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Make it Fresh, for Less! A supermarket meal bundling and electronic reminder intervention to promote healthy purchases among families with children

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Abstract

Objective: To evaluate the effects of a supermarket meal bundling and electronic reminder intervention on food choices of families with children

Design: Quasi-experimental (meal bundling) and randomized controlled trial (electronic reminders)

Setting: Large supermarket in Maine during a 40-week baseline and 16-week intervention in 2015–2016

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Participants: English speaking adults living with at least one child 18 or younger (n=300) with 25% of households participating in the Supplemental Nutrition Assistance Program (SNAP)

Intervention(s): (1) Four bundles of ingredients needed to make 2 low-cost healthful meals were promoted in the store through displays and point-of-purchase messaging for 4 weeks each; (2) weekly electronic messages based on principles from behavioral psychology were sent to study participants reminding them to look for meal bundles in the store

Main Outcome Measures: (1) Difference in storewide sales and individual purchases of bundled items (measured using supermarket loyalty card data) from baseline to intervention in intervention vs. control groups

Analysis: Regressions controlling for total food spending and accounting for repeated measures

Results: There were no differences in spending on bundled items resulting from the meal bundling intervention or the electronic reminders.

Conclusions and Implications: Overall, there was little impact of healthful meal bundles and electronic reminders on storewide sales or purchases of promoted items in a large supermarket.

INTRODUCTION

The majority of U.S. adults and children do not comply with the Dietary Guidelines for Americans, with most falling short of recommendations for fruits and vegetables and nearly all exceeding the upper limits for added sugars, saturated fats, and sodium.¹ Between 1999 and 2010, the diet quality of adults, as measured by the Alternate Healthy Eating Index, improved overall, but the gap between low and high socioeconomic status widened over time.² A recent systematic review found that adults and children participating in the Supplemental Nutrition Assistance Program (SNAP) -- the largest U.S. food assistance program and a critical piece of the food safety net -- consume more sugar-sweetened beverages and diets of poorer quality than higher income nonparticipants.³

There is a need for innovative programs and policies to reduce this socioeconomic gap in diet quality, and interventions in the retail setting that draw on principles from marketing and behavioral psychology hold promise.⁴ For example, changing choice architecture by placing healthful foods and beverages in salient locations and at eye-level has been shown to increase sales of healthful items in supermarkets, convenience stores, and cafeterias.^{5–11} In one restaurant, offering fruit and vegetable side dishes as the default choice on children's menus increased selection of healthful side items.¹² Even small visual cues, such as moving water closer to the dining area in cafeterias, has been shown to increase consumption.¹³ These strategies could be leveraged by SNAP through standards for authorized retailers as a means to reduce the gap in diet quality between participants and non-participants; however, few studies have compared how placement and promotion of foods and beverages in the store may disproportionately affect choices of low-income versus higher-income households.^{8,14}

To fill these research gaps, this study tests two behavioral strategies intended to promote healthy choices in a supermarket: healthful meal bundling and electronic messages via text or e-mail. Market research in U.S. adult diners has found that bundling key ingredients for a

meal together in the store increases sales of items included in the bundle.¹⁵ Electronic messages serve as reminders and have been used in prior studies to encourage other healthful behaviors, such as breastfeeding and food allergy management.^{16–19} Research shows that applying principles from behavioral psychology to electronic messages may help to optimize their effectiveness. For example, consumers are more likely to be persuaded to try something new when the communicator is perceived as an expert or when the behavior is considered normative among peers.^{20,21} Some evidence shows that scarcity messages, which limit the time or quantity of a discounted product, can increase consumer value perceptions and purchase intentions.²² The framing of the message may also be important. For behaviors perceived as risky (e.g., trying new foods within a tight budget), messages stressing the negative consequences of not engaging in the target behavior may be more effective than messages that stress the positive consequences of engaging.²³

This study used a quasi-experimental design to evaluate the effect of healthful, low-cost meal bundles, and a randomized controlled trial design to evaluate the effect of electronic reminders, on purchases of healthy bundled meals in a large supermarket, and to compare differences among SNAP participants and non-participants. It was hypothesized that sales of bundled items would increase from baseline to follow-up in the intervention store relative to a comparison store, and that participants receiving tailored electronic messages would spend more on bundled items from baseline to follow-up than the control group.

