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## Financial Strain, Quit Attempts, and Smoking Abstinence Among U.S. Adult Smokers

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### Abstract

**Introduction**—Cigarette smoking is substantially more prevalent and rates of smoking cessation are lower in low-SES adults. Financial strain may be one explanation for this. This study assessed the association between financial strain, quit attempts, and successful smoking cessation among adult smokers in the U.S.

**Methods**—Longitudinal data on adult current smokers (aged 18 years) from Waves 1 and 2 of the nationally representative Population Assessment of Tobacco and Health Study (2013–2015) were analyzed in 2017. Negative binomial regression and logistic regression models assessed the association between financial strain and (1) quit attempts and (2) cigarette abstinence, adjusting for important confounders.

**Results**—Smokers with financial strain made more quit attempts than smokers without financial strain (adjusted incidence-rate ratio=1.34, 95% CI=1.07, 1.68), but financial strain was not associated with smoking abstinence at follow-up (AOR=0.86, 95% CI=0.70, 1.05). Low income was associated with less smoking abstinence at follow-up (AOR=0.66, 95% CI=0.50, 0.87 for <100% federal poverty level; AOR=0.64, 95% CI=0.48, 0.85 for 100%–199% of federal poverty

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level). Smokers with baseline financial strain who quit at follow-up had lower odds of financial strain at follow-up (AOR=0.57, 95% CI=0.36, 0.89).

**Conclusions**—Financially strained smokers made slightly more quit attempts than non-strained smokers but were no more likely to successfully quit. Low-income (less than 200% of the federal poverty level) smokers were less likely to quit than higher-income smokers, suggesting that financial strain alone may not explain the low quit rates in this population. Further efforts are needed to increase the success of quit attempts in low-income and financially strained smokers.

## INTRODUCTION

Low SES is associated with a high prevalence of cigarette smoking and smoking-related diseases among U.S. adults.<sup>1,2</sup> Low-SES smokers have lower rates of smoking cessation success,<sup>3–6</sup> with cited barriers to cessation including life stressors, social environments, and low support in quitting.<sup>7</sup> It is important to understand factors contributing to lower smoking cessation rates in low-SES smokers to inform the design of more effective cessation programs.

Prior studies have suggested that financial strain (i.e., difficulty meeting financial needs and obligations) may be one important barrier to quitting smoking.<sup>8–11</sup> This is also suggested by the finding that cost is a more common trigger for quitting smoking in lower-SES smokers than higher-SES smokers.<sup>12</sup> Financial strain can represent a more dynamic process than poverty, and may be experienced by higher-income individuals. Smoking has been associated with financial stress,<sup>13–15</sup> and smokers with financial strain, despite reporting higher interest in quitting smoking, have been shown to try to quit less often than smokers without financial strain.<sup>8</sup> Furthermore, smokers with financial strain who try to quit appear to be less successful<sup>8–10</sup> and relapse more.<sup>11</sup> When smokers with financial strain do quit, there is evidence that they experience less financial strain,<sup>16</sup> suggesting that the association between financial strain and smoking is likely bidirectional and improvements in one can positively impact the other. However, the impact of poverty and financial strain on smoking behavior could be context specific, and much of the above evidence comes from non-U.S. settings. Studies evaluating the association between financial strain and smoking cessation and focusing solely on the U.S. general adult population are lacking. Understanding this association could help in designing smoking cessation interventions in this vulnerable group of smokers.

To address this gap in evidence, this study evaluates the association between financial strain and smoking cessation in a large, nationally representative longitudinal cohort of U.S. adults. The primary objectives are to examine (1) the association between baseline financial strain and subsequent quit attempts among cigarette smokers, (2) the association between baseline financial strain and smoking abstinence among smokers making a quit attempt, and (3) whether smoking abstinence at follow-up is associated with reduced financial strain among smokers with baseline financial strain.

