Research Article

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A Prospective Cohort Study of Cigarette Prices and Smoking Cessation in Older Smokers

Victoria L. Stevens[1], W. Ryan Diver[1], Michal Stoklosa[2], W. Dana Flanders[3], J. Lee Westmaas[4], Ahmedin Jemal[5], Jeffrey M. Drope[2], Susan M. Gapstur[1], and Eric J. Jacobs[1]

Abstract

Background: Cigarette price increases effectively prevent smoking initiation and reduce cigarette consumption among young smokers. However, the impact of cigarette prices on smoking cessation among older smokers is less clear, particularly for those aged 65 years and older, a group that is at highest risk of smoking-related disease and will almost double in the United States between 2012 and 2050.

Methods: Biennial questionnaires administered between 1997 and 2013 assessed smoking status for 9,446 Cancer Prevention Study-II Nutrition Cohort participants who were ≥50 years old and lived in Washington, DC, and 48 states. For each interval between biennial questionnaires, change in price per pack and average price level per pack were calculated. The separate associations between these price variables and smoking cessation during the same time interval were determined.

Results: In multivariable-adjusted models, each $1.00 price increase was associated with a 9% higher rate of quitting [rate ratio (RR) = 1.09; 95% confidence interval (CI), 1.04–1.14). Each $1.00 increase in average price was associated with a 6% higher rate of quitting (RR = 1.06; 95% CI, 1.02–1.10). The association with average price was strongest among smokers aged 65 years and older (RR = 1.07; 95% CI, 1.04–1.11) and, for price change, for smokers with no major prevalent disease (RR = 1.13; 95% CI, 1.07–1.19).

Conclusions: These results suggest that increasing cigarette prices will promote quitting even among smokers aged 65 years and older.

Impact: Increasing cigarette prices through higher taxes could reduce smoking rates among older adults and decrease risk of smoking-related cancers and diseases in this high-risk group. *Cancer Epidemiol Biomarkers Prev; 26(7); 1071–7. ©2017 AACR.*

Introduction

Smoking rates in the United States have declined significantly since the release of the first Surgeon General's Report linking smoking and cancer in 1964 (1, 2). Nonetheless, more than 40 million Americans continue to smoke, one in three cancer deaths are attributable to smoking (3), and lung cancer remains the most common cause of cancer-related death in the United States (4). Thus, there is a need for further tobacco control measures. Increasing cigarette prices through higher excise taxes has proven very effective at altering smoking behavior among young adults in the United States (5) and globally (6). However, whether increasing cigarette prices promotes smoking cessation in older smokers is unclear. Most studies suggest that price sensitivity varies inversely with age (6, 7), but few studies have focused on older smokers, particularly those aged 65 years and older. Among three studies of this age group that used overlapping data from the Behavioral Risk Factor Surveillance System (8–10), the most comprehensive found a statistically significant inverse association between price and smoking prevalence but only a nonsignificant positive association between cigarette prices and the probability of quitting over the past year (8).

Questions also remain about whether the influence of price on smoking behavior in older adults differs by gender, or by the presence or absence of other tobacco control policies, such as smoke-free laws. Whether price sensitivity in older adults varies by gender was addressed in only one study, an analysis of British smokers (11), in which women aged 60 years or older were found to be price sensitive but men of the same age were not. Furthermore, whether the effect of increasing cigarette prices in older adults is modified by the presence of statewide 100% smoke-free air laws, another effective tobacco control, measure has not been examined in any study.

Adults aged 65 years and older are at highest risk of smoking-related cancers and diseases, and the number of adults in that age group in the United States is expected to nearly double between 2012 and 2050 (12). Even for older smokers, smoking cessation results in reduced risk of smoking-related mortality (13) and hospitalization (14). Although the prevalence of smoking among adults aged 65 years and older is generally lower than in younger adults (2), further reduction through increased cessation should have substantial health and economic benefits. The aim of this study was to investigate whether the change in price and average price of a pack of cigarettes were associated with smoking cessation among older adults. In addition, potential differences in

[1]Epidemiology Research Program, American Cancer Society, Atlanta, Georgia. [2]Economic and Health Policy Research Program, American Cancer Society, Atlanta, Georgia. [3]Rollins School of Public Health, Emory University, Atlanta, Georgia. [4]Behavioral Research Center, American Cancer Society, Atlanta, Georgia. [5]Surveillance and Health Services Research, American Cancer Society, Atlanta, Georgia.

