Sugar Overload:
Retail Checkout Promotes Obesity

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Sugar Overload: Retail Checkout Promotes Obesity
is available online, free of charge at
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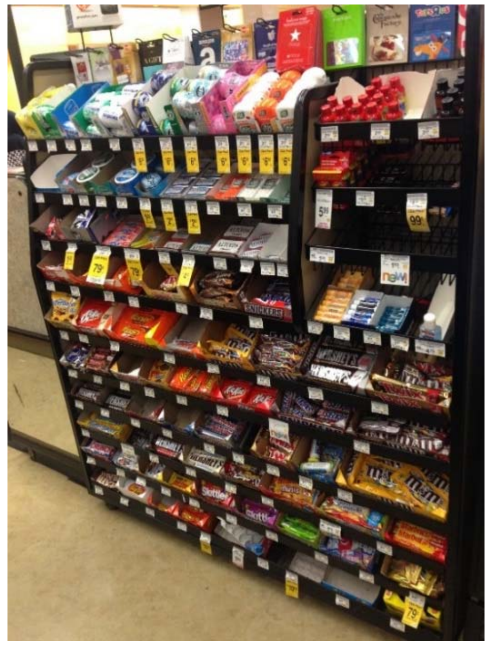
The cover photo was taken at a checkout aisle at a Target store in Washington, D.C.

Background

Each year, food and other retailers, and food and beverage manufacturers, spend billions of dollars on in-store marketing. The checkout line, where every shopper must wait on the way to the register, offers a prime location to induce additional purchases and impulse buys (see Figure 1).

Figure 1. Checkout Aisle at Safeway



Marketing at checkout may be profitable for industry, but it also contributes to the enormous public health burden caused by obesity and poor nutrition.

Two-thirds of adults and one-third of children in the United States are overweight or obese.[1,2,3] A mounting body of research identifies the widespread availability of snack foods as a contributor to the obesity epidemic. The ubiquity of snacks provides frequent opportunities to eat and powerful cues that stimulate feelings of hunger.[4]

Food availability has an influence on what and how much people eat.[5] Experimental trials demonstrate that snack food consumption increases when foods are put within arm's reach or are simply visible.[6]

The presence of snack foods near the register increases the likelihood that people will purchase those foods.[7] Additionally, sales of food items change significantly in response to changes in how much shelf space they are allotted.[8]

Calories consumed through impulse purchases of candy, soda, and other snack foods can increase a person's total calorie intake and contribute to weight gain. People given snacks between meals do not always offset this consumption by eating fewer calories at later meals.[9] National dietary surveys reveal that total calorie consumption increases with the number of daily eating occasions.[10]

Most Americans cannot afford to be consuming the additional calories marketed to them at checkout, especially when these calories provide little nutritional value. Candy, snack cakes and other grain-based desserts, and potato chips and other fried potatoes are among the top 25 sources of calories in the American diet.[11] Soda and other sugar-sweetened beverages are the biggest single source of calories for both adults and children and are directly linked to weight gain and obesity.[12]

Few studies have examined food and beverages at checkout. [13,14,15,16] Each looked at checkout only in a particular category of stores, such as food stores, convenience stores, or non-food stores. None recorded the presence of non-food merchandise at checkout.

This study investigates checkout aisles across a range of store types in one metropolitan area to assess the prevalence of food sold at checkout, the categories of food and beverages offered, and the presence of non-food merchandise at checkout.

Methodology

In July 2014, CSPI conducted a field study of checkout aisles in the Washington, D.C., metropolitan area. To determine the prevalence of foods and beverages at different kinds of stores, we assessed 30 retail stores across 14 categories and compared stores where people traditionally shop for food with outlets that are not primarily food stores. Food stores included 5 grocery stores, 3 supercenters, and 1 convenience store. Non-food stores included 3 drug stores, 2 gas stations, 2 dollar stores, 2 office supply stores, 1 home and bath store, 2 clothing stores, 2 electronics stores, 2 sporting goods stores, 2 home improvement and hardware stores, 2 bookstores, and 1 toy store (see Appendix A). We selected popular chain stores and chose outlets throughout the city with a range of neighborhood demographics; stores were not randomly selected. For 3 store types, we assessed a store in a nearby suburb because no chains were located within city limits.

We visited each store during regular business hours and used a standardized instrument to record the presence or absence of food, beverage, and non-food merchandise at a sample of checkout aisles in each store (see Appendix B). We assessed 41 aisles overall. In every store, we assessed a standard checkout. In stores that offered express, self, or "healthy" or family-friendly checkouts, we additionally assessed an aisle of each type offered in the store. Because the products promoted at checkout are relatively uniform among the same kinds of aisles of the same store—for example, all of the express aisles in a Safeway grocery store offer roughly the same product assortment—for each store we assessed one aisle of each type offered.

