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Price Promotions of Foods and Beverages Sold at Food Store Checkouts

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Key Findings

- **This study found that 25% of all food and beverage product facings at checkout were price promoted.**
- **Sweetened beverages were more likely to be price promoted compared to unsweetened beverages (25% vs. 18%), and unhealthy foods were more likely to be price promoted compared to healthy foods (24% vs. 21%).**
- **Only 7% of price-promoted facings were for healthy foods and unsweetened beverages, while 63% were for unhealthy foods and sweetened beverages (with the remaining being for gum and mints).**
- **The most common price-promoted food and beverage categories at checkout were candy and sugar-sweetened beverages.**

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Introduction

Most Americans consume greater than recommended amounts of added sugars, sodium, and saturated fats and too few fruits and vegetables,[1] and unhealthy dietary patterns increase the risk of numerous noncommunicable diseases.[2-4] While factors that affect eating behaviors are complex, evidence suggests that retail food environments play an important role.[5-9] Food stores are the primary source of foods and beverages in the U.S.,[10] and studies find that in-store marketing influences consumers' purchasing decisions.[8,11,12]

Two key in-store marketing strategies are price promotions (i.e., temporary reductions in price) and prominent product placement.[8] Every year, food and beverage manufacturers spend substantial amounts of money so that stores provide price discounts for their products and place their products in premium areas of the store such as end-of-aisle displays, freestanding displays, and checkout.[8] These marketing strategies have been shown to increase sales and prompt impulse purchases.[8] Evidence suggests price promotions are more influential for people who are low-income or shopping for larger families.[9,12] Additionally, price promotions may lead to brand switching, product trialing (i.e., first-time purchase), and stockpiling (i.e., purchasing a larger quantity than normal to be consumed later).[8] Numerous studies have found that price promotions and product placement are typically used to promote unhealthy foods and beverages.[13-15] Price promotions are more common for unhealthy products, and a larger proportion of price-promoted purchases are for unhealthy products compared to healthy products.[15] Additionally, products placed at prominent locations in stores, such as the checkout area, mostly consist of ultra-processed foods and beverages that are high in sugars and sodium.[13,14,16-18] Evidence from some studies suggests price promotions are also more likely to trigger impulse purchases of unhealthy compared to healthy products.[15,19]

There is increased interest among public health researchers and advocates in policies that modify the retail food environment to encourage healthier diets and reduce chronic diseases.[20,21] In March 2021, Berkeley, CA, became the first jurisdiction globally to implement a healthy checkout policy. The Berkeley healthy checkout ordinance (HCO) set nutrition standards for foods and beverages placed in the checkout area: only unsweetened beverages and certain types of foods with ≤5 grams of added sugars and ≤200 milligrams of sodium per serving are permitted at checkout.[22] As part of an evaluation of Berkeley's HCO, data were collected on checkout product facings from 102 stores across four northern California cities prior to policy implementation. The purpose of this research brief is to examine the prevalence of price promotions of foods and beverages placed at checkout based on meeting Berkeley's HCO standards. To our knowledge, this is the first U.S. study to specifically characterize the healthfulness of price-promoted products at store checkout areas.

Data and Methods

A detailed description of the sampling design and data collection procedures are provided elsewhere;[18] a brief summary is provided here. An assessment of the checkout environment in a sample of 102 retail food stores located in four northern California cities was conducted in February of 2021. The purpose of the assessment was to characterize the healthfulness of foods and beverages available at checkout prior to the implementation of Berkeley's HCO.

The store sample included a census (n=24) of supermarkets, grocery stores, drugstores, dollar stores, and mass merchandisers identified by policy proponents as being subject to the HCO in Berkeley, as well as a set of matched comparison stores from Davis, Oakland, and Sacramento, CA. At every store, a reliable photo-based Store CheckOUt Tool (SCOUT) was used to collect data on a census of shelf-facing products from sampled checkouts.[23] A product facing was defined as an individual product that faced the consumer (products stacked behind each facing were excluded). Trained data collectors took contextual and up-close photos of product facings at checkout so that their characteristics (e.g., brand, size) could be coded. Information on prices and price promotions was recorded for food and beverage products. A facing was classified as price promoted if there was a current (e.g., quantity discount, reduced price), future (e.g., get $2 off next purchase), or cross-price promotion (e.g., a discount if a different product is purchased). Data collected from the SCOUT were also used to collect nutrition information (e.g., ingredients, added sugars, sodium) on food and beverage products.

