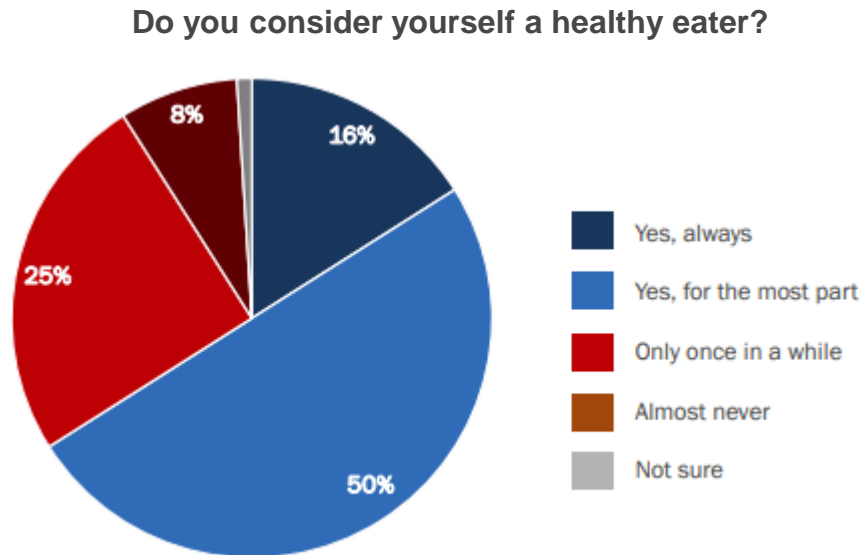# From Promotions to Consumer Preference and Choice: Investigating the Interplay of Health Claims and Bonus Pack Messages

Youngjun Kim, (KAIST School of Business and Technology Management)
Prof. Youngju Kim, (CAU School of Business Administration)
Prof. Hye-jin Kim, (KAIST School of Business and Technology Management)

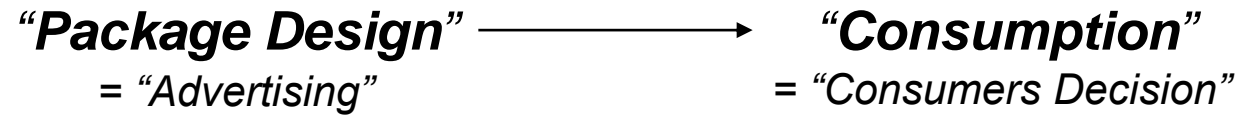- *We can find product package every where.*

A majority of Americans (**7** in 10) consider themselves to be healthy eaters

Half of online and in-person shoppers pay attention to labels "always" or "often"

Do you consider yourself a healthy eater?

- 16% — Yes, always
- 50% — Yes, for the most part
- 25% — Only once in a while
- 8% — Almost never
- Not sure

Pay Attention to Labels When Shopping Online
(If Shops Online)

- Always: 19% ⬇
- Often: 27%
- Sometimes: 27%
- Rarely: 20% ⬆
- Never: 7%
- Not sure: 1%

46% Always/Often vs. 52% in 2022

27% Rarely/Never vs. 21% in 2022

Pay Attention to Labels When Shopping In-Person
(If Shops In-Person)

- Always: 25%
- Often: 30%
- Sometimes: 28%
- Rarely: 13%
- Never: 5%
- Not sure: 0%

55% Always/Often

17% Rarely/Never

Source: International Food Information Council (2023)

3

"Package Design" ⟶ *"Consumption"*
= *"Advertising"* = *"Consumers Decision"*

- **Packages** are more effective than **advertisments** in generating sales (Fajardo & Townsend, 2016).

- packaging can even contribute to helping people control their food intake (Chu et al., 2021).

- Innovative packaging designs encourage healthier eating habits in young children (Tang et al., 2020).

- **Food health claims** on packages are **more credible** than those featured in advertisements (Mazis & Raymond, 1997).

- Claims on the front of product packaging as a **promotional strategy is widely adopted** to inform consumers at the point of purchase (Taillie et al., 2017).

