

The Rationale behind Small Food Store Interventions in Low-Income Urban Neighborhoods: Insights from New Orleans¹⁻³

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Abstract

Environmental approaches to the obesity problem in the US have garnered favor due to growing evidence that changes to the environment are at the root of the epidemic. Low-income urban neighborhoods, where obesity rates are disproportionately high, typically lack supermarkets yet have a high density of small food stores. This may increase the risk for unhealthy diets and obesity for neighborhood residents, because small stores carry mostly energy-dense foods and few fruits and vegetables. This paper pulls together various studies and pilot work conducted in New Orleans to explore the rationale behind small store interventions. Many low-income residents in New Orleans live within walking distance of small food stores and shop at them frequently. Marketing research has documented that changes to in-store shelf space and displays of specific foods affect the sales of these foods. Initiatives in New Orleans and elsewhere have demonstrated some success with improving healthy food availability in small stores, and an intercept survey of customers at small stores suggests that customers would purchase more fruits and vegetables if available. Efforts to encourage small store operators to offer a healthier mix of foods may, in the end, depend on the profitability of such changes. Evidence from a typical small store in New Orleans indicates that a greater percentage of gross profits come from snack foods and beverages than from fruits and vegetables. More research is needed to better understand the financial operations of small food stores and whether altering the mix of foods is economically feasible. *J. Nutr.* 140: 1185–1188, 2010.

Introduction

The obesity epidemic continues to be one of the most pressing public health concerns facing the US. Over two-thirds of the current population is either overweight or obese and some of the highest rates of obesity are found in low socioeconomic populations (1). A major contributing cause for the current obesity problem is poor nutrition. Americans are consuming greater amounts of energy-rich foods while eating inadequate amounts of low-energy foods, such as fruits and vegetables. The percent of daily energy intake from energy-dense snack foods and sugar-sweetened drinks has doubled in recent decades, whereas fruit and vegetable consumption has remained consistently low (2,3). The link between poor diet and unhealthy body

weight is well established (4–6), yet attempts to reverse these negative dietary patterns and decrease the prevalence of obesity in the US have had minimal success.

Reshaping the neighborhood food environment is a promising new approach to the obesity problem (7,8). Many have proposed that food consumption is influenced by the foods that are available in a neighborhood. A growing number of studies show cross-sectional associations between food access and the diet and weight status of local residents (9–12). Moreover, socioeconomic differences in obesity prevalence may be a partial function of disparities in neighborhood healthy food availability. Researchers have documented that minority and low-income neighborhoods lack stores that offer healthy food options, in particular supermarkets. Instead, these areas have a greater number of small food stores, which are more likely to sell only beverages, snack foods, and other convenience foods (13). Attempts to mitigate disparities in healthy food access have included policy initiatives designed to encourage the opening of new supermarkets in underserved neighborhoods (14). Although this approach has had success in some areas, supermarket development is complex, and given U.S. land-use patterns and the market area required to support a large store, a supermarket cannot be located in every neighborhood. Because small food stores are already prevalent in most urban areas, an alternative approach may be to implement interventions that alter the mix of foods available in these existing neighborhood small stores in

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such a way as to increase local residents' access to nutritious foods.

In this article, we explore the rationale behind such a proposal as a mechanism to increase access to healthy foods in urban areas by pulling together various studies from the public health, planning, and marketing literature as well as pilot research conducted in New Orleans. The city of New Orleans is an appropriate backdrop for this article considering the city has some of the highest obesity rates in the country and has been shown to have significant socioeconomic disparities in healthy food access (15). We begin by exploring issues related to store accessibility and food availability in low-income neighborhoods, which is followed by a discussion on how changing the foods available in stores and neighborhoods can affect purchasing behavior, diet, and the economics of local small food stores.

Pilot research activities in New Orleans

As we consider the current and potential roles of small food stores in urban areas, we will report on 2 pilot projects conducted by researchers at the Prevention Research Center at Tulane University (Tulane PRC). In the spring of 2007, the Tulane PRC conducted a survey of 219 low-income persons in New Orleans, who were the primary food shoppers for their households, regarding their food shopping practices and food preferences (R. Sokol, T. Farley, unpublished data), hereafter referred to as the Food Access and Preferences Survey. This survey was administered in the waiting rooms of health clinics and social service agencies that serve low-income residents. During the summer of 2008, the Tulane PRC conducted further pilot research designed to assess the feasibility of working with small food stores in New Orleans to increase the accessibility and promotion of fruits and vegetables and to reduce the accessibility and promotion of energy-dense snack foods and beverages (C. Haywood, T. Farley, unpublished data). Data collection included 2 components: an intercept survey of 60 customers exiting 5 different small stores located in low-income New Orleans neighborhoods and semistructured interviews with 12 small store operators. Across all pilot research activities, instruments were administered by trained data collectors and informed consent was obtained from all respondents.

How accessible are small food stores to local residents?

New Orleans is similar to other urban cities in the US where many of its disadvantaged neighborhoods have a high prevalence of small food stores but relatively few supermarkets. In these areas, small stores are intermingled with residences and are some of the most readily accessible places for residents to purchase food.

