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Perceptions of “Natural” and “Additive-Free” Cigarettes and Intentions to Purchase

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Abstract

In August 2015, the Food and Drug Administration (FDA) issued warning letters to cigarette manufacturers promoting brands as “natural” or “additive-free” because of concerns that such marketing claims might mislead consumers into believing that these brands are less dangerous to smoke than others. The current study examined consumer beliefs about the relative harms of “natural” cigarettes, and whether these beliefs influenced perceptions of advertising and purchase intentions when participants were shown an advertisement for American Spirit cigarettes. Data were collected using a web-based survey conducted in 2013 among 3,006 U.S.-based web panel members aged 15 to 65 years. Ratings of “natural” cigarette health risks (i.e., misperceptions) differed by sex, race, education, smoking status, and age. Controlling for perceived risks of other cigarette types, never smokers ($B = -0.31, p < .001$) and ever/former smokers ($B = -0.15, p = .002$) had significantly fewer misperceptions of “natural” cigarettes than current smokers. Current smoking (odds ratio [OR] = 17.8), believing the ad was truthful (OR = 1.18), and having more misperceptions about “natural” cigarette health risks (OR = 1.13) were independently associated with greater purchase intention. Consumers perceived cigarettes marketed as “natural” or “additive-free” as less harmful, and this influenced their perceptions of advertising claims and intention to purchase, controlling for other factors. These findings underscore Food and Drug Administration’s recent warning letters.

Keywords

cigarette; intention; marketing; natural; risk perception

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Declaration of Conflicting Interests

The authors declared the following potential conflicts of interest with respect to the research, authorship, and/or publication of this article: RJO is a member of the Food and Drug Administration Tobacco Products Scientific Advisory Committee. Any opinions expressed are those of Dr. O’Connor and should not be taken to reflect FDA policy or position. KMC has provided paid testimony as an expert witness for plaintiffs in cases against the tobacco industry.

Supplemental Material

The online supplemental materials are available at <http://journals.sagepub.com/home/heb>.

Natural American Spirit (often referred to as American Spirit, abbreviated NAS) is an American brand of cigarette, manufactured in the United States by the Santa Fe Natural Tobacco Company (SFNTC), positioned as “natural” and “additive-free.” Over the past decade, the market share of American Spirits has grown dramatically, from 0.2% in 2002 to nearly 2% in 2013 (Sharma, Fix, Delnevo, Cummings, & O'Connor, 2016). Other products such as Nat Sherman and Winston also have leveraged claims of all natural and additive-free as points of difference for their brands (see, e.g., Arnett, 1999; <http://natshermancigarettes.com/Cigarette101.cfm>). Generally speaking, consumers react more positively to products positioned as natural (e.g., Schleenbecker & Hamm, 2013; Walters & Long, 2012). Research has found associations of natural or additive-free tobacco product claims with reduced perceived health risk and/or increased appeal across adolescent and adult smokers and nonsmokers (Agaku, Omaduvie, Filippidis, & Vardavas, 2014; Arnett, 1999; Byron, Baig, Moracco, & Brewer, 2015; Czoli & Hammond, 2014; Kelly & Manning, 2014; McDaniel & Malone, 2007).

In 1999, RJ Reynolds entered into a consent agreement with the Federal Trade Commission which required them to note in their advertising for Winston that “No additives in our tobacco does NOT mean a safer cigarette” (Federal Trade Commission, 1999). SFNTC entered into a similar agreement in 2000. Some of SFNTC’s products also incorporate organically grown tobacco, and in 2010, 32 state Attorneys General secured an agreement with Reynolds American (which acquired SFNTC in 2001) that requires the company to clearly disclose that its organic tobacco is “no safer or healthier” than other tobacco products (State of California, 2010).