Breakfast Cereal

- Cereals are sold and consumed worldwide.

- There are diverse claims on cereal packages, including health claims and promotion messages.

- 30 percent of cereals contribute to global food loss and waste annually, as reported by FAO (Food and Agriculture Organization of the United Nations).

Features

Title
Logo
Flavor
Brands
Manufacturers
Bonus Pack
Images
Characters
Picture of cereals
Health Claims
Colors
Size of the elements
Position of the elements

Texts & Images

Research Question

"How do the combinations of health claims and bonus pack messages
affect consumer's perceptions of the product?"

- **Limited number** of studies investigating the real-life usage **patterns of claims and promotion messages** on packages.

- No apriori hypotheses about the differential or interactive effects of health claims and bonus pack messages.

- This study was designed as an **exploratory, hypothesis-generating study** to guide future research.

Why Health Claims and Bonus Pack Message?

	Authors	Summary	
Preference / Favorability	Diamond, W. D. (1992) Diamond, W. D., & Sanyal, A. (1990)	▪ Consumers tend to perceive add-ons such as **Bonus Packs** as **gains** ▪ **Gains** are perceived more *favorably* than **reduced losses**.	
	Chandran, S., & Morwitz, V. G. (2006)	▪ Consumers often view **bonus packs more positively** since they perceive them as receiving something 'free' for the same price	
	Hardesty and Bearden (2003)	▪ Preference for bonus pack promotion over the economically equivalent price discounts.	**Bonus Pack** > **Price Discounts**
Healthiness	Li, Y., Heuvinck, N., & Pandelaere, M. (2022).	▪ "light = healthy" intuition, showing that consumers tend to perceive foods with less physical weight as healthier than their heavier counterparts of the same serving size.	**Light = Healthy**
Expensiveness	Haws, K. L., Reczek, R. W., & Sample, K. L. (2017).	▪ Consumers believe healthy foods are more expensive than less healthy food.	**Healthy = Expensive**
Taste	Raghunathan et al. (2006)	▪ Healthier foods are perceived as less tasty, demonstrating a negative correlation between healthiness and tastiness.	**Unhealthy = Tasty**

Introduction

Study 1	**Package Design Audits**

- Investigate *how marketers use health claims and bonus pack messages* in conjunction