METHODS

Study Setting

Data were collected in a large supermarket in Maine during a 40-week baseline period (October–July) and a 16-week intervention period (August–November) in 2015–2016. The supermarket chain selected for the study is the largest in the state, operating 62 stores. The intervention store is located in the Portland Metropolitan area and serves a census area that is predominantly non-Hispanic White (97%) with median income of \$42,500 (Supplemental Table 1).

Study Design and Participant Recruitment

This study evaluated two interventions administered concurrently and advertised to study participants as “Make it Fresh, for Less!” First, a quasi-experimental design was used to evaluate the influence of healthy meal bundles on purchases of promoted items. A nearby comparison store of the same retailer that did not receive the intervention was selected based on geographic proximity and similar sociodemographic characteristics of the surrounding area, prior sales of bundled items, and planned in-store marketing. To estimate the effect of the intervention, the change in monthly storewide sales of bundled items from baseline through intervention in the intervention store was compared to the change in monthly sales in the comparison store.

Second, to test the influence of electronic reminders on purchases of bundled items, a randomized experimental study design was used. Participants shopping at the intervention store were recruited for a prior study of a fruit and vegetable incentive called the Healthy

Double study; procedures are described in detail elsewhere.²⁴ Inclusion criteria were: 1) 18 years of age; 2) English-speaking; 3) primary shopper in the household and do most (>50%) shopping at the intervention store; and 4) live with a child(ren) 18 years of age or younger. Participants were recruited during the week SNAP benefits are distributed in Maine (10th-14th of the month) to maximize participation from households receiving SNAP. At enrollment, participants were given a study loyalty card that provided 5% off all grocery purchases at the store and contained a loyalty card number to track purchases.

At the end of the previous “Healthy Double” study in June 2016, participants were invited to join the current “Make it Fresh, for Less” study. In July, participants who had not opted out and who had shopped at least once in the prior three months (n=300) were enrolled in “Make it Fresh, for Less” (no participants opted out). Participants were randomized to an intervention arm (weekly behavior change messages) or a control arm (generic monthly reminder about the meal bundles) using 1:1 computer generated randomization (Figure 1).

“Make it Fresh, for Less” Intervention

Five focus groups in the study population were conducted to understand meal preferences, drivers of food purchases in the supermarket, and preferences around timing and frequency of receiving electronic messages. Based on these discussions, four meal bundles meeting the following criteria were promoted in the intervention store: <\$4 per person, <20 minutes active preparation time, kid-friendly, and containing primarily healthful ingredients in concordance with the *2015–2020 Dietary Guidelines*.¹ The retailer also asked that the bundles include store brand products whenever possible, that one item in each bundle be on price promotion during the week of the study (the bundle was not additionally discounted), and that the majority of items in the bundle did not require refrigeration. Using these criteria, ChopChop Family, a cooking magazine for kids and families and official partner of SNAP-Education, created four meal bundles (Supplemental Table 2). Each bundle contained the ingredients needed to make two recipes. Selected recipes were previously developed by ChopChop for children participating in SNAP and were tested in the ChopChop teaching kitchen in the Northeast U.S.

Bundles were promoted for four weeks each (16 consecutive weeks total) in the intervention store using free-standing displays and point-of-purchase messaging (posters and shelf call-outs). To increase salience, ingredients in the bundle were packaged together in a large display at the entrance to the store and included a large poster highlighting the name of the campaign, two smaller posters describing the recipes that could be made with the bundled ingredients, and recipe cards to take home. Ingredients were displayed at eye-level, and shoppers were exposed to the campaign multiple times throughout the store through the use of shelf call-outs that rotated every four weeks as the bundles changed. Intervention components were placed by store managers, who were trained by a member of the study team prior to the intervention.

