

Healthy Checkout Lines: A Study in Urban Supermarkets

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ABSTRACT

Objective: To understand the impact of healthy checkouts in Bronx, New York City supermarkets.

Design: Consumer purchasing behavior was observed for 2 weeks in 2015.

Setting: Three supermarkets in the South Bronx.

Participants: A total of 2,131 adult shoppers (aged ≥ 18 years) who paid for their groceries at 1 of the selected study checkout lines.

Intervention: Two checkout lines were selected per store; 1 was converted to a healthy checkout and the other remained as it was (standard checkout). Data collectors observed consumer behavior at each line and recorded items purchased from checkout areas.

Main Outcome Measures: Percentage of customers who purchase items from the checkout area; quantity and price of healthy and unhealthy items purchased from the healthy and standard checkout lines.

Analysis: Measures were analyzed by study condition using chi-square and *t* tests; significance was determined at $\alpha = .05$.

Results: Only 4.0% of customers bought anything from the checkout area. A higher proportion of customers using the healthy vs standard checkout line bought healthy items (56.5% vs 20.5%; $P < .001$).

Conclusions and Implications: When healthier products were available, the proportion of healthy purchases increased. Findings contribute to limited research on effectiveness of healthy checkouts in supermarkets. Similar interventions should expect an increase in healthy purchases from the checkout area, but limited overall impact.

Key Words: healthy checkout line, consumer behavior, supermarkets, food retail environment (*J Nutr Educ Behav.* 2017;49:615-622.)

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INTRODUCTION

The food retail environment can be an influential factor in consumers' purchasing decisions. A body of evidence points to the contribution of environmental factors in the overconsumption of unhealthy foods, a shift in social norms toward increased food intake, and unwanted weight gain.¹⁻³ Studies

of the retail environment suggest that unplanned consumption can be triggered simply by seeing food¹ and that subconscious decision making can be influenced by a confluence of environmental cues that encourage consumption.^{4,5} Even when consumers focus on specific purchasing goals, they can be affected by temptations that contradict their plans for

healthful eating. Such impulse buying tends toward less healthy vice products rather than healthier virtue items. As such, from a health promotion standpoint, limited exposure to products that can trigger unhealthy impulse purchases is recommended.⁶ At the same time, research has shown that when healthier foods are made convenient, consumers are enticed to consume more of them; in theory, this should have a positive impact on long-term health outcomes.⁷

The public health nutrition community has had a longstanding interest in food retail interventions to improve access to high-quality, healthy, affordable foods in a variety of settings. Recently, there has been increased attention to supermarket checkout lines.⁸⁻¹⁵ The checkout serves as an additional prompt to make last-minute purchases, even if shoppers skipped picking up these items in the main store aisles.¹⁶ Typically, this part of the store features

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candy, chocolates, salty snacks, and sugary drinks,^{8,10,11,13} the types of energy-dense, nutrient-poor foods that are tempting for last-minute impulse purchases.^{10,15} Only on rare occasions are healthier alternatives such as fresh fruit and bottled water available in this prime location.¹³ Therefore, it has been suggested that replacing unhealthy items with healthier offerings at checkout, an area through which all shoppers must pass, could have an important impact on reducing the purchase and consumption of less healthy foods.^{10,13}

Previous studies focused on documenting the quality of products available at checkout^{10,12,14,15} and testing the impact of altering the checkout area to encourage healthier purchases.^{8,9,11} Multiple studies found that chocolate and other sweets were the most commonly available snack foods displayed in this area,^{12,14,15} and that a vast majority of products offered at checkout were within direct view and reach of children.^{10,14} Other research demonstrated that making healthier food at checkout more convenient or appealing to customers led to increased sales of these products,^{8,9} whereas some study results were inconclusive.¹¹