Study 2	**Empirical Study**

- How these combinations influence *consumer perceptions*
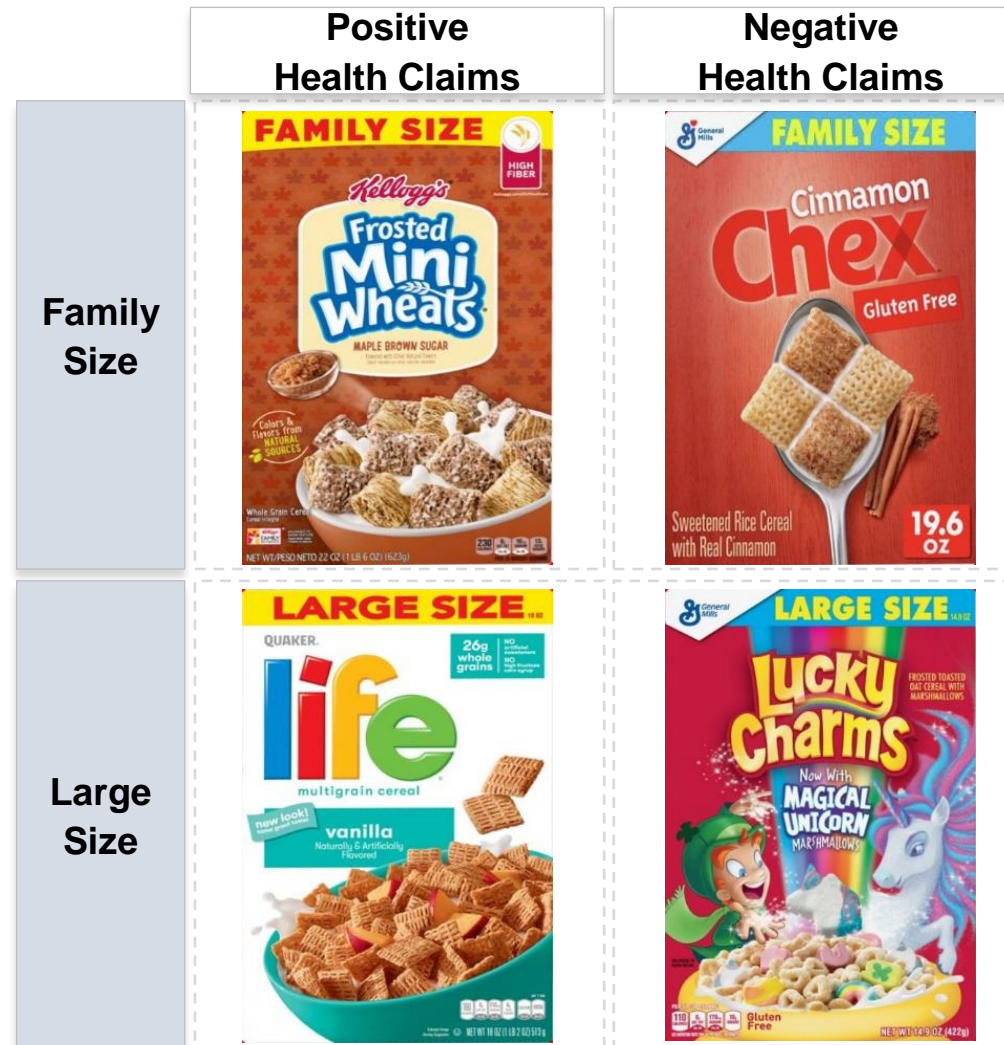
Breakfast Cereal

- To collect real-life data, we extracted a total of 418 cereal box images from Walmart and labeled all the health claims and bonus pack messages with LabelImg.

Bonus Pack Message

Health Claims

Examples of cereal packages used in study 1

	Positive Health Claims	Negative Health Claims
Family Size		
Large Size		

Bonus Pack Messages

What is a Bonus Pack Message?

- *A term that refers to providing **more of the product** for the **same price** (Mishra & Mishra, 2011).*

- Consumers are inclined to perceive add-ons such as bonus packs as **gains** (Diamond, 1992).

- **Gains** are perceived more favorably than those framed as reduced **losses** (Diamond & Sanyal, 1990).

- Consumers tend to view bonus packs more **positively** since they perceive them as receiving something **'free'** for the same price (Chandran & Morwitz, 2006).

- Consumers prefer a **bonus pack** over an economically equivalent **price discount** (Chen, H., et al 2012).

Number of Package Design Images

Package Images	Counts	Percent
Images without Bonus-package Messages	314	75.1%
Images with Bonus-package Messages	104	24.9%
Total	418	100%

Bonus Pack Messages

- *"Family Size", and "Large Size" were selected,* when we filtered by the best seller we could find them the most on the first page of Walmart and Amazon.

Number of Bonus Pack Messages

| Bonus Pack Messages	Counts	Percent	Size Related Word	Comparative
Family Size	76	73.08%	N	N
Giant Size	10	9.62%	Y	N
Value Size	7	6.73%	N	N
Large Size	5	4.81%	Y	N
Mega Size	2	1.92%	Y	N
New, Larger Size!	2	1.92%	Y	Y
20% more cereal than previous 16.2oz size	1	0.96%	Y	Y
20% more cereal than previous 16oz size	1	0.96%	Y	Y
Total	104	100%		

Health Claims

What is a Health Claim?