Overall, data on 28,550 food and beverage facings were collected using the SCOUT. Of these, 1,792 (6%) facings were excluded because the facings were out of stock, the photo quality was poor, or there was insufficient nutritional data to classify products. Additionally, 3,059 facings (11%) were excluded because price promotion data were missing. Of the 102 sampled stores, two stores were excluded from the analysis because either no foods and beverages were available at checkout or price promotion data were missing for all food and beverage facings. Thus, the final analytic sample used in this study included 23,699 food and beverage facings from 100 food stores.

Food and beverage facings were classified into different categories (e.g., candy, sugar-sweetened beverages [SSBs]) based on their attributes and whether they met the Berkeley HCO standards. To meet the HCO standards, beverages could not contain any added sugars or artificial sweeteners. Foods meeting standards contained ≤5 grams of added sugars and ≤200 milligrams of sodium per serving and fell under the following categories: fruits, vegetables, nuts, seeds, legumes, yogurt or cheese, whole grains, and mints and gums with no added sugars. Categories meeting the HCO standards included unsweetened beverages (e.g., water, 100% juice), gum and mints with no added sugars, and healthy foods (i.e., fruits, vegetables, whole grains, seeds, nuts, legumes, and yogurt and cheese). Categories not meeting standards included sweetened beverages (i.e., SSBs and diet beverages), gum and mints with added sugars, and other products (i.e., candy, salty snacks, sweets, bars, and other).

Frequencies (counts and percentages) were calculated to describe the prevalence of price promotions for foods and beverages based on meeting Berkeley's HCO standards; the prevalence of price promotions was calculated across all stores and by store type. Store types included chain supermarkets, chain specialty food stores, independent supermarkets, independent grocery stores, chain mass merchandisers, chain dollar stores, and chain drugstores. Additionally, frequencies were used to characterize the types of food and beverage facings that were price promoted at checkout. All analyses were conducted in Stata/SE 17.0 (StataCorp, College Station, TX).

Results

Table 1 reports the prevalence of price promotions among foods and beverages at checkout that met and did not meet HCO standards. Of the 23,699 food and beverage facings in the sample, 5,942 (25%) were price promoted. Facings that met standards compared to those that did not were somewhat more likely to be on sale (27% vs. 24%); however, facings that did not meet standards were far more prevalent at checkout (69% vs. 31%). Sweetened beverages were more prevalent than unsweetened beverages (16% vs. 4%) and were more likely to be price promoted (25% vs. 18%). When gum and mints were excluded, unhealthy versus healthy foods (i.e., not meeting vs. meeting HCO standards) were much more prevalent at checkout (49% vs. 4%) and somewhat more likely to be price promoted (24% vs. 21%).

Table 2 shows prevalence of price promotions based on HCO standards by store type. Overall, chain supermarkets, drugstores, and specialty food stores had the highest prevalence of food and beverage product price promotions (41%, 34%, and 30%, respectively), including the highest prevalence among products not meeting the HCO standards (40%, 34%, and 27%, respectively). In contrast, independent stores, chain mass merchandisers, and chain dollar stores had substantially lower prevalence of price promotions (ranging from 0% to 8%), including price promotion of products not meeting standards (ranging from 0%-7%).

Table 3 describes the distribution of price-promoted product facings (n=5,942) located at checkout based on the HCO standards. Approximately two-thirds of price-promoted facings did not meet HCO standards (67%). Of those that met standards, most were gum and mints with no added sugars (79%). Very few price-promoted facings were healthy foods (4%) or unsweetened beverages (3%), while nearly half of price-promoted facings were unhealthy foods (47%), and a large proportion were sweetened beverages (16%). The largest food and beverage category of price-promoted products was candy, making up nearly one third of the sample (32%). **Figure 1** summarizes the results from Table 3, showing the percentage of the price-promoted sample that was for unhealthy foods, healthy foods, unsweetened beverages, sweetened beverages, and gum and mints (with and without added sugars).

TABLE 1 **Prevalence of price promotions among food and beverage facings that met and did not meet healthy checkout standards defined by Berkeley's Healthy Checkout Ordinance**

