

Characteristics of tobacco purchases in urban corner stores

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ABSTRACT

Introduction To examine the prevalence and patterns of tobacco purchases at low-income, urban corner stores.

Methods Data on tobacco products and other purchases were collected through direct observation of customers' purchases (n=6369) at 120 urban corner stores in Philadelphia, Pennsylvania, from April to September 2012.

Results Overall 13% of corner store purchases included tobacco products. The majority (61%) of tobacco purchases did not include any other products, and 5.1% of all purchases from corner stores included a food or beverage and tobacco product. Approximately 24% of tobacco purchases were for lower-cost tobacco products such as cigars and cigarillos, and nearly 5% of tobacco purchases were an illegal purchase of a single, unpackaged tobacco product that is not intended for individual sale (ie, loosies). There was no difference in the average amount spent on food or beverages when purchased with (US\$2.55, 95% CI: 2.21 to 2.88) or without (US\$2.55, 95% CI: 2.48 to 2.63) tobacco products.

Conclusions In low-income, urban corner store settings, 87% of purchases did not include tobacco; most tobacco purchases did not include the sale of non-tobacco items and spending on non-tobacco items was similar whether or not tobacco was purchased. These findings can help inform retail-level tobacco sales decisions, such as voluntary discontinuation of tobacco products or future public health policies that target tobacco sales. The results challenge prevailing assumptions that tobacco sales are associated with sales of other products in corner stores, such as food and beverages.

INTRODUCTION

One approach to reducing smoking prevalence is through decreasing access to tobacco in retail environments,¹⁻³ which has been recommended to improve cessation efforts and reduce youth tobacco use initiation among other potential benefits.^{4,5} Economic concerns, including fear of reduced revenue, may prevent retailers from voluntarily discontinuing tobacco sales or supporting public policies that decrease retail access to tobacco. One qualitative study of 62 small retailers in the UK found that the majority of store owners reported that while profit margins for tobacco products were low (<7%), they valued offering tobacco products because they thought tobacco brought in customers who then purchased other items.⁶ However, there is a lack of empirical research on how common

tobacco purchases are in corner stores and the degree to which they are purchased in isolation or with other products. The aims of the current study were to describe the prevalence of tobacco purchases at corner stores and examine differences in purchasing patterns by tobacco type, purchase type, sex and age category.

METHODS

Procedures

Data were collected as part of a longitudinal evaluation of the Healthy Corner Store Initiative (HCSI)^{7,8} and taken from the 1-year follow-up assessment because baseline data did not include tobacco purchases. The HCSI intervention focused on access to healthy foods and did not address tobacco sales or use. The HCSI intervention showed no changes to customers' food and beverage purchases⁷ and modest changes to some corner store food environments.⁹ Data were collected via intercept surveys (n=6576) with shoppers outside of corner stores (n=120) in Philadelphia, Pennsylvania between April and September 2012. Corner stores were defined as businesses with <2000 square feet that primarily sold food, had less than four aisles and had only one cash register. Stores located in high poverty zip codes (>20% of households with incomes below the Federal Poverty Level) were prioritised for recruitment into the initiative due to the initiative's focus on areas of high need, and a random sample of stores were selected for evaluation.⁸ Shoppers' participation was anonymous and written, informed consent was waived.

Trained research staff conducted postpurchase intercept surveys, asking if customers would allow their purchases to be recorded. In order to reduce data collection burden, only purchases that included either food, beverages or tobacco were recorded. Intercepts (approximately 1-2 min in duration) were completed between 08:00 and 17:00 hours during 15 min intervals where all patrons were approached to participate. No data were collected to calculate participation rates, but anecdotal evidence suggests that fewer than 10% of customers declined to participate.⁷ Staff recorded the self-reported age category and perceived sex of the customer, what was purchased (names and descriptions of items, amount of money just spent) and asked how frequently customers visited the store. For tobacco purchases, the item brand, product, quantity, cost, flavour and whether the tobacco was purchased with other items were recorded from a receipt (if available). Otherwise staff recorded product details



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from packaging and asked customers what prices were paid for the tobacco products. Online supplementary appendix A contains additional description of the methodology.

Statistical analysis

Of the 6576 intercepts conducted, 207 (3.1%) were excluded due to missing key information (ie, price, product or purchase type information). The final analysis sample (n=6369) included some intercepts that were missing data for participants or products (n=7 missing age or sex, n=39 missing tobacco type, n=97 missing frequency of store visits).

Descriptive statistics on age, sex, tobacco type and amount spent were analysed by purchase type (ie, food or beverage only, tobacco only or food or beverage and tobacco). A small number of purchases (approximately 2%) that included either foods, beverages or tobacco as well as non-food household products such as paper towels, which could not be separated due to small sample size, were included.

