BEHAVIORAL ECONOMIC STRATEGIES TO INCREASE WIC REDEMPTIONS: FINDINGS & IMPLICATIONS

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Presenter Disclosures

- Caroline R. Wensel

- The following personal financial relationships with commercial interests relevant to this presentation existed during the past 12 months:
- No relationships to disclose

Topics for Discussion

1. Background & Research Aims
2. Implementation of Behavioral Economic Strategies
3. Data Analysis & Results
4. Implications for WIC Staff

Behavioral Economics Principles

- **Nudging**: setting defaults, framing, or adding decoy options to alter an individual's behavior in a predictable manner without forbidding any options or significantly changing economic incentives[1]

- Previously used for healthy food promotion[2-7]
  - Supermarkets
  - Small food stores
  - School lunch programs

Baltimore City

- **25%** of Baltimore residents live in a healthy food priority area where corner stores are a primary food source.[8,9]
- **33%** of corner stores participate in the WIC program.[10]
- **30%** of low-income African Americans reported using WIC vouchers in small food stores.[10]
- **5%** decline in WIC participation.[11]
- Store owners mention numerous barriers to selling WIC foods.[12]
  - Lack of demand
  - Challenges with promotion
  - Excessive paperwork

- How can we increase WIC redemptions in Baltimore?

Research Gap

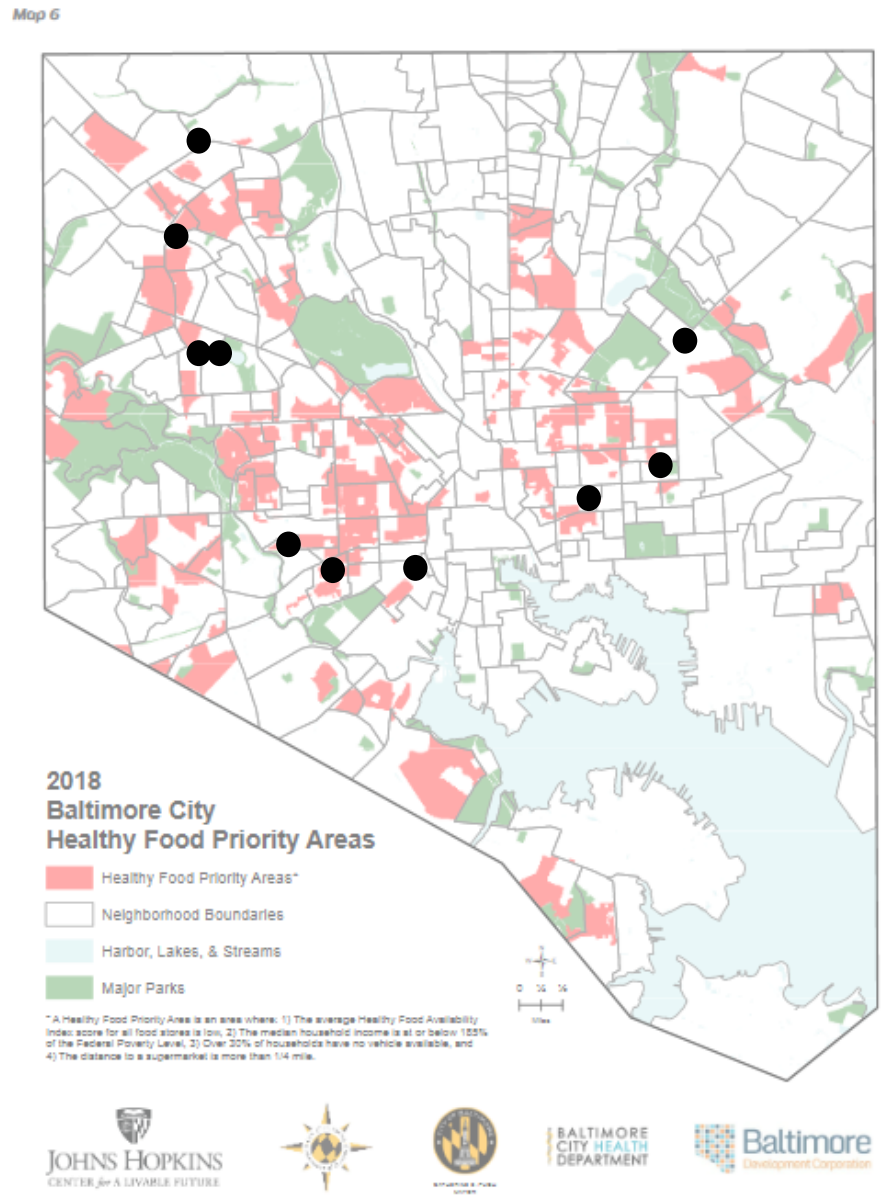
- **No studies have evaluated the use of different behavioral economic strategies in WIC accepting corner stores**

Specific Aims

1. To determine the impact of four different behavioral economic strategies **separately** on stocking and sales of WIC foods in small urban corner stores.

