Preferred Healthy Food Nudges, Food Store Environments, and Customer Dietary Practices in 2 Low-Income Southern Communities

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ABSTRACT

Objective: To examine how food store environments can promote healthful eating, including (1) preferences for a variety of behavioral economics strategies to promote healthful food purchases, and (2) the cross-sectional association between the primary food store where participants reported shopping, dietary behaviors, and body mass index.

Methods: Intercept survey participants (n = 342) from 2 midsized eastern North Carolina communities completed questionnaires regarding preferred behavioral economics strategies, the primary food store at which they shopped, and consumption of fruits, vegetables, and sugary beverages.

Results: Frequently selected behavioral economic strategies included: (1) a token and reward system for fruit and vegetable purchases; and (2) price discounts on healthful foods and beverages. There was a significant association between the primary food store and consumption of fruits and vegetables ($P = .005$) and sugary beverages ($P = .02$).

Conclusions and Implications: Future studies should examine associations between elements of the in-store food environment, purchases, and consumption.

Key Words: diet, food store, nutrition, health behavior, obesity, fruit, vegetable (*J Nutr Educ Behav*. 2016;48:735-742.)

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INTRODUCTION

In the US, a majority of foods and beverages are purchased from supermarkets (63% to 70%),[1] which makes supermarkets an important component of the community (geographic proximity to food venues) and consumer (promotion of products within food venues) food environments.[2] To improve community food environments and increase healthy food access, federal and state initiatives have financially supported building new supermarkets in food deserts.[3,4] Studies are inconclusive with regard to new supermarkets' effects on residents' diets[5-10]; some suggest modest improvements in perceptions of healthful food availability and diet.[5,9] Based on their study findings that a new supermarket did not appreciably improve local residents' diets, Elbel et al[8] concluded:

> *It is possible that a more "healthful" supermarket, one that devotes prime supermarket real estate to*

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healthier options, offers discounts for smaller package sizes, and replaces candy and soda with fresh fruits and vegetables at cash registers could have a larger impact on health [than building a new supermarket] …

This points to the need to examine positive elements of the consumer (within-store) food environment further. Because obesity prevalence is higher in the southern US than in the rest of the country,[10] more research is needed to determine what strategies can be employed within supermarkets in the southern US to promote healthier purchases and consumption.[11-13] Furthermore, there may be characteristics of supermarkets that are more or less health promoting, because supermarkets with higher prices tend to have customers with lower body mass indexes (BMIs).[6] Further study is needed to determine specific supermarket characteristics that promote more healthful purchases.

Also, at the consumer food environment level, behavioral economics strategies can promote healthful food and beverage purchases. Contrary to traditional economic theories that suggest that consumers make rational choices to maximize health, behavioral economics suggests that consumers make quick decisions that maximize short-term pleasure over long-term health gains.[14,15] Behavioral economics strategies nudge individuals to make healthier choices by making the healthier choice the easier one. Such strategies include using stoplight colors to indicate healthful and less healthful foods and beverages[16,17] and placement of healthier options at eye level.[18] Behavioral economics strategies have been examined in supermarkets,[11,19,20] with researchers calling for more rigorous evaluations of effectiveness.[20,21] To date, no studies have examined customer preference for the types of behavioral economics strategies to promote healthful food purchase in retail settings. Learning about the strategies that customers view as acceptable and potentially successful for promoting healthful food purchasing can guide future interventions. Therefore, the purpose of this study was to examine elements of food store environments that promote healthy eating, including (1) participants' preferences for a variety of behavioral economics strategies to promote healthful food purchases; (2) the availability and price of fruits, vegetables, and sugary beverages in food stores; and (3) the cross-sectional association between the primary food store where participants reported shopping, dietary behaviors (fruit, vegetable, and sugary beverage consumption), and BMI.

METHODS

Study Setting

In 2014, a discount supermarket (Save-A-Lot) was awarded municipal funds from the City of Greenville (Pitt County, eastern North Carolina) to locate in an underserved, low-income area. In a broader effort to examine the impact of a new supermarket on residents' diets, a baseline survey was conducted among a cross-sectional sample of Greenville residents and residents of a comparison community (Kinston, Lenoir County). The current study is a cross-sectional analysis of the baseline data. In Pitt County (estimated population of 170,485), 34.1% of residents are African American, 24% live below the poverty level, and 37% are obese. In Lenoir County (estimated population of 59,277), 40.5% of residents are African American, 24% live below the poverty level, and 35% are obese.[22-24] Both Southern communities have limited public transportation opportunities, which further reduce underserved residents' transportation options to obtain groceries. Limited public transportation systems differentiate the settings of the current study from other studies in urban settings (with many public transportation options) where new supermarkets have opened.