## METHODS

### Study Population

The Population Assessment of Tobacco and Health study is a population-based, longitudinal study of U.S. adults and youth that collects detailed data on tobacco use and associated factors.<sup>17,18</sup> Data were collected using Audio Computer-Assisted Self-Interviewing and Computer-Assisted Personal Interviewing technology, and survey questions were adapted from other large national surveys, such as the National Health and Nutrition Examination Survey.<sup>18</sup> Baseline (Wave 1) data collection occurred from September 2013 to December 2014, and included 45,971 adult and youth respondents (weighted response rate for household screening: 54%, for the adult interviews: 74%). One-year follow-up (Wave 2) was conducted from October 2014 to October 2015 (weighted retention rate: 83%). Publicly available data from adults aged ≥18 years who had data for both timepoints were used for this study, and data were analyzed in 2017. This project was deemed exempt by the IRB at Partners Healthcare.

### Measures

Financial strain was defined as an answer of *yes* to the question: *In the past 30 days, because of a shortage of money, were you unable to pay any important bills on time, such as rent, electricity, or telephone bills?* Other studies have used a similar single-item measure.<sup>8,19,20</sup>

Receipt of financial assistance was defined as answering *yes* to the question: *In the past 12 months, have you received assistance or income from any federal, state or local programs, such as food stamps, welfare, cash aid, unemployment benefits, housing assistance, child care, or Medicaid?*

The primary outcomes were (1) number of past 12-month quit attempts at follow-up, (2) follow-up cigarette abstinence among smokers who tried to quit, and (3) financial strain at follow-up. Participants reported the number of times in the past 12 months they tried to quit tobacco (for participants using cigarettes and other tobacco products) or cigarettes (for participants using cigarettes only). Cigarette abstinence at follow-up was defined as a response of *no* when asked about smoking a cigarette in the past 12 months or 30 days (for participants who smoked in the past 12 months), or reporting now smoking cigarettes *not at all*.

Baseline demographic covariates were age (18–24, 25–34, 35–44, 45–54, or ≥55 years), sex, race/ethnicity (Hispanic, non-Hispanic white, non-Hispanic black, non-Hispanic other), education (less than high school, high school diploma/GED, some college or more), insurance (uninsured/other), employment (employed, not in the labor force, unemployed), and geographic region of residence (Northeast, Midwest, South, West). Income was expressed as a percentage of federal poverty level (<100%, 100%–199%, or ≥200%).

Participants self-reported whether they had ever received the following diagnoses from a doctor or health professional: cancer, diabetes or prediabetes, stroke, heart attack or myocardial infarction or needed bypass surgery, congestive heart failure, COPD (chronic

obstructive pulmonary disease; defined as COPD, chronic bronchitis, or emphysema), or asthma.

Daily smokers self-reported the number of cigarettes they smoked per day. For nondaily smokers, cigarettes per day were calculated as the product of days smoked per month and cigarettes per day on days smoked, divided by 30. This variable was winsorized at the 99th percentile to reduce the impact of extreme outliers. Time to first cigarette (30 minutes of waking) was used to measure nicotine dependence.<sup>21</sup> Participants self-reported current use of electronic cigarettes and other tobacco products (cigars, cigarillos, hookah, pipe tobacco, snus, smokeless tobacco, dissolvable tobacco). Home smoking ban was defined as reporting that smoking a tobacco product *is not allowed anywhere or at any time inside my home*. A 5-point scale from *not at all harmful (1)* to *extremely harmful (5)* measured perceived harms of cigarettes to health.

Participants reported how they would rate their *mental health, which includes stress, depression, and problems with emotions*, presented on a scale from *poor (1)* to *excellent (5)*. Past-year drug use included marijuana; cocaine, crack; stimulants; Ritalin, Adderall, painkillers, sedatives, or tranquilizers that were not prescribed; or any other drugs like heroin, inhalants, solvents, or hallucinogens. Alcoholic drinks per day were calculated as the product of the number of days with one or more alcoholic drinks in the past 30 days and the average number of drinks on these days, divided by 30.