PRODUCT CATEGORY	Frequency of Facings n (%)	Prevalence of Price Promotions %
ALL FOODS AND BEVERAGES	**23,699 (100%)**	**25%**
MET HEALTHY STANDARDS [a]	**7,243 (31%)**	**27%**
BEVERAGES (unsweetened)	1,065 (4%)	18%
FOOD	6,178 (26%)	29%
Gum or mints, no added sugars	5,159 (22%)	30%
Healthy foods	1,019 (4%)	21%
Fruit [b]	188 (1%)	17%
Vegetables [b]	43 (0%)	0%
Whole grains	138 (1%)	53%
All seeds (incl cacao) [c]	116 (1%)	10%
Nuts	517 (2%)	19%
Legumes	10 (0%)	0%
Yogurt and cheese [d]	7 (0%)	0%
DID NOT MEET HEALTHY STANDARDS	**16,456 (69%)**	**24%**
BEVERAGES (sweetened)	3,727 (16%)	25%
SSBs	2,557 (11%)	24%
Diet beverages	1,170 (5%)	30%
FOOD	12,729 (54%)	24%
Gum and mints	1,152 (5%)	20%
Unhealthy foods	11,577 (49%)	24%
Candy (incl chocolate)	7,098 (30%)	27%
Salty snacks [e]	2,005 (8%)	20%
Sweets [f]	1,368 (6%)	20%
Bars [g]	552 (2%)	18%
Other [h]	554 (2%)	18%

a Defined as beverages with no added sugars and no artificial sweeteners (i.e., no non-nutritive sweeteners) and foods with ≤5 grams of added sugars and ≤200 mg of sodium per labeled serving in the following categories, determined by product's first ingredient: chewing gum and mints with no added sugars, fruit, vegetables, nuts, seeds, legumes, yogurt or cheese, and whole grains.

b Fresh, dried (including chips), canned, cupped, or jarred.

c All seeds including products with the first ingredient being cacao or dark, unsweetened, or bittersweet chocolate.

d Only cheese because no yogurts were observed at checkout.

e Dried meats, potato and tortilla chips, crackers, popcorn, pretzels, corn nuts, cracker and cheese dips, and snack mixes.

f Sweets included products such as baked goods, pre-packaged cookies, fruit snacks, and frozen desserts.

g Granola, nut, seed, and protein bars and clusters.

h Nuts and seeds, trail mix, dried fruit, cheese, vegetables (dried, chips, pickled), bread, cold cereal, sauces and dips, raw or cooked meat, cold prepared food, instant noodles, vegetarian jerky, cooking oil, croutons, dried fish, other seafood, pasta/noodles, granola, condiments, and bean snacks.

SSBs—sugar-sweetened beverages.

TABLE 2 Prevalence of price promotions among food and beverage facings that met and did not meet healthy checkout standards defined by Berkeley's Healthy Checkout Ordinance, by store type

PRODUCT CATEGORY	Chain supermarket (n=16)	Chain specialty food store (n=10)	Independent supermarket (n=10)	Independent grocery (n=13)	Chain mass merchandiser (n=8)	Chain dollar store (n=10)	Chain drugstore (n=33)
ALL FOODS AND BEVERAGES	**41%**	**30%**	**8%**	**3%**	**1%**	**0%**	**34%**
MET HEALTHY STANDARDS [a]	**42%**	**34%**	**9%**	**0%**	**1%**	**0%**	**34%**
Beverages (unsweetened)	28%	41%	17%	0%	3%	0%	10%
Healthy foods	38%	21%	10%	0%	4%	0%	24%
Gum and mints	45%	41%	7%	0%	0%	0%	37%
DID NOT MEET HEALTHY STANDARDS	**40%**	**27%**	**7%**	**4%**	**1%**	**0%**	**34%**
Beverages (sweetened)	44%	71%	14%	0%	0%	0%	35%
Unhealthy foods	39%	14%	7%	6%	1%	1%	34%
Gum and mints	37%	19%	5%	0%	0%	0%	28%

TABLE 3 Percentage of price-promoted food and beverage product facings that met and did not meet healthy checkout standards defined by Berkeley's Healthy Checkout Ordinance

PRODUCT CATEGORY	Frequency of Facings n (%)
ALL PRICE PROMOTIONS	**5,942 (100%)**
MET HEALTHY STANDARDS [a]	**1,971 (33%)**
BEVERAGES (unsweetened)	194 (3%)
FOOD	1,777 (30%)
Gum or mints, no added sugars	1,560 (26%)
Healthy foods	217 (4%)
Fruit [b]	32 (1%)
Vegetables [b]	0 (0%)
Whole grains	73 (1%)
All seeds (incl cacao) [c]	12 (0%)
Nuts	100 (2%)
Legumes	0 (0%)
Yogurt and cheese [d]	0 (0%)
DID NOT MEET HEALTHY STANDARDS	**3,971 (67%)**
BEVERAGES (sweetened)	948 (16%)
SSBs	601 (10%)
Diet beverages	347 (6%)
FOOD	3,023 (51%)
Gum and mints	235 (4%)
Unhealthy foods	2,788 (47%)
Candy (incl chocolate)	1,915 (32%)
Salty snacks [e]	396 (7%)
Sweets [f]	274 (5%)
Bars [g]	101 (2%)
Other [h]	102 (2%)

a Defined as beverages with no added sugars and no artificial sweeteners (i.e., no non-nutritive sweeteners) and foods with ≤5 grams of added sugars and ≤200 mg of sodium per labeled serving in the following categories, determined by product's first ingredient: chewing gum and mints with no added sugars, fruit, vegetables, nuts, seeds, legumes, yogurt or cheese, and whole grains.

