

Attitudes Toward Raising the Minimum Age of Sale for Tobacco Among U.S. Adults

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Introduction: Efforts to disrupt tobacco sales to minors through age of sale restrictions can contribute to reductions in youth tobacco use. The objective of this study was to assess attitudes toward raising the minimum tobacco age of sale to 21 years among U.S. adults.

Methods: Data from the 2014 Summer Styles, an Internet survey of U.S. adults aged ≥ 18 years (N=4,219), were analyzed in 2014. Respondents were asked: *Do you favor or oppose raising the legal minimum age to purchase all tobacco products from 18 to 21?* Responses included: *strongly favor, somewhat favor, somewhat oppose, and strongly oppose.* ORs and 95% CIs were calculated using logistic regression; covariates included sex, age, race/ethnicity, education, income, region, and cigarette smoking status.

Results: Among all adults, 50.4% strongly and 24.6% somewhat favored raising the age to 21 years; 77.5% of never smokers, 74.6% of former smokers, and 69.9% of current smokers strongly or somewhat favored it. Adjusted odds of strongly or somewhat favoring raising the age were higher among adults aged 25–44 (OR=1.8, 95% CI=1.3, 2.5), 45–64 (OR=2.3, 95% CI=1.7, 3.2), and ≥ 65 (OR=3.1, 95% CI=2.2, 4.5) years, and lower among former (OR=0.7, 95% CI=0.6, 0.9) and current (OR=0.7, 95% CI=0.5, 0.8) smokers.

Conclusions: Three quarters of adults favor raising the minimum tobacco age of sale to 21 years, including seven in ten smokers. Raising the minimum age of sale, along with proven tobacco control strategies, could prevent youth tobacco use.

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Introduction

Nine of ten adult smokers first try cigarettes before age 18 years, and progression from occasional to daily smoking typically occurs in young adulthood.¹ During 2002–2012, the number of youth and young adults who tried cigarette smoking during the past year increased from 1.9 to 2.3 million.² This increase is concerning because individuals who begin smoking at a young age have greater risk of

becoming addicted, progressing to daily use, transitioning to heavier use in adulthood, and having difficulties quitting.^{1,3,4} The situation is compounded by the fact that the tobacco industry aggressively markets and promotes its products and continues to recruit youth and young adults as new consumers.²

Effective population-based interventions, including tobacco price increases and comprehensive smoke-free policies, can prevent and reduce tobacco use.^{2,5} Additionally, governmental efforts to disrupt tobacco sales to minors through age of sale restrictions can help reduce youth tobacco use.^{6,7} Raising the minimum age of sale for tobacco products to 21 years has emerged as a potential strategy for addressing youth tobacco use.

Public attitudes toward tobacco control interventions can inform policy development, implementation, and sustainment.² Favorability toward increasing the minimum age of sale to 21 years has been assessed nationally and in some states, with a majority of respondents

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Table 1. Favorability Toward Raising the Legal Minimum Age of Sale for All Tobacco Products From 18 to 21 Among U.S. Adults—Summer Styles, 2014

