim text." What does the statement "insert claim text" tell you about this beverage?	[free text]
Do you think this beverage is 100% fruit juice?	0=No 1=Yes
What percentage of this beverage do you think is fruit juice?	[sliding scale of 0 to 100]
Compared to **regular (non-diet) soda**, this beverage is…	1=Much less healthy 2=Somewhat less healthy 3=Similarly healthy 4=Somewhat healthier 5=Much healthier
Compared to **100% fruit juice**, this beverage is…	1=Much less healthy 2=Somewhat less healthy 3=Equally healthy 4=Somewhat healthier 5 Much healthier
Do you think this beverage has added sugar?	0=No [coded as misperception] 1=Yes
[skip if previous Q=0. Will enter 0 as response their response] A can of regular soda contains 8 teaspoons of added sugar. How many teaspoons of added sugar do you think this beverage has?	[free-text entry of #, restrict responses between 0 and 100] ____ teaspoons
This beverage is 20% fruit juice and contains 39 grams (about 9 teaspoons) of added sugar.	1=Not at all misleading 2=A little misleading

How misleading do you think the information on this product is?	3=Somewhat misleading 4=Very misleading 5=Extremely misleading
Secondary measures: Task 2	
[Display labeled snack per their assigned condition] How healthy would it be for your [age] year old child to eat this snack every day?	1=Very unhealthy 2=Somewhat unhealthy 3=Neither healthy nor unhealthy 4=Somewhat healthy 5=Very healthy
How appealing would your [age] year old child find this snack?	1=Very unappealing 2= Somewhat unappealing 3=Neither appealing nor unappealing 4=Somewhat appealing 5=Very appealing
How likely would you be to give this snack to your [age] year old child?	1=Not at all likely 2=A little likely 3=Fairly likely 4=Very likely 5=Extremely likely
How likely would you be to buy this snack in the next week, if it were available?	1=Not at all likely 2=A little likely 3=Fairly likely 4=Very likely 5=Extremely likely
How likely would <u>you</u> be to eat this snack?	1=Not at all likely 2=A little likely 3=Fairly likely 4=Very likely 5=Extremely likely
Which of these snacks do you think would be healthier for your [age] year old child?	1 = (image of product with warning label) 2 = (image of product without warning label) (Randomize their order)
Which of these snacks do you think is higher in added sugar?	1 = (image of product with warning label) 2 = (image of product without warning label) (Randomize their order)
Which of these snacks would you most want to buy for your [age] year old child?	1 = (image of product with warning label) 2 = (image of product without warning label) (Randomize their order)
[show just the label] How much does this label make you concerned about the health effects of consuming this product?	1=Not at all 2=Very little 3=Somewhat 4=Quite a bit 5=A great deal

How much does this label make consuming this product seem unpleasant to you?	1=Not at all 2=Very little 3=Somewhat 4=Quite a bit 5=A great deal
How much does this label discourage you from wanting to consume this product?	1=Not at all 2=Very little 3=Somewhat 4=Quite a bit 5=A great deal
How likely are you to talk about this label with others in the next week?	1 = Not at all likely 2 = A little likely 3 = Somewhat likely 4 = Very likely 5 = Extremely likely
Did you learn something new from this label?	1 = Yes 0 = No
How much does this label grab your attention?	1=Not at all 2=Very little 3=Somewhat 4=Quite a bit 5=A great deal
How much does this label make you feel scared?	1=Not at all 2=Very little 3=Somewhat 4=Quite a bit 5=A great deal
How much does this label make you think about the health problems caused by eating this snack?	1=Not at all 2=Very little 3=Somewhat 4=Quite a bit 5=A great deal
Other Outcomes: Process Measures	
I was able to imagine doing my real-life convenience store shopping in the online store.	1 = Strongly disagree 2 = Somewhat disagree 3 = Neither agree nor disagree 4 = Somewhat agree 5 = Strongly agree
The beverages I selected in the online store were similar to beverage purchases I would make for my [age] year old child in real life.	1 = Strongly disagree 2 = Somewhat disagree 3 = Neither agree nor disagree 4 = Somewhat agree 5 = Strongly agree
The online store reminded me of convenience stores that I've been to.	1 = Strongly disagree 2 = Somewhat disagree 3 = Neither agree nor disagree 4 = Somewhat agree 5 = Strongly agree

STATISTICAL CONSIDERATION

Statistical Methods

Task 1

We will report descriptive results for all outcomes (i.e., means and proportions by group). In all models, the predictor will be a dummy variable indicating whether the participant was randomized to one of the three intervention nutrition claim conditions. For predictions with Likert-style outcomes, we will run linear regression models, one for each outcome. We will examine skewness of the residuals and run ordinal models in sensitivity analyses if residuals are skewed, retaining the linear models if the pattern of results does not change. For predictions with dichotomous outcomes, we will use the same approach except with logistic regression. We will use the margins command in Stata for significance testing of control vs. each claim separately, as well as each claim compared to the other claims.

We will also report results when controlling for any participant demographic characteristics (including random assignment to two experiments conducted after the primary outcome, but before measurement of some of the secondary outcomes) found to be unbalanced across treatment arms in balance tests, if these results differ substantively from unadjusted results (i.e., changes in statistical significance or direction of effect).

