

Financial hardship during the COVID-19 pandemic and increased receipt of commercial tobacco discount coupons among US adults who use commercial tobacco

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ABSTRACT

Introduction Many individuals experienced financial hardship during the COVID-19 pandemic; yet commercial tobacco (CT) sales increased in the USA. We examined how experiencing financial hardships relates to increased CT discount coupon reception during the pandemic.

Methods A nationally representative sample of 1700 US adults who used CT during the 12 months prior to the survey were surveyed online during January to February 2021. Participants reported if they had received more discount coupons for various CT products during (compared with before) the pandemic. They also reported whether they experienced six different types of financial hardships since the pandemic, and the total number of hardships experienced was counted. Weighted multivariable logistic regressions were used to examine the associations between financial hardships and increased coupon reception, adjusting for demographics and CT product use.

Results During the first 10–11 months of the pandemic, 21.3% of US adults who used CT during the 12 months prior to the survey reported receiving more CT discount coupons. Experiencing financial hardship during the pandemic was associated with higher odds of receiving more coupons for all types of CT products: every additional count of financial hardship was associated with higher odds of increased reception of discount coupons for all CT products (adjusted odds ratios ranging from 1.13 to 1.23 across products).

Conclusions Over one-fifth of US adults who used CT received more discount coupons during the pandemic. Those facing financial hardships had higher discount coupon reception, suggesting potential targeted marketing to financially vulnerable individuals by the tobacco industry.

INTRODUCTION

Despite the disruptions in daily life caused by the COVID-19 pandemic, the US Federal Trade Commission (FTC) recently announced in its annual cigarette and smokeless tobacco report that annual cigarette and smokeless tobacco sales increased from 2019 to 2020^{1 2} for the first time in 20 years. The FTC also reported that industry spending on cigarette advertising and promotion increased from \$7.62 billion in 2019 to \$7.84 billion in 2020, and price discounting—a strategy that is associated with increased cigarette purchasing behaviours³ and disproportionately affects lower socioeconomic

WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ Previous research has indicated that people who use commercial tobacco (CT) leverage price promotions provided by the tobacco industry to manage tobacco expenditures, especially among those experiencing financial hardships. These price promotions are known to hinder CT cessation and promote relapse.

WHAT THIS STUDY ADDS

⇒ During the pandemic, a significant proportion of US adults who used CT during the 12 months prior to the survey reported receiving more discount coupons for CT products, especially among those facing financial hardships during the COVID-19 pandemic. This coincided with the increase in tobacco industry marketing expenditures during the pandemic.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

⇒ This study suggests that the tobacco industry may be targeting financially vulnerable individuals—specifically people who reported financial hardships due to the pandemic—with discount coupons. Prohibiting CT discount coupons and price promotions may encourage CT cessation especially among financially vulnerable groups.

status (SES) individuals^{4 5}—represented the largest expenditure categories in 2020 with \$6.07 billion paid to retailers and \$876 million paid to wholesalers.

Commercial tobacco (CT) use accounts for more than 8 million annual deaths worldwide and costs the global economy US\$1.4 trillion each year.⁶ Cost of CT products is one of the most common motives for smoking cessation,⁷ and product price has a significant impact on CT use behaviours.⁸ Furthermore, people who use CT products leverage discount coupons and promotions to manage and reduce their tobacco-related expenditures and continue CT use.^{9–11} Lower SES smokers are more likely than their higher SES counterparts to receive and use tobacco direct mail and email coupons,¹² which can hinder tobacco cessation. Furthermore, the CT industry actively targets lower SES groups with marketing.¹³ Receipt



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of direct-to-consumer tobacco coupons and mail marketing have been shown to promote progression of smoking among non-smokers and continuation of smoking and progression to daily smoking among adolescent and young adult smokers^{14 15} and adult smokers in the USA.⁵ These coupons have also been associated with increased odds of becoming established smokers among experimenters, increased odds of smoking relapse among former smokers and reduced odds of smoking cessation ≥ 6 months among current smokers.¹²

The COVID-19 pandemic has impacted the financial situation of many people and imposed financial challenges and hardships.^{16 17} As a result, CT may have become less affordable to people who use CT products throughout the pandemic, who may have subsequently relied more on discount coupons and promotions to continue their CT use. The CT industry may have known that some individuals would consider quitting CT due to the cost. Thus, the CT industry might have used coupons as a means to prevent a mass smoking cessation phenomenon that was caused by COVID-19. Additionally, tobacco industry internal documents have shown that CT companies targeted individuals of low SES with coupons.¹⁸ Therefore, it is also possible that the industry may have taken advantage of these financial situations to boost sales with discount coupons and promotions, in part through targeting people facing growing financial hardships during the pandemic.