Against this backdrop, in August 2015, the U.S. Food and Drug Administration’s Center for Tobacco Products (FDA) sent warning letters to SFNTC, Imperial Tobacco, and Nat Sherman, stating that “natural” and “additive-free” labels were a form of misbranding under the Family Smoking Prevention and Tobacco Control Act (FDA, 2015). Specifically, FDA held that such labels violate Section 911 of the Act, which relates to Modified Risk Tobacco Products. That is, the claims of “natural” and “additive-free” imply that “the products or their smoke do not contain or are free of a substance and/or that the products present a lower risk of tobacco-related disease or are less harmful than one or more other commercially marketed tobacco products” (FDA, 2015). Such claims are required to be preevaluated by the FDA on the basis of scientific evidence that the product reduces risk/exposure for smoking-related diseases and benefits the population as a whole (FDA, 2012). The FDA also noted in its warning letters to SFNTC and Imperial (which acquired Winston in the Reynolds–Lorillard merger) that the 1999 consent agreement with the FTC does not shield them from FDA enforcement of provisions of the Act (FDA, 2015).

The current study aimed to examine whether cigarettes promoted as “natural” or “additive-free” are perceived as less hazardous compared with other cigarettes in general, and how consumers respond to a specific ad for one brand featuring such a promotion. This study was conducted before the FDA action took place and addresses misperceptions garnered by the labeling and advertising of a brand (NAS) that was a subject of the FDA’s warning letters. An important point of distinction from the existing literature is that we incorporate measures

of unprompted risk perceptions as well as responses to a specific product advertisement, all conducted in a large sample with a wide age and smoking experience range.

Method

A web-based survey was conducted in 2013 among 3,006 U.S.-based panel members recruited from GMI-MR/Lightspeed Research (www.lightspeedgmi.com). In brief, the GMI-MR/Lightspeed panel is a double opt-in commercial consumer research panel, wherein panelists apply for membership and then respond to an email to verify their information. As such, it is not compiled by traditional survey sampling techniques, nor is the sample selected to be nationally representative. Our sample included adolescents aged 15 to 17 years recruited via parent panel members as well as adults (>18 years). Further details of the survey design and methods are described elsewhere (Adkison, O'Connor, et al., 2016; Adkison, Rees, Bansal-Travers, Hatsukami, & O'Connor, 2016). The study protocol was approved by the Institutional Review Board of Roswell Park Cancer Institute. The larger survey focused on reactions to relative health claims embedded in ads for Camel Snus versus Nicorette gum, with a NAS ad included as a comparison product (see Supplemental Figure 1 for advertisement used in the study, available online with this article).

Measures

Smoking status was assessed as never smoker (never smoked, even a few puffs), ever/former smoker (smoked in the past, not currently smoking), and current smoker (now smoking daily or on some days). Items used to assess product health risks are shown in Table 1. These items were asked before the advertising manipulation. For analysis purposes, the rating for cigarettes labeled “natural” or “additive-free” (herein referred to as “Natural”) was assessed singly, while the scores for the remaining cigarette types (“unfiltered,” “full-flavor,” “light,” “ultra-light”) were averaged (Cronbach’s $\alpha = .91$). We then calculated a difference score between product health risk ratings of Natural cigarettes and the average of other cigarette types, which served as our measure of misperception (more positive scores indicate that Natural is perceived as less harmful). Perceived disease risk was evaluated by asking about self-assessed risk for nine smoking-associated diseases relative to a nonsmoker (e.g., lung cancer). A summary score was derived for use in analysis (Cronbach’s $\alpha = .98$) by summing the nine items. After seeing the ad, participants were asked to rate the ad on measures of truthfulness, skepticism of the claim, and claim content. We created a summary scale of ad belief by summing truthfulness and skepticism (reverse-coded). Emotional valence (i.e., positive vs. negative response) and arousal were assessed using the Self-Assessment Manikin (Bradley & Lang, 1994). After seeing all ads, participants were asked to select which product they would most like to try (forced choice among NAS, Camel Snus, and Nicorette), and for that selected product rate their intention to purchase on a 1 to 10 scale (Juster, 1966).