Our research suggests that small neighborhood stores are frequent points of food purchases for the city's low-income residents and that store proximity affects shopping patterns. Among the residents participating in the Food Access and Preferences Survey (R. Sokol, T. Farley, unpublished data), 67% reported living within walking distance of a small "corner" store. Not only are these stores common and easily accessible, but local residents appear to shop at them frequently. Individuals surveyed reported shopping at small stores, on average, 12 times/mo and the majority of respondents said they walk to get to them. In contrast to readily accessible small stores, nearly 60% of these residents reported living >3 miles from a supermarket, which is a long distance for a population known to have low rates of household car ownership. In this sample of residents, >40% relied on alternate forms of transportation for their major grocery trips and reported shopping at supermarkets

far less frequently than small stores. In neighborhoods where rates of car ownership are low, store proximity can be of great importance and residents may do substantial amounts of shopping or "fill in" shopping at the neighborhood small store. In subsequent customer intercept surveys performed at several New Orleans small stores (C. Haywood, T. Farley, unpublished data), the most frequently cited reason for shopping at that store was that it was close to home. Over 40% of the customers interviewed lived within 2 blocks of the store and the majority of those interviewed had walked to the store.

What types of foods are available in small food stores?

Although small food stores are easily accessible and frequently shopped at by local residents, it is unlikely that customers will be able to purchase a wide variety of healthy foods. These stores offer little to no fresh fruits and vegetables and shelve a disproportionately high amount of energy-rich snack foods and beverages. Studies have documented that a large percentage of smaller grocery stores do not carry fresh produce and, when they do, selection is limited and quality is poor (16,17). A study conducted in Southeastern Louisiana and Los Angeles that measured the amount of linear shelf space of food items in urban small food stores (18) found that such stores carried, on average, only 1 m of fresh fruits and 2 m of fresh vegetables. Over 50% of these stores did not carry any fresh fruits and 35% did not have any fresh vegetables. This amount of fresh produce space looks especially small when compared with the shelf space devoted to high-energy snack foods and beverages. These stores contained, on average, 7 m of salty snacks, 6 m of cookies and pastries, 5 m of candy, and 12 m of carbonated beverages.

Findings from the customer intercept surveys in New Orleans (C. Haywood, T. Farley, unpublished data) suggest that purchases made by local customers mirror the relative mix of foods offered in the stores. The most frequently purchased food items were beverages, snack foods, candy, and prepared take-out food. Only 3% of customers reported purchasing fruits and no one purchased vegetables. What is not clear is to what extent these purchasing patterns reflect customer preferences and to what extent people are simply buying the foods that are most available to them.

Is there a demand for fruits and vegetables?

In the New Orleans pilot research, as in formative research conducted for the Baltimore Healthy Stores Program, small store owners and managers stated that a primary reason that they did not stock more fruits and vegetables was low customer demand (C. Haywood, T. Farley, unpublished data;19). If store operators do not perceive sufficient demand, they do not have a profit motive to shelve greater amounts of fresh produce. Yet, findings from surveys with low-income New Orleans residents tell a different story. Results from the Food Access and Preferences Survey indicate that the demand for fruits and vegetables is high and that many residents may prefer them over other more energy-dense foods (R. Sokol, T. Farley, unpublished data). For example, respondents were more likely to "like a lot" tomatoes (73%), green beans (68%), or oranges (66%) than hamburgers (59%) or potato chips (58%). Moreover, the majority of those interviewed said they would be willing to buy fruits and vegetables from their local small store if these foods were available. For households with limited opportunities to shop at supermarkets, not having fruits and vegetables available at local small stores could interfere with their ability to purchase and consume such foods. Simply making fresh produce available in a small store that does not carry them would give many residents a

nearby convenient source for fruits and vegetables. Store managers could even be encouraged to alter how their shelf space is allocated so as to shelve a healthier mix of food, for instance, by increasing fresh produce space while decreasing the amount of snacks foods and sugar-sweetened beverages carried. Such in-store changes could promote the purchasing of healthier food items by local residents and lead to more nutritious diets.

Can altering food availability affect purchasing behavior and diet?

The marketing literature provides some of the strongest evidence for the role of the in-store environment in influencing purchasing behavior (20–23); in particular, changing shelf space has been shown to have significant effects (23–27). In an experimental study in 4 supermarkets, Curhan (25) assessed the effects of doubling the shelf space length of specific fresh fruits and vegetables categories. Sales of hard fruits (apples, oranges, limes), soft fruits (pears, bananas, pineapple, grapes), and cooking vegetables (eggplant, corn, potatoes, and squash) each increased by 44, 49, and 59%, respectively. Salad vegetables, like romaine lettuce, tomatoes, and celery, increased in sales by a more modest 28%.

In addition to changing shelf space, researchers have highlighted other in-store strategies that can have a direct impact on sales, such as promotional advertising within the store, “special” display stands, and placing items in prime locations (21,25,27). Adding a special display stand, within or at the end of the aisle, has been found to be especially effective. In one study, this strategy increased the sales for a range of products from 77 to 243% (27). The implementation of such strategies has the potential to promote sales of healthy food items in neighborhood small food stores.

