



Integrating Concepts from Behavioral Economics into Low-Cost Healthy Retail Interventions: Methods and Results from Rural North Carolina

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A little about us...

- My Role:
 - PhD student at UNC Chapel Hill
- Lab:
 - Food and Fitness Opportunities Research Collaborative (FFORC)
 - Healthy Retail Team
- FFORC:
 - 6 rural counties
 - 5 years of healthy retail research experience
 - 3 corporate chains
 - 10 family-owned retailers





Our 2017 Retail Interventions

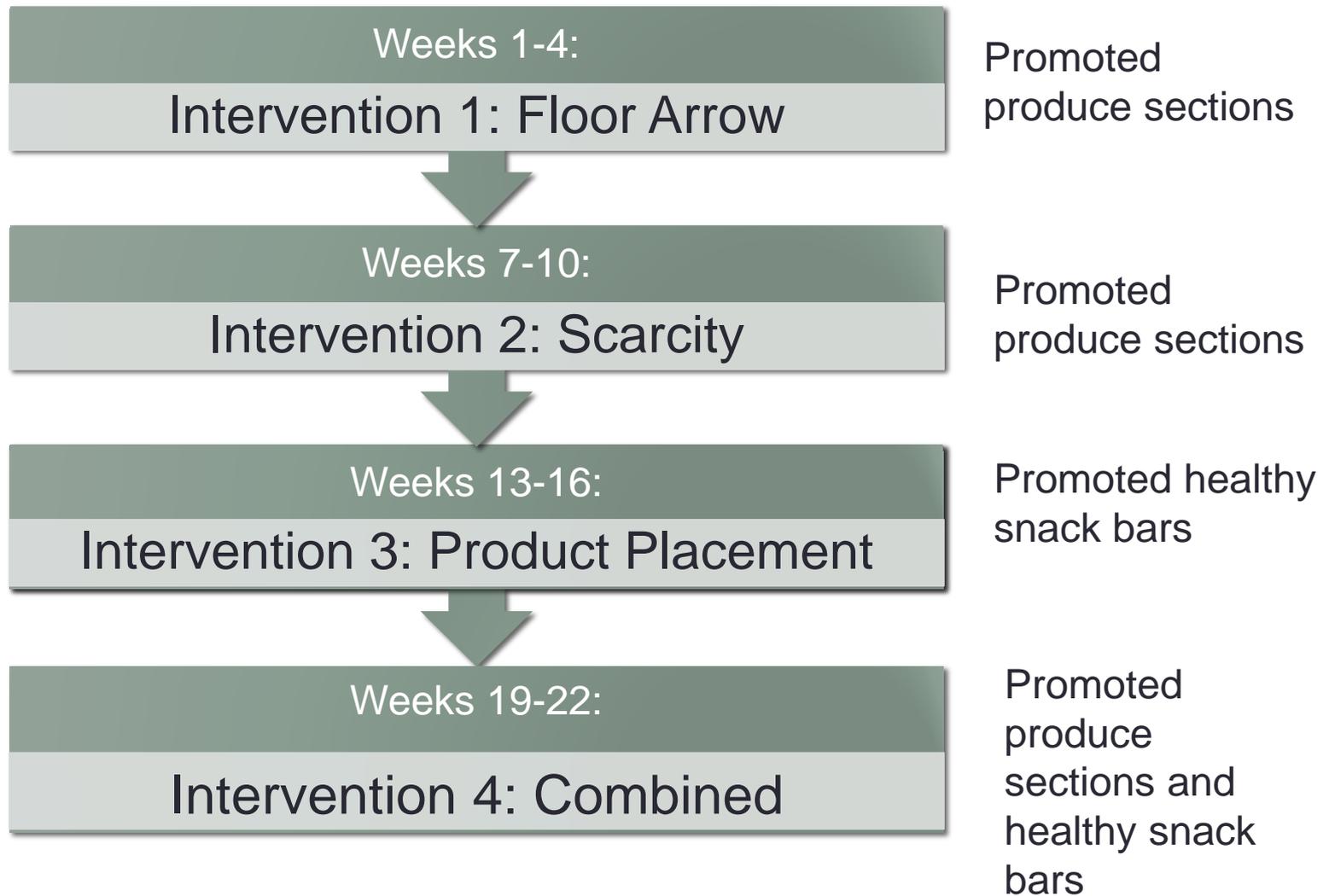
- 4 different healthy retail interventions
- Collected data sets from 4 stores:
 - 2 grocery stores
 - 1 intervention store, 1 control store
 - 2 corner stores
 - 1 intervention store, 1 control store
- Incorporated insights from the field of Behavioral Economics
- March – August 2017

Intervention Designs

- Dual Processing Theory¹
- “Nudge” people toward healthier purchases
- Low cost
- Easy for retailers to implement and sustain

1. Kahneman D. *Thinking, Fast and Slow*. New York: Farrar, Straus and Giroux; 2011.

Intervention Descriptions



Floor Arrows



Payne CR, Niculescu M, Just DR, Kelly MP. This Way to Produce: Strategic Use of Arrows on Grocery Floors Facilitate Produce Spending Without Increasing Shopper Budgets. *Journal of Nutrition Education and Behavior*. 2016;48(7). doi:10.1016/j.jneb.2016.05.001.