It is uncertain if and to whom discount coupon reception increased during the COVID-19 pandemic among people who use CT products, and whether financial hardships experienced during the COVID-19 pandemic impacted changes in CT coupon receipt. Understanding changes in coupon reception and associations with financial hardships experienced during the COVID-19 pandemic is of public health significance because it can inform policy actions, including restricting the use of discount coupons and price promotions from the tobacco industry, which is needed to promote tobacco cessation.

The present study aimed to address these knowledge gaps by providing data on CT coupon reception for different CT products, collected through a representative sample of US adults who used CT during the 12 months prior to the survey, and assessing changes in coupon reception since the COVID-19 pandemic. Specifically, we examined increases in coupon reception among US adults who used CT during the 12 months prior to the survey in January to February 2021, 10–11 months into the COVID-19 pandemic. Furthermore, we examined whether experiencing financial hardships during the COVID-19 pandemic relates to increases in coupon reception for CT products.

METHODS

Study population

The data used for this study were from a representative sample of US adults (≥ 21 years) who used CT during the 12 months prior to the survey ($n=1700$) collected from January to February 2021 and oversampled Asian and black/African American people to recruit a racially and ethnically diverse sample that is more representative of the US population of individuals who use CT. Data were collected through the YouGov online panel,¹⁹ which used a sampling matching approach with weighting to achieve national representation similar to traditional random digit dialling sampling.²⁰ Eligible individuals completed an online survey after providing informed consent and were compensated according to YouGov policy. The cooperation rate for the survey was 88.3% among those screened eligible.

Measures

Demographic information (age, sex, race, ethnicity, marital status and education level) was collected. Race/ethnicity responses were combined into the categories of 'Asian', 'Black or African American', 'Hispanic or Latino', 'White' and 'Other' (a category which included 'American Indian or Alaska Native', 'Middle Eastern or North African', 'Pacific Islander' and 'Multiracial/multiethnic'). Marital status information was combined into categories of 'Has a partner' and 'No partner'. Information about the highest level of education completed was combined into categories of 'High school or less' or 'More than high school'. Information about the annual income of the family was combined into categories of '<\$50 000 (per year)' and ' \geq \$50 000 (per year)'.

In six items, participants reported whether they received discount coupons for different CT products (cigarettes, electronic vaping products, cigars and cigarillos, hookah, other combustible tobacco products and smokeless tobacco) in the mail, email, at stores or through other channels. Response options for these items included: 'Yes, although fewer coupons than before the COVID-19 pandemic', 'Yes, same number of coupons as before the COVID-19 pandemic', 'Yes, even more coupons than before the COVID-19 pandemic' and 'Did not receive'. Responses were dichotomised into 'Increased reception since the COVID-19 pandemic' and 'Not increased reception since the COVID-19 pandemic' ('Yes, same number of coupons as before the COVID-19 pandemic', 'Yes, although fewer coupons than before the COVID-19 pandemic' and 'Did not receive').

Additionally, participants reported how often they have experienced any of the following financial hardships since the COVID-19 pandemic: (1) not enough money to pay for food, (2) not enough money to pay for rent or mortgage, (3) not enough money to pay for utilities, (4) not enough money to pay for medications, (5) not enough money to pay for unexpected expenses and (6) not enough money to pay for hand sanitiser, disinfectant and face masks. These items provide context about living necessities including food, rent and utilities. Response options for these items included: 'Never', 'Rarely', 'Sometimes', 'Often' and 'Always'. Responses were dichotomised into 'At least sometimes' ('Sometimes', 'Often' and 'Always') and 'Less than sometimes' ('Never' and 'Rarely'). The number of these six financial hardships experienced at least sometimes since the COVID-19 pandemic was also counted (range: 0–6) as described and used in a previous study,²¹ and was used to indicate the level of financial hardship experienced, with a higher count suggesting a higher level of financial hardship. We also conducted a sensitivity analysis using a dichotomised financial hardship variable, experiencing (1+) versus not experiencing (0) financial hardships. The individual financial hardship items were developed based on the previous literature on financial hardships.^{16 21–29}

Participants reported pre-pandemic CT product use including: (1) cigarettes, (2) electronic vaping products (eg, e-cigarettes, vape pen, e-hookah, mod, JUUL, Vuse or similar products), (3) cigars, little cigars, cigarillos or filtered cigars (not including blunts), (4) hookah, (5) other combustible tobacco products (eg, roll-your-own cigarettes, pipe, etc) and (6) smokeless tobacco (eg, chewing tobacco, snus, snuff, etc). Participants were asked if they used these products 12 months prior to completing the survey (ie, before pandemic). For each tobacco product, responses were 'Never', 'Used before [month] 2020, but not then', 'Some days' and 'Every day'. These responses were dichotomised into 'Currently using pre-pandemic' ('Every day' and 'Some days') and 'Not currently using pre-pandemic' ('Never' and 'Used before [month] 2020, but not then').