2. To determine the impact of **combined** behavioral economics strategies on stocking and sales of WIC foods.

Participating Corner Stores (n=10)
8 intervention
2 control



Behavioral Economic Strategies

Storeowner Training

- Training videos
- Nudge guides
- Knowledge questions

Product Placement

- Eye level
- Front of store
- Near the register

Point of Purchase (POP) Promotion

- Posters
- Shelf labels

Grouping of Products

- Display

Store Owner Training

- Week 1, storeowners viewed two videos
  - Available in Korean, Mandarin and English

1. *"How can WIC benefit you?"*
   - Stocking WIC eligible products
   - Challenges that store owners face
2. *"How to increase your sales of WIC products"*
   - Verbal encouragement (nudging)
   - Strategies to improve sales
   - Provides visual examples

Store Owner Training

- Weeks 2-4, interventionists reviewed a nudge guide with each storeowner
- Four quick reminders for store owners on how to help their WIC customers

1. **Tell your customers what WIC eligible products you stock**

"Look for the foods with WIC labels."

2. **Walk your customers through your store to show them where WIC products are**

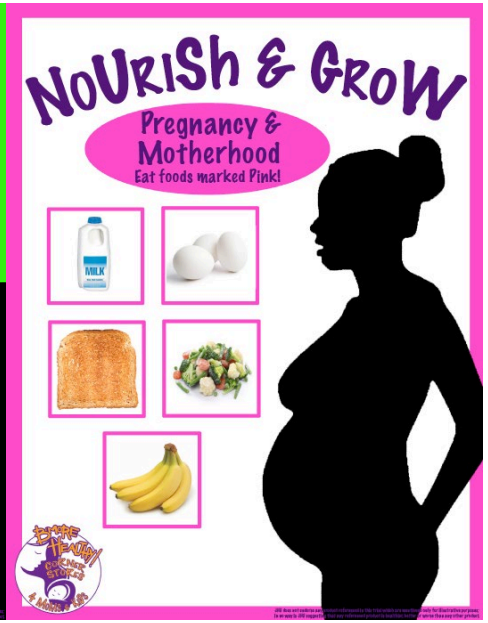
"Have you seen the new WIC product display?"

"Let's walk through the aisles to see where WIC products are in my store."

- Quiz after each training

POP Promotion

- Four **posters** were developed and promoted foods based on WIC age group
- **Shelf labels** were store specific and color coded to match posters