We will examine whether the following participant characteristics moderate the effect claims on the primary outcome:

a) Age of child shopping for (in years);
b) Gender of parent (man vs. woman);
c) Gender of child (boy vs. girl);
d) Race/ethnicity of parent (White non-Hispanic vs. Black non-Hispanic vs. Hispanic);
e) Low educational attainment (dichotomized based on sample distribution);
f) Household income (dichotomized based on sample distribution);
g) Child's frequency of consuming fruit drinks (above vs. at or below the sample median);
h) Time spent looking at Nutrition Facts Panel of the beverage;
i) Seeking vitamin C since COVID-19 pandemic

To test whether these characteristics moderate the effect of claims on selection, we will fit a series of logistic regressions models (one for each potential moderator), with trial arm, the moderator, and their interaction as predictors. We will probe significant interactions by calculating the marginal effect of nutrition claims on the outcome at different levels of the moderating variable. We will use a critical alpha of 0.05 and statistical tests will be two-tailed. We will correct for multiple comparisons.

Task 2

We will report descriptive results for all outcomes (i.e., means and proportions by group). In all models, the predictor will be a dummy variable indicating whether the participant was randomized to one of the two warning message conditions. For predictions with Likert-style outcomes, we will run linear regression models, one for each outcome. We will examine skewness of the residuals and run ordinal models in sensitivity analyses if residuals are skewed, retaining the linear models if the pattern of results does not change. For predictions with dichotomous outcomes, we will use the same approach except with logistic regression. We will use the margins command in Stata for significance testing of control vs. each warning message separately, as well as each warning message compared to each other. We will also report results when controlling for any participant demographic characteristics (including random assignment to experiments conducted before the primary outcomes) found to be

unbalanced across treatment arms in balance tests, if these results differ substantively from unadjusted results (i.e., changes in statistical significance or direction of effect).

We will examine whether the following participant characteristics moderate the effect claims on the primary outcome:
a) Age of child shopping for (in years);
b) Gender of parent (man vs. woman);
c) Gender of child (boy vs. girl);
d) Race/ethnicity of parent (White non-Hispanic vs. Black non-Hispanic vs. Hispanic);
e) Low educational attainment (dichotomized based on sample distribution);
f) Household income (dichotomized based on sample distribution);
g) Time spent looking at Nutrition Facts Panel of the snack;

To test whether these characteristics moderate the effect of warning messages on selection, we will fit a series of logistic regressions models (one for each potential moderator), with trial arm, the moderator, and their interaction as predictors. We will probe significant interactions by calculating the marginal effect of sugar warnings on the outcome at different levels of the moderating variable.
We will use a critical alpha of 0.05 and statistical tests will be two-tailed. We will correct for multiple comparisons.

Sample Size and Power
Using G.Power 3.1.9.4, researchers estimate that with a sample of approximately 2,170, alpha of 0.05, and 80% power, researchers could detect a small effect for the task 1 primary outcome (f=0.06), in line with a prior study of the impact of claims on intentions to purchase fruit drinks.[35]

SAFETY MANAGEMENT

Provided that this study is conducted completely online, and participants do not have any interactions with study staff there is no anticipation of adverse events. However, the investigators have provided an email to contact as well as the IRB contact information, on the consent form should a participant be concerned about any aspects of the research study.

DATA COLLECTION AND MANAGMENT

The research study will not collect any identifying information from participants, and Qualtrics will be programmed to not collect IP addresses. Researchers will store the study data on a remote terminal server, and only research investigators and staff will have access to the data.

RECRUITMENT STRATEGY

The study will recruit participants through panel companies (Kantar and CloudResearch). The panel companies will let panel members know about the study and interested panel members will complete a survey screener to find out if they are eligible.

CONSENT PROCESS

To provide consent, individuals will first complete a survey screener in Qualtrics. If they are eligible for the study, they will be redirected to the study consent form. If the participant agrees to the consent form, they are informed that by continuing to the study, they are consenting to participate. The

consent process is completed entirely online, and at no point in the study do participants interact with the study team.

PLANS FOR PUBLICATION

The investigators plan to publish task 1 and task 2 as separate peer-reviewed papers. They will target public health peer-reviewed journals for manuscript submission.

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Title: Research Survey about Product Messages

Description: Complete a brief research shopping task and survey about product messages. We are interested in the opinions of individuals 18 and older, who are living in the United States, have at least one child aged 1-5, and identify as non-Hispanic black, non-Hispanic white, or Hispanic.

Instructions (Consent form):

We would like to invite you to take part in a brief research study to better understand people's thoughts and perceptions about products. To join the study is voluntary. You may choose not to participate, or you may withdraw your consent to be in the study, for any reason, without penalty. This survey is open to U.S. residents aged 18 and over; who identify as non-Hispanic white, non-Hispanic black, or Hispanic; and, who have at least one child aged 1-5.

You will complete a shopping task in a simulated convenience store and then you will complete a survey with questions about food products and your demographics. You may choose not to participate, or you may withdraw your consent to be in the study, for any reason, without penalty, at any time.

About 2500 people will be in this research study. You will be in the study for about 15-20 minutes. This will be a one-time survey with no follow up expected. You will receive compensation in the reward type and amount that you have agreed to with the platform through which you entered this survey.

There are no direct risks or benefits to participating that we are aware of.

Privacy and Confidentiality

We will not collect any sensitive information from you. Your responses will be linked with a randomly generated participant ID, which will not be identifiable. Note that the Cloud Research platform is NOT meant to support participant anonymity, but your responses to this survey will remain confidential. Research personnel will keep data from this study on password-protected devices and your responses will not be identifiable.

Your Cloud Research ID will only be collected for the purposes of distributing compensation and will not be associated with survey responses.

Please only take this survey one time.

If you have questions about the study, you can contact us at storestudy@unc.edu. If you have questions about your rights as a research subject, contact the UNC Institutional Review Board at 919-966-3113 or IRB_subjects@unc.edu.

By clicking on the link to the study, you acknowledge that you have read the information above and agree to be in this research study. Thank you!

At the end of the survey, you will receive a code to receive credit for completing our study. Please enter your Qualtrics completion code in the box after you complete the survey so that you can receive your payment.