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U.S. Public Opinion Toward Policy Restrictions to Limit Tobacco Product Placement and Advertising at Point-of-Sale and on Social Media

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Abstract

The Family Smoking Prevention and Tobacco Control Act granted the U.S. Food and Drug Administration authority to regulate tobacco advertising and promotion, including at the retail level, and preserved state, tribal, and local tobacco advertising and promotion authorities. Public health experts have proposed prohibiting point-of-sale tobacco advertisements and product displays, among other tobacco advertising restrictions. We examined the prevalence and correlates of public support, opposition, and neutrality toward proposed tobacco product placement and advertising restrictions at point-of-sale and on social media utilizing the National Cancer Institute's 2020 Health Information National Trends Survey (HINTS) (N=3865), a cross-sectional,

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probability-based postal survey of U.S. addresses conducted from Feb 24, 2020 to June 15, 2020 (Bethesda, MD). Frequencies and unadjusted, weighted proportions were calculated for support, neutrality, and opposition toward the three policies under study, and weighted, adjusted multivariable logistic regression was employed to examine predictors of neutrality and opposition. Tests of significance were conducted at the $p < 0.05$ level. Sixty-two percent of U.S. adults supported a policy prohibiting tobacco product advertising on social media; 55% supported a policy restricting the location of tobacco product advertising at point-of-sale; and nearly 50% supported a policy to keep tobacco products out of view at the checkout counter. Neutrality and opposition varied by sociodemographic characteristics including age, sex, education, rurality, and presence of children in the household. Understanding public opinion toward tobacco product placement and advertising restrictions may inform policy planning and implementation.

Keywords

tobacco; tobacco control policy; tobacco product advertising restrictions; point-of-sale; survey research; public opinion

INTRODUCTION

Despite significant progress in tobacco prevention and control over the past 50 years, tobacco use remains the leading cause of premature, preventable death in the United States (U.S.),¹ and cigarettes remain one of the most heavily marketed products in the U.S.² The U.S. Federal Trade Commission reported that, in 2018, the major cigarette companies spent \$8.4 billion on cigarette advertising and promotion, with expenditures on point-of-sale advertising in retail outlets increasing from \$48.5 million in 2017 to \$62 million in 2018.³ There is also evidence of significant tobacco industry (including e-cigarette manufacturer) advertising on social media,⁴ including price promotions,^{5,6} and studies have documented substantial levels of youth exposure to tobacco-related content on social media, as well as the association between exposure and tobacco product use.⁷⁻⁹ For the purpose of this manuscript, the term “advertising” refers to promotion of a product through paid channels.

The total weight of evidence from studies in the U.S. and abroad demonstrates a causal relationship between tobacco advertising and promotion and increased tobacco use, including tobacco use initiation and increased per capita cigarette consumption.¹⁰⁻¹² Research also suggests that exposure to point-of-sale advertising is associated with impulse purchases of cigarettes, which may hinder cigarette users’ attempts to quit and increase overall tobacco consumption.¹³ Among youth, exposure to point-of-sale tobacco promotion and displays has been linked to perceived ease of obtaining tobacco products, higher perceptions of peer smoking prevalence, increased smoking susceptibility, and increased odds of attempting to purchase cigarettes in experimental studies.^{14,15}

In addition, research suggests that greater exposure to price promotions and point-of-sale advertising may contribute to tobacco-related health disparities experienced by racial and ethnic minority groups as well as individuals of lower socioeconomic status.¹⁶ For example, a national study of brick-and-mortar retailers found that price promotions at point-of-sale are more common in communities that have a greater proportion of African American

residents and African American youth,¹⁷ while a systematic review of observational studies examining tobacco advertising at point-of-sale found evidence of greater tobacco advertising in socially disadvantaged neighborhoods.¹⁸

Less is known about the impact of social media tobacco advertising, but research suggests that youth who are more susceptible to using tobacco are also more likely to engage with tobacco-related social media content,⁷ and longitudinal studies have shown that exposure to tobacco-related social media content among college students is associated with subsequent use of e-cigarettes, cigars, and hookah¹⁹ as well as smokeless tobacco.²⁰ Experimental studies have shown that exposure to e-cigarette advertising on social media is associated with greater willingness and intention to use these products among adolescents.²¹ In addition, some research points to disparities in both exposure to and engagement with online tobacco advertising, including on social media. For example, one study found that odds of past-year engagement with online tobacco marketing was higher for sexual minority adolescents compared to their heterosexual counterparts, and for Hispanic and non-Hispanic Black adolescents compared to non-Hispanic whites.²² In addition, racial/ethnic minority college students were more likely to report exposure to digital smokeless tobacco marketing compared to non-Hispanic white college students.²⁰

