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# Receipt of Tobacco Direct Mail Coupons and Changes in Smoking Status in a Nationally Representative Sample of US Adults

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## Abstract

**Introduction:** Direct-to-consumer tobacco marketing, including direct mail and email coupons, is a potentially influential marketing strategy. We examined the associations between receipt of tobacco direct mail/email coupons and trajectories of smoking behavior among US adults.

**Methods:** Data were from the US Population Assessment on Tobacco and Health (PATH) Study adult sample ($n$ = 32 160) collected during 2013–2014. Participants self-reported their smoking status (every day, some days, not at all) 12 months prior to the survey (T0) and at the time of the survey (T1). Three smoking trajectories were identified: nonsmokers progressing to current smokers, current smokers continuing to smoke, and among current smokers at T0, progressing to or continuing with daily smoking. Participants also reported receipt of direct mail/email tobacco coupons in the 6 months preceding T1 (yes/no). Weighted multiple logistic regression models were used to test the associations between receiving direct mail/email tobacco coupons and different smoking trajectories adjusted for demographic characteristics.

**Results:** One in eight (12.4%) US adult nonsmokers and 36.2% adult smokers at T0 reported receiving tobacco coupons. Receipt of tobacco coupons was negatively associated with poverty status. Receipt of tobacco coupons was associated with increased odds of progression to current smoking (AOR = 1.76, 95% CI = 1.45 to 2.12), continuation of smoking (AOR = 1.34, 95% CI = 1.09 to 1.65), and current smokers' progression to or continuation with daily smoking (AOR = 1.70, 95% CI = 1.50 to 1.91).

**Conclusions:** Direct-to-consumer tobacco coupons may promote progression of smoking among nonsmokers, and continuation of smoking and progression to daily smoking among smokers in US adults.

**Implications:** Distributing direct mail coupons is a strategy employed by tobacco companies to promote their products. We found, in a US national study, that many adults received tobacco coupons, and receiving these coupons was associated with subsequent progression of smoking among nonsmokers, and continuation of smoking and daily smoking among smokers. Scrutiny over the use of direct mail coupons and its effects on population health is warranted. Future research is needed to evaluate the effect of different interventions to reduce the impact of these coupons on smoking behaviors.

## Introduction

Tobacco companies are increasingly relying on price-manipulating strategies to promote cigarette sales including price discounting, coupons and direct mail marketing. According to the Federal Trade Commission, retailer and wholesaler price discounts, coupons and direct mail marketing comprised 86% of the total cigarette advertising and promotion expenditures in 2014, compared with 68% in 2002.[1] In 2014, tobacco companies spent US$567 million on direct mail and coupons. While it is a relatively small proportion of the total expenditure (7%), many adults in the US reporting exposure to these direct-to-consumer marketing strategies. For example, data from the 2001 New Jersey Adult Tobacco Survey showed that 11% of never/former smokers, 22% of recent quitters, and 35% of current smokers reported receiving tobacco direct mail materials during the 6 months prior to the survey.[2] More recently, 49% of a representative sample of smokers in Minnesota reported receiving cigarette discount coupons in the past 12 months in 2009.[3] Among young adults, one study found that 17% of 18–23 year-olds in the US reported ever receiving tobacco direct mail marketing materials,[4] while another study found that 25% of 18–34 years-old in the US reported receiving tobacco direct mail in the past 6 months.[5]

Based on internal documents from the tobacco industry, these price-manipulating strategies are designed to build relationships with smokers and influence their smoking behavior,[6] and to offset tobacco tax increases.[7] There is some evidence that such strategies are achieving these expected influences on smoking behavior. In a longitudinal study among Minnesota young adults (aged 22–28 years), young adult nonsmokers who received cigarette direct mail coupons were more likely than young adult nonsmokers who did not receive these coupons to become current smokers a year later.[8] The same study also found that current young adult smokers who received cigarette direct mail coupons were more likely than current young adult smokers who did not received these coupons to continue cigarette smoking a year later.