Design and Sample

In April to May, 2015, an intercept survey of Greenville residents was conducted, with recruitment occurring at public libraries and other public locations near the new supermarket, all within 2 of the lowest-income census blocks in Greenville (n = 170). In August, 2015, intercept surveys were also conducted in the 2 lowest-income census blocks in Kinston (n = 172), in a public library, a community health center, and other public locations. Eligibility requirements included being aged > 18 years and an English speaker. As an incentive, participants were offered a chance to win 1 of 4 $100 Walmart gift cards. All surveys were self-administered, except for 2 that were interviewer-administered at the respondents' request. This study was approved by the East Carolina University Institutional Review Board.

Measures

The *Bridging the Gap Food Store Observation Form*[25] (BTG-FSOF) was used in food stores in the 2 study communities. The BTG-FSOF includes an assessment of fruit, vegetable, and sugary beverage availability and price, 2 important elements of the consumer food environment. Two trained observers completed the BTG-FSOF in 5 stores within 5 miles of the new supermarket (June, 2015) in Greenville and in 4 comparable food stores (September, 2015) in Kinston. In each location, 3 of the stores were of the same 3 large regional or national chains. In other words, 1 store A in Greenville and 1 store A in Kinston, 1 store B in Greenville and 1 store B in Kinston, and 1 store C in Greenville and 1 store C in Kinston were audited. The BTG-FSOF sections B (fresh fruit/vegetables), B8, B9, (number of fresh fruit and vegetable options), E (canned fruit and vegetables), E7, E8 (number of canned fruit and vegetable options), F (beverages), H (frozen vegetables), H7, and H8 (number of frozen vegetable options) were used for the current study. Availability was operationalized as the sum of availability (available = 1; not available = 0) of 8 fresh fruits and vegetables (apples, bananas, oranges, grapes, carrots, tomatoes, broccoli, and lettuce), canned tomatoes, canned green beans, frozen green beans, and frozen corn (possible range, 0–12). Availability for sugary beverages included juice drinks < 50% juice (family and individual size), juice box/pouches ≤ 10% juice, regular soda (family and individual size), energy drinks, and isotonic sports drinks (possible range, 0–7). Price was operationalized as the mean prices of fruits, vegetables (per pound), and sugary beverages (per unit). For price, fruits and vegetables were excluded from the calculation when they had different units for pricing. For fruits, mean price per pound included apples, bananas, and grapes; and for vegetables, mean price included tomatoes, lettuce, and frozen green beans.

Fruit, Vegetable, and Sugary Beverage Consumption and BMI

Fruit and vegetable consumption was assessed using the validated National Cancer Institute Fruit and Vegetable Screener,[26] which includes algorithms for calculating servings of fruits and vegetables consumed per day. Participants were excluded if they reported eating > 10 servings of fruits or vegetables daily. An adapted version of the Behavioral Risk Factor Surveillance System sugary beverage questions[27] was used, as follows: About how often do you drink regular soda or pop that contains sugar? Do not include diet soda/pop, and About how often do you drink sweetened fruit drinks such as Kool-Aid, cranberry, and lemonade? Include fruit drinks you made at home and added sugar to. Response options ranged from never to ≥ 5 times/d and sugary beverage consumption was computed as times per day. Perceived healthful food access was assessed using validated items including: It is easy to purchase fresh fruits and vegetables in my neighborhood; There is a large selection of fresh fruits and vegetables available in my neighborhood; and The fresh produce in my neighborhood is of high quality.[28] Response options ranged from strongly disagree to strongly agree. Participants self-reported height and weight (to calculate BMI in kilograms per meter squared).