Statistical analyses

The data for this study were weighted to be nationally representative, and weighted distributions of demographics, prepandemic CT use and increased reception of discount coupons for each product were estimated. The prevalence of increased reception for each product by demographics and prepandemic CT use was also estimated. Multiple imputation was used to handle missing data. Weighted multivariable logistic regression models were used to examine the associations between the count of financial hardships experienced and increased coupon reception for each CT product, adjusting for demographics and prepandemic CT use. Models were fit for each of the 25 multiply imputed data sets. Multiple imputation was performed using fully conditional specification methods implemented in SAS software V.9.4 (SAS Institute). Prevalence and model parameter estimates were calculated for each of the 25 multiply imputed data sets using the SAS SURVEYFREQ and SURVEYLOGISTIC procedures incorporating weights, and parameter estimates were summarised using multiple imputation methods implemented in the SAS MIANALYZE procedure.

RESULTS

Table 1 presents the weighted demographics, prepandemic CT use behaviours and financial hardships among US adults who used CT during the 12 months prior to the survey. Overall, 59.1% self-identified as male; 66.4% self-reported as white; 53.6% reported having a partner; and 47.8% reported having ≤high school education. The average age was 42.7 years (SE=0.57 years). Regarding prepandemic CT use, 67.4% reported cigarette smoking, 30.3% reported electronic vaping product use, 20.9% reported cigar use, 20.2% reported hookah or other combustible tobacco product use and 14.4% reported smokeless tobacco use.

Since the COVID-19 pandemic, 35.2% of adults who used CT during the 12 months prior to the survey reported experiencing not having enough money to pay for food, 34.5% for rent or mortgage, 36.2% for utilities, 32.4% for medications, 48.4% for unexpected expenses and 34.1% for hand sanitiser, disinfectant and face masks. Cronbach's alpha coefficients for the financial hardship questions used in the composite score ranged from 0.89 to 0.91. The median and mean composite hardship scores were 1 and 2.2 (SE=0.08), respectively. The financial hardship score was associated with family annual income level ($p<0.0001$) and highest level of education ($p<0.0001$). Additionally, during the first 10–11 months of the COVID-19 pandemic, 21.3% of US adults who used CT during the 12 months prior to the survey reported receiving more coupons for any tobacco product than before the pandemic; 9.0% reported receiving more discount coupons for cigarettes, 8.1% for hookah and other combustible tobacco products, 7.4% for electronic vaping products, 5.6% for cigars and cigarillos and 5.5% for smokeless tobacco. **Table 2** presents the weighted prevalence estimates of increased coupon reception for each product by demographics, prepandemic CT use and hardship score. Generally, there were higher prevalence estimates of increased coupon reception among higher hardship scores.

Table 3 contains the results of the multivariable logistic regression models examining the associations between financial hardship experiences and increased coupon reception. Experiencing financial hardship during the pandemic was associated with higher odds of receiving more coupons for all types of CT products. Every additional count of financial hardship was associated with higher odds of increased reception of discount coupons for

Table 1 Distributions of demographics, prepandemic commercial tobacco use and financial hardships among US adults who used CT during the 12 months prior to the survey, 2021

Variable	Unweighted n	Weighted %
Sex		
Male	966	59.14
Female	734	40.86
Age: mean (SE)=42.70 (0.57)	–	–
Race/ethnicity		
Asian	258	4.51
Black/African American	310	13.59
Latino/Hispanic	271	13.12
White	794	66.43
Other	67	2.35
Marital status		
Has a partner	912	53.57
No partner	788	46.43
Highest level of education		
≤High school	569	47.77
>High school	1131	52.23
Income level		
<\$50 000	987	60.58
≥\$50 000	711	39.42
Prepandemic current commercial tobacco product use		
Cigarettes	1130	67.35
Electronic vaping products	624	30.29
Cigars	461	20.92
Hookah or other combustible tobacco products	436	20.17
Smokeless tobacco	283	14.38
Financial hardships		
Since the COVID-19 pandemic, participants experienced not enough money to:		
Pay for food	601	35.24
Pay for rent or mortgage	601	34.48
Pay for utilities	652	36.24
Pay for medications	566	32.42
Pay for unexpected expenses	824	48.37
Pay for hand sanitiser, disinfectant and face masks	585	34.07
Composite hardship score:		
0	724	42.58
1	149	9.43
2	109	5.81
3	117	8.02
4	149	9.24
5	162	9.80
6	283	14.93
Median=1: mean (SE)=2.21 (0.08)	–	–
CT, commercial tobacco.		