Electronic messages were sent to intervention and control participants during the 16-week intervention as text messages or emails based on participant preference. Control participants received generic monthly messages, reminding them to look for the “Make it Fresh, for Less” campaign in the intervention store. Intervention participants received tailored weekly

messages. In the intervention group, messages were consistent with the meal bundle being promoted in the store at that time. For example, in weeks 1–4, messages focused on the Black Bean Quesadilla and Beanie Burger recipes. In each of the four weeks, messages were tailored around one principle from behavioral psychology: expert message, loss frame, scarcity message, or social norm (Supplemental Table 3).

Data and Measures

Participants completed an enrollment survey, which asked questions about sociodemographics, height and weight, SNAP participation, and proportion of shopping done at the studying store. SNAP enrollment was defined as self-reported participation and/or use of SNAP during the study. In the month following the intervention, participants completed an exit survey to assess process measures. To assess recall, participants were shown images of each meal bundle and asked if they remembered seeing it promoted in the store. Participants then viewed each of the recalled meals and were asked to rate each meal on a Likert scale from 1 (strongly disagree) to 5 (strongly agree) in terms of their perceptions of cost, taste, time and difficulty to prepare, and family acceptance.

The store's fidelity to the intervention components was measured at random monthly site visits to the store. Using an index ranging from 0–11, study staff recorded proper placement of the intervention display in the store (1 point), presence of point-of-purchase messaging (1 point for each large poster, small poster, recipe card, and aisle sign, total of 7 points), and stocking levels of promoted foods (rated on a Likert scale ranging from 0 [no items stocked] to 3 [fully stocked]).

Loyalty card linked participant purchases (to assess effects of electronic messages) and storewide sales (to assess effects of meal bundles) were tracked using point-of-sale data. Sales data contained a transaction ID (indicating which items were purchased as part of the same food basket) and included a UPC (universal product code) or PLU (product look-up) code, item description, amount spent (US dollars), and tender type (whether a transaction was purchased using SNAP) for each item.

Data Analysis

Means and frequencies were used to describe sociodemographic characteristics of participants assigned to the treatment and control arms and chi-square tests of independence and two-sample t-tests of equal means assessed differences between groups for categorical variables and continuous variables, respectively. To assess effects of the electronic reminders, linear regressions estimated monthly spending (US dollars in four-week increments) on bundled items among study participants randomized to intervention or control. The primary independent variables were time of purchase (whether the purchase was made during baseline or intervention), treatment (whether the purchaser was assigned to the intervention or control arm) and a time $\times$ treatment interaction term (the difference-in-differences). A second analysis was conducted using only participants who shopped during the intervention period. All regressions controlled for mean monthly food spending and included random intercepts to account for repeated observations. All variables were entered into regressions simultaneously.

Storewide sales data from the intervention and comparison stores were used to assess the influence of the meal bundling intervention on purchases of bundled items over the entire 16-week intervention and for each meal bundle separately. Linear regressions estimated spending per transaction (US dollars) on bundled foods controlling for mean food spending per transaction. Independent variables included time (whether the purchase was made during baseline or intervention), treatment (whether the purchase was made in the treatment or comparison store), and a time $\times$ treatment interaction term. Subgroup analyses based on whether a transaction was paid for using SNAP or not were also conducted. Analyses were conducted using SAS Version 9 (Cary, NC) in 2016–2017.

Participants were initially recruited and enrolled for a prior study, which was reviewed and classified as exempt by a University of New England review board on July 22, 2015. Approval to use deidentified purchasing and enrollment survey data collected from these participants for the current study was granted by a Harvard T.H. Chan School of Public Health review board on April 15, 2016, and approval to conduct the intervention and follow-up survey was granted on June 14, 2016 (#16–0231-02). The trial was registered on November 13, 2017 at clinicaltrials.gov (#NCT03340363).

RESULTS

Initially 401 customers were enrolled in the “Make it Fresh, for Less” study and 300 customers who had made a purchase with their study loyalty card in the prior 3 months were randomized (control=150, intervention=150) (Figure 1). After allocation, one shopper was excluded for not spending money on food during the study period (e.g., the shopper purchased only paper towels). Participants not shopping during the intervention period were excluded from the secondary analysis (control=38, intervention=23). During the 56 weeks of the study, 17,110 transactions (customer shopping baskets) were recorded (control=9,086, intervention=8,024) with an average of 5.1 transactions per month (SD=3.9) and \$70.23 (SD=\$72.49) per shopping trip. There were no statistically significant differences in sociodemographic characteristics by intervention arm (Table 1).