### Statistical Analysis

Adults who had smoked 100 cigarettes in their lifetime, reported smoking every day or some days at baseline, and provided data on financial strain were included in analyses (unweighted  $n=8,658$ ). The Population Assessment of Tobacco and Health study imputed missing values for sex, age, education, race, and ethnicity, by using data from the household screener or by statistical imputation. Complex survey procedures employing Fay's variant of balanced repeated replication in Stata, version 14 were used for all analyses. Reported counts are unweighted and percentages are population weighted.

First, smokers with and without financial strain were compared using chi-square tests and adjusted Wald test statistics. For the first objective of examining the association between baseline financial strain and past 12-month quit attempts at follow-up, a multivariable negative binomial regression model controlling for the covariates above was used. Results were compared to Poisson regression and zero-inflated Poisson regression models, and given that model fit did not improve and results were similar, only the negative binomial regression model is presented. For the second objective, multivariable logistic regression assessed the association between baseline financial strain and follow-up cigarette abstinence among smokers who made a past 12-month quit attempt. For the third objective, a multivariable logistic regression model assessed whether smoking abstinence at follow-up was associated with reduced financial strain at follow-up among smokers with baseline financial strain.

Exploratory analyses further evaluated the association between baseline financial strain and follow-up cigarette abstinence. First, whether receipt of financial assistance modified the association between baseline financial strain and follow-up smoking abstinence was

assessed by testing for an interaction between baseline financial strain X past 12-month receipt of financial assistance at follow-up. Then, negative binomial regression models investigated the possibility that smokers who report financial strain may have to expend more effort to achieve the same results as those who are not strained through assessing (1) the number of quit attempts among baseline smokers who reported trying to quit but continued to smoke cigarettes at follow-up, and (2) quit attempts among those who successfully quit. Smoking cessation medication use and duration of quit attempts among smokers with and without financial strain were explored in bivariate analyses, as longer duration of abstinence has been associated with smoking cessation success.<sup>22</sup>

## RESULTS

Among baseline cigarette smokers, 29% (95% CI=27%, 30%) reported baseline financial strain. Smokers with and without financial strain differed significantly by sociodemographics, medical comorbidities, nicotine dependence, having a home smoking ban, cigarette harm perceptions, self-perceived mental health, electronic cigarette and other tobacco product use, and past-year drug use (Table 1).

More smokers with baseline financial strain tried to quit at least once in the past 12 months compared with smokers without financial strain (45% vs 40%,  $p=0.0002$ ). In a multivariable negative binomial regression model, smokers with baseline financial strain had a significantly higher rate of past 12-month quit attempts at follow-up compared with smokers without financial strain ( $p=0.01$ ). Specifically, smokers with baseline financial strain had 2.1 (SE=0.3) predicted quit attempts compared with 1.6 (SE=0.1) for smokers without financial strain. Other factors associated with increased quit attempts are shown in Table 2.

Of smokers with baseline financial strain who made at least one quit attempt, 15% reported cigarette abstinence at follow-up compared with 20% of smokers without financial strain ( $p=0.0007$ ). This association was no longer statistically significant in a multivariable logistic regression model (AOR=0.86, 95% CI=0.70, 1.05,  $p=0.13$ ; Table 3). Living below the federal poverty level was associated with significantly less smoking abstinence among smokers who tried to quit (AOR=0.66, 95% CI=0.50, 0.87).

Of smokers with baseline financial strain, 51% reported financial strain at follow-up. In a multivariable logistic regression model (Table 4), cigarette abstinence at follow-up was associated with less financial strain at follow-up among smokers with baseline financial strain (AOR=0.57, 95% CI=0.36, 0.89,  $p=0.01$ ).