Characteristic	n (%)	% (95% CI)			
		Strongly favor	Somewhat favor	Somewhat oppose	Strongly oppose
Overall	4,219	50.4 (48.6, 52.2)	24.6 (23.0, 26.2)	14.0 (12.7, 15.2)	11.0 (9.9, 12.2)
Sex					
Male	2,062 (48.9)	47.3 (44.8, 49.9)	25.9 (23.6, 28.2)	14.4 (12.6, 16.1)	12.4 (10.7, 14.1)
Female	2,157 (51.1)	53.3 (50.7, 55.8)	23.4 (21.3, 25.6)	13.6 (11.8, 15.4)	9.7 (8.2, 11.3)
Age (years)					
18–24	256 (6.1)	38.7 (32.3, 45.1)	26.1 (20.1, 32.0)	22.0 (16.6, 27.4)	13.2 (8.8, 17.6)
25–44	1,183 (28.0)	44.7 (41.4, 48.0)	28.5 (25.4, 31.5)	14.7 (12.4, 17.0)	12.1 (9.9, 14.3)
45–64	1,855 (44.0)	56.4 (53.8, 59.0)	20.6 (18.6, 22.7)	12.9 (11.1, 14.7)	10.1 (8.4, 11.7)
≥65	925 (21.9)	57.4 (53.9, 60.9)	24.0 (20.9, 27.1)	9.3 (7.3, 11.3)	9.3 (7.1, 11.4)
Race/Ethnicity					
White, Non-Hispanic	3,179 (75.3)	49.1 (47.0, 51.1)	25.7 (23.9, 27.5)	15.2 (13.7, 16.7)	10.0 (8.8, 11.2)
Black, Non-Hispanic	398 (9.5)	49.0 (43.3, 54.6)	23.8 (18.9, 28.8)	13.7 (9.4, 17.9)	13.5 (9.4, 17.7)
Other, Non-Hispanic	229 (5.4)	55.2 (47.0, 63.4)	22.8 (15.7, 29.9)	9.9 (5.3, 14.5)	12.1 (6.7, 17.5)
Hispanic	413 (9.8)	55.2 (49.6, 60.8)	21.1 (16.4, 25.8)	10.6 (7.1, 14.1)	13.1 (9.4, 16.8)
Education					
< High school	289 (6.8)	43.8 (37.4, 50.1)	29.9 (23.8, 36.0)	14.1 (9.4, 18.8)	12.3 (7.9, 16.6)
High school	1,235 (29.3)	51.5 (48.3, 54.7)	23.8 (21.0, 26.6)	14.4 (12.2, 16.7)	10.3 (8.3, 12.3)
Some college	1,308 (31.0)	52.0 (48.8, 55.2)	22.3 (19.6, 25.0)	13.3 (11.1, 15.5)	12.4 (10.2, 14.5)
College degree	1,387 (32.9)	50.5 (47.3, 53.6)	25.5 (22.8, 28.3)	14.1 (11.9, 16.3)	9.9 (7.9, 11.8)
Annual household income					
< \$15,000	373 (8.8)	40.6 (34.6, 46.6)	28.0 (22.2, 33.8)	16.4 (11.8, 21.1)	14.9 (10.2, 19.6)
\$15,000–\$24,999	307 (7.3)	48.7 (42.2, 55.2)	23.9 (18.3, 29.6)	16.9 (12.2, 21.7)	10.5 (6.5, 14.4)
\$25,000–\$39,999	705 (16.7)	54.8 (50.4, 59.2)	21.7 (18.0, 25.3)	12.8 (9.8, 15.8)	10.7 (8.1, 13.3)
\$40,000–\$59,999	758 (18.0)	53.8 (49.6, 58.1)	21.4 (17.9, 25.0)	14.5 (11.5, 17.5)	10.3 (7.6, 12.9)
≥ \$60,000	2,076 (49.2)	50.1 (47.6, 52.7)	26.0 (23.7, 28.3)	13.1 (11.4, 14.9)	10.8 (9.1, 12.4)
U.S. Census region^a					
Northeast	754 (17.9)	49.8 (45.6, 54.0)	24.4 (20.7, 28.1)	16.7 (13.4, 20.0)	9.1 (6.7, 11.5)
Midwest	1,056 (25.0)	45.6 (42.0, 49.1)	28.5 (25.2, 31.8)	14.7 (12.2, 17.3)	11.2 (8.8, 13.6)
South	1,505 (35.7)	52.5 (49.5, 55.5)	22.6 (20.0, 25.2)	13.3 (11.3, 15.4)	11.5 (9.6, 13.5)
West	904 (21.4)	51.9 (48.0, 55.9)	24.5 (21.0, 28.0)	12.1 (9.6, 14.6)	11.5 (9.0, 14.1)
Cigarette smoking^b					
Never smoker	2,254 (55.3)	53.3 (50.8, 55.7)	24.2 (22.0, 26.3)	12.8 (11.1, 14.5)	9.8 (8.3, 11.2)

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Table 1. Favorability Toward Raising the Legal Minimum Age of Sale for All Tobacco Products From 18 to 21 Among U.S. Adults—Summer Styles, 2014 (continued)

Characteristic	n (%)	% (95% CI)			
		Strongly favor	Somewhat favor	Somewhat oppose	Strongly oppose
Former smoker	1,236 (30.3)	50.2 (47.0, 53.4)	24.4 (21.6, 27.2)	14.5 (12.2, 16.8)	10.9 (8.8, 12.9)
Current smoker	585 (14.4)	43.8 (38.9, 48.6)	26.1 (21.8, 30.4)	17.7 (14.1, 21.3)	12.4 (9.3, 15.5)

^aNortheast: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont. Midwest: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin. South: Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia. West: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

^bCurrent smokers were defined as respondents who smoked ≥ 100 cigarettes in their lifetime and reported smoking “everyday” or “some days” at the time of survey. Former smokers were respondents who smoked ≥ 100 cigarettes in their lifetime and reported smoking “not at all” at the time of survey. Never smokers were respondents who reported that they had not smoked ≥ 100 cigarettes in their lifetime.

favoring such policies.^{8–10} However, no study has assessed recent levels of favorability after a growing number of jurisdictions across the country have implemented such laws, or potential interactions between sociodemographics that may influence favorability. Therefore, this study assessed the prevalence, sociodemographic correlates, and interactions related to favorability toward increasing the minimum age of sale for tobacco to 21 years among U.S. adults in 2014.

