

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

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Abstract

The field of Behavioral Economics provides a set of strategies to change food environments to "make the healthy choice the easy choice."¹ The aim of this study was to design, implement, and evaluate four innovative, low-cost nutrition interventions that incorporated insights from the field of Behavioral Economics in two rural North Carolina grocery stores and two corner stores. The four interventions included: a product placement intervention (which promoted health bars), a scarcity messaging intervention (which promoted produce), a floor arrow intervention (which also promoted produce), and a combination of all three aforementioned interventions.

Using analysis of variance, the authors analyzed sales data (from the corner stores only- analyses for the grocery stores are ongoing) to examine whether there was a change in the proportion of mean weekly sales of the featured items to total store sales during the intervention period.

This study found **no significant differences** in sales of the promoted items for the scarcity, product placement, or floor arrow intervention. However, sales of the promoted items during the **COMBINED** intervention **increased by 16.97 units**.

Methods Highlights

- Interventions ran from March-August 2017
- 4 weeks long, followed by 2 week washout period
- Customer intercept surveys collected during washout periods to assess if customers noticed intervention materials and if it influenced purchasing
- Fidelity checks conducted weekly during intervention weeks

- **Corner Stores (n=2):**
 - 1 intervention store: Orange County, North Carolina
 - 1 control store: Moore County, North Carolina
- **Grocery Stores (n=2):**
 - 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



Table 1. Demographic Information for the Stores' Residing Counties

	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

Table 2. Changes in sales of featured food items for the four different interventions

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.

Results

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

Challenges Faced



Figure 1. Photo from the scarcity intervention.



Figure 2. Photo from the produce placement intervention.



Figure 3. Photo from the floor arrow intervention.



Figure 4. Photo from the combined intervention.

Conclusions

This study found that a product placement, scarcity messaging, and floor arrow intervention did not significantly increase sales of promoted items. However, when all of these three interventions are combined and implemented simultaneously, sales of promoted items significantly increased by 16.97 units.

However, before stores consider implementing these strategies to promote healthier purchases among their customers, additional research is warranted. Future randomized controlled trials should.

References

1. Ammerman, A. S., Hartman, T., & DeMarco, M. M. (2017). Behavioral economics and the supplemental nutrition assistance program: making the healthy choice the easy choice. *American Journal of Preventive Medicine*, 52(2S2), S145-S150. doi:10.1016/j.amepre.2016.08.017

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