Primary Food Store and Preferred Behavioral Economics Strategies

The questionnaire included demographic questions, contact information (residential address, name, and 2 contact telephone numbers), and an item regarding the supermarket where each participant conducted primary food shopping. The questionnaire also had a list of behavioral economics strategies, and participants were asked to select 3 that would be most appealing for them to encounter in a supermarket, as follows: Which 3 of the following supermarket strategies do you think would work best in this community to encourage people to purchase healthful foods? Please select 3 of the following options. The options included the following:

- A list of fruits and vegetables would be given to participating customers. Then customers would record each specific fruit or vegetable purchased throughout the month. Those who purchased at least 10 different types of fruits and vegetables would have their name and photo posted in the store (social recognition).[21]
- A token system, or frequent shopper card, would be created in which customers could earn a token when they purchased specific fruits and vegetables, such that when *X* amount of tokens were obtained, customers received a small reward.[21]
- Fruits and vegetables would be promoted using catchy names.[29]
- Calorie labels that included relative information such as the amount of physical activity needed to burn the number of calories in the item would be placed near selected foods and beverages.[30]
- Social norming signs would be placed near healthful items to encourage the purchase of healthful foods and beverages: Customers who purchase [this healthful item] usually also buy [this healthful item].[21]
- Stoplight colors (red = stop, yellow = caution, and green = go) would be used to indicate healthful and less healthful foods and beverages.[16,17]
- Healthier options would be placed at eye level.[18]
- Floor mats would be used to direct customers to store areas containing healthful foods.[15]
- Bonus packs of healthful foods and beverages would be offered for sale.[31]
- Price discounts or special deals would be offered on healthful foods and beverages.[32]

Statistical Analysis

Descriptive statistics were used to examine participant demographics, dietary behaviors, and behavioral economics strategies preferred by residents. The researchers used summary statistics to compute availability and price of fruits, vegetables, and sugary beverages from the BTG-FSOF and to examine mean age, BMI, fruits and vegetables, and sugary beverages among those shopping at each store. Baseline differences between Greenville and Kinston residents were examined using *t* tests for continuous variables and chi-square test of independence for categorical variables. Unadjusted differences in age; fruit, vegetable, and sugary beverage consumption; and BMI were assessed using ANOVA. The association between the primary food store (where respondents reported conducting the majority of shopping) and the dependent variables of dietary behaviors (fruit, vegetable, and sugary beverage consumption) and BMI were examined using linear regression analyses, controlling for sex, race, and education. This analysis separated out food store chains by community (eg, Food Store A in Greenville was considered separately from Food Store A in Kinston). The association between consumption of sugary beverages and fruits/vegetables, and prices of sugary beverages and fruits and vegetables was examined using a linear regression model, controlling for sex, race, and education. Sensitivity analyses also were conducted using only those respondents who reported shopping at 1 of the major venues listed. The researchers completed analyses using SAS (version 9.4, SAS Institute, Cary, NC, 2013).

RESULTS

Table 1 includes demographic characteristics and dietary behaviors of all participants, separated out by participants from each community (Greenville and Kinston). Overall, 63% were female and 80% were African American; mean age was 46 years, mean BMI was 30.3 kg/m^2, and mean consumption of fruits and vegetables was 2.7 servings/d. Among Greenville participants, 64% were female and 88% were African American; mean age was 47 years, mean BMI was 31.2 kg/m^2, and mean fruit and vegetable consumption was 3.4 servings/d. Among Kinston participants, 61% were female and 72% were African American; mean age was 45 years, mean BMI was 29.5 kg/m^2, and mean fruit and vegetable consumption was 3.2 servings/d. Kinston participants were less likely to be

Table 1. Demographic Characteristics, Perceived Healthful Food Access, and Dietary Behaviors of Participants in Greenville (n = 170) and Kinston (n = 172)

	Total		Greenville		Kinston		*P*
Characteristic, n (%)							
Gender, female	213	62.5	108	63.9	105	61.1	.86
Race, African American	268	80.0	147	88.0	121	72.0	.001
Marital status, single	173	51.2	73	43.5	78	45.9	.12
Education, high school or less	145	44.2	84	53.2	61	35.9	.002
Characteristic (mean [SD])							
Age	46.0	16.0	46.6	15.7	45.3	16.4	.45
Body mass index, kg/m^2	30.3	8.1	31.2	8.4	29.5	7.6	.06
Fruit, servings/d	1.5	1.9	1.5	1.9	1.4	1.8	.47
Vegetables, servings/d	1.9	1.7	1.9	1.6	1.9	1.8	.95
Fruits and vegetables, servings/d	3.3	2.7	3.4	2.8	3.2	2.7	.66
Soda (Times per day)	0.8	1.3	0.8	1.2	0.9	1.4	.45
Other sweetened drinks, times/d	0.9	1.4	0.9	1.4	0.9	1.5	.89
Sugary beverages, times/d	1.7	2.4	1.7	2.3	1.8	2.6	.73
Agree or strongly agree that …, n (%)							
It is easy to purchase fresh fruits and vegetables in my neighborhood	189	60.8	78	52.4	111	68.5	.003
There is a large section of fresh fruits and vegetables available in my neighborhood	178	56.3	73	48.7	105	63.3	.009
The fresh produce in my neighborhood is of high quality	189	59.6	86	57.0	103	62.1	.36

Notes: *P* indicates baseline statistical differences between Greenville and Kinston participants. *t* tests were used for continuous variables and chi-square was used for categorical variables. Owing to missing data, ranges for n are 154–170 for Greenville and 105–172 for Kinston.