Methods

Study Sample

Data came from Styles, which draws from KnowledgePanel, an online panel recruited using probability-based sampling to reach respondents regardless of landline phone or Internet access. Summer Styles is conducted among a nationally representative sample of U.S. adults aged ≥ 18 years. Stratified random sampling is used to identify panel respondents and data are weighted to Current Population Survey distributions. In 2014, a total of 4,269 participants completed Summer Styles (June–July), yielding a 69% response rate. This analysis used de-identified secondary data and was exempt from human subjects review.

Measures

Favorability was assessed using the question: *Do you favor or oppose raising the legal minimum age to purchase all tobacco products from 18 to 21?* Responses were: *strongly favor, somewhat favor, somewhat oppose, and strongly oppose*. Respondents who selected strongly favor or somewhat favor were considered to favor raising the minimum age of sale. Assessed sociodemographics included sex, age, race/ethnicity, education, income, U.S. region, and cigarette smoking status.

Statistical Analysis

Data were analyzed in 2014 using SUDAAN, version 9.2. Point estimates and 95% CIs were calculated. Multivariate logistic regression was used to calculate ORs and 95% CIs, adjusting for

sociodemographics. All possible two-way multiplicative interactions between sociodemographics were assessed.

Results

Three quarters of adults strongly or somewhat favored raising the minimum age of sale to 21 years, whereas 14.0% and 11.0% indicated they somewhat or strongly opposed it, respectively (Table 1). The proportion of adults who favored (strongly or somewhat) the idea was 73.2% among men and 76.7% among women. Favorability ranged from 64.8% among adults aged 18–24 years to 81.4% among those aged ≥ 65 years. Favorability was 72.8% among non-Hispanic blacks, 74.8% among non-Hispanic whites, 76.3% among Hispanics, and 78.0% among non-Hispanics of other races. Favorability ranged from 73.7% among adults with less than a high school education to 76.0% among adults with a college degree. Favorability ranged from 68.6% among adults with income $< \$15,000$ to 76.5% among those with income $\$25,000$ – $\$39,999$. Favorability ranged from 74.1% in the Midwest to 76.4% in the West. Favorability was 69.9% among current cigarette smokers, 74.6% among former smokers, and 77.5% among never smokers.

Following adjustment, the odds of strongly or somewhat favoring raising the minimum age of sale to 21 years was greater among adults aged 25–44, 45–64, and ≥ 65 years than among adults aged 18–24 years (Table 2). Marginally significantly greater odds were observed among Hispanics. Compared with never smokers, odds were lower among former and current smokers. Sex X race was the only significant interaction ($p < 0.05$).

Discussion

These findings reveal that three quarters of U.S. adults favor raising the minimum age of sale for tobacco to

Table 2. Favorability Toward Raising the Legal Minimum Age of Sale for All Tobacco Products From 18 to 21 Among U.S. Adults—Summer Styles, 2014^a

Characteristic	n	% (95% CI)	AOR (95% CI) ^{b,c}
Overall	4,219	75.0 (73.4, 76.6)	
Sex			
Male	2,062	73.2 (71.0, 75.5)	1.0
Female	2,157	76.7 (74.5, 78.9)	1.1 (0.9, 1.3)
Age (years)			
18–24	256	64.8 (58.5, 71.1)	1.0
25–44	1,183	73.2 (70.2, 76.1)	1.8 (1.3, 2.5)
45–64	1,855	77.0 (74.8, 79.3)	2.3 (1.7, 3.2)
≥ 65	925	81.4 (78.7, 84.2)	3.1 (2.2, 4.5)
Race/Ethnicity			
White, Non-Hispanic	3,179	74.8 (73.0, 76.6)	1.0
Black, Non-Hispanic	398	72.8 (67.5, 78.2)	1.0 (0.8, 1.4)
Other, Non-Hispanic	229	78.0 (71.3, 84.7)	1.2 (0.8, 1.9)
Hispanic	413	76.3 (71.6, 81.0)	1.4 (1.0, 1.9)
Education			
< High school	289	73.7 (67.8, 79.6)	1.0
High school	1,235	75.3 (72.5, 78.1)	0.9 (0.7, 1.4)
Some college	1,308	74.3 (71.5, 77.1)	0.9 (0.6, 1.3)
College degree	1,387	76.0 (73.3, 78.7)	0.9 (0.6, 1.2)
Annual household income			
< \$15,000	373	68.7 (62.7, 74.6)	1.0
\$15,000–\$24,999	307	72.6 (66.9, 78.3)	0.9 (0.6, 1.4)
\$25,000–\$39,999	705	76.5 (72.8, 80.2)	1.1 (0.8, 1.6)
\$40,000–\$59,999	758	75.2 (71.6, 78.9)	1.0 (0.7, 1.5)
≥ \$60,000	2,076	76.1 (73.9, 78.3)	1.2 (0.8, 1.6)
U.S. Census region^d			
Northeast	754	74.2 (70.4, 78.0)	1.0
Midwest	1,056	74.1 (70.9, 77.3)	1.0 (0.8, 1.3)
South	1,505	75.1 (72.5, 77.7)	1.0 (0.8, 1.3)
West	904	76.4 (73.1, 79.7)	1.0 (0.8, 1.4)
Cigarette smoking^e			
Never smoker	2,254	77.4 (75.3, 79.6)	1.0