all CT products with adjusted ORs (AOR) ranging from 1.13 to 1.23 ($p<0.05$). The dichotomised financial hardship variable was also associated with higher odds of increased reception of discount coupons for all CT products with AORs ranging from 1.71 to 4.38 ($p<0.05$). Additionally, females were more likely than males to report increased receipt of cigarette coupons (AOR=1.81; 95% CI 1.13–2.91).

People who used a specific CT product before the pandemic were more likely to report receiving more discount coupons

Table 2 Prevalence of increased reception of tobacco product coupons by demographics, prepandemic commercial tobacco use and financial hardships

Variable	Received more coupons than before pandemic for...				
	Cigarettes (%)	Electronic vaping products (%)	Cigars and cigarillos (%)	Hookah and other combustible tobacco products (%)	Smokeless tobacco (%)
Sex					
Male	7.0	7.3	5.9	8.3	6.2
Female	11.9	7.7	5.0	7.9	4.4
Race/ethnicity					
Asian	11.0	13.0	8.6	10.6	7.3
Black/African American	12.5	11.9	10.4	12.0	8.2
Latino/Hispanic	10.5	7.8	6.1	14.2	6.3
White	8.0	6.1	4.1	5.7	4.4
Other	6.4	7.1	10.1	14.1	10.8
Marital status					
Has a partner	7.6	6.5	5.4	6.2	4.4
No partner	10.7	8.5	5.8	10.3	6.7
Highest level of education					
≤High school	8.8	7.0	5.7	9.8	5.6
>High school	9.2	7.8	5.4	6.6	5.3
Prepandemic current commercial tobacco use					
Cigarettes	12.0	7.2	4.5	5.5	4.3
Electronic vaping products	11.6	14.3	9.5	12.5	10.7
Cigars	12.6	14.3	14.9	18.4	12.0
Hookah/combustible tobacco products	17.4	16.4	15.6	21.1	16.3
Smokeless tobacco	15.2	14.9	14.1	21.4	16.8
Hardship score					
0	6.0	3.9	2.6	3.8	1.7
1	5.3	6.2	2.4	1.8	3.4
2	13.3	11.9	4.0	6.3	8.9
3	10.8	6.1	9.5	14.3	10.4
4	8.6	10.8	10.9	11.5	7.7
5	12.7	12.5	10.4	15.6	10.9
6	15.2	12.0	7.9	14.8	8.6

for that product during the pandemic. For example, cigarette smokers were more likely than those who were not recently former or current smokers to report increased receipt of coupons for cigarettes (AOR=5.48; 95% CI 2.97–10.12). People who use electronic vaping products were more likely than those who did not recently or currently use electronic vaping products to report increased receipt of coupons for electronic vaping products (AOR=2.41; 95% CI 1.47–3.94). Additionally, people who used cigars/cigarillos before the pandemic were more likely than those who were not recently former or current cigar/cigarillo smokers to report increased receipt of coupons for cigars and cigarillos (AOR=2.83; 95% CI 1.56–5.14) and coupons for hookah and other combustibles (AOR=3.01; 95% CI 1.60–5.64). Moreover, people who used hookah and other combustible tobacco products before the pandemic were more likely than those who did not recently or currently use hookah and other combustible tobacco products to report increased receipt of coupons for hookah and other combustibles (AOR=2.15; 95% CI 1.32–3.53). Lastly, people who used smokeless tobacco before the pandemic were more likely than those who did not recently or currently use smokeless tobacco to report increased receipt of coupons for smokeless tobacco (AOR=2.55; 95% CI 1.38–4.72).