The 2009 Family Smoking Prevention and Tobacco Control Act, granted the Food and Drug Administration authority to regulate tobacco advertising and promotion, including at the retail level, and preserved state, tribal, and local authority to regulate retail tobacco advertising and promotion.²³ Public health experts have proposed prohibiting point-of-sale advertisements and product displays, as these policies have proven to be successful tobacco control strategies in other countries.^{11,24} There is also a growing interest among public health experts in regulating tobacco advertising on social media.^{25,26} Companies such as Facebook and Instagram have policies that prohibit tobacco advertising on their platforms, but, in practice, tobacco advertising and product promotion are widespread on social media.²⁷

Tobacco prevention and control policies have led to reductions in the use of many forms of tobacco products, and have helped to denormalize tobacco use, motivate tobacco users to quit, and protect nonsmokers from secondhand smoke.^{28,29} Despite the measurable benefits of such policy efforts, there are conflicting perspectives about tobacco control policy measures, driven, in part, by aggressive strategies of the tobacco industry, which has deliberately misled the public on the risks of smoking.¹ Understanding the factors that shape attitudes toward tobacco prevention and control policies is essential, as political will is a necessary component of effective public health policy implementation,³⁰ and public opinion influences political will.^{31,32}

Previous studies have examined public support for a range of different tobacco control policies, including minimum age sales restrictions, flavor bans, warning labels, and smoke-free air laws, among others.^{33–36} These studies and others found that levels of public support varied by policy type, but almost all of them enjoyed majority support in the U.S. Less work has been done to examine public opinion toward policies restricting tobacco product placement and advertising at point-of-sale or on social media. The few studies that have

examined opinions toward point-of-sale restrictions suggest relatively high levels of support for these policies overall, with somewhat lower support among smokers. For example, a survey analyzing support for tobacco retail restrictions in New York City found that 57% of respondents (39% of smokers and 60% of non-smokers) supported a policy that would require retailers to keep tobacco products out of customers' view.²⁴ Similarly, more than half of respondents supported prohibiting tobacco companies from paying retailers to display products and advertisements (40% of smokers and 56% of non-smokers), and prohibiting price promotions (44% of smokers and 55% of non-smokers).²⁴ Another survey found high levels of support for similar policies among a nationally representative sample of parents of middle and high schoolers, with 94% of parents supporting restrictions on e-cigarette advertising to youth and 87% in favor of keeping tobacco products, including e-cigarettes, out of view where youth shop.³⁷ Parental tobacco use was significantly associated with lower odds of supporting several policies.³⁷ To our knowledge, no research to date has examined public support for policies restricting tobacco advertising on social media.

Understanding public attitudes toward tobacco prevention and control policy measures may assist policymakers in their efforts to advance tobacco control policies,³⁸ and enhance health policy planning, implementation, and sustainability,³⁹ which may, in turn, lead to reductions in tobacco use and tobacco-related health disparities.¹⁶ The purpose of this study was to examine the prevalence and correlates of support, opposition, and neutrality toward policies that would limit tobacco product advertising and placement at point-of-sale and on social media.

MATERIALS AND METHODS

Data and Sample Selection

This study utilized the 2020 cycle of the National Cancer Institute's Health Information National Trends Survey (HINTS) (N=3865). HINTS is a nationally representative, cross-sectional, self-administered postal survey of civilian, non-institutionalized U.S. adults age 18 and older. Data were collected February 24 through June 15, 2020 using a probability-based sample of U.S. postal addresses, with an oversample of addresses in geographic areas with high concentrations of minority populations. High and low racial/ethnic minority sampling strata were formed using census-tract level characteristics from the 2014–2018 American Community Survey (ACS) data file. Within each household, one adult was selected to complete the print questionnaire based on the next birthday method.⁴⁰ Response rates were calculated using the RR4 formula of the American Association of Public Opinion Research.⁴¹ The weighted response rate for HINTS 5 Cycle 4 (2020) was 36.7% overall, with variation by sampling strata (27.3% for the high minority stratum and 40.3% for the low minority stratum). Details about HINTS have been published elsewhere,^{42,43} and details specific to HINTS 5 Cycle 4 (2020) can be found in the publicly available methodology report: <https://hints.cancer.gov/data/methodology-reports.aspx>. HINTS 5 received an expedited approval from the Westat IRB on March 28, 2016 and was subsequently reviewed by the NIH Office of Human Subjects Research and given a non-human subjects determination via exemption #13204 on April 25, 2016.