Corresponding Author: Victoria L. Stevens, American Cancer Society, 250 Williams Street NW, Atlanta, GA 30303-1002. Phone: 404-329-5197; Fax: 404-327-6450; E-mail: victoria.stevens@cancer.org

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associations by age group, sex, presence of statewide smoke-free air laws, and other factors were also examined.

Materials and Methods

Study population

Men and women included in this analysis were participants in the CPS-II Nutrition Cohort, a large prospective study of cancer incidence among 184,185 men and women that began in 1992. The Nutrition Cohort, described in detail by Calle and colleagues (15), was formed as a subcohort of CPS-II, a prospective study of cancer mortality among roughly 1.2 million adults that began in 1982. Nutrition Cohort participants were recruited from CPS-II enrollees living in 21 states and between the ages of 50 and 74. Participants completed a self-administered questionnaire at enrollment in 1992/1993 that asked for demographic, medical, and lifestyle information. Follow-up questionnaires to update exposure information and ascertain newly diagnosed cancers were sent to living Nutrition Cohort participants in 1997 and every 2 years since. The response rate on these questionnaires was at least 85% among the cohort participants who were mailed the questionnaire. All aspects of the CPS-II Nutrition Cohort were approved by the Emory University Institutional Review Board.

Of the 184,185 participants in the CPS-II Nutrition cohort, 11,258 reported being a current or former smoker in 1992 and/or 1997 and reported being a current smoker at least once during the follow-up period (1997–2013) and were potentially eligible for this analysis. From this group, smokers were excluded if they died before they could return any subsequent questionnaires (n = 443), reported current smoking only on the last questionnaire (2011) during follow-up ($n = 92$), did not have usable smoking data on at least two consecutive questionnaires ($n = 1{,}204$), had insufficient address information to accurately determine state of residence during follow-up ($n = 67$), or if no smoking information was reported at or after the age of 50 ($n = 6$). After these exclusions, this analysis included 9,446 smokers (4,173 men and 5,273 women).

Questionnaires and smoking status assessment

This analysis used information on smoking status collected on eight biennial follow-up questionnaires from 1997 through 2011. Participants who did not respond to the initial mailing were sent the same questionnaire multiple times and had up to 2 years from the initial mailing to return each questionnaire. Thus, the return dates of a specific questionnaire by different CPS-II Nutrition Cohort participants could vary by as much as 2 years. Because 2011 questionnaires could be returned through 2013, the time period covered by this analysis is 1997 through 2013.

The outcome variable for this analysis was whether or not a participant who reported being a current smoker on a particular study questionnaire either remained a current smoker or had quit smoking (by reporting that they were not a current smoker) by the time of the next study questionnaire approximately 2 years later. Therefore, for each participant in the analysis, we identified all of the intervals between questionnaires that began with a report of current smoking and ended with a report of either continuing to be a current smoker, or having quit. Each of these intervals was coded as either having ended with continued smoking or with having quit. For example, a participant who reported being a current smoker in 1997 and 1999, but reported being a former smoker in 2001 would provide information from two intervals, with the 1997–1999 interval coded as ending with continued smoking and the 1999–2001 interval coded as ending with having quit.

If an interval ended with a questionnaire for which smoking status was missing, that interval was not included in the analysis. Thus, if a participant reported being a current smoker on their 1997 questionnaire but did not report smoking status on their 1999 questionnaire, their 1997–1999 interval was not included in the analysis. However, if that participant reported being a current smoker on a subsequent questionnaire and a smoking status on the next questionnaire, their information from that interval was included in the analysis. Similarly, if a participant who quit smoking reported being a current smoker on a later questionnaire, they could again contribute to the analysis if smoking status was reported on consecutive questionnaires.

Cigarette price data and variables

Annual cigarette price data, which include the manufacturer's price, the state excise tax, a federal tax, and, except when indicated otherwise, a sales tax, for each state for the years were obtained from The Tax Burden on Tobacco (16). Prices were inflation adjusted to 2013 values using information from the International Monetary Fund (17). Theses inflation-adjusted prices were weighted average prices over the course of a year for all cigarette brands, including generics.