Among smokers with financial strain at baseline, 43% reported receiving financial assistance at follow-up, compared with 24% of smokers without baseline financial strain. In a model testing for interaction between baseline financial strain X past 12-month receipt of financial assistance at follow-up, the main effect of financial strain was associated with follow-up cigarette abstinence (AOR=0.77, 95% CI=0.587, 0.998). Receipt of financial assistance among those with financial strain was not associated with statistically significant cigarette abstinence (AOR=1.43, 95% CI=0.94, 2.19,  $p$ -value for interaction=0.18; data not shown in tables). Baseline smokers with financial strain who tried to quit cigarettes but continued

smoking at follow-up had a nonsignificantly higher number of quit attempts compared with those without baseline financial strain (adjusted incidence-rate ratio=1.26, 95% CI=0.99, 1.62). Baseline smokers with and without financial strain who successfully quit did not differ in the number of quit attempts (adjusted incidence-rate ratio=0.97, 95% CI=0.76, 1.24). Use of stop-smoking medications was similar among smokers with and without financial strain who tried to quit (21% vs 23%,  $p=0.22$ ). Finally, among smokers who tried to quit but were still smoking at follow-up, the mean duration of the last quit attempt was similar among those with and without baseline financial strain (42 days vs 54 days,  $p=0.17$ ). Smokers with baseline financial strain who reported trying to quit and achieving cigarette abstinence at follow-up had quit for less time compared with smokers without financial strain (123 days vs 170 days,  $p=0.006$ ).

## DISCUSSION

In this large, nationally representative sample of U.S. adults, smokers with financial strain made more quit attempts over 1 year, but they were no more successful in quitting than smokers without financial strain. Furthermore, low income was associated with reduced quitting. This suggests that factors other than financial strain may impact whether low-income smokers who try to quit are successful.

These results differ from a prior longitudinal study using the International Tobacco Control Four Country Survey, which found that smokers with financial strain at baseline were less likely to make a quit attempt after 1 year, and those who tried to quit were less successful.<sup>8</sup> One potential explanation for this difference is that, in addition to the U.S., the International Tobacco Control study pooled data from three other countries (Canada, Australia, and the United Kingdom), where the smoking behaviors may differ from U.S. smokers. Furthermore, International Tobacco Control study data were collected 8 years prior to the Population Assessment of Tobacco and Health data. In the U.S., past-year quit attempts have increased among adult smokers from 2005 to 2015.<sup>23</sup> Although the between-groups difference in quit attempts in this study (2.1 versus 1.6) was small, it nevertheless suggests that financially strained smokers in the U.S. are actively attempting to quit to a greater extent than non-strained smokers. The results of the current study also differed from another study that showed an association between financial strain and reduced smoking cessation in the context of a smoking cessation intervention.<sup>9</sup> One explanation may be that the results obtained from the subpopulation of smokers included in such a clinical trial may not be as relevant in real-world scenarios that are captured by this observational study. Factors, such as study design (access to smoking cessation treatment) and study population (participant readiness/motivation to quit), may not be transportable to all settings, highlighting the importance of conducting observational studies as well.

The finding that financial strain was associated with quit attempts but not abstinence suggests that making a quit attempt and maintaining abstinence are distinct processes.<sup>24</sup> Although analyses controlled for baseline variables associated with smoking relapse, such as nicotine dependence,<sup>25</sup> factors arising during individual quit attempts may be important in determining whether the attempt is ultimately successful. For example, physical factors, such as cravings, and emotional factors, such as depressive symptoms, may arise or worsen

during a quit attempt, particularly in smokers who are financially strained and have higher levels of nicotine dependence and worse self-perceived mental health at baseline. Further research should address these potential issues within the context of quit attempts made by smokers with financial strain, as interventions focused on medication use and behavioral support may help reduce relapse in this population. Support should extend for more than 1 month after a smoker's quit date, as the mean duration of participants' longest quit attempt exceeded 1 month in this study. Furthermore, because lower income was associated with less quitting among smokers who tried to quit in this study, effective smoking cessation interventions in this population may need to focus on factors other than financial strain that are associated with low income and smoking, such as stress,<sup>26</sup> social aspects of smoking,<sup>27</sup> social support,<sup>28</sup> and less knowledge about the health consequences of smoking,<sup>29</sup> or factors associated with relapse, such as emotional symptoms.<sup>30</sup> Providers should be aware that many low-SES smokers are making multiple attempts to quit per year and ensure close follow-up for these motivated smokers to help anticipate and manage relapses and other difficulties that arise on the path to complete cigarette abstinence.

