



The impact of product information and trials on demand for smokeless tobacco and cigarettes: Evidence from experimental auctions



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ABSTRACT

Introduction. Epidemiological and toxicological evidence suggests lower risk of smokeless tobacco (ST) products compared to cigarettes. Less is known, however, about consumer perceptions and use of novel forms of ST, including snus and dissolvable tobacco.

Methods. In this study, we conducted in-person experimental auctions in Buffalo, NY, Columbia, SC, and Selinsgrove, PA with 571 smokers to test the impact of information and product trials on smokers' preferences. Auctions were conducted between November 2010–November 2011.

Results. We found no evidence of an impact of product trials on demand in our auctions. Anti-ST information increased demand for cigarettes when presented alone, but when presented with pro-ST information it decreased demand for cigarettes. It did not decrease demand for ST products. Anti-smoking information increased demand for ST products, but did not affect cigarette demand.

Conclusions. These findings suggest that credible and effective communications about tobacco harm reduction should reinforce the negative effects of smoking.

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Introduction

Beginning in the mid 2000's, cigarette manufacturers such as Philip Morris and RJ Reynolds began to market novel smokeless tobacco (ST) products of varying forms, often as brand extensions from their existing cigarette products. Examples of such products include Camel Snus, Marlboro Snus, Camel Dissolvables, and Marlboro Sticks. Epidemiological and toxicological evidence suggests that exclusive use of ST products can be substantially less harmful than cigarette smoking (Levy et al., 2004, 2006; Royal College of Physicians and Tobacco Advisory Group of the Royal College of Physicians, 2007; Stratton et al., 2001; Tobacco Products Scientific Advisory Committee, 2012). Nevertheless, traditional ST is associated with heart disease, stroke, and some cancers (particularly oral and pancreas). ST is also addictive (Critchley and Unal, 2003, 2004; Henley et al., 2005; International Agency for Research on Cancer, 2007), and the long-term health risks of the novel ST products are as yet unclear.

Smokers generally respond favorably to products described as less hazardous alternatives to smoking (Heavner et al., 2010; Timberlake,

2009), but interest may not reliably foreshadow use. Evidence from ST marketing suggests that use of novel ST products is relatively low (Biener et al., 2011). Whether or not a smoker will try ST may be influenced by the type of information available to aid this decision—in the public health community, there are competing calls for pro- and anti-ST messaging (Kozlowski, 2006; Phillips and Heavner, 2009; Rodu and Godshall, 2006; Tomar et al., 2009; Zeller et al., 2009). Whereas expert consensus suggests that these products are likely to represent less than 10% of the risks of cigarettes (Levy et al., 2006), many smokers view them as equally or more harmful (Borland et al., 2011; O'Connor et al., 2007; Tomar and Hatsukami, 2007). For example, Borland et al. (2011) found that only 17% of smokers believed ST to be less harmful than cigarettes, with no significant change in this belief from 2002 to 2009. Some have suggested that smokers be provided with credible, scientifically accurate relative risk information to encourage their use of these less harmful alternatives (Ferguson et al., 2011; Kozlowski and Edwards, 2005).

Information isn't the only suggested method for increasing ST adoption. Smokers' willingness to continue to buy a product may be influenced by the sensory characteristics of the product, which can only be ascertained through trial. RJ Reynolds has used free and reduced-cost sampling (via coupons) as a means to increase purchase of Camel

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Snus, for example. Product-specific concerns such as esthetics, consumer subjective responses, and nicotine delivery may play a role in the low adoption of ST among smokers (Sami et al., 2012). Other data suggest that brief trials of products (the opportunity to taste a new product) may familiarize smokers with novel nicotine delivery methods, encouraging further sampling and perhaps increasing likelihood of adoption of a suitable product (Borland et al., 2011; O'Connor et al., 2011; Schneider et al., 2008). The tobacco industry did make a modest effort to provide free trials in the US with snus, although the effectiveness of their strategy is debatable (Rogers et al., 2010).

A web survey study design revealed that, when briefly exposed to advertisements, a nationwide panel of participants preferred nicotine lozenges over ST products. Out of a list of three alternative products (Commit Lozenges, Camel Snus, and Camel Dissolvables), lozenges were most often nominated as the product that participants were most willing to try (O'Connor et al., 2012). Product demand and cross price elasticity from the same study showed that participants were willing to substitute all three of the alternative products for cigarettes as cigarette price increased, albeit weakly (O'Connor et al., 2014). Viewing advertisements seemed to have little impact on willingness to try the product as a whole; however, it seems plausible that gravitation towards lozenges may stem from prior “quit smoking” marketing and familiarity. Outside of this study, little work has been done to assess smokers' demand for ST products and in particular how this demand is affected by product trials and information.