There is also evidence that certain price-manipulating strategies are being targeted at vulnerable populations, which could widen tobacco-related health disparities in priority populations including young adults, racial and ethnic minorities, and those with lower socioeconomic status (e.g., lower income and education levels). For instance, among a cohort of Minnesota young adults aged 20–28 years, receipt of tobacco direct mail and cigarette coupons was more prevalent among those with less than high school education compared with those who completed college.[8] Tobacco companies' internal documents revealed a long history of strategies for at least four decades to target women from low socioeconomic status and racial minority populations by utilizing discount coupons with food stamps, providing discount offers at point-of-sale or through direct mailing.[9] Availability of lower priced cigarettes is associated with increased cigarette consumption and reduced smoking cessation rates which disproportionately affects smokers from lower-income populations.[10]

However, while the overall impact of lower cigarette prices on smoking behaviors have been previously examined, the current literature on direct mail coupons as a specific marketing strategy and their effects on smoking behavior is limited. First, no national studies to date have examined the prevalence of exposure to tobacco direct mail coupons among US adults, and the characteristics associated with the exposure. Second, only one longitudinal study assessed the association between exposure to tobacco direct mail coupons and subsequent smoking behaviors among Minnesota young adults;[8] the effect of tobacco direct mail coupons on smoking behavior among US adults has not been reported.

In this study, we analyzed the data from the US Population Assessment on Tobacco and Health (PATH) Study adult sample to address the above-mentioned knowledge gaps. Specifically, we examined the prevalence of receiving tobacco direct mail coupons and sociodemographic characteristics associated with receiving these coupons. We also assessed whether receiving tobacco direct mail coupons was associated with progression to current smoking among nonsmokers, and continuation of smoking among current smokers. We further analyzed whether current smokers who received tobacco direct mail coupons were more likely to progress to or continue with daily smoking compared with those who did not receive direct mail coupons.

## Methods

### Study Population

Data are from Wave 1 of the PATH Study, Adult Sample conducted from September 12, 2013 to December 15, 2014.[11] Details of the PATH study are published elsewhere.[12] Briefly, the PATH Study (Adult Sample) is a nationally representative, longitudinal cohort study of 32 320 adults in the US, ages 18 years and older. Address-based, area probabilistic sampling was used to draw the sample in conjunction with oversampling adult tobacco users. Data were collected using audio-computer assisted self-interviews (ACASI). The weighted response rate for the household screener was 54.0%. Among households that were screened, the overall weighted response rate was 74.0% for the Adult Interview.

We reported the findings among participants who provided information about their smoking status 12 months prior to the survey ($n$ = 32 160). This is a secondary data analysis of de-identified data and was determined by the National Institutes of Health Office of Health Subjects Research Protection to be exempted from a review by an Institutional Review Board.

### Measures

**Smoking Behaviors 12 months Prior to Survey (T0)**

Participants who smoked more than 100 cigarettes in their lifetime were asked, "Around this time 12 months ago, were you smoking cigarettes every day, some days, or not at all?" Former smokers were asked, "About how long has it been since you completely quit smoking cigarettes?" Based on the responses, participants who reported never smoking a cigarette, smoked <100 cigarettes in their lifetime at T1, reported quitting smoking >12 months ago at T1, or reported not smoking 12 months ago were classified as nonsmokers at 12 months prior to the survey (T0). Participants who reported smoking cigarettes every day or some days 12 months ago were classified as current smokers at T0.

**Smoking Behaviors at the Time of Survey (T1)**

Participants were asked, "Have you ever smoked a cigarette, even one or two puffs?," "Have you smoked more than 100 cigarettes in your lifetime?," and "Do you now smoke cigarettes every day, some days, or not at all?" Based on the responses, participants who smoked more than 100 cigarettes in their lifetime and were every day and some-day smokers were classified as current smokers at T1. Those who had never smoked, smoked less than 100 cigarettes in their lifetime, or were not smoking at all were classified as nonsmokers at T1.

**Trajectory of Smoking Behaviors Between T0 and T1**

Based on participants' smoking behaviors at T0 and T1, we defined progression of smoking as nonsmokers at T0 who report being current smokers at T1. Continuation of smoking is defined as current smokers at T0 who remained as current smokers at T1. Among current smokers at T0 and T1, we further classified them into progressing to or continuing with daily smoking if participants reported either progression from non-daily smoking at T0 to daily smoking at T1, or continuing with daily smoking between T0 and T1, versus those who reported reducing from daily smoking at T0 to non-daily smoking at T1 and those who reported continuing with non-daily smoking between T0 and T1.

**Receipt of Tobacco Direct Mail Coupons**

Participants were asked, "In the past 6 months, have you received an e-mail message with promotions or coupons for cigarettes or tobacco products?" and "In the past 6 months, have you received promotions or coupons for cigarettes or tobacco products in the mail?" Participants who responded "yes" to either of these questions were classified as having received direct mail/email coupons; those who responded "no" to both questions were classified as not having received direct mail/email coupons; and those who did not answer these two questions were classified as undetermined.