- *A statement on a food or drink product, or in its advertising, that says that it is good for health.*

- *4 Types :*
  (*André et al., 2019*)

  Not Adding Negatives : 'No artificial flavor', 'No preservatives', 'No artificial ingredients', 'GMO-free', 'No chemicals', …

  Removing Negatives : 'Low fat', 'Low sugar', 'Low calories', 'Low saturated fat', 'Gluten free', …

  Not Removing Positives : 'Organic', 'Whole grains', 'Pure', 'Fresh', 'Unprocessed', …

  Adding Positives : 'High fiber', 'High proteins', 'High Calcium', 'High vitamins', 'High minerals'…
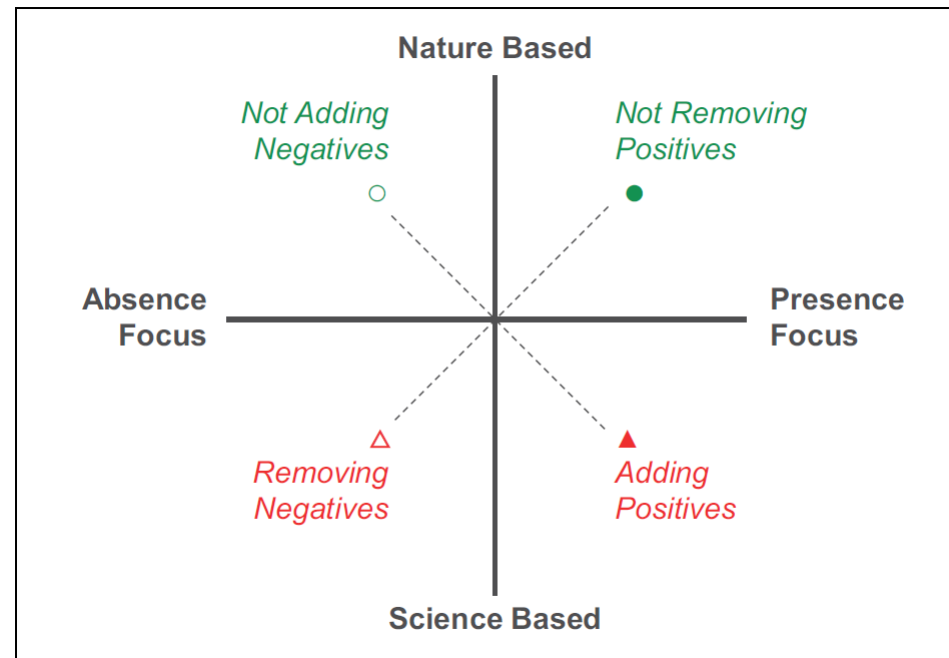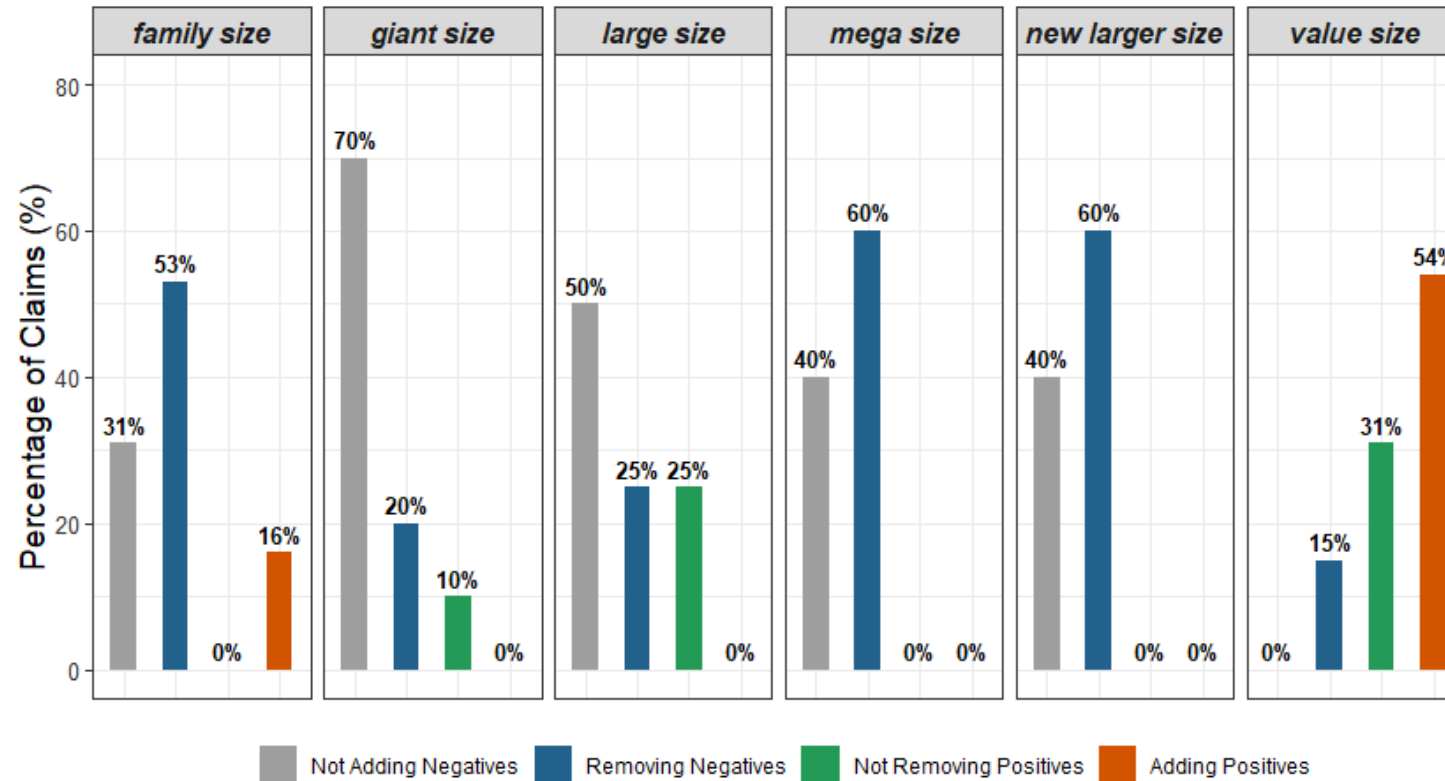
Percentage of Health Claims Types
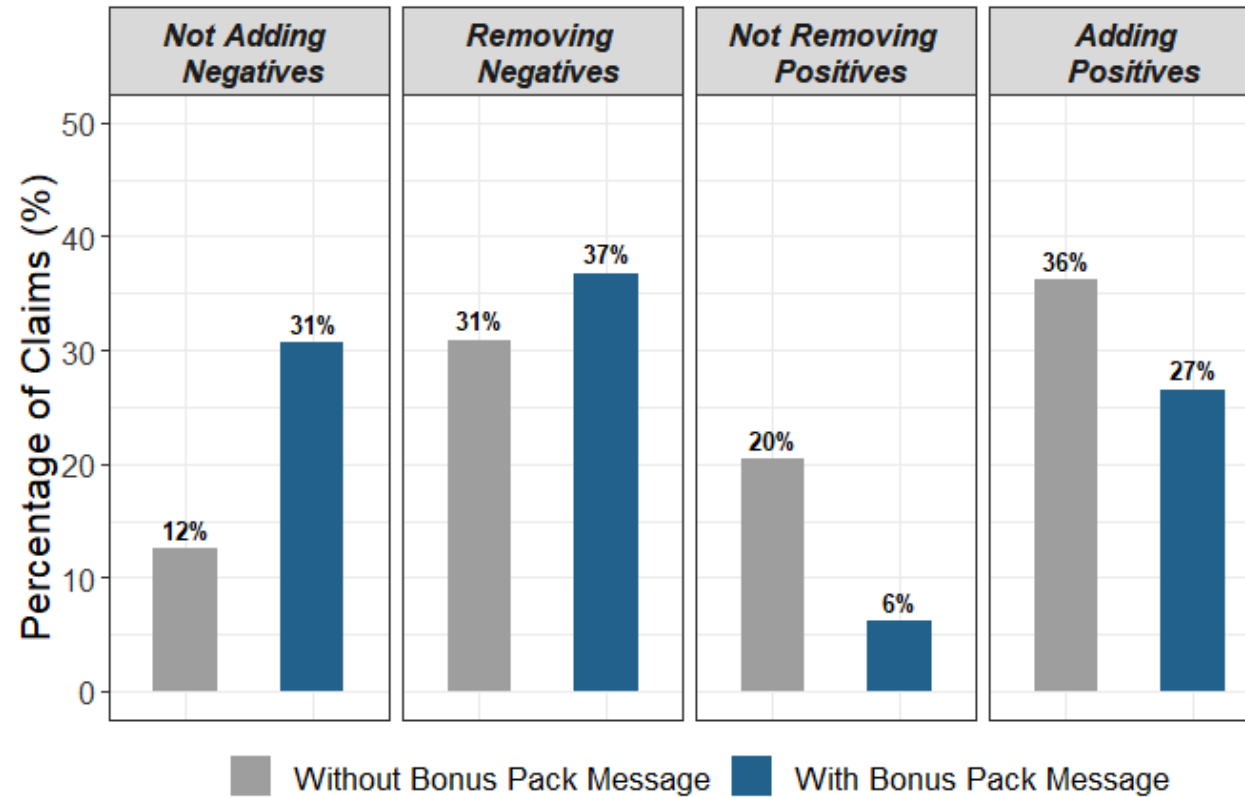
Notes: The total percentage of claims in each category (Without Bonus Pack Message / With Bonus Pack Message) is 100%.