Consistent with a previous study, smokers with financial strain who were abstinent from cigarettes at follow-up had lower odds of reporting financial strain at follow-up in this study.<sup>16</sup> Although one limitation is that the exact timing of reduced financial strain and cigarette abstinence cannot be fully ascertained from this study, one potential implication is that smoking cessation among financially strained smokers can have both health and economic benefits by helping them escape a cycle in which limited financial resources are directed toward cigarettes to cope with the stresses associated with financial hardship. Even though receiving financial assistance was not associated with smoking cessation in smokers with financial strain in this study, one intervention strategy to explore is incorporating smoking cessation treatment into financial assistance programs (e.g., through assistance in obtaining nicotine replacement therapy and counseling). Thus, financial assistance programs could serve as a teachable moment on the financial impact of smoking and financial benefits of quitting, complementing the associated health benefits. Additionally, smoking behaviors should be explored in the context of other strategies to reduce financial strain, such as interventions incorporating financial incentives for smoking cessation in vulnerable populations<sup>31–34</sup> and guaranteed minimum income programs.

## Limitations

This study is subject to several limitations. First, all data, including smoking status and abstinence, were obtained by self-report and are subject to reporting bias. However, other population-based surveys have found that self-report was associated with accurate nicotine and tobacco use status as obtained by biomarkers.<sup>35,36</sup> Second, participants reported past 12-month quit attempts at follow-up, which may be subject to recall bias. Third, financial strain was based on one question about ability to pay bills on time and may not have captured all the ways people can experience financial strain. Similarly, the one-question measure of financial assistance did not differentiate between sources of financial assistance and may not have captured all sources of assistance. Fourth, participants who used cigarettes and other tobacco products were asked about attempts to quit tobacco rather than cigarettes specifically, and some quit attempts may have referred to non-cigarette tobacco products.

However, limiting the population to cigarette smokers who did not use other tobacco products in a sensitivity analysis did not alter the main findings. Fifth, reasons for smoking abstinence and relapse are complex and were not captured by the questions in this survey. Further research should explore other potentially addressable barriers to smoking cessation in vulnerable populations. Finally, all data were from U.S. adults and may not be generalizable to other countries.

## CONCLUSIONS

U.S. adult smokers with financial strain make more attempts to quit over 1 year, but are no more successful in quitting than smokers without financial strain. Smokers with financial strain who are successful in quitting are less likely to experience financial strain at follow-up. Low income remains associated with reduced quitting, which highlights the importance of identifying other factors that may hamper successful smoking cessation in this population. Targeted efforts are needed to help low-SES smokers quit and thereby reduce disparities in tobacco use and tobacco-related morbidity and mortality in this vulnerable population.

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**Table 1**

**Characteristics of Baseline Smokers With and Without Financial Strain<sup>a</sup>**

Baseline characteristic	No financial strain (n=6,061)		Financial strain (n=2,597)		p-value
	N	Weighted % (95% CI)	N	Weighted % (95% CI)	
<i>Age, <sup>b</sup> years</i>					
18-24	1,254	14 (13, 15)	494	13 (11, 14)	<0.001
25-34	1,314	24 (22, 25)	649	27 (25, 28)	
35-44	1,014	18 (16, 19)	569	23 (21, 25)	
45-54	1,104	19 (18, 20)	527	22 (21, 24)	
55	1,374	26 (24, 27)	358	15 (14-17)	
Female sex	2,847	43 (42, 45)	1,404	50 (48, 52)	<0.001
<i>Race/ethnicity</i>					
Non-Hispanic white	4,231	73 (72, 74)	1,528	63 (60, 65)	<0.001
Hispanic	725	10 (9.5, 11)	344	12 (11, 13)	
Non-Hispanic black	699	11 (10, 12)	512	19 (17, 21)	
Non-Hispanic other	406	6 (5, 6)	213	6 (5, 8)	
<i>Education<sup>b</sup></i>					
Less than HS	927	15 (14, 16)	509	18 (17, 20)	<0.001
HS/GED	2,197	39 (37, 40)	921	39 (37, 41)	
Some college or more	2,919	47 (45, 48)	1,165	43 (41, 45)	
<i>Employment status<sup>b</sup></i>					
Employed	3,799	64 (63, 66)	1,509	60 (57, 62)	<0.001
Not in the labor force	1,499	25 (23, 26)	592	22 (21, 24)	
Unemployed	731	11 (10, 12)	481	18 (17, 20)	
<i>Region</i>					
Northeast	876	17 (15, 19)	379	18 (16, 20)	0.3
Midwest	1,711	25 (24, 27)	715	24 (21, 27)	
South	2,353	39 (37, 41)	1,054	41 (38, 44)	
West	1,121	18 (17, 20)	449	17 (16, 19)	