**Sociodemographic Characteristics**

We included age, gender, race/ethnicity (Hispanic, non-Hispanic White, non-Hispanic Black, non-Hispanic other, and undetermined), education level (<high school or GED holder, high school graduate, some college with no degree, Bachelor's degree or above), poverty level (<100%, 100–199%, and ≥200% of poverty line), and census region (Northeast, South, Midwest, West) in the analyses.

### Statistical Analysis

Throughout the analyses, the balanced repeated replication weights were utilized with Fay's correction (shrinkage factor set at 0.3) to account for oversampling of tobacco users and to ensure the findings were representative of US non-institutionalized adults. All analyses were stratified by smoking status at T0 (nonsmokers vs. current smokers). To examine the correlates of receiving direct mail/email tobacco coupons, we used multiple logistic regression model and included all demographic variables. To examine the associations between receiving direct mail/email tobacco coupons and progression and continuation of smoking, we used multiple logistic regression model and adjusted for sociodemographic variables. Finally, to examine the association between receiving direct mail/email tobacco coupons and increased to/sustained every day smoking among current smokers at T0 and T1 ($n$ = 12 325), we used multiple logistic regression model and adjusted for sociodemographic variables. All analyses were conducted using SAS® version 9.3 (SAS Institute: Cary, NC).

## Results

Characteristics of the sample stratified by smoking status at T0 are presented in Table 1. Overall, 11.8% of nonsmokers at T0 (weighted $n$ = 21 859 647), and 35.4% of current smokers at T0 (weighted $n$ = 17 921 271) reported receiving tobacco coupons through direct mail/email during the 6-month period prior to being interviewed at T1. Among nonsmokers at T0, 4.4% reported receiving these coupons through the mail, 3.3% through emails, and 4.1% through both the mail and emails. Among current smokers at T0, 14.0% reported receiving these coupons through the mail, 4.8% through emails, and 16.5% through both the mail and emails.

Characteristics associated with receiving direct mail/email tobacco coupons are reported in Table 2. Among nonsmokers at T0, being younger, having lower level of education, and living at <200% of the poverty line were associated with increased odds of receiving direct mail/email tobacco coupons, while being Hispanic or non-Hispanic other (versus non-Hispanic White) were associated with lower odds of receipt of direct mail/email tobacco coupons. Similar associations were observed among current smokers at T0. Additionally, male (vs. female), non-Hispanic Black (vs. non-Hispanic White) current smokers at T0 were less likely to report receiving direct mail/email tobacco coupons, while those living in the US Midwest (vs. West) were more likely to report receiving direct mail/email tobacco coupons.

Table 3 shows the associations between receipt of tobacco direct mail/email coupons and smoking status at T1, stratified by smoking status at T0. Receipt of tobacco direct mail/email coupons was associated with progression of smoking. Nonsmokers at T0 who received these coupons had higher odds than those who did not receive these coupons to progress to current smoking at T1 (3.9% vs. 2.0%; AOR = 1.76, 95% CI = 1.45 to 2.12). Similarly, receipt of tobacco direct mail/email coupons was associated with continuation of smoking. Among current smokers at T0, those who received tobacco direct mail/email coupons also had higher odds than those who did not receive these coupons to continue smoking at T1 (92.4% vs. 90.3%; AOR = 1.34, 95% CI = 1.09 to 1.65). Among those who were current smokers at both T0 and T1, those who received tobacco direct mail/email coupons were more likely than those did not receive these coupons to progress from non-daily to daily smoking or to continue daily smoking, versus reducing from daily smoking to non-daily smoking or continuing with non-daily smoking (84.8% vs. 74.9%; AOR = 1.70, 95% CI = 1.50 to 1.91).

## Discussion

Our analysis represents the first US national study to examine the prevalence and correlates of receiving tobacco direct mail marketing among adults, its targeted populations, potential influences on promoting progression of smoking among nonsmokers and continuation of smoking among current smokers. Our analysis reveals the extensive reach of tobacco direct mail marketing in the US population; over 21 million adult nonsmokers and 17 million adult current smokers are estimated to be exposed to this marketing strategy. Receipt of these direct mail marketing materials was disproportionately more prevalent among certain populations that experience greater tobacco-related health disparities. For example, we found that individuals with lower education and those closer to poverty line, regardless of their smoking status, were more likely to report receiving tobacco direct mail/email coupons. This corroborates tobacco industry documents indicating tobacco companies are targeting these populations when promoting their products, which coincides with the higher prevalence of tobacco use in socioeconomically disadvantaged populations than the general population.[13] The finding that female current smokers were more likely than male current smokers to receive tobacco direct mail coupons is supported by a previous US regional study.[3] This gender difference may be due, in part, to women being more likely than men to use coupons generally[14] and the tobacco industry's targeted distribution of discount coupons to women.[9]