Percentage of Claims in Each Category

Notes: the sum of health claim types within each bonus pack promotion message adds up to 100%.

- **Mixed Design** (3 x 3)

- **Two** frequently used claims from the pool of **16 claims** discussed with the chief nutritionist of a leading

  breakfast cereal manufacturer in the previous research (Chandon & Cadario, 2023).

- 443 U.S. participants

Witin-Subjects

"No artificial flavor", "No preservatives", "Low fat", "Low sugar", "Organic", "Whole grains first ingredient", "High fiber", "High proteins", "None"

Between-Subjects

"Family Size", "Large Size", "None"

qualtrics^{XM} connect™

Model

- **Dependent Variables** : The rating of the claim on a 1-7 point scale.

- "Favorable", "Healthier", "Good value for money", "Tasty", "Importance of Health Claims", and "Importance of Bonus Pack"

- **Linear Mixed-Effects Models** at the respondent level with a respondent random effect

$$
\begin{aligned}
Rating_{ij} = \; & \beta_0 + \beta_1 Positive_{ij} + \beta_2 Negative_{ij} + \beta_3 Family_{ij} + \beta_4 Large_{ij} + \beta_5 None_{ij} \\
& + \beta_5 Positive_{ij} \times Family_{ij} + \beta_6 Negative_{ij} \times Family_{ij} \\
& + \beta_7 Positive_{ij} \times Large_{ij} + \beta_8 Negative_{ij} \times Large_{ij} + \beta_8 None_{ij} \times None\_size_{ij} \\
& + u_i + u_{ij} + \varepsilon_{ij}
\end{aligned}
$$

Results

- Positive and Negative health claims significantly sway consumer choices, aligning with a previous study (Chandon & Cadario, 2023).

- Family size & Large Size are more favorable.