Statistical Approach

Data were initially characterized using descriptive statistics. Misperception of cigarette risks and ad belief were modeled using linear regression, while purchase intention was assessed

using logistic regression. Multivariate models adjusted for smoking status, age, sex, race, and level of education. All analyses were conducted using SPSS v21 (IBM, Armonk, NY).

Results

Participant Demographics

Overall, 53% of participants were female, 68% were non-Hispanic White, 12% Black, 45% with high school education or less, 33% aged 15 to 17 years, 16% aged 18 to 34 years, and 51% aged 35 years or older. Current smokers comprised 25% of the sample, while 44.3% were never smokers.

Misperceptions of Natural Cigarette Health Risks

The geometric mean misperception score for cigarette brands described as “natural” or “additive-free” (described from here on as Natural) was 2.2, compared with the 2.0 score for other cigarettes, meaning that Natural cigarettes were perceived as having slightly less risk to health ($p < .001$ by signed rank test). The arithmetic mean difference score was 0.38 ($SD = 1.0$). Across the sample, 44.7% of respondents had difference scores of 0 (indicating no difference in perceived risk), 15% had negative scores (indicating Natural was perceived as more harmful than other cigarettes), and 40.3% had positive scores (indicating Natural was perceived as less harmful than other cigarettes). Regression analysis was used to examine correlates of Natural misperceptions, with smoking status, sex, age, race, education, and perceived disease risks scale simultaneously entered into the model. Controlling for other factors, never smokers ($B = -0.31, p < .001$) and ever/former smokers ($B = -0.15, p = .002$) had significantly less misperception of the risk of Natural cigarettes than daily/nondaily smokers. Post hoc tests with the Bonferroni correction showed that all three groups were different at the $p < .007$ level. The other entered factors did not show significant relationships with Natural perceptions.

Ad Response

After viewing the NAS ad with its marketing claim of “additive-free, natural tobacco,” participants completed items assessing their perceptions of the ad. Forty-two percent perceived the ad as truthful, and 13% said they were not at all skeptical of the ad. Sixty percent of respondents said the ad claimed American Spirit had no risk or was less risky than other tobacco products. Cross-tabulation showed that those who believed that Natural cigarettes posed less risk were no more or less likely to agree the NAS ad claimed no or less risk ($\chi^2[2] = 0.86, p = .651$). However, multivariate regression analysis showed that ad belief was positively associated with misperception score ($b = 0.10, p = .003$) and more positive affective response ($b = 1.09, p < .001$), and showed marginal negative association with emotional arousal ($b = -0.09, p = .063$). Smoking status and other demographic factors were not significantly associated with ad belief.

Purchase Intention

Across all participants, 22% ($N = 655$) selected NAS as the product they would most like to try. Of these, 48% ($N = 315$) said they had “no chance” of purchasing the product in the next month. Therefore, of all participants, 11% ($N = 340$) said they had at least some intention to

purchase NAS in the next month; the vast majority were current smokers ($N = 264$), with smaller numbers of former ($N = 49$) and never ($N = 27$) smokers. (Only 9 respondents reported NAS as their usual brand.) We modeled purchase intention for NAS versus any other selection as a function of demographics, ad reactions, and perceived risks using logistic regression. Results are presented in Table 2. Overall, current smokers were substantially more likely to report an intention to purchase NAS than never smokers (odds ratio [OR] = 17.8), as were ever smokers (OR = 2.4). Because of this, we ran additional models stratified by smoking status. Greater belief that the NAS ad was truthful was associated with greater odds of expressing NAS purchase intention (OR = 1.2), particularly among never smokers (OR = 1.4). More positive affective response (OR = 2.1) and greater emotional arousal (OR = 1.3) after seeing the ad were positively associated with purchase intention. Positive affective response appeared to be a consistent predictor regardless of smoking status, but emotional arousal appeared to be significant only for ever or current smokers (see Table 2). Finally, more misperceptions about Natural cigarette health risks were associated with greater NAS purchase intention (OR = 1.13), controlling for other factors. Interestingly, the misperception effect was strongest among Never smokers (OR = 1.4). Perceived smoking-related disease risk was not associated with intention to purchase NAS cigarettes. Sex, race, age, or education did not have significant independent relationships to NAS purchase intention.