Measures

HINTS 5 Cycle 4 (2020) contained three unique items to assess support for, or opposition to, policies aimed at reducing exposure to tobacco products and tobacco product advertising. The questions read: “To what extent would you support or oppose the following measures related to all tobacco products, including cigarettes, e-cigarettes, smokeless tobacco, hookah, and cigars? A) Stores should be required to keep tobacco products out of customers’ view at the checkout counter; B) Stores should be required to keep advertisements for tobacco products away from cash registers and out of windows; and C) Tobacco products should not be advertised on social media.” The questions were displayed in a matrix format with the following response options: Strongly oppose/Oppose/Neither support nor oppose/Support/Strongly support.

Sociodemographics such as age, sex, marital status, education, race, ethnicity, and income were assessed using measures selected or adapted from the National Health Interview Survey (NHIS) and the ACS. For analysis, race/ethnicity was categorized as Hispanic, non-Hispanic white, non-Hispanic Black or African American, non-Hispanic Asian (which combined responses from those who identified as Asian Indian, Chinese, Filipino, Japanese, Korean, Vietnamese, or Other Asian), and non-Hispanic other race (which combined the low base-rate responses from the remaining race categories assessed).

Sexual orientation was assessed with the question “Do you think of yourself as... Heterosexual or straight; Homosexual or gay or lesbian; Bisexual; Something else—Specify.” Rural and urban residence was determined using the United States Department of Agriculture’s Rural-Urban Continuum Codes (RUCC) for metropolitan and non-metropolitan areas⁴⁴. Urban categorization included RUCC 1–3 and rural categorization included RUCC 4–9.

Smoking status was measured with two standard items: 1) “Have you smoked at least 100 cigarettes in your entire life? Yes/No” and 2) “How often do you now smoke cigarettes? Every day/Some days/Not at all.” Smoking status was categorized as “Never” if respondents answered no to the first question; as “Current” if respondents answered yes to the first question and every day or some days to the second question; and as “Former” if respondents answered yes to the first question and not at all to the second question. E-cigarette use was also measured using two items: 1) “Have you ever used an e-cigarette, even one or two times? Yes/No” and 2) “Do you now use an e-cigarette every day, some days, or not at all?”. E-cigarette use was categorized as “Never” if respondents answered no to the first question; as “Current” if respondents answered yes to the first question and every day or some days to the second question; and as “Former” if respondents answered yes to the first question and not at all to the second question.

HINTS assessed the presence of children in the household with the question: “How many children under the age of 18 live in your household?” with a write-in box for a numeric response. Finally, because HINTS 5 Cycle 4 included items about policy support, political ideology was assessed so that models would not be mis-specified, as the literature demonstrates that much of the variance in policy support outcomes can be explained by political ideology or party identification^{32,45}. Political ideology was assessed using an item

modeled on the 2012 Cooperative Congressional Election Study: “Thinking about politics these days, how would you describe your own political viewpoint?” Response options were: Very liberal/liberal/somewhat liberal/moderate/somewhat conservative/conservative/very conservative. For analysis, the variable was trichotomized into liberal, moderate, and conservative.

Statistical Analysis

Analyses were conducted using SAS-callable SUDAAN to account for the complex sampling design of HINTS. All analyses used sample weights to produce population-level point estimates, and a set of 50 jackknife replicate weights to compute variance estimates. Complete case analysis with listwise deletion was employed.

First, frequencies and weighted, unadjusted proportions were calculated for support, neutrality, and opposition toward the three policies under study using the full range of response scales. Next, three weighted, fully adjusted multivariable logistic regression models were used to examine predictors of neutrality/opposition versus support toward each policy under study, wherein responses were collapsed and dichotomized into neutral/opposed versus support (referent). Tests of significance were conducted at the $p < 0.05$ level.

RESULTS

Sample characteristics are described in Table 1. For the three policy measures under study, results revealed majority or near majority support and little opposition (though many people reported neither supporting nor opposing the restrictions, indicating a neutral stance). Weighted analyses suggested that 62% of American adults supported a policy that would ban tobacco product advertising on social media; 55% supported a policy to restrict the location of tobacco product advertising at point-of-sale; and nearly 50% supported a policy to keep tobacco products out of view at the checkout counter (Table 2).