**Table 1.** Sample characteristics by smoking status 12 months prior (T0) to baseline survey (T1), PATH Study, 2012–2013 ($N$ = 32 160)

| | Nonsmokers at T0 ($n$ = 18 914) | Current smokers at T0 ($n$ = 13 246) |
|---|---|---|
| Characteristics | Weighted % (95% CI) | Weighted % (95% CI) |
| **Age (years at T1)** | | |
| 18–24 | 12.6% (12.2%, 13.1%) | 14.4% (13.8%, 15.2%) |
| 25–34 | 16.1% (15.5%, 16.7%) | 23.9% (23.1%, 24.7%) |
| 35–44 | 16.0% (15.4%, 16.7%) | 18.5% (17.7%, 19.4%) |
| 45–54 | 17.4% (16.9%, 17.9%) | 20.0% (19.2%, 20.8%) |
| 55–64 | 16.8% (16.3%, 17.4%) | 15.6% (14.8%, 16.5%) |
| 65–74 | 12.4% (11.9%, 12.9%) | 6.0% (5.6%, 6.6%) |
| 75 or above | 8.6% (8.1%, 9.1%) | 1.5% (1.2%, 1.8%) |
| **Gender** | | |
| Male | 46.1% (45.4%, 46.9%) | 55.0% (54.0%, 55.9%) |
| Female | 53.9% (53.1%, 54.6%) | 45.0% (44.1%, 46.0%) |
| **Race/ethnicity** | | |
| Hispanic | 15.5% (15.0%, 16.0%) | 12.8% (12.1%, 13.6%) |
| Non-Hispanic White | 65.4% (64.8%, 66.1%) | 66.2% (65.0%, 67.5%) |
| Non-Hispanic Black | 10.6% (10.2%, 11.0%) | 14.6% (13.7%, 15.4%) |
| Non-Hispanic Other | 8.1% (7.7%, 8.5%) | 6.2% (5.7%, 6.8%) |
| Undetermined | 0.4% (0.3%, 0.5%) | 0.2% (0.1%, 0.3%) |
| **Education** | | |
| <High school/GED | 13.6% (13.2%, 14.1%) | 27.1% (26.1%, 28.1%) |
| High school/GED | 22.7% (22.1%, 23.3%) | 29.4% (28.3%, 30.6%) |
| Some college with no degree | 30.5% (29.9%, 31.2%) | 32.2% (31.1%, 33.3%) |
| Bachelor's degree or above | 32.5% (31.8%, 33.1%) | 10.7% (10.0%, 11.5%) |
| Undetermined | 0.6% (0.5%, 0.8%) | 0.6% (0.5%, 0.8%) |
| **Poverty status** | | |
| <100% poverty line | 18.8% (18.2%, 19.4%) | 35.5% (34.3%, 36.8%) |
| 100–199% poverty line | 18.6% (17.7%, 19.5%) | 24.7% (23.9%, 25.6%) |
| ≥200% poverty line | 51.0% (50.0%, 51.9%) | 31.0% (29.8%, 32.3%) |
| Undetermined | 11.6% (11.0%, 12.4%) | 8.7% (8.0%, 9.5%) |
| **Census region** | | |
| Northeast | 18.5% (17.9%, 19.0%) | 17.0% (15.8%, 18.2%) |
| Midwest | 20.8% (20.3%, 21.4%) | 23.7% (22.1%, 25.3%) |
| South | 36.3% (35.6%, 37.0%) | 40.3% (38.3%, 42.3%) |
| West | 24.4% (23.8%, 25.1%) | 19.1% (17.5%, 20.7%) |
| **Received direct mail/email coupons in the past 6 months at T1** | | |
| Yes | 11.8% (11.3%, 12.5%) | 35.4% (34.3%, 36.5%) |
| No | 87.7% (87.1%, 88.3%) | 63.9% (62.9%, 65.0%) |
| Undetermined | 0.4% (0.3%, 0.6%) | 0.7% (0.5%, 0.9%) |
| **Current smoking at T1** | | |
| Yes | 2.2% (2.0%, 2.4%) | 91.1% (90.3%, 91.8%) |
| No | 97.8% (97.6%, 98.0%) | 8.9% (8.2%, 9.7%) |
| **Progression to or continuing with daily smoking between T0 and T1** | | |
| Yes | – | 78.5% (71.2%, 84.4%) |
| No | – | 21.5% (15.6%, 28.8%) |