For stores that had individual queues for each register, checkout was defined as encompassing the end cap or cooler closely associated with the aisle, the aisle itself, the area over the belt, and bins and displays within one pace (approximately 30 inches) of the aisle. For stores that had one queue for more than one register, checkout was defined as including all belted areas or areas where people wait in line, the end cap or cooler attached to one aisle, the aisle itself, the area over the belt, and bins within one pace of the area in which people wait in line.

For each checkout, we recorded the number of facings of foods, beverages, and non-food merchandise items. A facing was defined as the display of a single product and did not include items stacked behind it (see Figure 2). We counted facings to determine what customers are confronted with when they wait at checkout. The checkout area was photographed and any food or merchandise not listed on the instrument was recorded.[i]

Figure 2. Photo Depicting 6 Facings of Candy

We categorized food as healthy, healthier, or unhealthy. For purposes of this study, healthy foods included fruits, vegetables, and nuts; unhealthy foods were candy, energy bars, chips, cookies/cakes, dried meat, and hot food (i.e. pizza, hot dogs, and chicken wings); and healthier foods were somewhat nutritionally improved options that contained nuts, dried fruit, or whole grains, such as granola bars, cereal bars, and trail mix.[ii]

We categorized beverages as sugar-sweetened drinks if they were regular sodas, sweetened fruit drinks, sweetened water, sweetened iced tea/coffee, or full calorie energy and sports drinks. Other beverage categories included water, diet/non-caloric beverages, and unsweetened juice.

[i] We refer to all checkout items that are neither food nor beverages as merchandise.
[ii] We excluded gum for this assessment, as we did not differentiate between sugar and sugar-free gum in data collection.

Results

All store types we visited marketed food or beverages, including non-food stores. Table 1 presents the distribution of food, beverage, and non-food merchandise for each store type at their standard checkouts, which are defined as the checkout aisles where customers wait if they do not choose an express, self, or "healthy" or family-friendly checkout.[iii] Supermarkets, supercenters, and convenience stores marketed mostly food products. However, some non-food stores, such as drug stores and toy stores, also displayed mostly food items.

Table 1. Checkout Offerings by Store Type

Store Type	% Food	% Beverages	% Non-Food Merchandise	Average Number of Facings per Checkout
Supercenter	81%	0%	19%	162
Drug	76%	10%	14%	153
Grocery	74%	8%	18%	300
Convenience	62%	12%	26%	162
Toy	62%	29%	9%	139
Hardware/Home Improvement	37%	0%	63%	77
Office Supply	27%	8%	66%	183
Home and Bath	21%	31%	48%	566
Dollar	20%	12%	68%	184
Clothing	17%	11%	72%	283
Books	14%	1%	85%	570
Electronic	0%	42%	58%	267
Sporting Good	0%	10%	90%	108

[iii] Some stores only had one style of checkout or one checkout for the entire store, which was considered the standard checkout.

While, on average, non-food stores displayed more non-food merchandise than food or beverages at checkout, food and beverages were common at these stores.[iv] 86% of all non-food stores surveyed carried food, beverages, or both at checkout (see Figure 3).

Figure 3. Presence of Food and Beverages at Checkout in Non-Food Stores

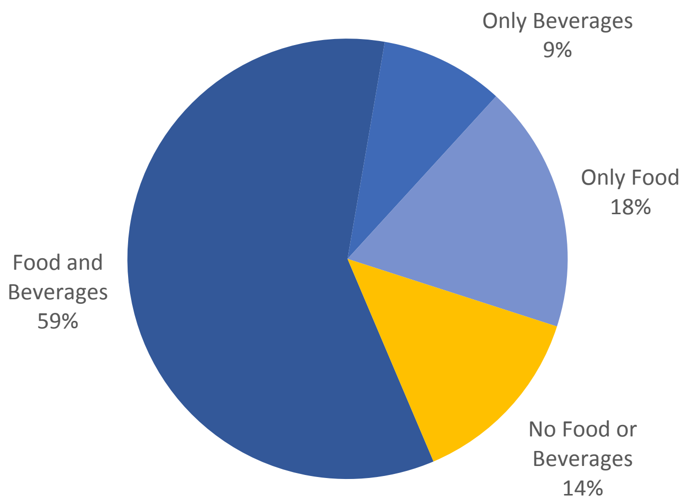


Figure 4. Costco Checkout Lane

Three non-food stores (Best Buy, Old Navy, CVS) carried food but no beverages, and 2 (Best Buy, City Sports) carried beverages but no food.