African American, had higher education levels, and were more likely to agree or strongly agree that it is easy to purchase fruits and vegetables in the neighborhood and that a large section of fresh fruits and vegetables was available in the neighborhood. There were no other differences between participants from Greenville and Kinston on any other demographic, dietary, or health variables (Table 1).

Respondents were asked what types of behavioral economics strategies would work best in the community. The following were frequently selected strategies (Table 2): (1) a token system (a token system or frequent shopper card would be created in which customers could earn a token when they purchased specific fruits and vegetables, such that when *X* amount of tokens are obtained, customers receive a small reward); (2) price discounts or special deals offered on healthful foods and beverages; and (3) social recognition (a list of fruits and vegetables would be given to participating customers, and then customers would record each specific fruit or vegetable purchased throughout the month. Those who purchase at least 10 different types of fruit and vegetables would have their name and photo posted in the store). Among Greenville residents, the most frequently selected strategies were: (1) a token system; (2) social recognition; and (3) catchy names (fruits and vegetables would be promoted using catchy names). Among Kinston residents, the following were frequently selected: (1) price discounts; (2) a token system; and (3) social norming: (signs would be placed near healthful options, eg: Customers who purchase [this healthful item] usually also buy [this healthful item]).

Table 3 shows the mean (SD) age, fruits and vegetables consumed, sugary beverages consumed, and BMI of customers who reported shopping at each food store in both study communities. Among Greenville participants, the only significant difference was between the ages of customers shopping at the various stores ($P < .001$): those who shopped at food store C were significantly older than those who shopped at food stores A and B. Among Kinston participants, those who shopped at food store C consumed more sugary beverages than did participants who shopped at other stores ($P = .04$). When the researchers examined participants from both communities, those who shopped at food store C were significantly older ($P = .02$) and reported consuming significantly more sugary beverages ($P = .02$) compared with those who shopped at stores A and B.

There was little variation in terms of availability of fruits, vegetables, and sugary beverages among stores; most stores had all items available. The range was 11–12 for fruit/vegetable availability (possible range, 0–12) and 6–7 for sugary beverage availability (possible range, 0–7). The range for price of fruits was $1.12-1.45, for vegetables it was $1.25–1.92, and for sugary beverages it was $1.40–1.90 (data not shown).

In adjusted linear regression models, there was a significant association between fruit and vegetable consumption and primary food shopping location ($P = .005$), with a range between 1.97 (food store B in Kinston) and 3.79 (food store A in Kinston) servings per day among customers shopping at stores with the lowest and highest consumptions, respectively.

Table 2. Behavioral Economic Strategies to Promote Healthier Foods Among Participants From 2 Eastern North Carolina Communities

	Total		Greenville		Kinston	
Strategy	**n**	**%**	**n**	**%**	**n**	**%**
Token system: A token system or frequent shopper card would be created in which customers could earn a token when they purchased specific fruits and vegetables, such that when *X* amount of tokens are obtained, customers receive a small reward.	145	42.4	74	43.5	71	41.3
Price discounts or special deals would be offered on healthful foods and beverages.	116	33.9	25	14.7	91	52.9
Social recognition: A list of fruits and vegetables would be given to participating customers, and then customers would record each specific fruit or vegetable purchased throughout the month. Those who purchase at least 10 different types of fruit and vegetables would have their name and photo posted in the store.	100	29.2	66	38.8	34	19.8
Bonus packs of healthful foods and beverages would be offered for sale.	83	24.3	31	18.2	52	30.2
Calorie labels that include relative information such as the amount of physical activity needed to burn the number of calories in the item would be placed near selected foods and beverages.	81	23.4	21	12.4	16	9.3
Social norming: Signs would be placed near healthful items to encourage purchase of healthful foods and beverages, such as ''Customers who purchase [this healthful item] usually also buy [this healthful item].''	73	21.3	19	11.2	54	31.4
Eye level: Healthier options would be placed at eye level.	72	21.1	27	15.9	45	26.2
Stoplight colors (red = stop, yellow = caution, green = go) would be used to indicate healthful and less healthful foods and beverages.	51	14.9	15	8.8	36	20.9
Catchy names: Fruits and vegetables would be promoted using catchy names.	37	10.8	33	19.4	48	27.9
Floor mats would be used to direct customers to the store areas containing healthful foods.	18	5.3	5	2.9	13	7.6

Note: The sum of percentages is > 100% because respondents could select up to 3 strategies.