To evaluate the effect of the electronic reminders, the change in purchases of bundled items from baseline to follow-up in the intervention participants vs. control participants was examined. There was no effect of the electronic reminders on purchases of bundled items overall or for any of the four meal bundles in the primary or secondary analyses (Table 2, Supplemental Table 4).

To evaluate the effect of the meal bundling intervention, the change in monthly storewide sales of bundled items from baseline to follow-up in the intervention vs. comparison store was examined. Over the entire 16-week intervention period, the meal bundling intervention did not significantly increase sales of bundled items (Figure 2); however, some variation by bundle type was observed (Table 3). Spending per transaction on bundled items increased by \$0.12 (95% CI=\$0.08, \$0.15, $p<0.0001$) from baseline through intervention in the intervention vs. the comparison store in the first bundle, and increased by \$0.12 (\$0.09, \$0.16, $p<0.0001$) in the second bundle. Among transactions paid for without SNAP, there was a \$0.11 (95% CI=\$0.07, \$0.15, $p<0.0001$) and \$0.13 (95% CI=\$0.09, \$0.17, $p<0.0001$)

increase in sales of bundled items for bundles one and two, respectively. Among transactions paid for with SNAP, there was a \$0.20 (95% CI=\$0.08, \$0.32, $p<0.01$) increase in sales of bundled items for bundle one, but no effect on sales of any subsequent bundle.

Overall store fidelity to the planned intervention was 70% and ranged from 64% for display 2 to 100% for display 1 (Supplemental Table 5). Most deductions were for failing to hang shelf callouts in the center aisles. In the exit survey, study participants had a low recall of the promoted meals (Supplemental Table 6). Participant satisfaction was highest for the Black Bean Quesadilla (display 1) and the Parsley Pesto (display 3) (Supplemental Table 7).

DISCUSSION

Prior studies in food pantries and fast-food restaurants have found that bundling items together can increase value perceptions and purchase intentions of individual products included in the bundle, but there are limited data from supermarkets.^{15,25} This study found little effect of instore bundling of healthful, low-cost meals on purchases of meal components. However, there was variation by display, with two of the four displays leading to a significant 48–52% increase in sales of promoted items. There are several factors that may have contributed to variation in responses to the different types of meal bundles. One is that there could be variation in how well each meal bundle appealed to participant preferences. However, there was an effect for display 2, which did not include recipes most preferred by participants. A second factor is that recall of the intervention was generally low, and the number of participants noticing the in-store displays waned over time. One reason for low recall could have been the positioning of the display at the store entrance; other locations, like aisle endcaps, are paid for by food and beverage companies and may be more effective in capturing shopper attention. Some prior studies of retailer point-of-purchase interventions have shown similar declines in consumer attention over time,²⁶ although others have found sustained or learning effects (in which an intervention at one retailer influences purchases at a similar retailer without the intervention).^{27,28} Declines in attention over time may be more likely in supermarkets because of the prevalence and frequency of new, competing promotions.²⁹

This study found no effect of weekly electronic reminders on purchases of the healthful meal bundles. Although the behavioral principles of expert and scarcity messaging, loss framing, and social norms have successfully changed behaviors in other settings, they have not previously been applied to electronic messages in the supermarket. This finding adds to research on the use of mobile messaging to improve food choice and eating behaviors, which shows mixed results that appear sensitive to the nature of the targeted behavior change, timing, duration and intensity of messages, and combination with other intervention strategies.^{30,31} Just-in-time adaptive interventions, which take advantage of data collected via mobile sensing technology to trigger messages when they will be optimally effective, have been used to reduce sedentary time.³² This technology could feasibly be applied to electronic reminders intended to bolster the effects of retail-based behavioral interventions by, for example, using beacons to alert shoppers to new promotions when they enter the store. Similarly, the growth of online shopping provides an opportunity to target meals towards individual shoppers based on past purchasing patterns.