Results of logistic regression analyses to examine differential predictors of neutrality and opposition are described below. There were no significant differences in support for any of the policies by race/ethnicity, income, sexual orientation, marital status, or e-cigarette use. Across all policies, moderates and conservatives had significantly higher odds than liberals of being neutral or opposed. (Table 3).

Tobacco Product Placement at Point-of-Sale:

Older individuals were less likely than those age 18–34 to be neutral or opposed to product placement restrictions at point-of-sale (i.e., keeping tobacco products out of customers’ view at checkout) (age 75+ OR=0.34 CI 0.21,0.57; age 65–74 OR=0.45 CI 0.28,0.72). Similarly, females were less likely than males to be neutral or opposed (OR=0.66 CI 0.49,0.89), and those with children in the household were less likely than those without to be neutral or opposed (OR=0.69 CI 0.50,0.96). People with less than a high school education had twice the odds of being neutral or opposed as college graduates (OR=2.03 CI 1.09,3.81), and current smokers had nearly twice the odds of never smokers of being neutral or opposed (OR=1.98 CI 1.15, 3.40).

Tobacco Product Advertising at Point-of-Sale:

Older individuals were less likely to be neutral or opposed to advertising restrictions than those age 18–34 (age 75+ OR=0.41 CI 0.23,0.73; age 65–74 OR=0.52 CI 0.32,0.83). Females also had lower odds than males of being neutral or opposed (OR=0.75 CI 0.57,0.99), as did those with children in the household compared to those without children in the household (OR=0.70 CI 0.50,0.98). Those with less than a high school education had higher odds than college graduates of being neutral or opposed (OR=1.93 CI 1.03,3.61), as did people living in rural areas compared to those living in urban areas (OR=1.59 CI 1.12,2.26). Smoking status was not associated with differences in support for point-of-sale advertising restrictions.

Social Media Tobacco Product Advertising Restrictions:

Adults age 75+ were less likely to be neutral or opposed to social media advertising restrictions than those age 18–34 (OR=0.51 CI 0.28,0.92), as were those with children in the household compared to those without children in the household (OR=0.69 CI 0.51,0.94). People living in rural areas had higher odds of being neutral or opposed to social media advertising restrictions than people living in urban areas (OR=1.49 CI 1.03,2.16). Smoking status was not associated with being neutral or opposed to advertising restrictions on social media.

DISCUSSION

Our study suggests that there is broad public support for policy measures to limit tobacco product placement and advertising at point-of-sale and on social media, and that opposition and neutrality to such policy measures differs by certain sociodemographic characteristics, including age, sex, education, rurality, and presence of children in the household. Exposure to tobacco advertising is associated with smoking initiation among youth and has been found to undermine quit attempts.⁴⁶ Further, tobacco retailer density is higher and point-of-sale advertising is more prevalent in lower income and racial/ethnic minority communities,¹⁶ which also bear a greater burden of tobacco-related illness.⁴⁷ Although the 1998 Master Settlement Agreement and the 1966 Federal Cigarette Labeling and Advertising Act included several important tobacco advertising restrictions, there are currently no federal restrictions for point-of-sale and social media tobacco advertising in the U.S. Legal challenges citing the First Amendment have traditionally protected commercial speech against government regulation in the U.S., but certain versions of the policies examined in this study are considered legally defensible and have been recommended by tobacco control scholars and advocates.^{48,49}

In 2020, U.S. Senators Markey and Blumenthal introduced the Kids Internet Design and Safety Act (KIDS Act), which included digital, Internet-based media advertising restrictions to prohibit online content that promotes nicotine, tobacco, or alcohol to children under age 16.⁵⁰ Research increasingly suggests that youth are being exposed to tobacco advertising through both traditional and social media platforms, which can increase their intentions to use e-cigarettes and other tobacco products.^{9,37,51} Our study suggests that there is

broad public support for (and little opposition toward) policies to restrict tobacco product placement and advertising at point-of-sale and on social media.