There was a significant association between sugary beverage consumption and primary food shopping location ($P = .02$): customers at the store with the lowest consumption reporting drinking sugary beverages 0.92 times/d (food store B in Kinston), and customers at the store with the highest consumption reported doing so 2.27 times/d (food store C in Kinston). There were no significant associations between primary food store and BMI. In sensitivity analyses, including only those participants who reported 1 of the major shopping locations listed, sugary beverage consumption was associated with primary food shopping location ($P = .02$); however, BMI and fruit and vegetable consumption were not related to primary food shopping store. In store A, customers' mean sugary beverage consumption was 1.7 servings/d vs 1.2 in store B and 2.2 in store C.

In linear regression analyses examining associations between sugary beverage prices and sugary beverage consumption, there was a statistically significant association between sugary drink price and consumption, such that stores with higher-priced sugary beverages had customers with higher sugary beverage consumption ($P = .04$). There was an inverse (although not statistically significant) association between sugary beverage prices and BMI ($P = .12$). There were no other significant associations between prices of fruits and vegetables and consumption of fruits and vegetables ($P = .94$) or BMI ($P = .82$) (Table 4).

Discussion

The current study findings regarding strategies to promote healthful foods and beverages in supermarkets can be used to guide attempts to promote healthier food and beverage purchases. Calorie labeling with the amount of physical activity needed to burn the amount of calories in an item was not one of the more popular strategies. This was surprising given that this strategy was effective in prior studies.[30,33-35] In addition, results of prior studies suggested that placing healthier options at eye level was effective at promoting healthier purchases,[16,17] yet the current study's participants did not frequently select this strategy. The reason for these findings could partly be that many nudges work because individuals are not aware that they are being influenced by them.[36] Thus, it could be that participants responded based on how much they liked a particular strategy even though they were specifically asked which strategies they thought would work in their communities. In the

Table 3. Mean (SD) Age, Fruits and Vegetables Consumed, Sugary Beverages Consumed, and BMI of Customers Who Shopped at Each Food Store in Each of the 2 Communities, Separately and Combined

Primary Food Store	N	Age, y (Mean [SD])	Fruits and Vegetables, Servings/d (Mean [SD])	Sugary Beverages, Times/d (Mean [SD])	BMI, kg/m^2 (Mean [SD])
Greenville participants					
Food store A	44	43.6 (13.2)	2.7 (2.9)	1.8 (2.4)	32.2 (9.2)
Food store B	42	40.9 (15.8)	3.8 (2.6)	1.4 (1.9)	31.5 (9.2)
Food store C	41	52.8 (12.8)	3.9 (2.6)	2.0 (2.2)	30.4 (7.8)
Did not provide primary food store	27	53.4 (17.3)	5.9 (7.9)	2.4 (2.3)	30.7 (7.9)
Food store D	9	43.4 (18.9)	2.5 (1.1)	1.1 (1.5)	31.0 (8.0)
Other	7	41.6 (17.6)	7.8 (5.0)	3.7 (4.1)	29.0 (5.8)
P (A vs B vs C)*		< .001	.11	.48	.67
Kinston participants					
Food store A	39	46.2 (15.7)	3.8 (3.7)	1.6 (2.6)	30.0 (6.6)
Food store B	30	42.4 (13.9)	1.9 (.8)	1.0 (1.2)	28.9 (7.4)
Food store C	86	45.6 (17.2)	3.5 (2.6)	2.3 (3.0)	29.3 (8.1)
Food store E	NA	–	–	–	–
Did not provide primary food store	8	43.6 (20.4)	2.2 (1.2)	0.4 (.4)	27.6 (20.4)
Other	9	50 (16.6)	3.4 (2.1)	1.0 (1.6)	32.3 (5)
P (A vs B vs C)*		.58	.08	.04	.83
Combined participants in both locations					
Food store A	83	44.8 (14.4)	3.1 (3.2)	1.7 (2.5)	31.2 (8.1)
Food store B	72	41.5 (14.9)	3.3 (2.4)	1.2 (1.7)	30.3 (8.5)
Food store C	127	47.9 (16.2)	3.6 (2.6)	2.2 (2.8)	29.7 (8.0)
P (A vs B vs C)*		.02	.44	.02	.44