The meal bundles had less of an impact on sales of promoted items among SNAP purchases compared to non-SNAP purchases, which could be due to risk aversion in this population and differences in food decision-making by household income. Prior qualitative research has found that low-income parents are less likely than higher-income parents to try new foods, particularly fruits and vegetables, for fear of wasting money on foods rejected by their children.³³ In some low-income households, parents choose to purchase shelf-stable, highly processed foods that are familiar and preferred by children and that can be stored to protect against food insecurity at the end of the SNAP benefit month.³⁴ For these reasons, SNAP participants may be more likely to stick to a typical shopping routine, and less swayed by instore promotions featuring unfamiliar foods.

Limitations

This study is subject to several limitations and strengths. First, there were seasonal trends in sales of bundled items and each display was implemented at a different time of year. Thus, it was not possible to determine whether varying effects of displays were due to changes in seasonal preferences, the content of the display, or waning interest over time. Second, participants had participated in a prior intervention, which could have caused intervention fatigue or influenced purchasing habits over time, although participation in the prior intervention was balanced between intervention and control groups. Third, some households may have shopped at both the intervention and comparison stores. However, the two stores were located over twenty miles apart, with several stores within the same chain in between, so it is unlikely that this happened frequently. Fourth, this was a pilot study in one store in Maine serving a predominantly non-Hispanic White population, so findings may not be generalizable. Lastly, it was not possible to include only low-income study participants, although collecting data during SNAP benefit issuance in Maine helped to maximize participation from lower-income families. Strengths include the ability to stratify by SNAP status of the transaction, relatively long exposure in a real-world retail setting, the use of objective sales data and an experimental study design.

IMPLICATIONS FOR RESEARCH AND PRACTICE

Overall, there was little impact of healthful meal bundles and electronic reminders on storewide sales or purchases of promoted items in a large supermarket. Qualitative research is needed to understand why the intervention was not effective, how it could be improved, and how social determinants of health, like income or SNAP participation, may alter intervention effects. Future studies could bolster the effects of electronic messages by tailoring messages to individual participants, timing messages to when they are likely to be optimally effective, and changing promotions more frequently to address possible promotion fatigue. The growth of online food shopping holds promise for similar behavioral interventions promoting personalized meal bundles based on prior purchases or programmed preferences. Differences in food decision-making by household income are also important to consider, and providing opportunities for SNAP participants to taste the promoted meals or to try their first meal free may reduce the perceived financial risk of trying new foods. Few participants recalled the intervention, which points to the importance of interventions that

both promote healthful foods and reduce promotions for unhealthful products to increase salience of retail-based public health campaigns.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Figure 1. CONSORT flow diagram

Figure shows study participants enrolled, randomized, and analyzed for the *Make it Fresh, for Less* study. Data from these participants were used to evaluate the effect of electronic reminders on uptake of healthy meal bundles in a large supermarket. Participants not shopping in the 3 months prior to randomization are participants who did not use their study loyalty cards during this time period. Those who did not spend money on food are participants who shopped, but purchased nonfood items (eg, paper towels). Data are presented for all participants randomized for the intervention (“Analysis: As randomized”) and for a subset of participants who used their loyalty card to purchase food during the intervention (“Analysis: Shopped during intervention”).

Figure 2.
Weekly spending per transaction on bundled items in the intervention and comparison stores.

Table 1.Baseline characteristics of 300 parents and caregivers enrolled in *Make it Fresh, for Less!*

N (%)	Overall (n=300)	Intervention (n=150)	Control (n=150)
Fruit and vegetable incentive treatment group	154 (51)	81 (54)	73 (49)
Mean (SD) household size	3.9 (1)	3.8 (1)	3.9 (1)
Mean (SD) number of children in household	1.9 (1)	1.9 (1)	1.9 (1)
Mean (SD) body mass index (kg/m²)	26.6 (5)	27.0 (6)	26.2 (5)
Age (years)			
18–29	38 (13)	24 (16)	14 (9)
30–39	123 (41)	58 (39)	65 (43)
40–49	112 (37)	60 (40)	52 (35)
50–59	18 (6)	5 (3)	13 (9)
60+	5 (2)	1 (1)	4 (3)
Gender			
Female	242 (81)	127 (85)	115 (77)
Preferred contact			
Text message	181 (60)	88 (59)	93 (62)
Email	103 (34)	48 (32)	55 (37)
Race/Ethnicity			
Non-Hispanic White	270 (90)	137 (91)	133 (89)
Annual Household Income			
Reported only weekly income	68 (23)	36 (24)	32 (21)
<\$75,000	104 (35)	50 (33)	54 (36)
\$75,000 or more	97 (32)	43 (29)	54 (36)
Used SNAP during study period	75 (25)	43 (29)	32 (21)

Notes: For race/ethnicity, participants may identify with more than one group.