DISCUSSION

We conducted the first national study examining CT discount coupon reception among US adults who used CT during the 12 months prior to the survey almost a year into the COVID-19 pandemic. We observed that a substantial proportion (over one out of five) of US adults who use CT reported increases in coupon receipt for CT products. We observed that experiencing financial hardships was associated with higher odds of receiving coupons for all types of CT products. Given the known associations of exposure to CT discount coupons and other price promotions with worsening of CT use behaviours (eg, initiation, progression, failure in cessation and return to use),¹² those who were financially vulnerable during the pandemic were additionally burdened by CT-related health consequences.³⁰

Other findings on the correlates of increased discount coupon reception presented in this study are noteworthy. First, the association that women are more likely to report increased coupon receipt since the COVID-19 pandemic is significant as women have been the targets of tobacco industry marketing as revealed in their previously secret internal documents.¹⁸ Second, as expected, people who used a specific CT product before the pandemic were more likely to report increased receipt of coupons for that product. While it is possible that people with financial challenges who use CT may be actively seeking out

Table 3 Associations between demographics, prepandemic commercial tobacco use, financial hardships and increased receipt of tobacco product coupons

Variable	Increased receipt of coupons for...				
	Cigarettes AOR (95% CI)	Electronic vaping products AOR (95% CI)	Cigars and cigarillos AOR (95% CI)	Hookah and other combustible tobacco products AOR (95% CI)	Smokeless tobacco AOR (95% CI)
Sex (Reference: Male)					
Female	1.81 (1.13 to 2.91)	1.17 (0.70 to 1.96)	0.96 (0.53 to 1.72)	1.21 (0.73 to 2.00)	0.81 (0.44 to 1.50)
Age	0.99 (0.98 to 1.01)	0.99 (0.97 to 1.01)	1.00 (0.98 to 1.03)	0.98 (0.96 to 1.00)	1.00 (0.98 to 1.03)
Race (Reference: White)					
Asian	1.14 (0.45 to 2.87)	1.44 (0.59 to 3.49)	1.36 (0.46 to 4.01)	1.33 (0.46 to 3.84)	0.89 (0.30 to 2.67)
Black/African American	1.26 (0.67 to 2.34)	1.62 (0.87 to 3.04)	1.65 (0.73 to 3.72)	1.29 (0.66 to 2.55)	1.15 (0.54 to 2.47)
Latino/Hispanic	1.05 (0.57 to 1.92)	0.78 (0.41 to 1.51)	0.70 (0.33 to 1.49)	1.31 (0.72 to 2.39)	0.60 (0.26 to 1.37)
Other	0.57 (0.08 to 3.79)	1.07 (0.28 to 4.13)	1.73 (0.44 to 6.77)	1.70 (0.48 to 6.03)	2.27 (0.66 to 7.82)
Marital status (Reference: Has a partner)					
No partner	1.36 (0.86 to 2.14)	1.09 (0.68 to 1.74)	0.83 (0.49 to 1.39)	1.44 (0.89 to 2.34)	1.24 (0.74 to 2.09)
Highest level of education (Reference: >High school)					
≤High school	0.81 (0.50 to 1.33)	0.76 (0.46 to 1.26)	0.80 (0.45 to 1.41)	1.21 (0.70 to 2.10)	0.80 (0.45 to 1.44)
Prepandemic commercial tobacco use (Reference: Not currently using said product before pandemic)					
Cigarettes	5.48 (2.97 to 10.12)	1.06 (0.68 to 1.67)	0.52 (0.28 to 0.96)	0.38 (0.24 to 0.61)	0.55 (0.31 to 0.96)
Electronic vaping products	1.17 (0.71 to 1.91)	2.41 (1.47 to 3.94)	1.31 (0.75 to 2.31)	0.94 (0.59 to 1.51)	2.01 (1.17 to 3.45)
Cigars	0.89 (0.50 to 1.59)	1.31 (0.80 to 2.16)	2.83 (1.56 to 5.14)	1.94 (1.21 to 3.10)	1.19 (0.66 to 2.14)
Hookah/other combustibles	2.01 (1.22 to 3.30)	1.72 (1.05 to 2.83)	3.01 (1.60 to 5.64)	2.15 (1.32 to 3.53)	3.53 (1.96 to 6.36)
Smokeless tobacco	2.01 (1.13 to 3.57)	1.36 (0.81 to 2.29)	1.55 (0.84 to 2.83)	2.17 (1.31 to 3.57)	2.55 (1.38 to 4.72)
Number of financial hardships (0–6)	1.13 (1.02 to 1.25)	1.15 (1.03 to 1.29)	1.17 (1.02 to 1.34)	1.20 (1.07 to 1.34)	1.23 (1.08 to 1.40)

Receipt of coupons for each product was modelled separately. Adjusted for all variables in a column. Bold estimates are statistically significant ($p < 0.05$). AOR, adjusted OR.

these discount coupons, the tobacco industry has proactively provided these coupons as a part of their marketing strategies. The product-corresponding relationship observed in this study between product use and product-specific coupon receipt highlights the tobacco companies' effectiveness in targeted marketing of their products to the US public. The tobacco industry uses a consumer database marketing strategy to send tailored ads and coupons directly to consumers based on their brand preference, personal values and interests and other information they collect.³¹ Potentially increased CT consumption among financially vulnerable populations may further impede their tobacco cessation outcomes and expand health disparity gaps that already exist among these groups compared with those who are better off.