Baseline characteristic	No financial strain (n=6,061)		Financial strain (n=2,597)		p-value
	N	Weighted % (95% CI)	N	Weighted % (95% CI)	
Uninsured <sup>b</sup>	1,408	23 (22, 24)	781	31 (29, 33)	<0.001
Medical comorbidities					<0.001
0	3,352	54 (52, 55)	1,249	47 (45, 50)	
1	1,391	23 (22, 25)	669	26 (24, 29)	
2	1,318	23 (21, 24)	679	26 (24, 28)	
Federal poverty level <sup>b</sup>					<0.001
<100%	1,932	31 (30, 33)	1,361	51 (49, 54)	
100%–199%	1,520	27 (26, 28)	705	29 (27, 31)	
200%	2,126	42 (40, 44)	432	20 (18, 22)	
Cigarettes per day <sup>b</sup>	5,929	13.4 (0.2)	2,554	14.2 (0.3)	0.01
Current electronic cigarette use	1,295	21 (19, 22)	610	23 (21, 25)	0.04
Current other tobacco product use <sup>b</sup>	1,820	30 (28, 31)	859	33 (30, 35)	0.02
Time to first cigarette 30 minutes <sup>b</sup>	3,516	59 (57, 60)	1,697	67 (64, 69)	<0.001
Smoking ban in the home <sup>b</sup>	3,320	56 (54, 58)	1,150	45 (42, 48)	<0.001
Perceived harm of cigarettes <sup>b,c</sup>	6,050	4.0 (0.01)	2,596	4.2 (0.02)	<0.001
Self-perceived mental health <sup>b,d</sup>	6,057	3.4 (0.02)	2,593	3.0 (0.03)	<0.001
Past-year drug use <sup>b</sup>	2,101	34 (33, 35)	1,304	49 (47, 52)	<0.001
Alcoholic drinks per day <sup>b</sup>	5,955	0.9 (0.03)	2,553	0.8 (0.05)	0.7

Notes: Boldface indicates statistical significance ( $p < 0.05$ ). All Ns are unweighted; all percentages and 95% CIs are population weighted.

<sup>a</sup>Excludes 626 current smokers with missing data on financial strain.

<sup>b</sup>Data missing for covariates were as follows: 1 for age, 20 for education, 47 for employment, 44 for insurance, 582 for poverty level, 175 for cigarettes per day, 14 for electronic cigarette use, 333 for other tobacco product use, 23 for smoking ban in the home, 12 for perceived harm of cigarettes, 8 for self-perceived mental health, 242 for drug use, and 150 for alcohol use.

<sup>c</sup>5-point scale from not at all harmful (1) to extremely harmful (5).

<sup>d</sup>5-point scale from poor (1) to excellent (5).

HHS, high school; GED, General Education Development test.