Dependent variable:	(1) favorable	(2) healthier	(3) good value	(4) tasty	(5) health claim	(6) bonus pack
Positive	0.729 ***	1.168 ***	-0.184 *	-0.245 **	0.432 ***	-0.096
Negative	0.611 ***	1.079 ***	-0.130	-0.330 ***	0.330 ***	-0.109
None	-	-	-	-	-	-
Family	0.267 *	-0.303 **	0.811 ***	-0.168	-0.414 **	0.572 ***
Large	0.253 *	-0.284 **	0.825 ***	-0.331 **	-0.389 **	0.482 ***
None Size	-	-	-	-	-	-
Positive x Family	-0.254	0.246 *	-0.044	0.119	0.354 **	0.077
Negative x Family	-0.238	0.173	-0.046	0.179	0.365 **	0.053
Positive x Large	-0.161	0.230	-0.241 *	0.332 **	0.336 **	-0.044
Negative x Large	-0.183	0.156	-0.214 *	0.291 *	0.350 **	-0.093
None x None Size	-	-	-	-	-	-
Age	0.000	-0.003	-0.005	-0.004	0.007 *	0.002
Gender	0.047	0.045	0.048	-0.036	0.078	-0.043
How Often	0.004	0.004	0.038	0.030	-0.041	0.023
Household Income	-0.010	-0.005	-0.003	-0.009	0.034	0.005
Household	0.037 **	0.032 *	0.028 *	0.055 **	0.032 *	0.026
Education	0.045	0.046	-0.002	0.004	0.028	0.009

Note: *** p < .001 ** p < .01 * p < .05. Intercept is omitted from the table.

Results

■ Positive and Negative health claims significantly affects healthiness perceptions, aligning with a previous studies.

■ Bonus Pack messages can diminish perceived healthiness.

■ Surprisingly, "**family size**" can amplify the effects of positive health claims on healthiness perceptions.

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable:	favorable	healthier	good value	tasty	health claim	bonus pack
Positive	0.729 ***	1.168 ***	-0.184 *	-0.245 **	0.432 ***	-0.096
Negative	0.611 ***	1.079 ***	-0.130	-0.330 ***	0.330 ***	-0.109
None	-	-	-	-	-	-
Family	0.267 *	-0.303 **	0.811 ***	-0.168	-0.414 **	0.572 ***
Large	0.253 *	-0.284 **	0.825 ***	-0.331 **	-0.389 **	0.482 ***
None Size	-	-	-	-	-	-
Positive x Family	-0.254	0.246 *	-0.044	0.119	0.354 **	0.077
Negative x Family	-0.238	0.173	-0.046	0.179	0.365 **	0.053
Positive x Large	-0.161	0.230	-0.241 *	0.332 **	0.336 **	-0.044
Negative x Large	-0.183	0.156	-0.214 *	0.291 *	0.350 **	-0.093
None x None Size	-	-	-	-	-	-
Age	0.000	-0.003	-0.005	-0.004	0.007 *	0.002
Gender	0.047	0.045	0.048	-0.036	0.078	-0.043
How Often	0.004	0.004	0.038	0.030	-0.041	0.023
Household Income	-0.010	-0.005	-0.003	-0.009	0.034	0.005
Household	0.037 **	0.032 *	0.028 *	0.055 **	0.032 *	0.026
Education	0.045	0.046	-0.002	0.004	0.028	0.009

Note: *** p < .001 ** p < .01 * p < .05. Intercept is omitted from the table.

Results

- positive health claims adversely affect perceptions of value, aligning with **healthy = expensive** intuition (Haws et al., 2017).

- Health claims paired with "**Large Size**" decreased perceived value, even though consumers perceive bonus pack message as good value by itself.

Dependent variable:	(1) favorable	(2) healthier	(3) good value	(4) tasty	(5) health claim	(6) bonus pack
Positive	0.729 ***	1.168 ***	-0.184 *	-0.245 **	0.432 ***	-0.096
Negative	0.611 ***	1.079 ***	-0.130	-0.330 ***	0.330 ***	-0.109
None	-	-	-	-	-	-
Family	0.267 *	-0.303 **	0.811 ***	-0.168	-0.414 **	0.572 ***
Large	0.253 *	-0.284 **	0.825 ***	-0.331 **	-0.389 **	0.482 ***
None Size	-	-	-	-	-	-
Positive x Family	-0.254	0.246 *	-0.044	0.119	0.354 **	0.077
Negative x Family	-0.238	0.173	-0.046	0.179	0.365 **	0.053
Positive x Large	-0.161	0.230	-0.241 *	0.332 **	0.336 **	-0.044
Negative x Large	-0.183	0.156	-0.214 *	0.291 *	0.350 **	-0.093
None x None Size	-	-	-	-	-	-
Age	0.000	-0.003	-0.005	-0.004	0.007 *	0.002
Gender	0.047	0.045	0.048	-0.036	0.078	-0.043
How Often	0.004	0.004	0.038	0.030	-0.041	0.023
Household Income	-0.010	-0.005	-0.003	-0.009	0.034	0.005
Household	0.037 **	0.032 *	0.028 *	0.055 **	0.032 *	0.026
Education	0.045	0.046	-0.002	0.004	0.028	0.009

Note: *** p < .001 ** p < .01 * p < .05. Intercept is omitted from the table.