Coupon reception for cigarettes increased the most since the COVID-19 pandemic, which is not surprising since the amount spent on cigarette advertising and promotion increased from 2019 (\$7.62 billion) to 2020 (\$7.84 billion), and price discounts paid by the tobacco industry to cigarette retailers and wholesalers were the two largest expenditure categories of industry spending in 2020.¹ The fact that coupon reception for smokeless tobacco increased the least also is not surprising as industry spending on advertising and promotion of smokeless tobacco products in the USA decreased from 2019 (\$576.1 million) to 2020 (\$567.3 million)² and the expenditures were substantially lower than those for cigarette marketing.

The tobacco industry using price discounting strategies to target lower SES and financially vulnerable individuals is a continuation of its past behaviour.^{13 18} It is possible that tobacco companies increased coupons to those who would use coupons,

engaged in persistent targeting of financially vulnerable individuals during the pandemic and/or used a targeted marketing campaign based on individuals' financial well-being. The tobacco industry might have used these price discount strategies more than prior to the COVID-19 pandemic to prevent mass smoking cessation throughout the pandemic or taken advantage of people's unfortunate financial circumstances during unprecedented times, giving more discount coupons. This action by the industry can cue people to smoke and lower the likelihood that someone will quit because of cost concerns given that cost and financial circumstances (ie, the need to save money) are typically a time in one's life that motivates cessation attempts.⁷ Financially vulnerable individuals may also be dealing with additional unique factors in their lives that may already increase their CT use such as levels of stress.³² It is possible that tobacco companies both increased coupons to those who had been identified as low income or would use coupons (during a period of unprecedented financial hardships) and/or used a targeted marketing campaign (which the industry has done in the past) to identify those who have experienced financial hardships.

During the unprecedented time of a pandemic, it is even more important to enact policies that can potentially protect individuals, especially those who are financially vulnerable, from the harm of CT. Our findings support potential policy options—at the national, state and local levels—to reduce discount coupon promotion, such as those that prohibit 'buy down' promotional programmes (eg, time-limited discount or sales, direct mail, coupons).^{1 2} Policies to reduce other types of promotions, such as sweepstakes, brand loyalty programmes, event sponsorships and product placement by the tobacco industry, are also

needed.³³ Tobacco control policies can be and have previously been enacted at state and local levels.³⁴ Examples of past policy actions include litigation against the industry, such as the Master Settlement Agreement,³³ and state and local antitobacco policies including cigarette taxes, local-level indoor clean air laws and prohibition of smoking in workplaces.^{35–39} Similar actions could result in policies and successful litigation that restricts or prevents the tobacco industry from using price discounting strategies in certain settings (eg, retailers), limits price-related marketing efforts⁴⁰ and also prohibits the tobacco industry from opposing legislation restricting marketing which could contribute to public health benefits.

This study has some limitations. Our study is not a longitudinal study, which would be better suited to minimise recall bias and capture precise changes in coupon reception, financial hardships and tobacco use. Furthermore, in this study we did not examine changes in financial hardships experienced during the COVID-19 pandemic compared with before the pandemic. Our study findings may have limited generalisability since we did not include people who did not use CT, and the data were collected about a year into the pandemic. Both the prevalence and magnitude of financial hardships, as well as the prevalence of increased coupon reception use, may have extended since the first year of the COVID-19 pandemic. Survey respondents may not be able to accurately recall whether they received discount coupons and promotions in the past 10–11 months. However, the robustness of the associations between the financial hardship experiences reported and the increases in coupon reception for different CT products supports the conceptualisation of the study and the hypothesis that the tobacco industry is potentially targeting lower SES individuals to prevent mass smoking cessation and taking advantage of people facing financial hardships to boost product sales with discount coupons and promotions. The use of direct mail coupons and their effects on population health is of significant concern for tobacco cessation and control efforts, especially during periods of financial hardships.