**Table 2**Predictors of Past 12-month Quit Attempts Among Baseline Smokers (n=7,213)<sup>a</sup>

Variables	aIRR (95% CI)
Financial strain at baseline	<b>1.34 (1.07-1.68)*</b>
Age, years	
18–24	0.86 (0.57, 1.29)
25–34	0.70 (0.46, 1.05)
35–44	0.79 (0.56, 1.13)
45–54	0.91 (0.63, 1.30)
55	ref
Female sex	1.00 (0.83, 1.20)
Race/ethnicity	
Non-Hispanic white	ref
Hispanic	1.26 (0.98, 1.63)
Non-Hispanic black	<b>1.55 (1.10, 2.20)*</b>
Non-Hispanic other	1.00 (0.77, 1.29)
Education	
Less than HS	1.01 (0.77, 1.32)
HS/GED	0.84 (0.70, 1.01)
Some college or more	ref
Employment status	
Employed	ref
Not in the labor force	<b>1.38 (1.08, 1.75)**</b>
Unemployed	0.90 (0.70, 1.14)
Region	
Northeast	ref
Midwest	1.19 (0.76, 1.84)
South	1.02 (0.81, 1.28)
West	<b>0.75 (0.60, 0.93)**</b>
Uninsured	0.94 (0.77, 1.15)
Medical comorbidities	
0	ref
1	1.14 (0.87, 1.49)
2	<b>1.38 (1.04, 1.82)*</b>
Federal poverty level	
<100%	0.99 (0.75, 1.32)
100%–199%	0.99 (0.76, 1.28)
200%	ref
Cigarettes per day	<b>0.99 (0.982, 0.999)*</b>
Electronic cigarette use	1.15 (0.94, 1.41)
Other tobacco product use	1.20 (0.98, 1.48)

Variables	aIRR (95% CI)
Time to first cigarette 30 minutes	0.76 (0.56, 1.03)
Smoking ban in the home	1.28 (0.99, 1.65)
Perceived harm of cigarettes <sup>b</sup>	<b>1.34 (1.20, 1.50)</b> ***
Self-perceived mental health <sup>c</sup>	<b>0.86 (0.78, 0.96)</b> **
Past-year drug use	1.14 (0.92, 1.42)
Alcoholic drinks per day	1.00 (0.95, 1.04)

Notes: Boldface indicates statistical significance

\*  $p < 0.05$ ;

\*\*  $p < 0.01$ ;

\*\*\*  $p < 0.001$ .

<sup>a</sup>Data on past 12-month quit attempts missing for 113 participants.

<sup>b</sup>5-point scale from not at all harmful (1) to extremely harmful (5).

<sup>c</sup>5-point scale from poor (1) to excellent (5).

aIRR, adjusted incidence-rate ratio; HS, high school; GED, General Education Development test.

**Table 3**Predictors of Cigarette Abstinence at Wave 2 Among Smokers Who Tried to Quit (n=3,108)<sup>a</sup>

Variables	AOR (95% CI)
Financial strain at baseline	0.86 (0.70, 1.05)
Age, years	
18–24	1.02 (0.63, 1.66)
25–34	1.00 (0.64, 1.54)
35–44	0.80 (0.51, 1.25)
45–54	0.78 (0.47, 1.28)
55	ref
Female sex	1.07 (0.82, 1.40)
Race/ethnicity	
Non-Hispanic white	ref
Hispanic	1.03 (0.73, 1.45)
Non-Hispanic black	<b>0.70 (0.51, 0.98)*</b>
Non-Hispanic other	0.86 (0.51, 1.45)
Education	
Less than HS	0.81 (0.53, 1.23)
HS/GED	1.05 (0.80, 1.36)
Some college or more	ref
Employment status	
Employed	ref
Not in the labor force	0.89 (0.66, 1.21)
Unemployed	0.73 (0.51, 1.06)
Region	
Northeast	ref
Midwest	1.21 (0.87, 1.69)
South	<b>1.50 (1.09, 2.06)*</b>
West	1.14 (0.78, 1.66)
Uninsured	0.92 (0.68, 1.26)
Medical comorbidities	
0	ref
1	0.89 (0.67, 1.17)
2	0.84 (0.63, 1.12)
Federal poverty level	
<100%	<b>0.66 (0.50, 0.87)**</b>
100%–199%	<b>0.64 (0.48, 0.85)**</b>
200%	ref
Cigarettes per day	<b>0.96 (0.95, 0.98)***</b>
Electronic cigarette use	1.00 (0.77, 1.30)
Other tobacco product use	1.08 (0.83, 1.41)