Participants missing baseline characteristics: household size (n=13), number of children (n=1), BMI (n=43), age (n=4), gender (n=5), text/email contact information (n=16), race/ethnicity (n=5), income (n=31).

Table 2.

Mean monthly spending (US dollars) on bundled foods by treatment arm among 299 parents and caregivers enrolled in *Make it Fresh, for Less!*

	As Randomized (n=299)				Shopped During Intervention (n=238)			
	Baseline	Intervention, Randomized	Difference		Baseline	Intervention, Received	Difference	
	Mean (SE)	Mean (SE)	Mean (95% CI)	P-value	Mean (SE)	Mean (SE)	Mean (95% CI)	P-value
Intervention	2.20 (0.25)	2.96 (0.36)	0.75 (−0.02, 1.53)	0.06	2.74 (0.32)	3.56 (0.46)	0.82 (−0.18, 1.81)	0.11
Control	2.11 (0.25)	3.31 (0.36)	1.19 (0.42, 1.97)	<0.01	2.63 (0.30)	3.91 (0.43)	1.28 (0.34, 2.22)	<0.01
Difference	0.09 (0.35)	−0.35 (0.50)	−0.44 (−1.53, 0.65)	0.43	0.11 (0.43)	−0.34 (0.63)	−0.46 (−1.83, 0.91)	0.51

Note: Results are from regressions controlling for monthly food spending and including random intercepts to account for repeated observations. T-statistics were used to test the null hypothesis that the change from baseline to intervention in the intervention arm was equal to control.

Table 3.

Mean spending per transaction (US dollars) on bundled foods at an intervention and comparison supermarket, overall and by payment type

	Baseline	Intervention	Difference	
	Mean (SE)	Mean (SE)	Mean (95% CI)	P-value
Cumulative (Weeks 1–16)				
All Transactions				
Intervention Store	1.69 (0.01)	1.79 (0.01)	0.10 (0.08, 0.12)	--
Comparison Store	1.55 (0.01)	1.65 (0.01)	0.10 (0.08, 0.12)	--
Difference	0.14 (0.02)	0.14 (0.02)	0.01 (–0.03, 0.03)	0.93
SNAP Transactions				
Intervention Store	1.85 (0.03)	1.87 (0.03)	0.02 (–0.06, 0.09)	--
Comparison Store	1.73 (0.02)	1.76 (0.03)	0.03 (–0.04, 0.09)	--
Difference	0.12 (0.05)	0.11 (0.08)	0.05 (–0.11, 0.08)	0.80
Non-SNAP Transactions				
Intervention Store	1.67 (0.01)	1.78 (0.01)	0.11 (0.09, 0.13)	--
Comparison Store	1.53 (0.01)	1.64 (0.01)	0.11 (0.09, 0.13)	--
Difference	0.14 (0.02)	0.14 (0.02)	0.01 (–0.03, 0.03)	0.85
Bundle 1 (Weeks 1–4)				
All Transactions				
Intervention Store	0.25 (0.01)	0.80 (0.01)	0.55 (0.53, 0.58)	--
Comparison Store	0.22 (0.01)	0.66 (0.01)	0.44 (0.41, 0.47)	--
Difference	0.02 (0.02)	0.14 (0.02)	0.12 (0.08, 0.15)	<0.0001
SNAP Transactions				
Intervention Store	0.29 (0.01)	0.72 (0.04)	0.44 (0.35, 0.52)	--
Comparison Store	0.17 (0.01)	0.40 (0.04)	0.24 (0.16, 0.32)	--
Difference	0.12 (0.04)	0.32 (0.11)	0.20 (0.08, 0.32)	<0.01
Non-SNAP Transactions				
Intervention Store	0.24 (0.01)	0.81 (0.01)	0.56 (0.53, 0.59)	
Comparison Store	0.23 (0.01)	0.68 (0.01)	0.45 (0.42, 0.48)	
Difference	0.01 (0.01)	0.13 (0.03)	0.11 (0.07, 0.15)	<0.0001
Bundle 2 (Weeks 5–8)				
All Transactions				
Intervention Store	0.24 (0.01)	0.48 (0.01)	0.25 (0.22, 0.27)	--
Comparison Store	0.21 (0.01)	0.34 (0.01)	0.12 (0.10, 0.15)	--
Difference	0.02 (0.01)	0.15 (0.04)	0.12 (0.09, 0.16)	<0.0001
SNAP Transactions				
Intervention Store	0.28 (0.01)	0.37 (0.04)	0.09 (0.01, 0.17)	--
Comparison Store	0.16 (0.01)	0.21 (0.04)	0.05 (–0.03, 0.12)	--
Difference	0.12 (0.04)	0.17 (0.10)	0.04 (–0.07, 0.16)	0.45