Price data were used to calculate two variables, price change and average price level, during each interval between consecutive questionnaires. For each participant, the interval-specific price change was calculated as the difference between the price on the date they returned the questionnaire at the beginning of the interval and the price on the date they returned the questionnaire at the end of the interval. For example, if the price at the return of the 1997 questionnaire was \$3.00 per pack and the price at the return of the 1999 questionnaire was \$4.00 per pack, then the price change for the 1997–1999 interval would be \$1.00.

The average price level for each interval from each participant was calculated as a weighted average of price over the interval. Specifically, the amount of time during the interval at each price point was first multiplied by the corresponding price. These values were then summed and divided by the total time in the interval. Thus, if in the 2 years between the receipt of an individual's 1997 and 1999 questionnaires, the price was \$3.00 for 8 months and \$4.00 for 16 months, the average price level for the 1997–1999 interval would be \$3.67.

Statistical analysis

A repeated measures analysis was conducted with quitting smoking as the outcome of interest. Because the exact date a participant quit smoking within an approximately 2-year questionnaire interval was not known (i.e., the data were interval censored), the interval-level observations from each participant were combined and analyzed using a binomial distribution and complementary log–log link, a discrete analogue of the Cox proportional hazards model that is appropriate when data are interval censored (18). Smokers were considered to have quit smoking at the time they reported being a former smoker on a study questionnaire. Smokers were permanently censored at the last time they reported smoking information on two consecutive questionnaires, died, or at the return of the final 2011 questionnaire. Those smokers who quit but reported smoking again on a later questionnaire could contribute additional observations.

Table 1. Quit rates by questionnaire interval among smokers in the CPS-II Nutrition Cohort

	Smokers[b]	Quitters	Quit rate	Price increase ≥$1.00[c]	
Questionnaire interval[a]	*n*	*n*	%	*n*	%
1997–1999	7,055	1,627	23.1	5,710	80.9
1999–2001	5,606	1,098	19.6	803	14.3
2001–2003	4,681	887	18.9	669	14.3
2003–2005	3,832	751	19.6	3	0.1
2005–2007	3,169	710	22.4	271	8.6
2007–2009	2,394	506	21.1	1,236	51.6
2009–2011	1,762	409	23.2	104	5.9
Total	28,499	5,988	21.0	8,796	30.9

[a]Defined by the return dates of the questionnaires at the beginning and the end of the interval.
[b]Current smokers at start of interval with known smoking status at the end of the interval.
[c]Number of smokers that experienced a price increase of ≥$1.00.

Therefore, to account for repeated measures, the data were modeled using generalized estimating equations with an exchangeable correlation structure.

Our model yields an estimate of the rate ratio (RR) for quitting smoking associated with the price change and average price level during the same time interval. The overall RR incorporates information from all 2-year intervals in the analysis. Price change and average price level were modeled as continuous variables, except when indicated otherwise, and associations were reported per $1.00 increment. Multiplicative interactions between price change or average price level and other variables were examined using a generalized score statistic in which the nonprice variables were modeled either categorically (for dichotomous nonprice variables) or as an ordinal trend term (for nonprice variables with three categories). All *P* values were two-sided.

Models for both price change and average price level were adjusted for gender, race (white, black, other/missing), education (high school or less, some college, college graduate), and age at smoking initiation (by year). Models were also adjusted for several variables using updated information from the beginning of each participant interval to account for changes over time. These variables were as follows: a categorical variable for the questionnaire interval (e.g., 1997–1999), questionnaire interval length (months), age (5-year categories), chronic obstructive pulmonary disease (no, yes, missing), cardiovascular disease (no, yes, missing), cancer (no or yes), alcohol use (nondrinker, <1/day, 1/day, ≥2/day, or missing), employment status (employed, not employed, or missing), marital status (currently married, not currently married, or missing), cigarettes smoked per day (<10, 10–<20, 20–<30, ≥30, or missing) and years smoked (<30, 30-<40, 40-<50, ≥50, or missing). Also included in the model were variables for the coverage of 100% of the population by statewide smoke-free air laws covering work places, restaurants, and bars (no or yes for combined assessment), for which information was obtained from the Americans for Nonsmokers' Rights Foundation (19).