In summary, about 1 year into the COVID-19 pandemic, over one in five US adults who used CT during the 12 months prior to the survey reported receiving more discount coupons for CT products than before the pandemic. This prevalence was even higher among those facing financial hardships during the pandemic. Given the known associations between CT discount coupon exposure and CT use behaviours, restricting CT discounting at the retail level in the USA could help support CT use cessation, which could potentially disproportionately benefit those who are financially vulnerable, and reduce SES-related and tobacco-related health disparities.

Contributors KZ: planning, conceptualisation, analysis, writing. KRH-M: planning, conceptualisation, manuscript review. JC-S, LP, AA, KH, BJ: conceptualisation, manuscript review. KC: conceptualisation, planning, review of analyses, writing, manuscript review, supervision. KC is the guarantor of this work and accepts full responsibility for the work and/or the conduct of the study, had access to the data, and controlled the decision to publish.

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Patient consent for publication Not applicable.

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REFERENCES

- 1 Cigarette Report for. *United States of America: Federal Trade Commission*. 2021.
- 2 Smokeless Tobacco Report for 2020. *United States of America: Federal Trade Commission*. 2021.
- 3 Choi K, Kreuger K, McNeel TS, et al. Point-of-sale cigarette pricing strategies and young adult Smokers' intention to purchase cigarettes: an Online experiment. *Tob Control* 2022;31:473–8.
- 4 Osman A, Queen T, Choi K, et al. Receipt of direct tobacco mail/Email coupons and coupon redemption: demographic and socioeconomic disparities among adult Smokers in the United States. *Prev Med* 2019;126:105778.
- 5 Choi K, Soneji S, Tan ASL. Receipt of tobacco direct mail coupons and changes in smoking status in a nationally representative sample of US adults. *Nicotine Tob Res* 2018;20:1095–100.
- 6 WHO. *WHO report on the global tobacco epidemic 2021: addressing new and emerging products*. Geneva: World Health Organization, 2021.
- 7 Pisinger C, Aadahl M, Toft U, et al. Motives to quit smoking and reasons to relapse differ by socioeconomic status. *Prev Med* 2011;52:48–52.
- 8 Marynak KL, Xu X, Wang X, et al. Estimating the impact of raising prices and eliminating discounts on cigarette smoking prevalence in the United States. *Public Health Rep* 2016;131:536–43.
- 9 Choi K, Hennrikus D, Forster J, et al. Use of price-minimizing strategies by Smokers and their effects on subsequent smoking behaviors. *Nicotine & Tobacco Research* 2012;14:864–70.
- 10 Betzner A, Boyle RG, St Claire AW. Price-minimizing behaviors in a cohort of Smokers before and after a cigarette tax increase. *Int J Environ Res Public Health* 2016;13:608.
- 11 Choi K, Boyle RG. Changes in cigarette expenditure minimising strategies before and after a cigarette tax increase. *Tob Control* 2018;27:99–104.
- 12 Choi K, Chen JC, Tan ASL, et al. Receipt of tobacco direct mail/Email discount coupons and Trajectories of cigarette smoking Behaviours in a nationally representative longitudinal cohort of US adults. *Tob Control* 2019;28:282–8.
- 13 Lee JGL, Henriksen L, Rose SW, et al. A systematic review of neighborhood disparities in point-of-sale tobacco marketing. *Am J Public Health* 2015;105:e8–18.
- 14 Choi K, Forster JL. Frequency and characteristics associated with exposure to tobacco direct mail marketing and its prospective effect on smoking behaviors among young adults from the US Midwest. *Am J Public Health* 2014;104:2179–83.
- 15 Choi K, Forster J. Tobacco direct mail marketing and smoking behaviors in a cohort of adolescents and young adults from the U.S. upper Midwest: a prospective analysis. *Nicotine Tob Res* 2014;16:886–9.
- 16 Kim D. Financial hardship and social assistance as determinants of mental health and food and housing insecurity during the COVID-19 pandemic in the United States. *SSM Popul Health* 2021;16:100862.
- 17 Sampson L, Ettman CK, Abdalla SM, et al. Financial hardship and health risk behavior during COVID-19 in a large US national sample of women. *SSM Popul Health* 2021;13:100734.
- 18 Brown-Johnson CG, England LJ, Glantz SA, et al. Tobacco industry marketing to low socioeconomic status women in the U.S.A. *Tob Control* 2014;23:e139–46.
- 19 YouGov. *Panel Methodology*. YouGov, Available: <https://today.yougov.com/about/panel-methodology/>
- 20 Rivers D, Bailey D. Inference from matched samples in the 2008 U.S. Washington, D.C.: American Association of Public Opinion Research, 2009.
- 21 Zarei K, Hamilton-Moseley K, Chen-Sankey J, et al. Financial challenges and hardship during the COVID-19 pandemic and tobacco expenditure minimizing strategies among U.S. adult commercial tobacco users. *Addict Behav* 2023;138:107547.
- 22 Cleaveland CL, Frankenfeld CL. Household financial hardship factors are strongly associated with poorer Latino mental health during COVID-19. *J Racial Ethn Health Disparities* 2022;2022:1–14.
- 23 Xiao Y, Brown TT, Snowden LR, et al. COVID-19 policies, pandemic disruptions, and changes in child mental health and sleep in the United States. *JAMA Netw Open* 2023;6:e232716.