We observed that exposure to tobacco direct mail coupons is associated with progression of smoking among nonsmokers. This finding supports that of a previous longitudinal studies among young adults in Minnesota.[8] We further explored whether the association could be explained by nonsmokers at T0 became current smokers between T0 and T1 and sought these coupons prior to T1. The PATH Study collected information on whether participants had signed up for email alerts about tobacco products, read articles online about tobacco products, or watched a video online about tobacco products during the 6 months prior to the survey. We found that among nonsmokers at T0 who became current smokers at T1, only 6.0% responded that they had engaged in these activities. Therefore, it is unlikely that coupon seeking behavior occurring after becoming a current smoker fully explain the association. Future longitudinal studies need to be carefully designed to collect data at the appropriate intervals to fully disentangle the temporal relationships between exposure to tobacco direct mail coupons and changes in smoking behaviors. Nonetheless, marketing theory suggest that coupons lower the cost of experimentation with a product (in this case, cigarettes) and are therefore capable of promoting product experimentation.[15]

We found that exposure to tobacco direct mail coupons is associated with continuation of smoking among current smokers, and increasing to/sustaining daily smoking. Cost of smoking has been reported by smokers as one of the most common reasons to quit smoking.[16] Through manipulating cigarette prices via discount coupons, tobacco companies are able to promote smoking, and discourage cessation and reduction, particularly among smokers from lower socioeconomic positions.[10] Therefore, interventions to reduce the

**Table 2.** Associations between demographics and receipt of direct mail/email coupons in the past 6 months, PATH Study, 2012–2013

| Characteristics | Nonsmokers at T0 | | Current smokers at T0 | |
|---|---|---|---|---|
| | % received direct mail/email coupons | AOR (95% CI) | % received direct mail/email coupons | AOR (95% CI) |
| **Age (years at T1)** | | | | |
| 18–24 | 9.8% | **1.53 (1.10, 2.11)** | 26.4% | **2.46 (1.51, 4.01)** |
| 25–34 | 14.1% | **2.54 (1.81, 3.57)** | 40.1% | **4.66 (2.80, 7.77)** |
| 35–44 | 13.8% | **2.54 (1.81, 3.56)** | 41.3% | **4.91 (2.90, 8.32)** |
| 45–54 | 14.7% | **2.65 (1.90, 3.69)** | 39.1% | **4.40 (2.68, 7.22)** |
| 55–64 | 11.6% | **1.97 (1.41, 2.77)** | 32.0% | **3.20 (1.93, 5.29)** |
| 65–74 | 8.8% | 1.40 (0.96, 2.05) | 21.5% | **1.86 (1.08, 3.19)** |
| 74 or above | 6.4% | Ref. | 12.8% | Ref. |
| **Gender** | | | | |
| Male | 11.6% | 0.94 (0.85, 1.04) | 32.1% | **0.75 (0.69, 0.81)** |
| Female | 12.1% | Ref. | 39.3% | Ref. |
| **Race/ethnicity** | | | | |
| Hispanic | 9.9% | **0.65 (0.54, 0.78)** | 26.5% | **0.59 (0.51, 0.69)** |
| Non-Hispanic White | 12.3% | Ref. | 37.9% | Ref. |
| Non-Hispanic Black | 14.8% | 1.02 (0.88, 1.17) | 33.5% | **0.80 (0.69,0.92)** |
| Non-Hispanic Other | 8.3% | **0.64 (0.50, 0.84)** | 30.6% | **0.78 (0.65, 0.93)** |
| Undetermined | 11.0% | 1.08 (0.28, 4.17) | 41.2% | 1.36 (0.51, 3.61) |
| **Education** | | | | |
| <high school/GED | 10.6% | **1.32 (1.09, 1.59)** | 34.4% | 1.20 (0.99, 1.46) |
| High school | 12.4% | **1.46 (1.23, 1.73)** | 34.8% | 1.19 (0.98, 1.45) |
| Some college with no degree | 14.6% | **1.63 (1.43, 1.86)** | 38.2% | **1.33 (1.12, 1.57)** |
| Bachelor's degree or above | 9.5% | Ref. | 31.5% | Ref. |
| Undetermined | 6.9% | 1.50 (0.45, 4.99) | 23.7% | 1.84 (0.85, 3.99) |
| **Poverty status** | | | | |
| <100% poverty line | 13.1% | **1.21 (1.01, 1.44)** | 37.5% | **1.22 (1.09, 1.36)** |
| 100–199% poverty line | 14.4% | **1.28 (1.11, 1.48)** | 37.1% | **1.17 (1.04, 1.32)** |
| ≥200% poverty line | 11.7% | Ref. | 34.4% | Ref. |
| Undetermined | 6.5% | **0.58 (0.45, 0.76)** | 25.3% | **0.75 (0.63, 0.88)** |
| **Census region** | | | | |
| Northeast | 10.2% | 0.95 (0.79, 1.15) | 32.3% | 0.99 (0.87, 1.14) |
| Midwest | 13.3% | 1.19 (0.99, 1.41) | 40.4% | **1.31 (1.14, 1.49)** |
| South | 12.8% | 1.15 (0.96, 1.38) | 35.3% | 1.10 (0.97, 1.25) |
| West | 10.5% | Ref. | 31.9% | Ref. |