Results

The number of smokers with complete smoking status information, the number who quit, and the number who experienced a price increase ≥$1.00 for each questionnaire interval are shown in Table 1. Over the course of the seven biennial questionnaires, smokers contributed 28,499 intervals to the analysis, of which 5,988 ended with the participant reporting no longer being a current smoker, resulting in an average quit rate of 21%. A price increase of ≥$1.00 occurred for most smokers (80.9%) in the first questionnaire interval (1997–1999) and about half (51.6%) of the smokers in the 2007–2009 interval.

Table 2 shows selected characteristics of the participants at the first questionnaire interval that they contributed to the analysis. Although most participants contributed to the first (1997–1999) interval, some did not have complete smoking status information until a later questionnaire interval. The smokers were spread across 48 states and Washington, DC, with the most coming from California, Pennsylvania, and Illinois, and were mostly white, married, no longer employed, and likely to have smoked for more than 40 years. There were somewhat more women than men.

The associations of price change and average price level with smoking cessation rates are shown in Table 3. In multivariable-adjusted models, each $1.00 price increase during an approximately 2-year interval was associated with a 9% higher rate of quitting smoking [RR = 1.09; 95% confidence interval (CI), 1.04–1.14]. The average price level of a pack of cigarettes was also associated with a higher rate of smoking cessation, with every $1.00 increment associated with a 6% higher rate of quitting smoking (RR = 1.06; 95% CI, 1.02–1.10). Excluding sales tax from these measures of cigarette pricing did not change these associations.

In categorical analyses, the association between price change and smoking cessation rates increased in a roughly dose-dependent manner, with even a price increase of less than 50 cents being associated with higher quitting rates (Fig. 1A). Similarly, compared with an average price of less than $4.00, the rate of smoking cessation was higher for all other average price categories (Fig. 1B).

The associations of price change and average price level with smoking cessation stratified on age, education, presence of smoke-free air laws, gender, prevalent disease, employment status, and age started smoking are shown in Table 3. Both associations with smoking cessation were stronger in smokers aged 65 years and older than in smokers aged 50 to 64 years, although the difference was only statistically significant for average price level. The associations for price change and average price were weaker in college graduates than in smokers with less education, although the differences were not significantly different. Price change was also more strongly associated with higher rates of smoking cessation in states with 100% statewide smoke-free air laws, in smokers with no history of prevalent disease and in smokers who started smoking before age 18, although the differences were only statistically significant in the latter two analyses.

Associations between price change or average price level and smoking cessation did not differ significantly by cigarettes smoked per day or marital status.

Table 2. Characteristics of CPS-II Nutrition Cohort participants at the first questionnaire interval they contribute to the analysis

Characteristic	Smokers $n = 9{,}446$ *n* (%)	Characteristic	Smokers $n = 9{,}446$ *n* (%)
First questionnaire interval		Age (y) at start of interval	
1997–1999	7,055 (74.7)	<65	3,474 (36.8)
1999–2001	1,041 (11)	65–69	2,791 (29.5)
2001–2003	635 (6.7)	70–74	2,102 (22.3)
2003–2005	313 (3.3)	≥75	1,079 (11.4)
2005–2007	177 (1.9)	Gender	
2007–2009	132 (1.4)	Male	4,173 (44.2)
2009–2011	93 (1)	Female	5,273 (55.8)
State of residence		Race	
Arizona	58 (0.6)	White	9,182 (97.2)
California	995 (10.5)	Black	163 (1.7)
Connecticut	174 (1.8)	Other	101 (1.1)
Florida	776 (8.2)	Education[b]	
Georgia	140 (1.5)	High school or less	3,578 (37.9)
Iowa	270 (2.9)	Some college	3,014 (31.9)
Illinois	942 (10)	College grad	2,854 (30.2)
Louisiana	101 (1.1)	Number of years smoked[b]	
Massachusetts	277 (2.9)	<40 Years	2,516 (26.6)
Maryland	325 (3.4)	≥40 Years	6,825 (72.3)
Michigan	550 (5.8)	Cigarettes per day[b]	
Minnesota	762 (8.1)	<20	4,541 (48.1)
Missouri	212 (2.2)	≥20	2,936 (31.1)
North Carolina	317 (3.4)	Age (y) started smoking[b]	
New Jersey	425 (4.5)	<18	4,071 (43.1)
New Mexico	68 (0.7)	≥18	5,342 (56.6)
New York	779 (8.2)	Employment status[b]	
Pennsylvania	1,024 (10.8)	Employed	2,287 (24.2)
Texas	36 (0.4)	Not employed	5,104 (54)
Utah	32 (0.3)	Marital status[b]	
Virginia	409 (4.3)	Currently married	5,961 (63.1)
Washington	154 (1.6)	Not currently married	1,614 (17.1)
Wisconsin	451 (4.8)		
Other[a]	169 (1.8)		