In prior analyses of individual-level factors associated with support for and opposition to tobacco control policy measures, smoking status has been a primary predictor of opposition.^{34,39,52} Our study found that although current smokers were more likely than never and former smokers to be neutral toward or oppose restrictions on tobacco product placement at point-of-sale, they were no more or less likely to be neutral toward or oppose advertising restrictions at point-of-sale or on social media. It is possible that these advertising restrictions may be more acceptable to current smokers because, unlike other types of tobacco control policies such as product placement restrictions or indoor air laws, advertising restrictions would not directly impact their ability to purchase or use cigarettes easily. Similar to prior research that has demonstrated that older people are generally more supportive of restrictive policies for alcohol, tobacco, and unhealthy foods,⁵³ our study found that those in older age groups were less likely than those in younger age groups to be neutral or opposed to the tobacco policy measures assessed.

Previous research also suggests that support for tobacco control regulations varies by geography, with individuals from jurisdictions with stronger tobacco control policies (e.g., higher tobacco taxes) having higher support for tobacco control measures. Those living in tobacco-producing states have also expressed less support for tobacco control policies.⁵⁴ Our findings reinforce the importance of geographic residence in shaping policy support: across two policies in our study, those living in rural areas were more likely to be neutral or opposed to tobacco product placement and advertising restrictions than those living in urban areas (independent of political ideology and individual smoking status, which are also variables with pronounced geographic differences). This could be explained by several known factors that are unique to rural areas, such as higher local smoking prevalence (which influences norms), fewer comprehensive tobacco control policies and programs, lower tobacco taxes, and exposure to tobacco advertising tailored for appeal to rural populations.

When considering a new regulation, policymakers must take into account the public acceptability of the policy in addition to factors such as effectiveness, reach, and cost,⁵⁵ as public support for policies can influence not only their adoption but also their implementation, enforcement, and eventual effectiveness.⁵⁵ Low public support for policy interventions can be a barrier for implementation, but research suggests that support can be increased by communicating evidence of policy effectiveness.⁵⁶ Our results suggest that efforts to raise awareness about the benefits of different tobacco product placement and advertising restrictions at point-of-sale and on social media could be targeted to those more likely to be neutral or opposed to the policies, including those age 18–34, males, those with no children under age 18 in the household, those living in rural areas, those with less than a high school education, and, specific to product placement at point-of-sale, those who are current smokers. Additionally, the fact that having children in the household was consistently associated with lower odds of being opposed or neutral to tobacco advertising policies suggests that framing these policies in terms of protecting youth against tobacco use may be an effective way to increase public support.⁵⁷

Limitations

HINTS is a cross-sectional survey of U.S. adults, which precludes inferences about causality. Additionally, although the response rate to HINTS 5 Cycle 4 (36.7%) is lower than response rates for in-person, interviewer-administered surveys, it is comparable to other national probability-based surveys.⁵⁸ Methodological research suggests that the negative impact of declining response rates on data quality may not be as significant as previously assumed.^{59,60}

Because the term “advertising” was not defined on the HINTS survey, respondents could have had differing ideas about what tobacco advertising consists of at point-of-sale and on social media. Moreover, qualitative research is needed to explicate the source of neutrality toward the communication-related tobacco control policies examined in the current study, as a response of “neither support nor oppose” could reflect a number of things, including ambivalence, limited knowledge, lack of interest, etc.

CONCLUSIONS

Our study suggests that there is broad public support for policy measures to limit tobacco product placement and advertising at point-of-sale and on social media, and that opposition and neutrality to such policy measures differs by certain sociodemographic characteristics, including age, sex, education, rurality, and presence of children in the household. Tobacco prevention and control strategy development is a complex and dynamic process dependent on the potential public health impact of the policy measure, social context, legal authority, scientific evidence, and level of public support.²⁴ Public opinion data can be used to better understand attitudes and social norms,²⁴ and to identify opportunities for targeted interventions to increase awareness of the benefits of tobacco control policies.

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Highlights

- 62% of U.S. adults support prohibiting tobacco product advertising on social media
- 55% support restricting the location of point-of-sale tobacco product advertising
- 50% support a policy to keep tobacco products out of view at checkout counters
- Opposition varies by age, sex, education, rurality, and children in the household
- Public opinion may inform tobacco product placement and advertising policies

Table 1.

Participant Characteristics.