Scarcity



Nichols BS. Advertising Appeals and a Psychological Scarcity Effect: Competitive Arousals and Implications on Purchase Interest. *The Customer is NOT Always Right? Marketing Orientations in a Dynamic Business World Developments in Marketing Science: Proceedings of the Academy of Marketing Science*. 2017:23-23. doi:10.1007/978-3-319-50008-9_3.

Product Placement



Bloom P. *How Pleasure Works: the New Science of Why We like What We Like*. New York: W.W. Norton; 2011.

Combined



Setting

- **2 Corner Stores in the same chain:**
 - 1 intervention store: Orange County, North Carolina
 - 1 control store: Moore County, North Carolina
- **2 Grocery Stores in the same chain:**
 - 1 intervention store: Warren County, North Carolina
 - 1 control store: Halifax County, North Carolina

*Stores had to provide **sales** or **invoice data** to be included in the study



Demographics of Counties where stores are located

	Corner Store Counties		Grocery Store Counties	
	Orange	Moore	Warren	Halifax
Population	144,946	97,264	19,883	51,310
Race/Ethnicity				
% White	76.5	82.9	40.6	40.2
% African American	12.2	12.5	51.5	53.5
% Hispanic	8.4	6.4	3.9	2.7
% Native American	0.6	1.2	5.6	4.1
% Asian	8.1	1.5	0.4	0.8
% Poverty	12.8	11.4	26.4	27
Education				
% High School	92.4	89.6	79.2	76.8
% College	57.7	34.2	14.6	13.4
% Households Receiving SNAP	9.7	11.9	28.3	34.6

Overview of Data Collection

- Weekly fidelity checks
- Customer intercept surveys during the washout periods
- Interviews with store managers
- Weekly sales data

Data Collected- Fidelity Checks

- What was collected:
 - Prices of promoted items
 - Quality of promoted items
 - Locations of promoted items
 - Whether intervention materials were in place
 - Customer interactions with the intervention materials
- How it was collected:
 - Qualtrics survey accessed from smart phones or laptops
 - Photos

Data Collected- Customer Intercept Surveys

- 2 pages (1 page front and back)
- Customers completed themselves
- \$1 incentive for completing survey
- Questions included:
 - How often do you visit this store?
 - Do you recognize any of these signs?
 - If yes, which items did these signs encourage you to purchase?
 - Demographic information



Data Collected- Sales Data

- Weekly sales data from December 2016-October 2017



Results From Customer Intercept Surveys

- 30% of participants noticed intervention materials (signs, arrows)
- Of these participants, 80% responded that the materials encouraged them to purchase the promoted foods.



Results From Sales Data Analysis

Intervention Name	Promoted Intervention Item	Mean Proportion of Units Sold to Total Units Sold (x 10,000) ^a							
		Intervention				Control			
		Pre-intervention	Intervention	Post-intervention	Change ^b	Pre-intervention	Intervention	Post-intervention	Change
Product Placement	Health bars ^c	1.94	2.28	2.81	0.34	3.08	6.55	4.5	3.48
Scarcity	Produce ^d	20.40	28.81	27.92	8.40	44.93	60.97	63.89	16.04
Floor Arrow	Produce	20.40	28.90	27.92	8.49	44.93	51.64	63.89	6.71
Combined	Produce + health bars	22.35	39.31	30.73	16.97*	48.01	54.35	68.39	6.34

^aValues were multiplied by 10,000 to be easier to read and interpret. Statistical analyses were conducted using unadjusted values.

^bP-values are based on analysis of variance, comparing pre-intervention to intervention.

^cHealth bars include CLIF and Special K Protein Meal Bars.

^dProduce includes bananas, oranges, and apples.

*Indicates significance at the 0.01 level.

- **There were no significant differences** in sales of the promoted items for the scarcity, product placement, or floor arrow intervention.
- Sales of the promoted items during the COMBINED intervention **increased by 16.97 units.**

Obstacles Faced



Future Research Plans

- Focus on grocery stories
- 1 single grocery store chain with 8 locations
- Randomization
- Possible interventions include:
 - Upselling interventions
 - Social norms messaging

THANK YOU!

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