Only 3 out of the 21 non-food stores surveyed displayed neither food nor beverages at checkout. Those stores were RadioShack, Home Depot, and Modell's, all of which carried only merchandise, such as gift cards and batteries, at checkout.

Additionally, only 1 food store surveyed, Costco, did not promote any food or beverage at checkout (see Figure 4).

[iv] Results on the presence of food and beverages were determined by looking at all of the aisles evaluated at each store—and not just the standard checkout aisle—to determine if that store sold food or beverages at any of its checkouts.

Checkout Offerings at Food vs. Non-food Stores

Food stores' checkouts differed from non-food stores in what they offered. In our sample, 84% of food store checkout offerings were foods or beverages (see Figure 5a).[v] In contrast, 40% of non-food store checkout offerings were foods and beverages (see Figure 5b). The majority of items stocked at non-food stores were non-food merchandise.

Figure 5a. Food Store Options

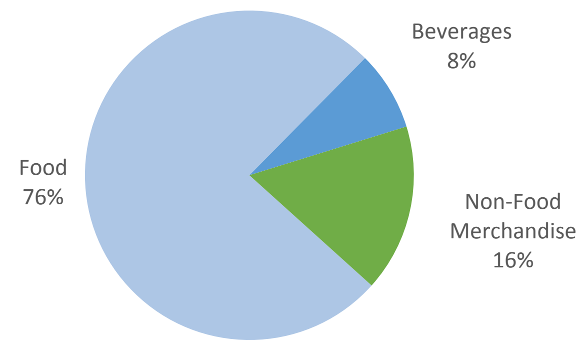
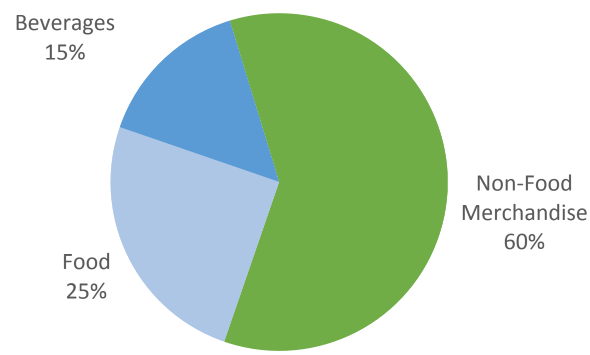


Figure 5b. Non-Food Store Options

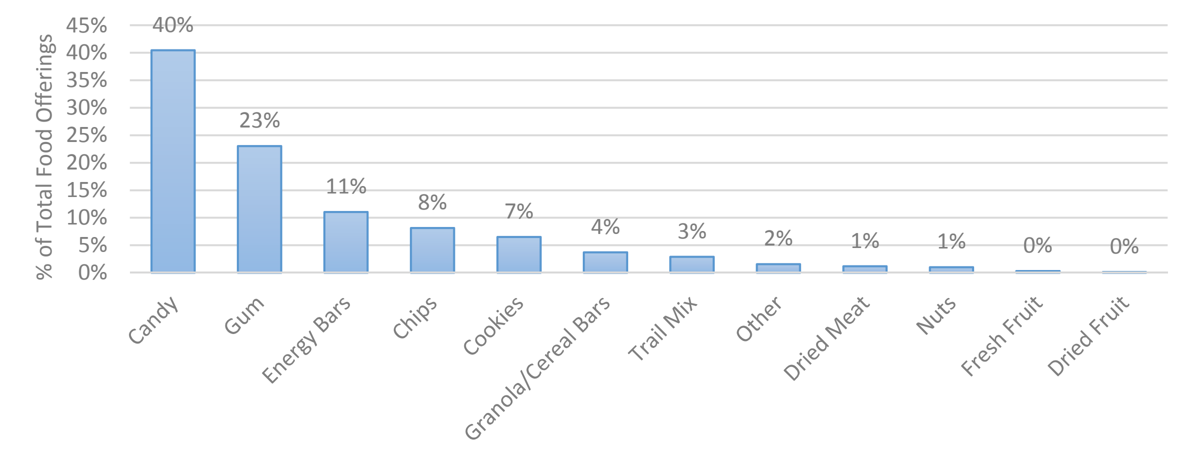


[v] In Figures 5a, 5b, 6, 7, 9, and 11, and related text, we compared only the standard aisles of each store, so that stores with more than one type of checkout aisle were not weighted more heavily than other stores.

Food Offerings at Checkout

The majority of foods and beverages at checkout at all 30 stores combined were of poor nutritional quality (see Figure 6). Candy was the most common food offering, followed by gum, energy bars, chips, and cookies. Two in five food items were candy, and one in five was gum.