Variables	AOR (95% CI)
Time to first cigarette 30 minutes	0.81 (0.64, 1.03)
Smoking ban in the home	1.23 (0.97, 1.54)
Perceived harm of cigarettes <sup>b</sup>	0.94 (0.82, 1.08)
Self-perceived mental health <sup>c</sup>	<b>1.11 (1.04, 1.24)*</b>
Past-year drug use	1.03 (0.81, 1.30)
Alcoholic drinks per day	0.98 (0.91, 1.05)

Notes: Boldface indicates statistical significance

\*  $p < 0.05$ ;

\*\*  $p < 0.01$ ;

\*\*\*  $p < 0.001$ .

<sup>a</sup>Data on cigarette abstinence at Wave 2 missing for 1 participant.

<sup>b</sup>5-point scale from not at all harmful (1) to extremely harmful (5).

<sup>c</sup>5-point scale from poor (1) to excellent (5).

HS, high school; GED, General Education Development test.

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**Table 4**

Predictors of Financial Strain at Follow-up Among Smokers With Financial Strain at Baseline Who Tried to Quit (n=983)<sup>a</sup>

Variables	AOR (95% CI)
Cigarette abstinence at Wave 2	<b>0.57 (0.36, 0.89) *</b>
Age, years	
18–24	<b>0.43 (0.23, 0.80) **</b>
25–34	0.61 (0.36, 1.04)
35–44	0.79 (0.44, 1.44)
45–54	0.85 (0.49, 1.48)
55	ref
Female sex	1.37 (0.99, 1.89)
Race/ethnicity	
Non-Hispanic white	ref
Hispanic	0.97 (0.61, 1.56)
Non-Hispanic black	0.75 (0.48, 1.17)
Non-Hispanic other	1.08 (0.53, 2.20)
Education	
Less than HS	0.86 (0.55, 1.33)
HS/GED	1.16 (0.82, 1.65)
Some college or more	ref
Employment status	
Employed	ref
Not in the labor force	0.80 (0.52, 1.21)
Unemployed	0.91 (0.59, 1.41)
Region	
Northeast	ref
Midwest	1.49 (0.87, 2.55)
South	1.41 (0.86, 2.30)
West	1.25 (0.76, 2.05)
Uninsured	1.03 (0.69, 1.52)
Medical comorbidities	
0	ref
1	1.00 (0.68, 1.49)
2	1.32 (0.90, 1.93)
Federal poverty level	
<100%	<b>1.59 (1.04, 2.45) *</b>
100%–199%	1.29 (0.86, 1.94)
200%	ref
Cigarettes per day	1.00 (0.98, 1.01)
Electronic cigarette use	1.14 (0.80, 1.62)
Other tobacco product use	1.08 (0.74, 1.59)

Variables	AOR (95% CI)
Time to first cigarette 30 minutes	1.11 (0.79, 1.58)
Smoking ban in the home	1.30 (0.95, 1.77)
Perceived harm of cigarettes <sup>b</sup>	1.14 (0.96, 1.36)
Self-perceived mental health <sup>c</sup>	0.92 (0.81, 1.04)
Past-year drug use	<b>1.59 (1.11, 2.27)</b> *
Alcoholic drinks per day	1.01 (0.94, 1.09)

Notes: Boldface indicates statistical significance

\*  
 $p < 0.05$ ;

\*\*  
 $p < 0.01$ ;

\*\*\*  
 $p < 0.001$ .

<sup>a</sup>Data on financial strain at follow-up missing for 322 participants.

<sup>b</sup>5-point scale from not at all harmful (1) to extremely harmful (5).

<sup>c</sup>5-point scale from poor (1) to excellent (5).

HS, high school; GED, General Education Development test