The literature on the neighborhood food environment and dietary intake, while still in its infancy, also suggests that the local availability of foods may affect the diets of nearby residents (9,11,28,29). Some especially compelling findings emerged from a natural experiment study performed in the UK, where residents with the lowest levels of fruit and vegetable consumption significantly increased their consumption after a new supermarket was introduced in their neighborhood (30). Though the vehicle for increasing healthy food availability in that study was the building of a new supermarket, the logic behind such an approach and that of small food store interventions is similar. Although more research is needed, it is reasonable to expect that local residents would increase their fruit and vegetable intake if small stores in their neighborhood began to carry more fresh produce.

Can small food stores offer a healthier mix of foods?

In interviews conducted with 12 small store operators in New Orleans (C. Haywood, T. Farley, unpublished data), 10 were receptive to the idea of working with the Tulane PRC to increase their offerings of fresh produce and other healthy foods, although they expressed concerns about low demand, spoilage, and the need for more cooler space. Nearly all of these operators, however, stated that they would suffer a major profit loss if they stopped selling snack foods and sodas, signaling that it may be more difficult to persuade stores to decrease their offerings of energy-dense items. Small food store interventions that have been implemented in recent years, including in Baltimore, New York, Philadelphia, and several California cities, have tended to work with stores to stock certain healthy items (e.g. skim milk, whole-wheat bread, produce) but typically have not focused on shifting the overall amount of shelf space

allocated to healthy foods compared with energy-dense, low-nutrient items (19,31,32). The Corner Store Initiative, an intervention that was recently implemented by Steps to a Healthier New Orleans, took a similar approach (33). Stores that took part in the program agreed to stock at least 2 new items from specified categories (fruit, vegetables, low-fat dairy, or whole-grain products) and in return received free in-store promotional displays and local advertising. Of the 20 stores that agreed to participate citywide, 18 stores met these requirements over the life of the program. Interviews conducted with 5 participating store owners found that the owners wanted to offer their customers healthier options and were satisfied with both demand for fresh fruits and vegetables and with their ability to source these items. Some store owners cited lack of space or coolers and competition from supermarkets as barriers to expanding their produce selection. While some participating store owners shared anecdotal reports that healthier items sold well, actual sales data were not obtained.

The experience of these early small store programs shows that some small food store operators are willing to participate in nutrition interventions coordinated by nonprofit organizations, city agencies, or academic researchers and, furthermore, that the stores actually do make modest changes with respect to stocking and sales of healthy foods (19,32). But with the notable exception of the Baltimore Healthy Stores Program (31), evaluation of these programs has been limited and little is known about how the structure and elements of various small store interventions influenced their outcomes and sustainability.

Can small food stores still be profitable with a healthier mix of foods?

Although offering a healthier mix of foods in neighborhood small stores may improve the diets of local residents, it is unlikely that store managers will make any changes to the foods they carry unless they can do so profitably. We conducted a preliminary analysis of financial data from a small food store operating in a low-income New Orleans neighborhood using information garnered from invoices and in-store product prices to estimate the annual profitability of several product categories (Table 1). Alcohol and tobacco represented the largest percentage of profits at 51%, followed by 10% for beverages, 4% for snack foods, and 3% for fruits and vegetables.

Because small food stores have a limited amount of total shelf space, substantially increasing the amount and the variety of fresh produce items offered in a particular store may require decreasing the amount of snacks, beverages, and other items carried. This type of change in overall product mix is likely to improve access to healthy foods in low-income urban neighborhoods, but it is unclear what it would mean for store profits.

TABLE 1 Estimated annual profitability of products in a New Orleans small food store

Product category	Sales	Gross profit	Total gross profit
		<i>\$US</i>	<i>%</i>
Fruits and vegetables	19,610	6,086	3
Snack foods	32,410	9,586	4
Beverages	65,881	23,377	10
Alcohol	225,288	64,368	29
Tobacco	144,432	48,144	22
Other foods	215,244	71,748	32
Total	702,865	223,309	

Incentive programs that are structured to take store finances into account may be a viable way to encourage small food stores to offer a healthier mix of foods over the medium term. For example, incentive programs could include a financial subsidy that would cover at least the profit loss that might result from decreasing the amount of snacks and beverages sold, could defray the cost of expanding cooler space for fresh produce, or could offer a mix of such incentives. Considering the sizable healthcare costs associated with the obesity epidemic in the US (34), such public incentive programs might be justified.

Future directions

The rationale and prospects for modifying the in-store environment of small food stores are important to consider. Further research is needed to better ascertain the impact of altering the in-store mix of food items on a store's overall profits. Studies with in-store interventions that involve a pre- and postintervention financial analysis may be the best way to gain this understanding. Coupling such intervention studies with dietary and health assessments of local residents would additionally provide valuable information on the potential impact of changing neighborhood food availability on diet and health.

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