Figure 6. Food Offerings at Checkout



Overall, at all stores combined, 90% of checkout food options were unhealthy, 8% were healthier, and just 2% of offerings were healthy (see Figure 7). We found only occasional packages of nuts and dried fruit, and 3 stores offered baskets of fresh fruit (see Figure 8).

Figure 7. Food Options at Checkout

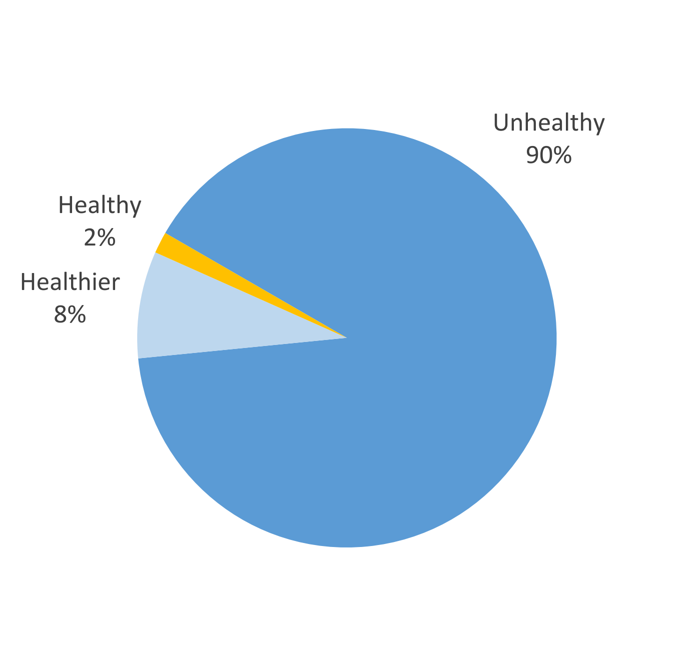
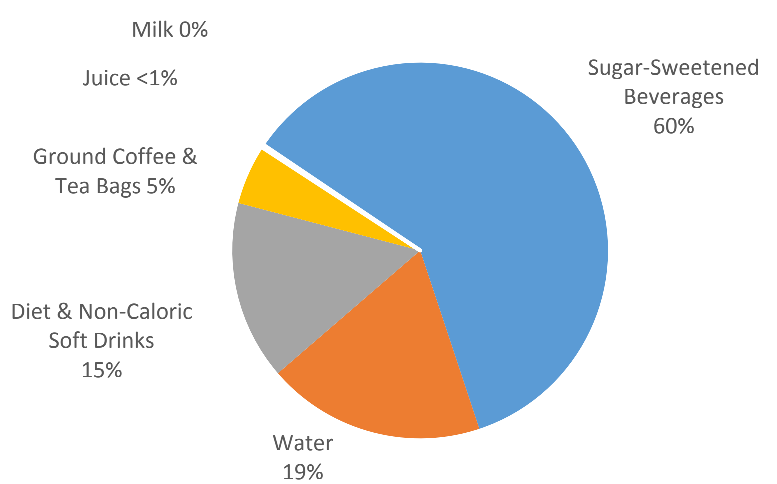


Figure 8. Healthy and Unhealthy Options at 7-Eleven Checkout

Beverage Offerings at Checkout

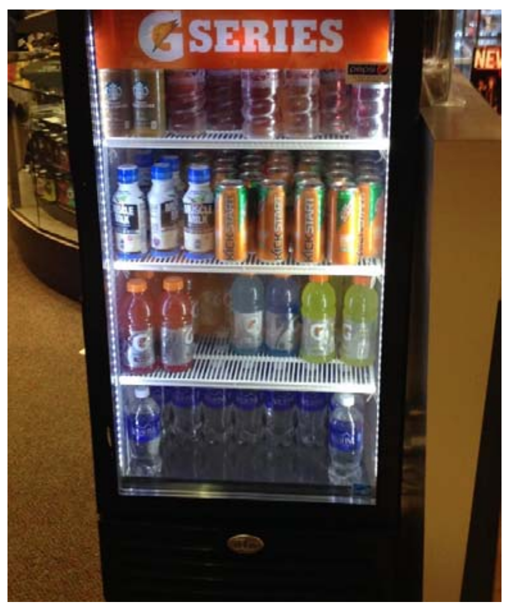
The majority of beverage offerings for all stores combined were sugar-sweetened drinks, including regular sodas, fruit drinks, Vitaminwater, calorically sweetened iced tea/coffee, and full calorie energy and sports drinks (see Figure 9). Water and diet/non-caloric beverages were the next most common offerings.[vi]

Figure 9. Beverage Offerings at Checkout



Overall, the number of sugar-sweetened beverages displayed was three times as many as water, and four times as many as non-caloric beverages at checkout. Refrigerators filled with sugar-sweetened beverages, like the one depicted in Figure 10, were common. Ground coffee and tea bags were occasionally offered. Juice with no added sugar was offered in just 2 of 30 stores; milk was offered in only 2 stores.