BMI indicates body mass index.
**P* is for unadjusted ANOVA tests between food stores A, B, and C for the variables of interest (mean age, fruit/vegetable consumption, sugary beverage consumption, and BMI).

future, it will be important to examine behavioral economics strategies to promote healthful choices in ways that do not explicitly connect the nudge tool with behavior. However, it is important to assess consumer acceptability of behavioral economics strategies, because if a behavioral economics strategy is found to be efficacious, it should also be acceptable to community members.

The idea of a token system to earn rewards for regular purchases of healthful foods and beverages, and social recognition for healthful food purchases were both frequently selected strategies and are promising areas for future research, because these strategies have not yet been tested. Price discounts were also a frequently selected strategy. Although increasing the price of less healthful foods and decreasing prices of healthful foods is thought to result in more favorable purchase and consumption patterns,[37,38] little is known about the level of price discount needed to

Table 4. Adjusted Parameter Estimates, Standard Errors, and *P* for the Associations Between Fruit and Vegetable, Sugary Beverage Consumption and BMI, and Fruit and Vegetable and Sugary Beverage Prices, Using Linear Regression Analyses Adjusted for Age, Sex, Race, and Education

Dependent Variable	Independent Variable	Adjusted B	Standard Error	*P*	R^2
Sugary beverage consumption	Sugary beverage price	1.63	0.77	.035	.117
BMI	Sugary beverage price	−4.27	2.76	.122	.060
Fruit and vegetable consumption	Fruit and vegetable price	−0.06	0.99	.950	.021
BMI	Fruit and vegetable price	0.62	2.67	.818	.051

BMI indicates body mass index.

promote healthful food and beverage purchases or about the level of price differences needed to promote substitution of healthier foods and beverages for less healthful ones.[39] A study in a Web-based supermarket found that a 25% discount was effective in increasing purchases of fruits and vegetables and did not result in an increase in overall calories purchased,[40] whereas a study examining 10%, 25%, and 50% discounts on fruits and vegetables found increased produce purchases along with increases in total calories purchased.[41] In addition, social norms related to promoting healthful foods and beverages were tested in prior studies and should be further examined for effectiveness in making healthier choices easier within the supermarket setting.[19,21,42]

In the current study, there was no association between the primary food shopping location and BMI. There was a statistically significant association between the primary food shopping location and self-reported fruit, vegetable, and sugary beverages consumed. Prior studies found that supermarkets with higher prices tend to have customers with lower BMIs.[6,43,44] It was surprising in the current study that higher prices for sugary beverages were associated with higher consumption of sugary beverages. This could be because there was little variation in sugary beverage prices, or the result of misreporting of sugary beverage consumption. Future studies should continue to examine associations among elements of the in-store food environment (eg, sugary beverage prices), dietary purchases, and consumption and weight status of customers. Innovative research designs may be necessary to examine further whether food store customers select stores that fit their consumption patterns, or whether characteristics of the stores themselves influence consumption patterns. Such knowledge could guide future interventions.

One weakness of this study was the use of self-reported dietary data. However, the researchers used validated tools to determine daily servings of fruits, vegetables, and sugary beverages. Another weakness was the convenience community sample, which was not a representative sample and thus limited generalizability of results. The sample size in the current study was based on study resources and resulted from excluding individuals who reported unrealistic fruit and vegetable consumption. Potential participant refusals and the number of individuals ineligible owing to various factors (eg, not English speakers) were not tracked, which was an additional study limitation. The use of self-reported height and weight to calculate BMI was a further limitation.

Despite these weaknesses, this study was conducted in 2 low-income communities in the southern US, where few studies of this type have occurred and where obesity is a major public health concern. Ultimately, this study can propel research into new and effective in-store marketing strategies to encourage purchase and consumption of more healthful foods and beverages among underserved community residents.

IMPLICATIONS FOR RESEARCH AND PRACTICE

Healthy food promotion strategies selected by study participants, such as a token and reward system, price discounts, and social recognition programs for healthful purchases, should be tested in future research. Determining elements of the in-store consumer food environment that promote healthful purchases can help inform research and policy strategies to improve community-level nutrition.

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CONFLICT OF INTEREST

The authors have not stated any conflicts of interest.