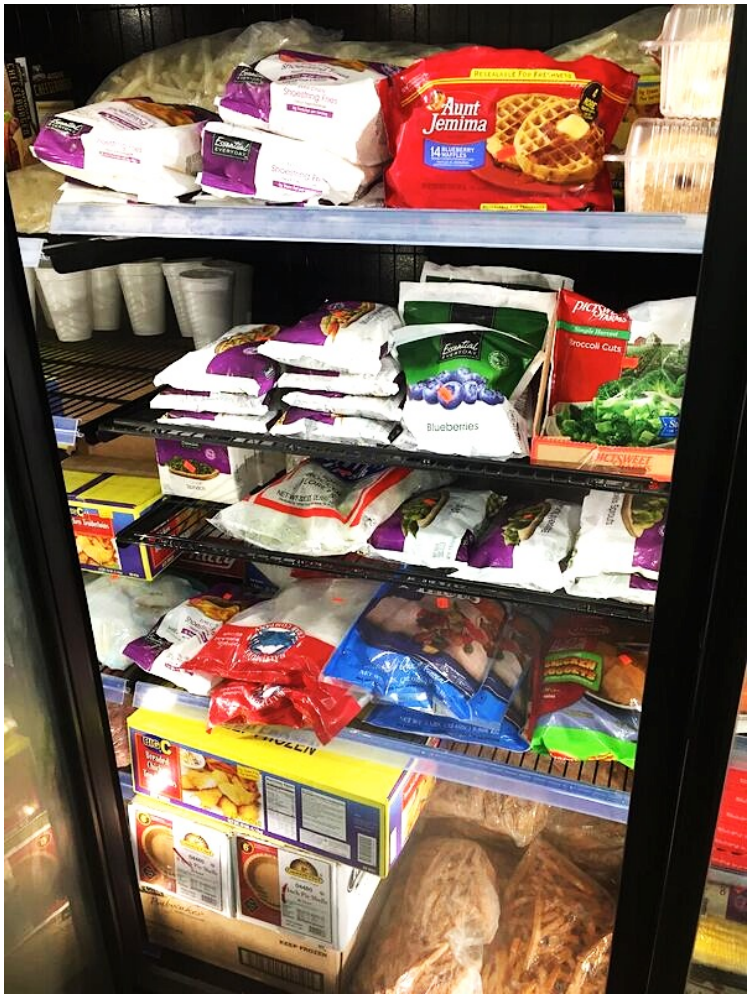
POP Promotion

- Posters & Shelf labels

Product Placement

- Interventionists worked with store owners to move WIC eligible products to **eye-level**, **front of store**, and/or **near the register**

C) Product Placement

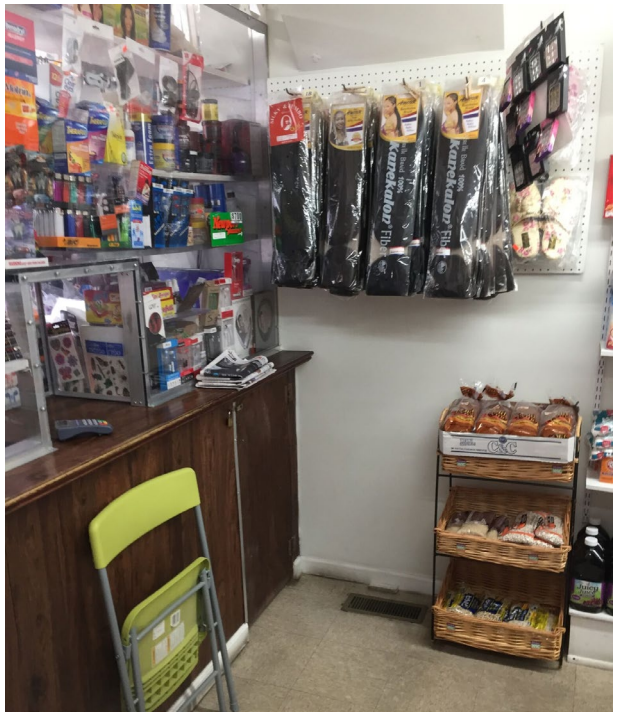


BEFORE

AFTER

D) Grouping of Products/ Display

- Interventionists worked with store owners to group WIC food items using one of six **display** options



Text Messaging Reinforcement

- All eight intervention store owners were enrolled in a text messaging service (i.e. Mobile ViP, EZ texting) and at the beginning of the intervention
  - Text messages reinforced the BE strategy or combination of BE strategies employed in each store at that time
  - Text messages were available in Korean, Chinese/ Mandarin or English
  - Store owners received 2-3 text messages a week

Summary of Implementation Findings

- Possible to implement all four BE strategies with high reach, dose delivered and fidelity

- Text messaging was acceptable form of reinforcement of each BE strategy

Changes in stocking and sales of WIC eligible foods

Changes [1]	Store Owner Training (n = 2)	POP Promotion (n = 2)	Product Placement (n = 2)	Grouping of Products (n = 2)
	Mean (SE)	Mean (SE)	Mean (SE)	Mean (SE)
Stocking (No. of items)	251.0 (136.7)	40.0 (146.6)	168.0 (121.7)	−358.5 (287.1)
Total Sales (No. of items)	394.5 (319.1)	−149.0 (137.1)	−35.5 (54.1)	111.0 (66.0)
Sales to WIC Clients (No. of items)	60.0 (57.5)	−139.5 (110.3)	−76.5 (39.7)	−36.0 (112.8)

Abbreviations: SE (robust standard error), BE (behavioral economic), POP (point of purchase), WIC (Special Supplemental Nutrition Program for Women, Infants, and Children), No. (number). [1] Changes were calculated by subtracting values of the outcome immediately following Treatment 1 from baseline values and compared to the changes observed in control stores (n = 2, reference).