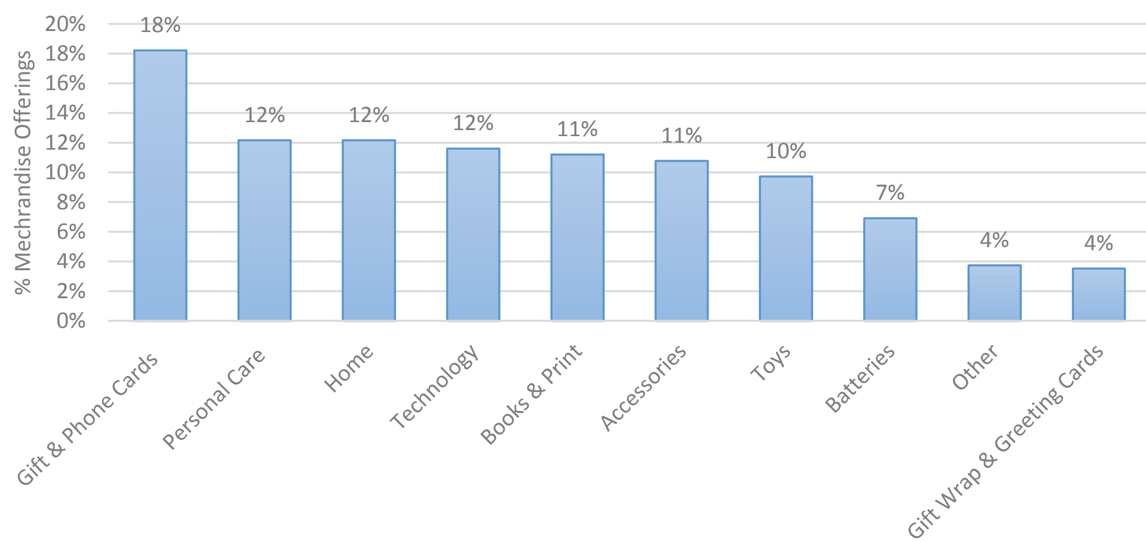
Figure 10. City Sports' Beverage Refrigerator



[vi] One food store stocked a shelf with 61 bottles of wine at checkout. We excluded this from our analysis to prevent wine from appearing to be more prevalent than it was. For all beverage offerings (including wine), see Appendix D.

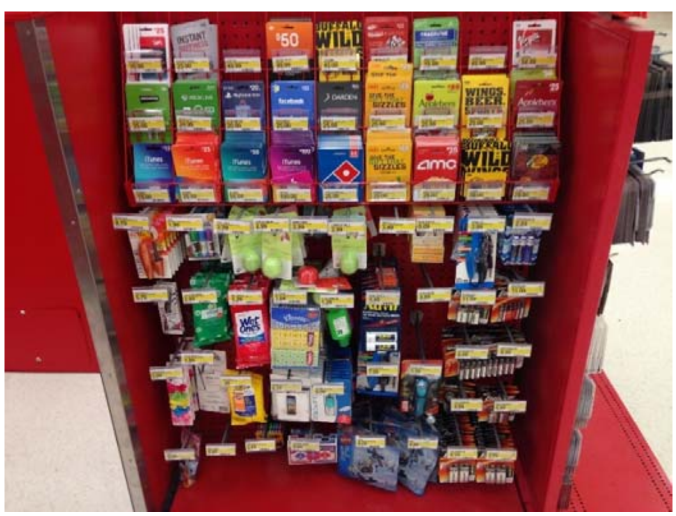
Non-Food Merchandise Offerings at Checkout
The most common non-food merchandise offerings at checkout were gift and phone cards and personal care products (see Figures 11 and 12). Personal care products included make-up, shampoo, toothpaste, lotion, and floss.

Figure 11. Non-Food Merchandise Offerings at Checkout



Home supplies, tech products, and books/print items were the next most common offerings. Home supplies included cleaning supplies, candles, incense, reusable shopping bags, air fresheners, plants, paper towels, water bottles and cups, and flashlights. The technology category included audio/video (CDs, DVDs, headphones), cameras, and film. Books and print included books, magazines, maps, postcards, and bookmarks. Other items included ID holders, umbrellas, reading glasses, jewelry, key chains, balloons, school supplies, gift bags, socks, and sweatbands.