[a]States with ≤60 total intervals: Alabama, Arkansas, Colorado, Delaware, Hawaii, Idaho, Indiana, Kansas, Kentucky, Maine, Mississippi, Montana, North Dakota, New Hampshire, Nevada, Ohio, Oklahoma, Oregon, Rhode Island, South Carolina, South Dakota, Tennessee, Vermont, West Virginia, Wyoming, and Washington, D.C.
[b]Percentages do not sum to 100 because status information was missing for some individuals.

Although state of residence determines the tax the smokers are exposed to, there may be other state-specific characteristics that also influence smoking cessation. To investigate this possibility, a sensitivity analysis was done in which state was adjusted for in the model. The associations for price change (RR = 1.10; 95% CI, 1.04–1.16 per $1.00) and average price (RR = 1.06; 95% CI, 1.01–1.12 per $1.00) were changed little by adjustment for state.

Discussion

In this study of smokers aged 50 years and older, a change in price of $1.00 per pack during an interval of about 2 years was associated with a 9% higher rate of smoking cessation during that same time interval. In addition, a $1.00 higher average price level was associated with a 6% higher rate of smoking cessation, independent of recent price change.

The two measures of cigarette pricing examined in this study, price change, and average price level were only modestly correlated (Pearson correlation coefficient = 0.36) and provide different insights into how smokers respond to a change in cigarette prices over time. The association observed between price increases during a 2-year interval and smoking cessation during the same 2-year interval indicates immediate, or almost immediate, increases in smoking cessation following a cigarette price increase. Conversely, the association observed between average price level and smoking cessation, independent of price change during the interval (recent price change), indicates higher smoking cessation rates among smokers paying more for a pack of cigarettes, given the same recent price change. One example of this would be higher cessation rates in a state where prices were $1.00 higher than in another state, even though there had not been a recent price change in either state. Higher average price levels, given no or the same recent price change, must reflect greater price increases further in the past. Therefore, our finding of a significant association with average price level suggests a cigarette price increase will have long-term effects on smoking cessation that persist beyond the immediate response.

To our knowledge, ours is the first study to demonstrate an association between cigarette pricing and smoking cessation rates in adults aged 65 years and older. Although previous studies showed an inverse association between cigarette price and the prevalence of smoking in older adults (8, 9, 11), only one of these studies specifically investigated smoking cessation (8). In that study, higher cigarette prices appeared to be positively associated with smoking cessation, but this association was not statistically significant (8).

In our study, average price level was associated with smoking cessation among smokers 65 years and older (RR = 1.07; 95% CI, 1.04–1.11), whereas no association was observed among

Table 3. Associations per $1.00 of price change and average price with smoking cessation overall and by demographic and smoking-related factors