Results

■ Health claims negatively affect perceived tastiness, consistent with the **unhealthy = tasty** intuition (Raghunathan et al., 2006).

■ However, this is counterbalanced when combined with "**large size**"

Dependent variable:	(1) favorable	(2) healthier	(3) good value	(4) tasty	(5) health claim	(6) bonus pack
Positive	0.729 ***	1.168 ***	-0.184 *	-0.245 **	0.432 ***	-0.096
Negative	0.611 ***	1.079 ***	-0.130	-0.330 ***	0.330 ***	-0.109
None	-	-	-	-	-	-
Family	0.267 *	-0.303 **	0.811 ***	-0.168	-0.414 **	0.572 ***
Large	0.253 *	-0.284 **	0.825 ***	-0.331 **	-0.389 **	0.482 ***
None Size	-	-	-	-	-	-
Positive x Family	-0.254	0.246 *	-0.044	0.119	0.354 **	0.077
Negative x Family	-0.238	0.173	-0.046	0.179	0.365 **	0.053
Positive x Large	-0.161	0.230	-0.241 *	0.332 **	0.336 **	-0.044
Negative x Large	-0.183	0.156	-0.214 *	0.291 *	0.350 **	-0.093
None x None Size	-	-	-	-	-	-
Age	0.000	-0.003	-0.005	-0.004	0.007 *	0.002
Gender	0.047	0.045	0.048	-0.036	0.078	-0.043
How Often	0.004	0.004	0.038	0.030	-0.041	0.023
Household Income	-0.010	-0.005	-0.003	-0.009	0.034	0.005
Household	0.037 **	0.032 *	0.028 *	0.055 **	0.032 *	0.026
Education	0.045	0.046	-0.002	0.004	0.028	0.009

Note: *** p < .001 ** p < .01 * p < .05. Intercept is omitted from the table.

	Intuition	**Health Claims x Bonus Pack**
Preference / Favorability		Bonus Pack Message $\xrightarrow{+}$ Favorable
Healthiness	Light = Healthy	Positive x Family $\xrightarrow{+}$ Healthier
Good Value		Health Claims x Large Size $\xrightarrow{-}$ Good Value
Taste	Unhealthy = Tasty	Health Claims x Large Size $\xrightarrow{+}$ Tasty

- This study is the first to demonstrate variations in consumer repsonses to health claims types and bonus pack messages, especially when these elements are presented together.

- Our investigation into the interplay of health claims and bonus pack messages on consumer behavior aims to **map real-world** phenomena and assess their multidimensional impact.

- This approach helps identify win-win situations for both consumers and businesses, as well as potential pitfalls to avoid, offering **guidance** for market strategies.

- Health-conscious consumers to perceive the product as both healthy and cost-effective.

- This strategy is likely to enhance motivations to avoid food waste, thereby carrying significant environmental implications.

- In the future study, as we have found the potential relationships between health claims and promotional messages, there is a lot of room for undiscovered effective healthy promotional messages.

Thank You

Email: jun.k93@kaist.ac.kr

Health Claims

Number of Health Claims

Number of Health Claims Per Image	Number of Images
1	60
2	71
3	68
4	40
5	19
6	13
7	2
8	4
9	1

Types of Health Claims	Counts	Percent
Adding Positives	278	35.0%
Removing Negatives	251	31.6%
Not Removing Positives	148	18.6%
Not Adding Negatives	117	14.7%
Total	794	100%