b Fresh, dried (including chips), canned, cupped, or jarred.

c All seeds including products with the first ingredient being cacao or dark, unsweetened, or bittersweet chocolate.

d Only cheese because no yogurts were observed at checkout.

e Dried meats, potato and tortilla chips, crackers, popcorn, pretzels, corn nuts, cracker and cheese dips, and snack mixes.

f Sweets included products such as baked goods, pre-packaged cookies, fruit snacks, and frozen desserts.

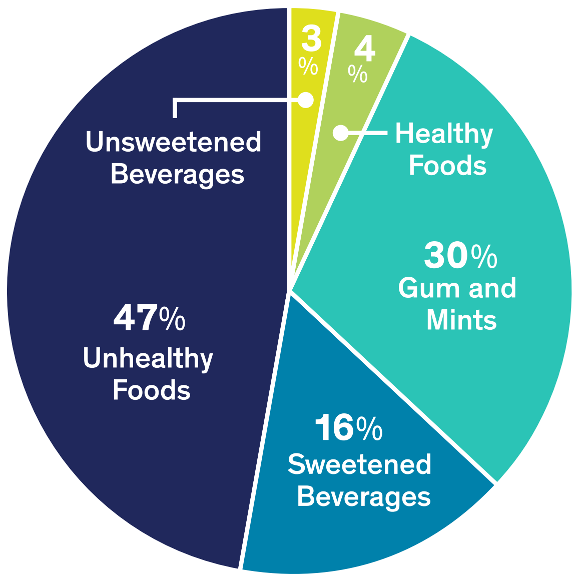
g Granola, nut, seed, and protein bars and clusters.

h Nuts and seeds, trail mix, dried fruit, cheese, vegetables (dried, chips, pickled), bread, cold cereal, sauces and dips, raw or cooked meat, cold prepared food, instant noodles, vegetarian jerky, cooking oil, croutons, dried fish, other seafood, pasta/noodles, granola, condiments, and bean snacks.

n Represents the number of stores in Table 2 and number of food and beverage facings in Table 3.

SSBs—sugar-sweetened beverages.

FIGURE 1 Distribution of food and beverage facings at checkout that were price promoted



Discussion

This study found that 25% of all food and beverage products at checkout were price promoted. Sweetened versus unsweetened beverages were more likely to be price promoted (25% vs. 18%) and, excluding gum and mints, unhealthy versus healthy foods were also somewhat more likely to be price promoted (24% vs. 21%). Overall, given that unhealthy foods and beverages dominated the checkout area and, on average, were more likely to be price promoted, of all price-promoted facings, only 7% were for healthy foods or unsweetened beverages and 63% were for unhealthy food or sweetened beverages. Of all price-promoted food and beverage facings, the largest categories were candy (32%) and SSBs (10%), respectively.

This study contributes to the literature by being the first U.S. study to evaluate the healthfulness of price-promoted foods and beverages at food store checkouts using detailed nutritional data for individual product facings. The only other study on this topic was conducted at 104 supermarkets in two Australian cities,[24] and it also found that price promotions for unhealthy foods and beverages were exceedingly common at checkout. Their results revealed a similar proportion of foods and beverages that were price promoted at supermarkets (49% compared to 41% in this study) with 88% of the price-promoted products being unhealthy foods and beverages.[24] Results from our study are also consistent with literature comparing the prevalence of price promotions among unhealthy and healthy foods and beverages in food stores generally, finding unhealthy products are more likely to be on sale.[15]

Overall, given the high prevalence of unhealthy food and beverage products at checkout, many of which are price promoted, the Berkeley healthy checkout policy has the potential to reduce impulse purchases of unhealthy foods and beverages. The impact may be larger for lower-socioeconomic groups who may be more price sensitive[9] and more likely to make purchases at checkout,[25] as well as children since parents are more likely to purchase foods from checkout.[25] However, further restrictions of in-store marketing of unhealthy foods and beverages may be needed to improve dietary intake. Examples include setting nutrition standards for other prominent areas of the store (e.g., end-of-aisle displays) and restricting price promotions or marketing of price promotions for unhealthy products.[11,20] It is important that future research explores the nuances of price promotions at checkout and other prominent areas of the store; specifically, whether the type and magnitude of price promotions vary based on product healthfulness.

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