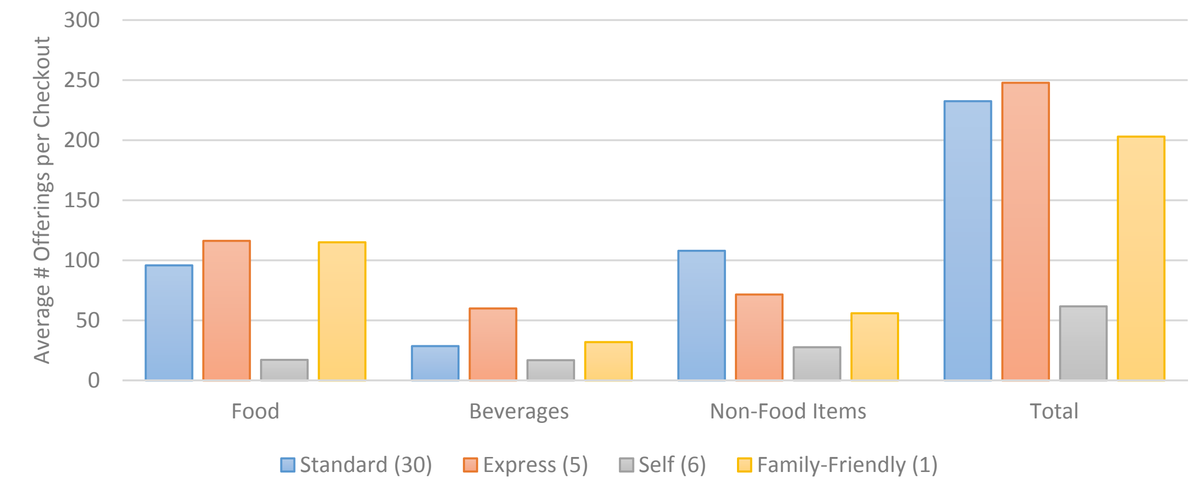
Figure 12. Merchandise at Target Checkout



Checkout Offerings by Type of Aisle

We compared the offerings at the 30 standard aisles, 5 express checkouts, 6 self-checkouts, and 1 family-friendly checkout (see Figure 13). We found little difference between the offerings in standard and express lanes across store types. However, self-checkouts displayed notably fewer offerings overall. Some self-checkouts had no items at all (see Figure 14).

Figure 13. Offerings by Checkout Lane Type



While customers may be able to reduce the number of items they are confronted with by choosing the self-checkout aisle, they often cannot avoid food and beverages altogether: two-thirds of the self-checkout aisles we assessed promoted unhealthy food.

Figure 14. Harris Teeter Self-Checkout

Only 1 of the 30 stores we visited (Giant Foods) offered a family-friendly checkout.[vii] This checkout was the same as the store's other lanes in the amount and percentage of unhealthy food offerings. It stocked the same amount of candy as the other lanes; the only difference was that it also included a fridge stocked with 12 facings of sugar-sweetened beverages, 8 facings of coconut water, and 8 facings of water.[viii] Future research should

[vii] No stores offered "healthy" checkouts.

[viii] Family-friendly appears to refer to the content of the magazines offered, not the nutritional quality of the food and beverage options.

investigate more family-friendly aisles to assess if they really do provide healthier options.

Discussion

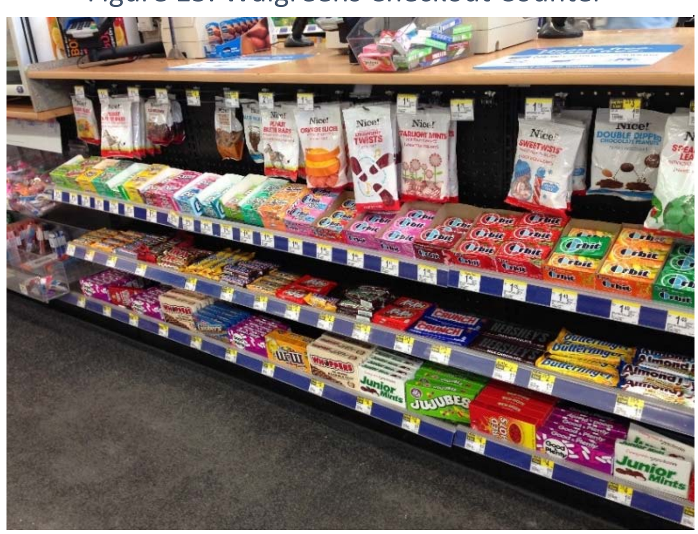
We found that both food and non-food stores push sales of food and beverages at checkout. We may be used to food and beverages at checkout, but from a public health perspective, it is troubling that all but 3 of the 21 non-food stores we surveyed promoted unhealthy food or beverages at checkout.