Adjusted for all variables in the table. Bold estimates are statistically significant ($p < .05$).

**Table 3.** Adjusted associations between receipt of direct mail/email coupons in the past 6 months and trajectories of smoking behavior between T0 and T1 by smoking status at T0, PATH Study, 2012–2013

| Received direct mail/email coupons in the past 6 months at T1 | Nonsmokers at T0 | | Current smokers at T0 | | Current smokers at T0 and T1 | |
|---|---|---|---|---|---|---|
| | Observed % Progressed to Current smoking at T1 | AOR (95% CI) | Observed % Continued with smoking at T1 | AOR (95% CI) | Observed % progressed to or Continued with daily smoking | AOR (95% CI) |
| Yes | 3.9% | **1.76 (1.45, 2.12)** | 92.4% | **1.34 (1.09, 1.65)** | 84.8% | **1.70 (1.50, 1.91)** |
| No | 2.0% | Ref. | 90.3% | Ref. | 74.9% | Ref. |

Adjusted for age, gender, race/ethnicity, education, poverty level, and census region.

exposure to tobacco direct mail coupons (e.g., prohibit distribution of discount coupons for tobacco products) and/or to reduce the impact of this marketing strategy on smoking behavior (e.g., prohibit redemption of discount coupons for tobacco products) could be beneficial to the public, especially among individuals from lower socioeconomic positions.

Our analysis has several limitations. First, while we were able to reconstruct participants' smoking status at 12 months prior to the survey (T0), we were unable to distinguish former smokers, never smokers, and experimenters (those who smoked <100 cigarettes in a lifetime) at T0. Therefore, we were unable to test if receipt of tobacco direct mail coupons is associated with smoking initiation and relapse. We performed a sensitivity analysis to examine the association between receiving coupons and progression to smoking among nonsmokers at T0 who never smoked >100 cigarettes in a lifetime at T1, and found that the regression estimate was substantially

similar to the original analyses. Meanwhile, participants' smoking frequency at T0 was not measured, and therefore could not be controlled for in the analysis. Second, because the timing of exposure to these coupons and smoking behaviors were not measured, the temporal sequence of receiving tobacco direct mail coupons and smoking behavior at T1 is ambiguous. However, the relationship between receipt of tobacco direct mail coupons and smoking behaviors could be reciprocal that exposure to these coupons leads to progression or continuation of smoking behaviors which subsequently leads to seeking and receiving more of these coupons. In such a scenario, the concept of singular temporality may not apply. Third, the PATH study did not ask about the type of tobacco products promoted by these coupons, although previous studies showed that most of them were for cigarettes.[8,17]

In conclusion, our analysis provides new insights into the potential impact of tobacco direct mail coupons on progression and continuation of cigarette smoking on a national scale, particularly among disadvantaged populations. In sum, we found that direct mail tobacco coupons may promote progression of smoking among nonsmokers and continuation of smoking among smokers in a nationally representative US adult population. These findings will provide the rationale for more restrictive policies to curtail tobacco direct-to-consumer marketing strategies including mailed/emailed discount coupons and health promotion interventions to reduce or eliminate practices that potentially widen tobacco-related health disparities in priority populations.

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## Declaration of Interests

*None declared.*

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