- 24 Islam JY, Awan I, Kapadia F. Food insecurity, financial hardship, and mental health among multiple Asian American ethnic groups: findings from the 2020 COVID-19 household impact survey. *Health Equity* 2022;6:435–47.
- 25 Islam JY, Turner K, Saeb H, *et al.* Financial hardship and mental health among cancer survivors during the COVID-19 pandemic: an analysis of the US COVID-19 household impact survey. *Front Public Health* 2022;10:946721.
- 26 Sujjan MdSH, Tasnim R, Islam MdS, *et al.* Financial hardship and mental health conditions in people with underlying health conditions during the COVID-19 pandemic in Bangladesh. *Heliyon* 2022;8:e10499.
- 27 Horowitz JM, Brown A, Minkin R. *A Year Into the Pandemic, Long-Term Financial Impact Weighs Heavily on Many Americans*. Pew Research Center, 2021.
- 28 Center on Budget and Policy Priorities. *The COVID-19 Economy's Effects on Food, Housing, and Employment Hardships*. 2022.
- 29 Yabroff KR, Dowling EC, Guy GP, *et al.* Financial hardship associated with cancer in the United States: findings from a population-based sample of adult cancer survivors. *J Clin Oncol* 2016;34:259–67.
- 30 A Socioecological Approach to Addressing Tobacco-Related Health Disparities. *Tobacco Control Monograph 22*. Bethesda, MD: NIH Publication no.17-CA-8035A, 2017.
- 31 Lewis MJ, Ling PM. Gone are the days of mass-media marketing plans and short term customer relationships": tobacco industry direct mail and database marketing strategies. *Tob Control* 2016;25:430–6.
- 32 Stubbs B, Veronese N, Vancampfort D, *et al.* Perceived stress and smoking across 41 countries: A global perspective across Europe, Africa. *Sci Rep* 2017;7.
- 33 Jones WJ, Silvestri GA. The master settlement agreement and its impact on tobacco use 10 years later: lessons for physicians about health policy making. *Chest* 2010;137:692–700.
- 34 Balogh EP, Dresler C, Fleury ME, *et al.* Reducing tobacco-related cancer incidence and mortality: summary of an Institute of medicine workshop. *Oncologist* 2014;19:21–31.
- 35 Shipan CR, Volden C. Bottom-up federalism: the diffusion of Antismoking policies from U.S. cities to States. *Am J Political Science* 2006;50:825–43. 10.1111/j.1540-5907.2006.00218.x Available: <http://www.blackwell-synergy.com/toc/ajps/50/4>
- 36 Flynn BS, Dana GS, Goldstein AO, *et al.* State legislators' intentions to vote and subsequent votes on tobacco control legislation. *Health Psychol* 1997;16:401–4.
- 37 Macdonald HR, Glantz SA. Political realities of statewide smoking legislation: the passage of California's assembly bill 13. *Tob Control* 1997;6:41–54.
- 38 Jacobson PD, Wasserman J, Raube K. The politics of Antismoking legislation. *J Health Polit Policy Law* 1993;18:787–819. Available: <https://www.ncbi.nlm.nih.gov/pubmed/8120346>
- 39 Givel M. Punctuated equilibrium in limbo: the tobacco lobby and U.S. state policymaking from 1990 to 2003. *Policy Stud J* 2006;34:405–18. 10.1111/j.1541-0072.2006.00179.x Available: <http://www.blackwell-synergy.com/toc/psj/34/3>
- 40 Chaloupka FJ, Cummings KM, Morley CP, *et al.* Tax, price and cigarette smoking: evidence from the tobacco documents and implications for tobacco company marketing strategies. *Tob Control* 2002;11 Suppl 1(Suppl 1):162–72.