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Table 2. Favorability Toward Raising the Legal Minimum Age of Sale for All Tobacco Products From 18 to 21 Among U.S. Adults—Summer Styles, 2014^a (continued)

Characteristic	n	% (95% CI)	AOR (95% CI) ^{b,c}
Former smoker	1,236	74.6, 71.7, 77.4)	0.7 (0.6, 0.9)
Current smoker	585	69.9 (65.5, 74.3)	0.7 (0.5, 0.8)

Note: Boldface indicates statistical significance ($p < 0.05$).

^aFavorability defined as a report of “Strongly Favor” or “Somewhat Favor” to the question “Do you favor or oppose raising the legal minimum age to purchase all tobacco products from 18 to 21?”

^bOR obtained using binary logistic regression model adjusted for all covariates listed in the table.

^cAll possible two-way interactions were also assessed. The only statistically significant finding was gender*race ($p < 0.05$).

^d*Northeast:* Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont. *Midwest:* Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin. *South:* Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia. *West:* Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

^eCurrent smokers were defined as respondents who smoked ≥ 100 cigarettes in their lifetime and reported smoking “everyday” or “some days” at the time of survey. Former smokers were respondents who smoked ≥ 100 cigarettes in their lifetime and reported smoking “not at all” at the time of survey. Never smokers were respondents who reported that they had not smoked ≥ 100 cigarettes in their lifetime.

21 years, including seven in ten smokers. An overwhelming majority of all assessed groups favored raising the minimum age of sale, but favorability was greater among adults aged ≥ 25 years than those aged 18–24 years, and among never smokers than current and former smokers. These findings are consistent with findings from a national survey conducted in 2013,¹⁰ and polls of voters in Colorado and Utah.^{8,9} The fact that older adults are less likely to be directly affected by these laws may explain the greater favorability observed in this group; conversely, lower favorability among current and former smokers could be attributable to resistance to restrictions on a behavior in which they have engaged.^{1,2} The findings also suggest the association between favorability and sex may be modified by race, which warrants further study. Notwithstanding the high levels of observed favorability, these findings suggest that population-specific factors are critical to consider in developing, implementing, and sustaining laws that increase the tobacco age of sale.

All states have laws prohibiting the sale of conventional tobacco products to minors; the minimum age of sale is 18 years in most states, and 19 years in Alabama, Alaska, New Jersey, and Utah.¹¹ Several states have considered bills to raise the minimum age to 21 years, but adoption is presently limited to communities.¹² Needham, Massachusetts was the first city to adopt such a law in 2005.¹² Evaluations have not been conducted; however, data from existing tobacco and alcohol literature suggest these laws could reduce youth tobacco use.^{7,13}

Raising the minimum age of sale to 21 years could be beneficial in multiple ways. Because peers are a major source of tobacco among underage youth¹⁴ and older youth are more likely to succeed in purchasing tobacco,¹⁵ raising the age of sale to 21 years could reduce the

likelihood that youth can access tobacco and provide it to peers. Such laws could also simplify enforcement because many state drivers’ licenses have formatting to denote individuals aged < 21 years.¹⁶ These efforts could delay the age of first tobacco experimentation, reducing the likelihood of youth transition to regular use and increasing the likelihood of cessation if they become regular users.¹⁻³

Limitations

This study is subject to limitations. First, although Styles draws from a panel that has a nationally representative sample, it does not recruit using population-based probability samples. Nevertheless, estimates of tobacco use from Styles are consistent with national surveys.¹⁷ Second, small samples for certain subpopulations yielded wide CIs. Third, self-reported smoking status could lead to reporting bias; however, the validity of self-reported smoking is established.¹⁸ Finally, state-level estimates could not be calculated.

Conclusions

Public attitudes toward tobacco control interventions can help inform public health policy, planning, and practice. These findings demonstrate a considerable majority of U. S. adults favor raising the minimum tobacco age of sale to 21 years, irrespective of smoking status. Raising the minimum age of sale, along with proven tobacco control strategies, could prevent youth tobacco use.

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of CDC.

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