Group	Smoking intervals	Quit smoking	Price change RR[a,b] (95% CI)	P^c	Average price RR[a,d] (95% CI)	P^c
All	28,499	5,988	1.09 (1.04–1.14)		1.06 (1.02–1.10)	
Age (y)						
Age < 65	6,635	1,318	1.05 (0.97–1.14)		0.98 (0.92–1.05)	
Age ≥ 65	21,864	4,670	1.10 (1.05–1.15)	0.29	1.07 (1.04–1.11)	0.01
Education						
≤High school	10,658	2,191	1.13 (1.07–1.20)		1.07 (1.02–1.12)	
Some college	9,105	1,886	1.08 (1.01–1.15)	0.06	1.10 (1.05–1.15)	0.15
College	8,736	1,911	1.06 (0.99–1.12)		1.03 (0.98–1.07)	
Smoke-free air laws						
No	21,946	4,563	1.07 (1.01–1.12)		1.06 (1.02–1.10)	
Yes	6,553	1,425	1.13 (1.07–1.20)	0.11	1.06 (1.01–1.12)	0.94
Gender						
Male	11,576	2,742	1.10 (1.04–1.17)		1.04 (0.99–1.08)	
Female	16,923	3,246	1.08 (1.03–1.14)	0.55	1.08 (1.04–1.12)	0.07
Prevalent disease[e]						
No	15,280	3,160	1.13 (1.07–1.19)		1.04 (1.00–1.10)	
Yes	10,170	2,217	1.05 (0.99–1.12)	0.03	1.06 (1.01–1.10)	0.62
Employment status[f]						
Employed	5,798	1,181	1.08 (0.99–1.17)		1.07 (1.00–1.13)	
Not employed	17,831	3,822	1.12 (1.06–1.18)	0.39	1.04 (1.00–1.09)	0.51
Age started smoking (yrs)						
Age < 18	12,321	2,505	1.13 (1.07–1.19)		1.05 (1.01–1.10)	
Age ≥ 18	16,127	3,459	1.06 (1.00–1.12)	0.04	1.07 (1.03–1.11)	0.43

[a]Adjusted for interval, interval length, age, gender, race, education, chronic obstructive pulmonary disease (COPD), cardiovascular disease (CVD), cancer, alcohol use, employment status, marital status, smoke-free air laws, cigarettes/day, years smoked, and age began smoking.
[b]Adjusted for interval starting price.
[c]$P_{interaction}$.
[d]Adjusted for price change in the interval.
[e]Cancer, CVD, and/or COPD at the start of the smoking interval.
[f]Employment status information is missing for almost 18% of the intervals.

those aged 50 to 64 years (RR = 0.98; 95% CI, 0.92–1.05). Although it could be that the older adults were more price sensitive than the younger smokers because they were retired and were more likely to have a fixed income, the lack of difference in the association of average price with smoking cessation among employed and unemployed smokers does not support this explanation. Furthermore, our finding showed that average price was associated with higher quit rates in those with and without prevalent disease, but price change was only associated with smoking cessation in smokers without prevalent disease (RR = 1.13; 95% CI, 1.07–1.19). Notably, there was lower power in the prevalent disease group, and the lower end of the confidence interval was 0.99, suggesting that this difference could be due to chance.

Associations between cigarette pricing and smoking cessation were similar among men and women in our study, in contrast to results from an earlier British study (11) that found an association only among older women. However, smoking prevalence was considerably higher during the time of the British study (1972–1990), and the relative increases in cigarette prices were smaller (11) than in this study.

During the follow-up period of this analysis, which was from 1997 to 2013, the two intervals during which cigarette prices increased the most were 1997–1999 and 2007–2009. The price increase in 1997–1999 resulted mainly from increases in state excise taxes, whereas that in 2007–2009 was from a combination of increases in both state and federal excise taxes (20). Although the highest quit rate (23.1%) among the CPS-II Nutrition Cohort smokers occurred during the 1997–1999 interval, the quit rate for the 2007–2009 interval (21.1%) was lower than that of the surrounding intervals (i.e., 2005–2007 and 2009–2011). It is not clear why the 2007–2009 interval quit rate is not higher, although the increased age or other characteristics of the smokers, or additional factors that influence smoking behavior not considered, may have influenced this quit rate.

Like tobacco taxes, smoke-free air laws have been differentially enacted throughout the United States and have been shown to be effective in promoting smoking cessation (1). In our study, the association between cigarette prices and smoking cessation was somewhat stronger when smoke-free air laws were also present, suggesting possible synergy between these two tobacco control measures. To date, only one study has investigated whether there may be synergy between these tobacco control measures (21). Vuolo and colleagues (21) found some evidence of synergy between excise taxes and smoke-free air laws among adults aged 19 to 31 years old, but only in light (less than 1 pack per day) smokers. Given the age difference and the focus of that study on excise taxes rather than total price, it is difficult to compare these findings with ours. Although our findings require replication, they suggest that simultaneous implementation of different tobacco control policies may be the most effective way to increase smoking cessation rates.