Product descriptions were used to categorise tobacco products in one of four categories: cigarettes, cigars or cigarillos, little

cigars and other (eg, tobacco rolling papers). Cigars and cigarillos are taxed at a lower amount and typically sold at a lower cost than cigarettes and little cigars, and can be sold in smaller packages or singles. Little cigars are cigarette-type, filtered cigars sold in packs of 20. A binary variable was created to indicate whether a tobacco purchase included a 'loosie', which is the illegal purchase of a single, unpackaged tobacco product that is not intended for individual sale (eg, a single cigarette or a single cigar taken out of its packaging). Categorical analyses were conducted using a X^2 test, and means were compared using independent t-tests. Data were analysed using R V.3.3.0.¹⁰

RESULTS

Purchase characteristics and prices are shown in table 1. Approximately 13.2% of purchases at corner stores included a tobacco product; 8.1% were exclusively tobacco and the remaining 5.1% included a food or beverage product. Of all tobacco purchases, 24% were for lower-cost products, such as cigars and cigarillos. Approximately 5% of all tobacco purchases were loosie purchases. Beverages and chips were the first and second most

Table 1 Tobacco purchase characteristics in urban corner stores by purchase type

	Total	Food or beverage only	Tobacco only	Food or beverage and tobacco
Total purchases % (n)	100 (6369)	86.8 (5530)	8.1 (514)	5.1 (325)
Tobacco purchases % (n)*	13.2 (839)	0	61.3 (514)	38.7 (325)
Shopper characteristics				
Age % (n)*				
Child (5–12 years)	9.8 (621)	99.7 (619)	0	0.3 (2)
Adolescent (13–18 years)	15.5 (986)	98.2 (968)	0.9 (9)	0.9 (9)
Adult (>19 years)	74.8 (4758)	82.8 (3939)	10.6 (505)	6.6 (314)
Sex % (n)*				
Female	40.2 (2559)	89.5 (2291)	5.9 (152)	4.5 (116)
Male	59.8 (3807)	85.0 (3236)	9.5 (362)	5.5 (209)
Frequency of visits per week % (n)*, †				
<1 time per week	1.8 (115)	87.8 (101)	8.7 (10)	3.5 (4)
1–2 times per week	12.5 (781)	88.3 (690)	8.2 (64)	3.5 (27)
3–4 times per week	29.0 (1819)	90.0 (1638)	6.1 (111)	3.8 (70)
5–7 times per week	56.5 (3545)	84.9 (3009)	9.0 (321)	6.1 (215)
Other	0.2 (12)			
Missing	1.5 (97)			
Products purchased				
Loosie purchases‡	4.8 (40)	0	45.0 (18)	55.0 (22)
Tobacco product type % (n)†‡				
Cigarettes and little cigars	69.5 (583)	0	62.1 (362)	37.9 (221)
Cigars and cigarillos	23.8 (200)	0	60.0 (120)	40.0 (80)
Other	2.0 (17)			
Missing	4.6 (39)			
Price paid				
Average amount spent	US\$2.96 (2.89, 3.04)	US\$2.55 (2.48, 2.63)§	US\$5.02 (4.76, 5.28)¶	US\$6.66 (6.23, 7.09)§, ¶
Average amount spent on tobacco	US\$4.88 (4.68, 5.08)	0	US\$5.02 (4.76, 5.28)	US\$4.63 (4.32, 4.94)
Cigarettes and little cigars	US\$6.06 (5.87, 6.26)	0	US\$6.24 (5.98, 6.49)	US\$5.75 (5.46, 6.04)§
Cigars and cigarillos	US\$1.52 (1.39, 1.66)	0	US\$1.55 (1.37, 1.74)	US\$1.48 (1.27, 1.68)
Loosie purchases‡	US\$0.83 (0.70, 0.95)	0	US\$0.94 (0.74, 1.15)	US\$0.73 (0.57, 0.89)
Average amount spent on food or beverage	US\$2.55 (2.47, 2.63)	US\$2.55 (2.48, 2.63)	0	US\$2.55 (2.21, 2.88)

The total column provides the per cent of all purchases by characteristic.

* $p < 0.001$, indicates a significant difference in the proportion of purchases by characteristic and purchase type.

†Estimates of total include categories not reported separately.

‡A loosie purchase is the illegal purchase of a single, unpackaged tobacco product that is not intended for individual sale. All loosie purchases in the current study were for single cigarettes.

§ $p < 0.001$, indicates a significant difference in means as compared with tobacco-only purchases.

¶ $p < 0.001$, indicates a significant difference in means as compared with food or beverage-only purchases.

common non-tobacco items purchased regardless of whether a tobacco product was purchased or not. Online supplementary appendix A shows the top-selling tobacco products and respective prices and commonly purchased other products. The majority of all tobacco purchases (61.3%) and tobacco purchases among customers who visited the store five to seven times per week (55.9%) did not include any other items. Approximately 94% of purchases that included food or beverages did not include tobacco products.

