Brief report

Widespread Belief That Organic and Additive-Free Tobacco Products are Less Harmful Than Regular Tobacco Products: Results From the 2017 US Health Information National Trends Survey

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Abstract

Significance: US smokers of Natural American Spirit, a brand marketed as “organic” and “additive-free,” are more likely than other cigarette smokers to believe that their brand might be less harmful than other brands. This article (1) describes the prevalence of belief that “organic” and “additive-free” tobacco is less harmful than regular tobacco products in the US population and (2) describes the sociodemographic characteristics of adults who believe tobacco products with these descriptors are less harmful.

Methods: Data were drawn from the 2017 Health Information National Trends Survey (HINTS), a nationally representative survey of US adults. Logistic regression models were used to examine correlates of the belief that “organic” or “additive-free” tobacco products are less harmful than regular tobacco products.

Results: Overall, 26.7% of US adults and 45.3% of adult smokers believe that “organic” tobacco products are less harmful than regular tobacco products. Similarly, 35.2% of US adults and 47.1% of smokers believe that “additive-free” tobacco products are less harmful. When examining gender, age, education, race/ethnicity, sexual orientation, and smoking status, only age (adjusted odds ratio [aOR] ~0.98, 95% confidence interval [CI]: 0.97, 0.99 for both outcomes) and smoking status (current vs. never smokers, aOR ~1.78, 95% CI 1.03, 3.07 for both outcomes) were correlates of believing that “organic” or “additive-free” tobacco is less harmful than regular tobacco products.

Conclusions: Belief that “organic” and “additive-free” tobacco products are less harmful than other products is widespread. Younger adults and current smokers are most likely to be misinformed by “organic” or “additive-free” tobacco product descriptors.

Implications: Belief that “organic” and “additive-free” tobacco products are less harmful than other products is widespread among US adults and most prevalent among smokers. Removal of terms that incorrectly imply reduced harm may correct current and future consumers’ misperceptions about the brand.

Introduction

A number of experimental studies have established that “organic” or “additive-free” descriptors decrease tobacco harm perceptions.^{1–5} Two nationally representative studies have shown that Natural American Spirit (NAS) smokers specifically misunderstand the relative harm of their brand, which uses the “organic” descriptor on some products and, until late 2017, used the “additive-free” descriptor on its cigarette sub-brands.^{6,7} However, the overall prevalence of belief that “organic” and “additive-free” tobacco products are less harmful than regular tobacco products has not been reported in the United States. Such data could be used to model the effect of these descriptors on tobacco use behavior and to identify groups that are especially susceptible to “organic” or “additive-free” claims. The purpose of this research is to (1) describe the prevalence of belief that “organic” and “additive-free” tobacco is less harmful than regular tobacco products among US adults and (2) describe the sociodemographic characteristics of US adults who believe tobacco products with these descriptors are less harmful than regular tobacco products.

Methods

Data Source

Data were drawn from the 1736 respondents to the US Food and Drug Administration (FDA) supplement to the 2017 US Health Information National Trends Survey, a nationally representative survey of US noninstitutionalized adults collected from January–May 2017. The Health Information National Trends Survey is a self-administered mailed survey using an initial mailing, a reminder postcard, and two follow-up mailings.⁸

Measures

We examined two outcomes: “organic beliefs” and “additive-free beliefs.” Both items were assessed similarly in the Health Information National Trends Survey. Participants’ beliefs about the relative harm of organic tobacco products were assessed by the item, “Do you think a tobacco product that says it is organic is less harmful, about the same, or more harmful than a regular tobacco product?” Participants’ beliefs about the relative harm of additive-free tobacco products were assessed by the item, “Do you think a tobacco product that says it has no additives is less harmful, about the same, or more harmful than a regular tobacco product?” Additionally, we included sociodemographic and tobacco use characteristics to describe the sample, including gender, age, race, education, sexual orientation, and cigarette smoking status. Due to sample size limitations, we collapsed several response options to create dichotomous response categories for race (non-Hispanic white vs. all other race/ethnicities), education (less than some college vs. some college or more), sexual orientation (heterosexual vs. non-heterosexual), and smoking status (nonsmoker, former smoker, and current smoker). Details on the construction of these items are presented in [Table 1](#).