Discussion

The findings from this study are consistent with other published studies (Agaku et al., 2014; Arnett, 1999; Czoli & Hammond 2014; Kelly & Manning, 2014; McDaniel & Malone, 2007) showing that consumers perceive that cigarettes promoted as “natural” or “additive-free” are less harmful than other cigarettes. The current research demonstrated that this belief influenced perceptions of advertising for NAS cigarettes and increased the likelihood that participants would express an intention to purchase NAS, even controlling for other factors. Nonsmokers in the current sample were less likely to believe that “natural” or “additive-free” cigarettes were less harmful, but those who did harbor these misperceptions and perceived the ad as truthful were more likely to express purchase intention.

The 1999 FTC consent agreement disclaimers and subsequent agreements with state Attorneys General to include disclaimers on organic products have done little to correct misperceptions. Indeed, the NAS ad presented to participants in the current study contained these disclaimers, yet 60% read the ad as claiming that NAS had either no risk or less risk than other products, and nearly half viewed the ad as truthful. Although other brands such as Nat Sherman and Winston also have leveraged claims of “all natural” and “additive-free” as points of difference, NAS is the leader in brand share and by far the most active in advertising and promotions. In the first 9 months of 2015, NAS’s claim of “100% Additive-Free Natural Tobacco” appeared in ads in popular magazines such as *Playboy*, *Rolling Stone*, *Vanity Fair*, *Out*, and *Car and Driver*, as well as direct mail distributed to those in the brand’s database (Trinkets and Trash, 2015). It is likely that the brand’s positioning and marketing has contributed to its rising market share. Japan Tobacco International purchased the international rights to NAS from Reynolds-American for \$5 billion, citing its growth opportunities (Yui & Chambers, 2015).

Overall, this secondary analysis (using data collected well before FDA's warning letters) indicates that consumers hold misperceptions of cigarettes promoted as "natural" and "additive-free," and that these misperceptions are independently associated with intentions to purchase the NAS brand, the most widely promoted exemplar. Furthermore, despite a specific disclaimer in the ad, most participants viewed the American Spirit ad as claiming the product to be safe or safer than other products. So far, the FDA has taken no further public action related to NAS marketing beyond its initial warning letter sent to SFNTC in August 2015. Reynolds-American and its subsidiary SFNTC have stated publicly that it had sent a response to FDA's warning letter about its NAS marketing (Craver, 2015), but it does not appear that the misleading marketing of NAS has been discontinued. For example, a review of advertisements made available online by Trinkets and Trash shows that the main marketing messages for NAS have not changed since the warning letter. Thus, millions of consumers continue to be knowingly misled by the marketing of NAS. The lack of public action by the FDA to stop the misleading marketing of NAS is disappointing, but may be reflective of a broader pattern of FDA actions, which appear to prioritize product authorizations over product removals (cf. Jenson, Lester, & Berman, 2016). In this case, a product that implicitly suggests reduced harm to consumers has been allowed to remain on the market, even after the FDA has warned its manufacturer of potential violations.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1.

Key Item Wordings and Scaling.