	N	Weighted %	SE
All	3,865	100.0	0.0
Age Group			
Missing Data (Not Ascertained)	123	2.7	0.4
Unreadable or Nonconforming Numeric Response	4	0.1	0.0
18–34	484	25.5	1.0
35–49	703	24.8	1.1
50–64	1,142	26.9	0.9
65–74	869	11.6	0.2
75+	540	8.4	0.1
Sex on Birth Certificate			
Missing Data (Not Ascertained)	100	2.2	0.4
Male	1,561	47.6	0.3
Female	2,204	50.2	0.2
Race/Ethnicity			
Missing Data (Not Ascertained)	375	7.3	0.7
Non-Hispanic White	2,133	58.7	0.6
Non-Hispanic Black or African American	481	10.3	0.3
Hispanic	596	15.7	0.1
Non-Hispanic Asian	161	4.8	0.3
Non-Hispanic Other	119	3.1	0.2
Income (Imputed)			
Missing	18	0.7	0.3
<\$35,000	1,255	28.1	1.1
\$35,000-\$49,999	516	12.4	0.9
\$50,000-\$74,999	649	17.8	1.4
\$75,000+	1,427	41.1	1.4
Education			
Missing Data (Not Ascertained)	143	2.8	0.5
Less Than High School	273	7.8	0.8
High School Graduate	705	21.9	0.9
Some College	1,081	38.1	0.9
College Graduate or More	1,663	29.4	0.1
Sexual Orientation			
Missing Data (Not Ascertained)	239	4.9	0.5
Multiple Responses Selected in Error	2	0.1	0.1
Heterosexual or Straight	3,402	88.4	0.8
Homosexual, Gay, or Lesbian	81	2.5	0.5
Bisexual	82	2.6	0.5

	N	Weighted %	SE
Other	59	1.6	0.3
Marital Status			
Missing	144	3.0	0.5
Married	1,806	49.1	0.5
Not Married	1,915	47.9	0.4
Smoking Status			
Missing Data (Not Ascertained)	17	0.5	0.2
Missing Data (Filter Missing)	55	1.2	0.2
Current	436	13.6	1.1
Former	935	22.6	1.1
Never	2,422	62.1	1.2
E-cigarette Use Status			
Missing	55	1.5	0.3
Current	114	6.3	0.9
Former	382	12.5	1.1
Never	3,314	79.7	1.4
Geography			
Urban	3,435	87.8	0.7
Rural	430	12.2	0.7
Any Children Under Age 18 in Household			
Missing	310	6.0	0.7
No	2,676	61.8	1.3
Yes	879	32.2	1.5
Political Viewpoint			
Missing	384	8.4	0.8
Liberal	1,058	27.0	1.0
Moderate	1,200	33.9	1.4
Conservative	1,223	30.7	1.2

Health Information National Trends Survey (HINTS) 5 Cycle 4. 2020. Bethesda, MD, USA.

Frequencies, weighted proportions, and standard errors.

Table 2.

Prevalence of Support, Neutrality, and Opposition Toward Communication-Related Tobacco Control Policies.

	N	Weighted %*	SE
All	3,865	100.0	0.0
Stores should be required to keep tobacco out of customers' view at the checkout counter.			
Strongly Oppose	183	4.6	0.7
Oppose	334	10.3	1.0
Neither Support nor Oppose	1,194	33.1	1.4
Support	978	24.7	0.9
Strongly Support	1,071	25.1	1.2
Stores should be required to keep advertisements for tobacco products away from cash registers and out of windows.			
Strongly Oppose	177	4.8	0.7
Oppose	281	8.9	0.9
Neither Support nor Oppose	1,066	29.2	1.2
Strongly Oppose	177	4.8	0.7
Oppose	281	8.9	0.9
Neither Support nor Oppose	1,066	29.2	1.2
Support	1,038	27.6	1.2
Strongly Support	1,188	27.3	1.2
Tobacco products should not be advertised on social media.			
Strongly Oppose	164	4.2	0.5
Oppose	188	5.5	0.7
Neither Support nor Oppose	930	25.7	1.3
Support	1,000	27.4	1.5
Strongly Support	1,473	35.2	1.4

Health Information National Trends Survey (HINTS) 5 Cycle 4 (2020). Bethesda, MD, USA.

Frequencies and weighted, unadjusted proportions and standard errors.

* Columns may not add to 100% due to missing data.

Table 3.

Weighted, Multivariable Logistic Regression Models Reporting Odds of Neutrality or Opposition Toward Three Communication-Related Tobacco Control Policies, by Participant Characteristics.