Statistical Analyses

We used complex survey weights to estimate the distribution of responses to our outcome measures and to describe the sociodemographic characteristics of people who believe “organic” or “additive-free” tobacco could be less harmful than regular tobacco products. We dichotomized both outcome measures into “much more harmful,” “slightly more harmful,” and “equally harmful” (0) versus “slightly less harmful” and “much less harmful” (1), then used weighted unadjusted and adjusted logistic regression models to examine the association

Table 1. Weighted point estimates, odd ratios, and adjusted odds ratios (aORs) describing the relationship between sociodemographic characteristics and belief that an “organic” or “additive-free” tobacco product is less harmful than a regular tobacco product; 2017 US HINTS (*n* = 1736)

	Organic “less harmful” or “much less harmful”			Additive-free “less harmful” or “much less harmful”		
	26.7% (95% CI: 22.7, 30.7)			35.2% (95% CI: 31.1, 39.4)		
	% (95% CI)	OR (95% CI)	aOR (95% CI)	% (95% CI)	OR (95% CI)	aOR (95% CI)
Gender						
Male	30.6 (24.7, 36.6)	1.4 (0.9, 2.2)	-	40.6 (35.1, 46.1)	1.5 (1.1, 2.1)	1.5 (1.1, 2.1)
Female	23.4 (17.7, 29.2)	ref	-	30.6 (25.1, 36.2)	ref	ref
Age ^a (mean)	45.1 (42.9, 47.3)	0.98 (0.97, 0.99)	0.98 (0.97, 0.99)	45.2 (43.1, 47.4)	0.98 (0.97, 0.99)	0.98 (0.97, 0.99)
Education						
Less than some college	26.6 (18.2, 34.9)	0.69 (0.29, 1.62)	-	30.7 (22.7, 38.8)	0.71 (0.5, 1.1)	-
Some college or more	26.9 (22.9, 30.1)	1.0 (0.66, 1.62)	-	38.6 (34.1, 43.1)	ref	-
Race						
Non-Hispanic White	26.9 (23.4, 30.3)	0.97 (0.5, 1.7)	-	37.9 (33.8, 42.0)	Ref	-
All other race/ethnicities	26.4 (16.1, 36.7)	ref	-	31.3 (20.1, 41.5)	0.75 (0.4, 1.3)	-
Sexual orientation						
Heterosexual	26.3 (23.0, 29.7)	ref	-	35.1 (31.2, 39.0)	ref	-
Lesbian, gay, bisexual	37.9 (12.7, 63.1)	1.7 (0.6, 5.1)	-	46.5 (25.0, 68.0)	1.6 (0.7, 4.0)	-
Smoking status ^b						
Non-smoker	23.2 (18.5, 28.0)	ref	ref	33.4 (27.8, 38.9)	ref	ref
Former smoker	25.1 (19.2, 31.0)	1.1 (0.7, 1.8)	1.3 (0.8, 2.1)	34.1 (27.9, 40.4)	1.03 (0.7, 1.5)	1.1 (0.8, 1.7)
Current smoker	45.3 (30.4, 60.2)	2.7 (1.5, 5.1)	2.8 (1.5, 5.3)	47.1 (34.3, 59.8)	1.8 (1.1, 3.1)	1.7 (1.0, 3.0)

CI = confidence interval; HINTS = Health Information National Trends Survey. Bolded values are *p* < 0.05.

^aAge was centered at the mean age for the unadjusted and adjusted regressions.

^bDefined as: nonsmoker (never smoked 100 lifetime cigs and currently smoke “not at all”; former smoker (smoked 100 lifetime cigs and currently smoke “not at all”); current smoker (smoked 100 lifetime cigs and currently smoke “some days” or “every day”).

with the belief that “organic” or “additive-free” tobacco products are less harmful (ie, “slightly less” or “much less”) to one’s health than a regular tobacco product. We constructed our outcome variables in this manner because any belief that an “organic” or “additive-free” tobacco product is less harmful than a regular product is problematic for public health, and thus is of interest in these analyses. Adjusted models include all variables presented in Table 1.

Results

Organic Relative Perceived Harm Beliefs

The most common response about the relative perceived harm of “organic” tobacco products is that they are equally harmful to regular tobacco products (68.9%; 95% confidence interval [CI]: 64.8, 73.1; Figure 1). However, while fewer than 5% of US adults believe that “organic” products could be *more* harmful than regular products, 26.7% of US adults believe that an “organic” tobacco product could be some degree *less* harmful than a regular product. Compared to US adults in general, a greater proportion of smokers (45.3%, 95% CI 30.4, 60.2) believe “organic” tobacco products are “less harmful” or “much less harmful” than regular tobacco products (Table 1 and Figure 1). Indeed, 6.0% (95% CI: 3.4, 8.7) of US adults and 13.3% (95% CI: 11.0, 25.5) of current smokers believe that “organic” tobacco products are “much less harmful” than regular tobacco products. After adjustment, the odds of misunderstanding the harm of “organic” tobacco products are 2.8 times higher (95% CI 1.5, 5.3) for current smokers than nonsmokers (Table 1). For every 1-year increase in age, the odds of misunderstanding the relative harm of “organic” tobacco decreases (adjusted odds ratio [aOR] 0.98, 95% CI 0.97, 0.99). Results from a logistic regression where the outcome is “much less harmful” versus all other response options yielded similar but nonsignificant aORs.