One of the strengths of this study is the use of data from a nearly nationwide prospective cohort study, the CPS-II Nutrition Cohort, to investigate the influence of prices on smoking cessation across a wide portion of the United States. The analyses included a relatively wide range of cigarette price changes and levels. Another strength of this analysis is the availability of extensive health and lifestyle information, allowing for the consideration of numerous

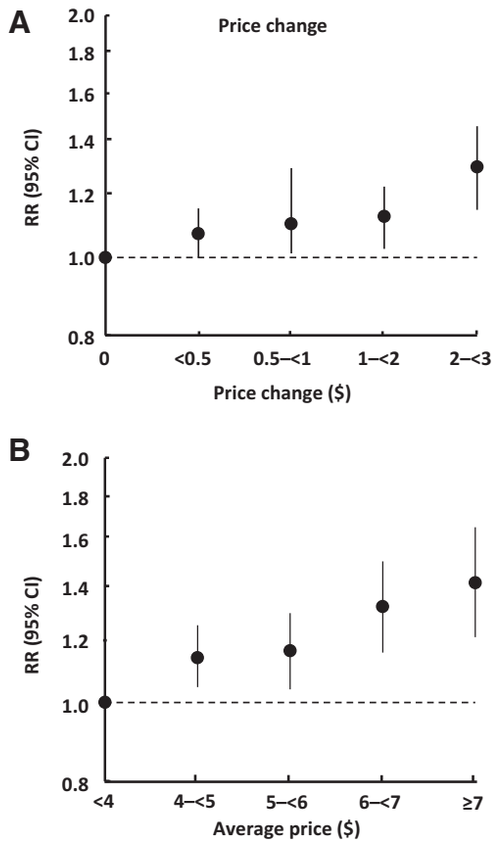

Figure 1.

Categorical analysis of the association of price change (**A**) and average price level (**B**) with smoking cessation. **A,** Association between price change and smoking cessation. **B,** Association between average price level and smoking cessation. All models were adjusted for interval, interval length, age, gender, race, education, chronic obstructive pulmonary disease, cardiovascular disease, cancer, alcohol use, employment status, marital status, smoke-free air laws, cigarettes/day, years smoked, and age began smoking. The model for price change was additionally adjusted for price at the start of the interval (**A**) and that for average price level was adjusted for price change in the interval (**B**).

covariates that might affect the association between cigarette prices and smoking cessation.

A notable limitation of this analysis is that this study population is primarily white and, on average, more educated than the general public, potentially limiting the generalizability of our findings. However, we would expect that the generally less educated smokers in the overall population would be more price sensitive than most smokers in our study. An additional limitation is the lack of information on income of the CPS-II Nutrition Cohort participants, which was dealt with in the analysis by using education as a surrogate.

Overall, these results provide evidence that increasing cigarette prices is likely to be an effective strategy for accelerating smoking cessation rates among older, long-term smokers. A large increase in the number of Americans aged 65 years and older is predicted for the coming decades (12), and this group is at high risk of smoking-attributable diseases. Therefore, cigarette price increases could not only reduce smoking prevalence in Americans of all ages, but could also contribute substantially and relatively quickly to the prevention of smoking-related diseases by accelerating smoking cessation among older Americans.

Disclosure of Potential Conflicts of Interest

No potential conflicts of interest were disclosed.

Authors' Contributions

Conception and design: V.L. Stevens, J.L. Westmaas, J.M. Drope, S.M. Gapstur
Development of methodology: V.L. Stevens, W.R. Diver, J.M. Drope, S.M. Gapstur, E.J. Jacobs
Acquisition of data (provided animals, acquired and managed patients, provided facilities, etc.): M. Stoklosa, S.M. Gapstur, E.J. Jacobs
Analysis and interpretation of data (e.g., statistical analysis, biostatistics, computational analysis): V.L. Stevens, W.R. Diver, M. Stoklosa, W.D. Flanders, J.M. Drope, S.M. Gapstur, E.J. Jacobs
Writing, review, and/or revision of the manuscript: V.L. Stevens, W.R. Diver, M. Stoklosa, W.D. Flanders, J.L. Westmaas, A. Jemal, J.M. Drope, S.M. Gapstur, E.J. Jacobs
Study supervision: S.M. Gapstur

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