In addition, the food and beverages promoted at checkout are overwhelmingly of poor nutritional value. Approximately 90% of food at checkout is unhealthy. Soda and other sugar-sweetened beverages account for about two-thirds of beverage choices. The great majority of foods at checkout are loaded with sugar, and those that are not are typically made with refined grains and too much salt.

When people shop, they are bombarded with displays of candy, soda, and other unhealthy foods designed to prompt them to purchase and eat more calories. The widespread availability of these junk foods and beverages means that customers have no choice but to face unhealthy food when they check out. Whether customers shop at pharmacies, gas stations, hardware stores, office supply stores, or even toy stores, the presence of low-nutrition foods at checkout serves as a cue to buy and consume junk foods and sugar drinks.

Customers are faced with more than 45,000 calories at the Walgreens checkout (Figure 15). To burn that many calories, approximately 450 people would each have to walk a mile.

Figure 15. Walgreens Checkout Counter



A growing body of research links junk food availability to obesity. Our findings suggest that the high prevalence of low-nutrition and high-calorie impulse buys at checkout reduces the quality of Americans' diet. Given the high levels of obesity and the high incidence of diseases caused by poor nutrition, it is unethical for stores to push people to buy and consume extra calories that are harming their health.

We recommend that non-food stores stop selling foods and beverages at checkout. Our study identified rare but encouraging examples of stores not offering foods or beverages in some—or any—checkout aisles. Given that non-food stores already sell mostly merchandise at checkout, they could sell only merchandise and no food.

We recommend that food stores adopt nutrition standards for their checkout offerings. Those standards should set limits for calories, saturated and trans fats, added sugars, and sodium for foods and beverages, and ensure that food offerings have positive nutritional value by incorporating fruits, vegetables, whole grains, low-fat dairy, nuts, or seeds.[ix] That could be achieved through public policy or through voluntary efforts by retail stores and food and beverage manufacturers.

Over the last several decades, unhealthy food and beverages at checkout have become the norm. At the same time, obesity rates have skyrocketed. Given the high costs of obesity and other diet-related diseases, it is no longer acceptable for companies to push extra calories on consumers at checkout.

[ix] Alternatively, stores could limit checkout food and beverage offerings to water, fruit, and vegetables (with no added fats or sugars) and emphasize non-food merchandise instead.

Appendix A: Retail Locations by Store Type

Store Type	Retailer
Grocery	Giant Foods Harris Teeter Trader Joe's Safeway Whole Foods Market
Supercenter/Warehouse	Costco Target Walmart
Drug Store	CVS Rite Aid Walgreens
Convenience/Gas	7-Eleven BP Shell
Dollar Store	Dollar Tree Five Below
Office Supply	Office Depot Staples
Home and Bath	Bed Bath and Beyond
Clothing	Old Navy T.J. Maxx
Electronics	Best Buy RadioShack
Sporting Goods	City Sports Modell's Sporting Goods
Home Improvement/Hardware	Ace Hardware Home Depot
Toy Store	Toys "R" Us
Bookstore	Barnes & Noble Books-a-Million

Appendix B: Checkout Aisle Survey Instrument

Date of Assessment: __________________ Start Time: _________ End Time: ___________

1. Store

Name: ____

Location (Address, City, Zip code): ____

Type (Circle):

Grocery	Office Supply	Book Store
Supercenter/Warehouse	Dollar Store	Sporting Goods Store
Drug Store	Home and Bath	Home Improvement/Hardware
Convenience	Electronics Store	Toy Store
		Clothing

2. Checkout Design

Checkout Type	**Total number of queues**	**Is there a common queuing area for this checkout type? (Yes/No)**	**Number of queues evaluated**
Standard			
Express			
Self-Checkout			
Healthy/Family Friendly			
Total			

For stores that have individual queues for each register, checkout is defined as encompassing the end cap or cooler attached to the aisle, the aisle itself, the area over the belt, and dump bins and standing displays within one pace (approximately 30 inches) of the aisle. For stores that have one queue for multiple registers, checkout is defined to include all belted areas/areas where people wait in line, the end cap or cooler attached to one aisle, the aisle itself, the area over the belt, and dump bins or displays within one pace of where people wait in line.

3. Food Evaluation – remember to take a photo of each checkout assessed.

If you are evaluating more than 4 checkouts, use duplicate pages. On the first line, indicate the checkout type, and on the two lines at the bottom, indicate the type of food sold.