In the study described here, we conducted in-person experimental auctions to test the impact of information and product trials on smokers' preferences. The study was designed to address both the cognitive (e.g., beliefs about health risks) and sensory aspects of product evaluation to determine which plays the greater role in demand for novel ST products (Rees et al., 2009). Experimental auctions, which are a behavioral economic mechanism, allow estimation of demand in a more-controlled setting than self-reported, hypothetical intentions to purchase products, and, as a result, provide more accurate assessments of preferences. These have been used extensively to examine issues related to food demand (for a review, see Lusk and Shogren, 2007). Recently, experimental auctions have been used to assess US smokers' demand for low and no nicotine cigarettes (Monchuk et al., 2007), demand for PREP cigarettes (Rousu et al., 2011), as well as demand among adult smokers in Mexico (Thrasher et al., 2007) and the US (Rousu and Thrasher, 2012; Thrasher et al., 2011) for cigarettes with text-only warning labels, pictorial warnings labels, and “plain” packaging (i.e., elimination of brand colors and logos from packs). Our goal in the current study is to examine the extent to which providing information and product trials affects smokers' demand for novel ST products and cigarettes, as well as to provide evidence on whether information or product trials could prompt smokers to use ST.

Methods

Participant recruitment and sample size

The study protocol was approved by the IRBs at the University of South Carolina, Roswell Park Cancer Institute and Geisinger Medical Center. Participants were recruited by radio ads, newspaper ads, and flyers in Buffalo NY, Columbia SC, and Selinsgrove PA. These sites were chosen because they differ substantially in the prevalence of ST use (NY = 2.3%; PA = 4.4%; SC = 3.6%) (Centers for Disease Control and Prevention, 2013), cigarette taxes (NY = \$4.35; PA = \$1.60; SC = \$0.57), and clean indoor air policies (NY = comprehensive smokefree policies; PA = exemption for bars; SC = exemptions for bars), as well as because they differed from one another in terms of racial diversity and urbanicity. They were also chosen in part for convenience, as study authors were from these locations, making oversight and administration of the experiments easier. Eligible study participants were 18 and older, currently smoked, were not currently using nicotine replacement products, and had no major medical issues that would warrant exclusion. Participants were paid \$50 for their participation, and sessions usually lasted about an hour. Auctions were



Fig. 1. The smokeless tobacco products up for auction.

conducted with eight to sixteen participants at a time, and a total of 571 smokers participated between November 2010 and November 2011.

The products

Participants bid on three cigarette alternatives: Camel Snus, Ariva Dissolvable Tobacco, and Nicorette Mini-lozenge (see Fig. 1). These products were chosen to cover three distinct product styles (pouched ST, dissolvable tobacco, and medicinal nicotine, respectively), and which were all available in the open market. Participants also bid on Marlboro brand cigarettes, either the red, menthol, gold (light), or menthol gold (light) variety, depending on their individual preference.

Experimental conditions

We sought to assess demand for the three products, relative to cigarettes, under alternative treatments. Treatment assignment was at the group level – all participants at a given auction session received the same treatment to facilitate the auction protocol. The treatments fell into two broad classes: information (5 conditions) and product trial (3 conditions). The treatments were as follows:

1. Participants received no information and weren't offered a trial of ST. (N = 62)
2. Participants received only pro-ST information (N = 60)
3. Participants received only anti-ST information (N = 67)
4. Participants received both pro-ST and anti-ST information (N = 61)
5. Participants received anti-cigarette information (N = 60)
6. Participants received pro-ST and anti-cigarette information (N = 65)
7. Participants were offered a trial of Camel Snus (N = 64)
8. Participants were offered a trial of Nicorette (N = 67)
9. Participants were offered a trial of Ariva Lozenges (N = 65).

Table 1 shows the number of participants in each of nine treatments and the distribution of participants per treatment in each site. The information was presented in three separate brochure formats of similar style and tone, based on peer-reviewed literature and created by the study investigators (see Appendices A–C). The first featured anti-smoking information (emphasizing the harms of smoking), the second presented anti-oral nicotine information (emphasizing the harms of nicotine and ST products), and the last included pro-oral nicotine information (emphasizing the lower relative risks compared to cigarettes). Participants were asked to read the information provided in silence, to allow each participant to process the information with minimal influence from other

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