Additive-Free Relative Harm Beliefs

As with “organic” relative harm beliefs, the majority of US adults (59.7%, 95% CI: 55.2, 64.2) believe that “additive-free” products are just as harmful as regular products, and few (4.2%, 95% CI: 2.6, 5.8) believe that “additive-free” products are more harmful than regular products. However, over one-third of respondents believe that “additive-free” products are “less” (28.5%, 95% CI: 25.0, 32.0) or “much less” (6.7%, 95% CI: 4.3, 9.1) harmful than regular tobacco products. In fact, 10.7% (95% CI: 2.0, 19.4) of current

smokers believe that “additive-free” tobacco products are “much less harmful” than regular tobacco products (Figure 1). Male gender (aOR 1.5, 95% CI: 1.1, 2.1) and younger age (aOR 0.98, 0.97, 0.99; interpreted similarly to the “organic” results above) are correlates of belief that additive-free tobacco products are less harmful than regular products in the adjusted model. Current smoking status is a significant correlate in the unadjusted model but marginally statistically significant in the adjusted model (aOR 1.7, 95% CI 1.0, 3.1; Table 1). Results from a logistic regression where the outcome is “much less harmful” versus all other response options yielded similar but nonsignificant aORs.

Discussion

This is the first study to report US nationally representative estimates of the prevalence of belief that “organic” or “additive-free” tobacco products are less harmful than regular tobacco products. Two individual characteristics were associated with misunderstanding the relative harm of “organic” or “additive-free” tobacco: younger age and current smoking status. The NAS cigarette brand, which prominently uses the “organic” descriptor and, until 2017, featured “additive-free” on its packaging and advertising, is more popular among young adults ages 18–34 than adults 35+.⁶ Our findings suggest that NAS’s popularity in this age group may be driven by their relative vulnerability to belief that “organic” and “additive-free” tobacco products are less harmful than regular tobacco products.

In addition to younger age, we also found that current smoking status was associated with belief that “organic” and “additive-free” tobacco was less harmful than regular tobacco products. In experimental studies, smokers are more likely to misunderstand the relative harm of “organic” or “additive-free” tobacco products than nonsmokers or former smokers; one study found that belief that “natural” or “additive-free” cigarettes were less harmful than regular cigarettes increased smokers’ intention to purchase the NAS brand.² In a recent nationally representative study, NAS smokers reported thinking more about the harms of their tobacco use than smokers who preferred other brands.⁶ Taken together, this body of research identifies smokers as particularly vulnerable to these descriptors, perhaps due to their health concerns about smoking and their misunderstanding of the relative harm of “organic” and “additive-free” tobacco.

Figure 1. Distribution of responses to item about the relative harm of “organic” (Panel A) and “additive-free” (Panel B) tobacco products; 2017 US Health Information National Trends Survey.

While the FDA required removal of “additive-free” from NAS cigarettes, our understanding of this agreement is that it is specific to Santa Fe Natural Tobacco Company/RJ Reynolds. This regulation does not apply to other tobacco brands, though we expect that the FDA’s warning letter will discourage other brands from using “additive-free.” More importantly, it is likely that the effect of the “additive-free” descriptor endures after its removal and replacement by “tobacco + water,” which conveys similar information, much like the removal of “light”/“low”/“mild” descriptors and replacement by colors such as “silver.”^{9,10} Thus, these data are a reasonable approximation of the belief that “tobacco + water” conveys reduced harm and are our best estimates for the prevalence of this misunderstanding until new data is collected.

A limitation of this analysis was the restricted sample size, which reduced our statistical power and precluded us from examining “organic” and “additive-free” relative harm beliefs by smaller subcategories of sociodemographic characteristics. For example, the difference in proportions between lesbian, gay, and bisexual participants and heterosexual participants suggests a relationship between lesbian, gay, and bisexual status and belief that “organic” and “additive-free” tobacco products are less harmful (aOR~1.65), but our minimum detectable effect size for these relationships was an odds ratio of ~2.0.

Conclusion

The tobacco industry has capitalized on smokers’ fears of the health consequences of smoking by marketing “reduced harm” products for the past 50 years.¹¹ Like marketing tactics before them, use of the terms “organic” and “additive-free” also mislead consumers. Belief that “organic” and “additive-free” tobacco products are less harmful than other products is widespread among US adults. Removal of terms that incorrectly imply reduced harm may somewhat correct current and future consumers’ misperceptions about the brand, though stronger action such as plain packaging may be necessary to eliminate erroneous beliefs.^{9,12}

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Declaration of Interests

JLP is an expert witness in litigation against RJ Reynolds, the maker of Natural American Spirit cigarettes.

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