	Checkout #1	**Checkout #2**	**Checkout #3**	**Checkout #4**
Checkout Type (Standard, Express, Self, Healthy)				
	# of Facings	**# of Facings**	**# of Facings**	**# of Facings**
Candy				
Gum & Mints				
Chips & Pretzels				
Cookies & Cakes				
Granola & Cereal Bars				
Energy & Power Bars				
Trail Mix (with Candy)				
Nuts, Seeds & Trail Mix (No Candy)				
Dried & Canned Fruit & Vegetables				
Fresh Fruit & Vegetables				
Dried Meat/Jerky				
Other Food – Indicate Type & # Facings				
Dump Bins & Free-Standing Displays – Indicate Product & # Facings				

Store: ____ Location: _____________________________

4. Beverage and Merchandise Evaluation – remember to take a photo of each checkout assessed.

On the first line, indicate the checkout type, and on the bottom line, indicate the type of "other" sold. For all other lines, indicate the number of facings. Use the back to indicate particularly creative products.

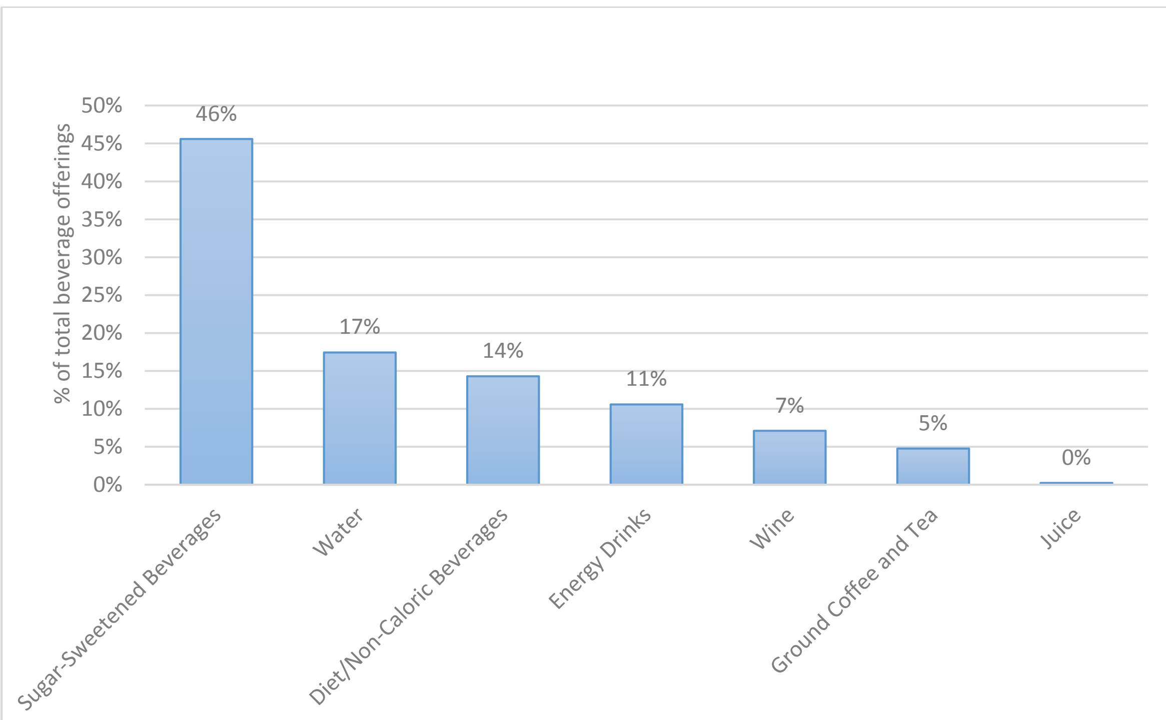
	Checkout #1	Checkout #2	Checkout #3	Checkout #4
Beverages	**# of Facings**	**# of Facings**	**# of Facings**	**# of Facings**
Energy Drinks				
Sweetened Beverages				
100% Juice				
Water/Seltzer				
Diet/Non-Caloric Beverages				
Other Drinks – Indicate Type & # Facings				
Merchandise	**# of Facings**	**# of Facings**	**# of Facings**	**# of Facings**
Books, Magazines & Other Print				
Phone & Gift Cards				
Batteries				
Film & Cameras				
Personal Care Products				
Audio, Video, & Other Technology				
Children's Toys & Games				
Other – Indicate Type & # Facings				

5. Additional Notes

Appendix C: Food, Beverage, and Non-Food Offerings in Stores' Standard Checkout Aisles

	Food Stores		Non-Food Stores		Overall	
Offering	**% Total**	**# Offerings**	**% Total**	**# Offerings**	**% Total**	**# Offerings**
Food	76%	1,658	25%	1,216	41%	2,874
Beverages	8%	171	15%	693	12%	860
Non-Food	16%	360	60%	2,876	47%	3,240
Total	**100%**	**2,189**	**100%**	**4,785**	**100%**	**6,974**

Appendix D: Beverage Offerings at Checkout[x]



[x] Beverage offerings at checkout—excluding wine—are included in the text of the report as Figure 9.

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