	Baseline	Intervention	Difference	
	Mean (SE)	Mean (SE)	Mean (95% CI)	P-value
Non-SNAP Transactions				
Intervention Store	0.23 (0.01)	0.49 (0.01)	0.26 (0.23, 0.28)	--
Comparison Store	0.22 (0.01)	0.35 (0.01)	0.13 (0.10, 0.15)	--
Difference	0.02 (0.01)	0.14 (0.04)	0.13 (0.09, 0.17)	<0.0001
Bundle 3 (Weeks 9–12)				
All Transactions				
Intervention Store	1.48 (0.01)	1.50 (0.01)	0.02 (−0.01, 0.05)	--
Comparison Store	1.35 (0.01)	1.40 (0.01)	0.04 (0.02, 0.07)	--
Difference	0.12 (0.01)	0.10 (0.03)	−0.02 (−0.06, 0.01)	0.23
SNAP Transactions				
Intervention Store	1.62 (0.02)	1.69 (0.05)	0.07 (−0.03, 0.17)	--
Comparison Store	1.60 (0.01)	1.64 (0.05)	0.04 (−0.05, 0.14)	--
Difference	0.02 (0.04)	0.04 (0.14)	0.03 (−0.11, 0.17)	0.70
Non-SNAP Transactions				
Intervention Store	1.46 (0.01)	1.48 (0.01)	0.02 (−0.01, 0.04)	--
Comparison Store	1.33 (0.01)	1.38 (0.01)	0.04 (0.02, 0.07)	--
Difference	0.13 (0.01)	0.10 (0.04)	−0.02 (−0.06, 0.01)	0.18
Bundle 4 (Weeks 13–16)				
All Transactions				
Intervention Store	0.04 (0.01)	0.03 (0.01)	−0.01 (−0.02, 0.00)	--
Comparison Store	0.03 (0.01)	0.03 (0.01)	0.00 (−0.01, 0.00)	--
Difference	0.01 (0.01)	0.00 (0.01)	−0.01 (−0.01, 0.01)	0.17
SNAP Transactions				
Intervention Store	0.07 (0.01)	0.05 (0.01)	−0.02 (−0.04, 0.01)	--
Comparison Store	0.04 (0.01)	0.04 (0.01)	−0.01 (−0.03, 0.02)	--
Difference	0.03 (0.02)	0.02 (0.04)	−0.01 (−0.05, 0.03)	0.67
Non-SNAP Transactions				
Intervention Store	0.04 (0.01)	0.03 (0.01)	−0.01 (−0.02, 0.00)	--
Comparison Store	0.03 (0.01)	0.03 (0.01)	0.00 (−0.01, 0.00)	--
Difference	0.01 (0.01)	0.00 (0.01)	−0.01 (−0.01, 0.00)	0.20

Note: Results are from regressions controlling for total food spending per transaction.

T-statistics were used to test the null hypothesis that the change from baseline to intervention in the intervention arm was equal to control.