| Item | Wording |
|------------------------|--|
| Product Health Risk | <p>Now, think about the overall health risk of different kinds of tobacco products. Think about a scale numbered from 1 to 10, where “1” means there is no health risk at all and “10” means it poses an extremely high health risk. For each product below, please tell us where you would put it on the 1–10 scale.</p> <p><i>Natural or Additive-free cigarettes like American Spirit or Winston</i> <i>Unfiltered regular, full-flavor cigarettes like unfiltered Camels or Lucky Strikes</i> <i>Filtered regular, full-flavored cigarettes like Marlboro Reds or Newportts</i> <i>Light cigarettes like Marlboro Lights or Camel Lights</i> <i>Ultra-Light cigarettes like Marlboro Ultra Lights or Carlton</i></p> |
| Perceived Disease Risk | <p>Please indicate what you believe your risk is for developing the following health problems, compared to a person who does <i>NOT</i> use tobacco.</p> <p><i>Lung cancer; emphysema, mouth cancer, bronchitis, heart disease, stroke, tooth loss, abscesses, nicotine addiction</i> [For each disease listed] Would you say that you are... <i>Much less likely (1), less likely (2), neither (3), more likely (4), much more likely (5)</i></p> |
| Claim | <p>Which of the following most accurately describes what this ad suggests or implies to you about the health risks of American Spirit?</p> <p><i>There are no health risks from American Spirit (AS)</i> <i>The health risks from AS are less than other tobacco products</i> <i>The health risks from AS are the same as other tobacco products</i> <i>The health risks from AS are more than other tobacco products</i></p> |
| Truthfulness | <p>How likely is it that the ad you just saw contained truthful information <i>Not at all (1), unlikely (2), neither unlikely nor likely (3), likely (4), extremely likely (5)</i></p> |
| Skepticism | <p>How skeptical are you about the truthfulness of the ad? <i>Not at all (1), slightly (2), somewhat (3), very (4), extremely (5)</i></p> |
| Product Selection | <p>Of all the ads you saw today, which of the products would you be most interested in trying? <i>American Spirit; Camel Snus, Nicorette gum</i></p> |
| Purchase Intention | <p>How likely are you to purchase American Spirit in the next month? <i>0 (No chance) to 10 (certain)</i></p> |

Table 2. Logistic Regression Results for Covariates Associated With American Spirit Purchase Intention, Overall and Stratified by Smoking Status.

| Covariate | Level | N | Overall (N = 3,006) | | | Never smoker (n = 1,331) | | | Ever/former smoker (n = 935) | | | Current smoker (n = 740) | | |
|-----------------------------|--------------------|------|---------------------|-------|-------|--------------------------|------|------|------------------------------|------|------|--------------------------|------|------|
| | | | aOR | LCL | UCL | aOR | LCL | UCL | aOR | LCL | UCL | aOR | LCL | UCL |
| Smoking status | Never smoker | 1331 | REF | — | — | — | — | — | — | — | — | — | — | |
| | Ever/former smoker | 935 | 2.44 | 1.46 | 4.08 | — | — | — | — | — | — | — | — | |
| | Current smoker | 740 | 17.80 | 11.19 | 28.32 | — | — | — | — | — | — | — | — | |
| NAS claim content | Less/no risk | 1802 | 1.29 | 0.98 | 1.71 | 1.64 | 0.71 | 3.77 | 1.06 | 0.56 | 2.00 | 1.37 | 0.98 | 1.93 |
| | Same/more risk | 1204 | REF | REF | REF | REF | REF | REF | REF | REF | REF | REF | REF | |
| NAS ad valence | | | 2.08 | 1.68 | 2.59 | 1.74 | 1.01 | 3.00 | 2.14 | 1.33 | 3.45 | 2.11 | 1.59 | 2.80 |
| NAS ad arousal | | | 1.31 | 1.08 | 1.59 | 0.98 | 0.57 | 1.66 | 1.78 | 1.11 | 2.83 | 1.29 | 1.02 | 1.63 |
| NAS claim belief | | | 1.18 | 1.08 | 1.28 | 1.41 | 1.09 | 1.81 | 1.13 | 0.94 | 1.37 | 1.16 | 1.05 | 1.29 |
| Perceived disease risk | | | 0.99 | 0.98 | 1.01 | 1.01 | 0.98 | 1.05 | 0.99 | 0.96 | 1.02 | 0.99 | 0.97 | 1.01 |
| Natural misperception Score | | | 1.13 | 1.01 | 1.27 | 1.39 | 1.05 | 1.85 | 1.29 | 0.97 | 1.71 | 1.07 | 0.94 | 1.23 |

Note. NAS = Natural American Spirit; aOR = adjusted odds ratio; LCL = lower confidence limit; UCL = upper confidence limit. Bolded values are statistically significant at the $p < .05$ level. Models also adjusted for sex, age, race, and education level.