Across all purchases, customers spent an average of US\$2.96 per purchase, US\$4.88 on tobacco when purchased and US\$2.55 on food or beverages (table 1). Among purchases that included tobacco, once removing the cost of the tobacco products themselves, there was no difference in the amount customers spent on food or beverage items when purchases included tobacco (US\$2.55, 95% CI 2.21 to 2.88) or did not (US\$2.55, 95% CI 2.48 to 2.63).

DISCUSSION

This study is among the first to describe tobacco purchases at corner stores in a low-income, large urban area in the USA. There were two main findings of the study. First, a substantial majority (86.8%) of all purchases at corner stores included no tobacco products. Of the remaining purchases, 8.1% were tobacco only and 5.1% were tobacco products purchased with other items, predominantly food or beverages. The majority of tobacco purchases (61.3%) did not include the purchase of any other items, and this pattern was consistent across customers who shopped at corner stores frequently.

These results are contrary to expectations based on qualitative work where store owners describe a high reliance on tobacco sales to bring in customers.⁶ One study found that 81% of owners attributed the importance of tobacco sales to footfall rather than profit margins, which 89% of store owners reported to be low.⁶ The current study also found no difference in the amount spent on food or beverages, whether or not tobacco was purchased. No previous quantitative studies have examined tobacco purchase characteristics in small stores or compared purchasing patterns with or without tobacco. Results from the current study demonstrated tobacco purchases are limited, that there is limited evidence of attracting increased foot traffic and no differences in non-tobacco spending across purchases with or without tobacco, even in a city with high rates of smoking (23.4%).¹¹ The study results may inform future public health interventions, such as tobacco retailer density caps, to reduce tobacco availability and sales and the voluntary discontinuation of sales by small retailers. Results may also be important in changing retailers' perceptions about the role of tobacco sales in their stores and help reduce retailers' opposition to tobacco control restrictions that affect the point of sale.

Second, while cigarettes and little cigars were the most commonly purchased tobacco products, a sizeable percentage of all tobacco purchases (24%) included a lower-cost tobacco option, such as cigars and cigarillos. National data show that non-cigarette products comprise only 10% of per capita tobacco consumption suggesting that residents in a large, urban city may consume a greater proportion of non-cigarette tobacco products compared with national estimates.¹² Previous studies have suggested that the inequitable distribution of tobacco excise taxes among different product types encourages shifts in purchases to cheaper tobacco products.^{13–15} Policymakers should consider low-cost cigars and cigarillos and their use as replacements for cigarettes and little cigars when designing tax policy.

As the first study exploring tobacco purchase patterns at small, urban corner stores, our findings provide unique and important insights into this subset of the tobacco retail environment. The study included a large sample size of stores and purchases and is reflective of the tobacco retail environment in low-income urban areas in the USA. Our study also had several limitations. First, data were collected in 2012 prior to implementation of tax increases, which now add US\$3.00 onto the price of cigarettes and little cigars compared with the time of data collection, and may not be reflective of current purchase patterns. Data on tobacco brands and products were categorised based on written product descriptions and may have been imperfect. While using intercepts where staff could objectively verify what items were purchased was a strength of the study, it is possible that customers who only purchased tobacco refused participation more often though overall compliance was estimated to be high. Philadelphia has a high smoking prevalence compared with other large cities and national estimates (23.4% vs 18.1%, respectively),^{11 16} a large reliance on small corner stores and has historically had a high density of tobacco retailers per capita. No comparison data were available to determine whether other tobacco retail environments show similar patterns. While the generalisability of the study is limited to other similar urban environments, the data provide valuable information on low-income and minority urban populations.

This study questions assumptions regarding the association between purchases of tobacco and other products at corner stores. More research is needed on the role of tobacco sales in the business plan of small stores. These findings can inform retail-level tobacco sales decisions, such as voluntary discontinuation of tobacco products, or future public health policies that target retail tobacco sales.

What this paper adds

- ▶ In low-income, urban corner store settings, 87% of purchases did not include tobacco.
- ▶ Most tobacco purchases did not include the sale of non-tobacco items.
- ▶ The results challenge prevailing assumptions that tobacco sales are associated with sales of other products in corner stores, such as food and beverages.

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Contributors JD analysed the data and created the first draft of the manuscript in collaboration with HGL. HGL made all revisions and had primary responsibility for the manuscript. GDF and GM conceptualised the study. GDF, GM, SVV and AW designed and carried out the original study. RC and CB provided content expertise and provided substantive edits to drafts of the manuscript. All authors read, made revisions and approved the final manuscript.

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