- Store owner training had consistent positive trends

7 WIC Food Groupings

Group	Items
Infant	Formula, infant cereal, infant vegetables, infant fruit, infant mixed fruit and vegetables, infant meat
Fruit & Vegetables	Fresh, frozen and canned fruit varieties Fresh, frozen and canned vegetable varieties
Dairy	Milk, cheese, yogurt, tofu, soy base beverages
Protein	Eggs, canned fish, dry beans, canned beans, dry peas, canned peas, dry lentils, canned lentils, peanut butter
Grain	Whole wheat bread, whole wheat rolls, soft whole wheat tortillas, soft corn tortillas, dry brown rice
Juice	100% juice frozen concentrate, 100% juice 64oz
Cereal	Cold breakfast cereals, oatmeal, cream of wheat, grits

Changes in stocking and sales of WIC eligible foods by food groups

WIC Food Groups	Store Owner Training $n = 2$	POP Promotion $n = 2$	Product Placement $n = 2$	Grouping of Products $n = 2$	Control $n = 2$
Changes in the Stocking of WIC-eligible Foods by Food Group and BE Strategy [1,2]					
Infant Foods	+	+	+	+	-
Fruits and Vegetables	+	-	-	-	-
Dairy	+	-	+	-	+
Protein	+	+	+	-	+
Grains	+	+	-	-	-
Juice	+	-	-	-	-
Cereal	+	+	+	-	-
Changes in the Total Unit Sales of WIC-eligible Foods to All Customers by Food Group and BE Strategy [1,2]					
Infant Foods	+	-	+	+	+
Fruits and Vegetables	+	-	-	+	-
Dairy	+	+	+	-	-
Protein	+	-	-	+	+
Grains	+	+	-	+	-
Juice	+	-	-	-	+
Cereal	+	-	-	+	+
Changes in the Unit Sales of WIC-eligible Foods to WIC Clients by Food Group and BE Strategy [1,2]					
Infant Foods	-	-	-	+	+
Fruits and Vegetables	+	-	-	-	-
Dairy	+	+	+	-	+
Protein	+	-	-	+	-
Grains	+	+	-	-	-
Juice	+	-	-	-	-
Cereal	+	+	-	+	-

Abbreviations: BE (behavioral economic), POP (point of purchase), WIC (Special Supplemental Nutrition Program for Women, Infants, and Children). [1] Changes were calculated by subtracting values of the outcome immediately after Treatment 1 from baseline values. [2] Change ≥ 0 were coded as positive (+) and change < 0 as negative (-).

Changes in stocking and sales of WIC eligible foods by number of strategies implemented

Changes [1]	Number of BE Strategies Implemented			
	One $n = 8$	Two $n = 8$	Three $n = 8$	Four $n = 8$
	Reference	Mean (SE)	Mean (SE)	Mean (SE)
Stocking (No. of items)		10.5 (178.8)	−91.6 (149.0)	6.3 (94.1)
Total Sales (No. of items)		52.1 (123.1)	−69.9 (111.1)	−89.9 (96.6)
Sales to WIC Clients (No. of items)		78.1 (48.9)	26.9 (38.7)	27.6 (30.1)

Abbreviations: SE (robust standard error), BE (behavioral economic), WIC (Special Supplemental Nutrition Program for Women, Infants, and Children), No. (number). [1] Changes were calculated by subtracting values of the outcome immediately after each treatment from values before the treatment. The number of BE strategies implemented was treated as an ordinal variable (1 BE coded = 0; 2 BE coded = 1; 3 BE coded = 2; 4 BE coded = 3). Reference = change after treatment 1 (one BE strategy).

- All store owners received training during the implementation of the second strategy

Summary of Findings

- Store owner training appeared to be the most consistently influential form of BE intervention
- Store owner training combined with one additional strategy seemed to have the most influence
- More treatments do not necessarily mean higher WIC sales
- Appear to be differences in sales of WIC foods by food group
- General declines in WIC sales associated with eWIC introduction may have impacted findings (at 3rd treatment)

Limitations

- Small number of corner stores (n=10)
- Sales were self-reported
- eWIC rollout complicated study

Implications for WIC Staff

- Store owner training videos, posters and shelf labels can be low cost ways to improve store owner compliance and the WIC customer shopping experience.
- Consider translating materials and trainings into store owner's first language
- Identify barriers to selling WIC eligible products (e.g., lack of refrigeration or shelf space, availability at local wholesaler)

Implications for WIC Staff

- Mutual understanding that food store owners are tight on time and resources.
- Consider partnering with universities. Some funding sources require universities to work with a community partner

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Thank you!

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Study Design & Timeline

Time	Stores 1-2	Stores 3-4	Stores 5-6	Stores 7-8	Stores 9-10 (Control)

Average Dollars of WIC Redemption by Number of BE Strategies