	Tobacco Products Should Be Out of View at POS (N=3000)		Tobacco Product Ads Should Be Away from Registers and Out of Windows at POS (N=3000)		Tobacco Products Should Not Be Advertised on Social Media (N=3001)	
	Odds Ratio	95% CI	Odds Ratio	95% CI	Odds Ratio	95% CI
Age Group						
18–34 (ref)	–	–	–	–	–	–
35–49	1.08	0.70–1.66	1.00	0.67–1.50	1.18	0.76–1.85
50–64	0.72	0.49–1.04	0.89	0.58–1.35	1.13	0.70–1.85
65–74	0.45**	0.28–0.72	0.52**	0.32–0.83	0.72	0.42–1.25
75+	0.34***	0.21–0.57	0.41**	0.23–0.73	0.51*	0.28–0.92
Sex on Birth Certificate						
Female	0.66**	0.49–0.89	0.75*	0.57–0.99	0.72	0.52–1.00
Male (ref)	–	–	–	–	–	–
Race/Ethnicity						
Non-Hispanic Black or African American	1.08	0.72–1.64	1.35	0.83–2.18	1.65*	1.00–2.72
Hispanic	0.65	0.42–1.00	1.02	0.70–1.49	0.94	0.61–1.44
Non-Hispanic Asian	0.50	0.24–1.01	0.67	0.34–1.33	0.82	0.41–1.64
Non-Hispanic Other	1.17	0.53–2.57	1.04	0.52–2.10	1.18	0.54–2.59
Non-Hispanic White (ref)	–	–	–	–	–	–
Income						
<\$35,000	0.83	0.53–1.31	1.01	0.63–1.62	0.78	0.52–1.15
\$35,000–\$49,999	0.87	0.59–1.28	1.06	0.75–1.50	0.93	0.65–1.33
\$50,000–\$74,999	0.97	0.68–1.38	1.05	0.74–1.48	0.87	0.59–1.29
\$75,000+(ref)	–	–	–	–	–	–
Education						
Less Than High School	2.03*	1.09–3.81	1.93*	1.03–3.61	1.76	0.83–3.72
High School Graduate	1.25	0.71–2.20	1.15	0.69–1.90	1.12	0.67–1.87
Some College	1.12	0.77–1.62	0.95	0.66–1.38	0.90	0.63–1.29
College Graduate or More (ref)	–	–	–	–	–	–
Sexual Orientation						
Homosexual, Gay, or Lesbian	0.85	0.32–2.25	1.09	0.39–3.07	1.12	0.40–3.11
Bisexual	1.24	0.48–3.18	1.48	0.58–3.80	2.02	0.97–4.21
Other	2.35	0.90–6.16	2.23	0.83–5.99	2.32	0.69–7.83
Heterosexual or Straight (ref)	–	–	–	–	–	–
Marital Status						

	Tobacco Products Should Be Out of View at POS (N=3000)		Tobacco Product Ads Should Be Away from Registers and Out of Windows at POS (N=3000)		Tobacco Products Should Not Be Advertised on Social Media (N=3001)	
	Odds Ratio	95% CI	Odds Ratio	95% CI	Odds Ratio	95% CI
Married	0.83	0.58–1.20	0.88	0.64–1.22	0.86	0.64–1.14
Not Married (ref)	–	–	–	–	–	–
Smoking Status						
Current	1.98*	1.15–3.40	1.50	0.88–2.56	1.74	0.95–3.21
Former	1.30	0.98–1.73	1.32	0.96–1.82	1.46	0.97–2.20
Never (ref)	–	–	–	–	–	–
E-cigarette Use Status						
Current	1.79	0.75–4.30	2.00	0.83–4.85	2.00	0.90–4.45
Former	1.21	0.81–1.80	1.10	0.67–1.81	0.91	0.51–1.64
Never (ref)	–	–	–	–	–	–
Geography						
Rural	1.37*	1.00–1.87	1.59*	1.12–2.26	1.49*	1.03–2.16
Urban (ref)	–	–	–	–	–	–
Any Children Under Age 18 in Household						
Yes	0.69*	0.50–0.96	0.70*	0.50–0.98	0.69*	0.51–0.94
No (ref)	–	–	–	–	–	–
Political Viewpoint						
Moderate	1.60**	1.13–2.28	1.71**	1.20–2.44	1.96***	1.36–2.82
Conservative	1.69**	1.16–2.45	1.83**	1.19–2.84	2.07**	1.34–3.18
Liberal	–	–	–	–	–	–

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* p-value <0.05;

** p-value <0.01;

*** p-value <0.001