In 2015, the New York City (NYC) Health Department conducted a study to determine whether installing healthy checkout lines at South Bronx supermarkets increased the proportion of healthy vs unhealthy snacks purchased at checkout without decreasing the total number of purchases. To the authors' knowledge, no other research studied the effect of a healthy checkout line on customer purchasing behavior and product sales at urban supermarkets in the US. This intervention was implemented as a pilot project for the *Shop Healthy* program, an initiative of the NYC Health Department launched in 2012 that aims to increase access to healthy food in neighborhoods with high rates of obesity and limited access to nutritious foods.¹⁷ The *Shop Healthy* program uses innovative strategies to create sustainable changes at multiple levels of the local food supply, 1 of which was the potential implementation of a healthy checkout line at supermarkets. This study was developed in alignment with many of the NYC

Health Department's healthy food programs, which employ a layered approach to coordinate change at the public policy, community, institutional, interpersonal, and intrapersonal levels in accordance with the social-ecological model.^{18,19}

METHODS

The healthy checkout study took place in June, 2015 at 3 *Shop Healthy* supermarkets in the South Bronx. The Bronx is the northernmost of NYC's 5 boroughs. Among all 62 counties in New York State, the Bronx ranks lowest in terms of health outcomes, income, and educational attainment.²⁰ The South Bronx is an area within this borough that has significantly worse indicators for nutritional intake and associated chronic disease outcomes. In the South Bronx compared with the rest of the city, a greater percentage of adults reported that they drank ≥ 1 sugary drinks/day (35% vs 23%; $P < .001$), ate 0 daily servings of fruits and vegetables (17% vs 12%; $P = .002$), were overweight or obese (68% vs 56%; $P < .001$), and had type 1 or type 2 diabetes (20% vs 11%; $P < .001$).²¹ For these reasons, this neighborhood was a focus for healthy food retail interventions such as *Shop Healthy*.

Supermarket managers were consulted to determine the stores' busiest shopping times, any special information about checkout lines (such as permanent closure, express line designation, etc), and who was responsible for stocking products at checkout (store staff vs product vendors). It was determined that the first 2 weeks of any given month were universally the busiest, given that issuance of *Supplemental Nutrition Assistance Program* (SNAP) benefits in NYC occurs during the first 2 weeks of each month,²² and these stores were located within communities with high SNAP participation (approximately 37% of Bronx households received SNAP benefits, compared with 20% of all NYC households).²³ Busiest shopping hours were reported to be weekday evenings and weekends from late morning to early afternoon. Data collection was planned around these times, with 6 3-hour shifts per store scheduled

from 3 to 6 PM on weekdays between Tuesday and Friday, and from 12 to 3 PM on Saturday and Sunday. Two checkout lines per store were purposefully selected to serve as test lines, based primarily on which lines the stores tended to operate most frequently. Notably, participating supermarkets each were independently owned, and therefore each had a unique design and layout. Therefore, the checkout display was also at the discretion of the owner rather than an umbrella corporation. However, store managers explained that some checkout lines were stocked by outside snack vendors rather than store employees, conceding control of the display to these outside parties.

During the first week of the study, 1 of 2 study lines at each store was randomly selected to be converted to a healthy checkout line. Because managers reported that Monday mornings were generally low-traffic times, study staff made the healthy checkout conversions on Monday morning of the first week so that the line would be ready for data collection to begin the following day. To convert the checkout, study staff first removed all items from the checkout structure. Then they replaced the items with those that met the following nutritional criteria (per serving): ≤ 200 cal, ≤ 7 g fat (except nut-based products), ≤ 2 g saturated fat (except nut-based products), 0 g trans fat, ≤ 200 mg sodium, ≤ 10 g sugar (except fruit/vegetable-based products with no added sugar) and ≥ 2 g fiber (only for grain/potato-based products). These nutritional criteria were based on the NYC Agency Food Standards²⁴ and were used by the *Shop Healthy* program to identify healthier products. These products were taken from other parts of the store (shopping aisles, displays, etc) or from other checkout lines. Some products were affixed to the checkout structure, on racks or otherwise, in a way that could not easily be removed, so not all products on the healthy checkout were healthy. In addition, because stores' checkout line structures and available products varied, the healthy checkout condition varied slightly among stores. However, the variety of products offered was similar and always had something from each of the following basic categories: (1) nuts,

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