

# Original article Believability of Cigar Warning Labels Among Adolescents



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### ABSTRACT

**Purpose:** Despite high rates of cigar use among youth, little information exists about how cigar warnings are received by youth. We examined believability of different cigar warning messages with different sources among adolescents in a national phone survey.

**Methods:** Adolescents (aged 13–17 years) in the US (N = 1,125; total response rate, 66%) were randomized to receive one of three health messages ("cigar smoking can cause cancers of the mouth and throat, even if you do not inhale," "cigar smoking can cause lung cancer and heart disease," and "cigars are not a safe alternative to cigarettes") and one of four warning sources (Food and Drug Administration, Surgeon General, Centers for Disease Control and Prevention, and no source). Believability was assessed with "how believable is this warning," and responses were dichotomized for "not at all or somewhat" versus "very."

**Results:** Weighted logistic regression results indicated that most youth found the cigar warnings very believable (60.5%). Messages about mouth and throat cancer (regardless of inhalation) and the safety of cigars in comparison to cigarettes were rated as significantly less believable than messages about lung cancer and heart disease related to cigars. There were no significant differences by source or other demographics. However, youth susceptible to using cigarettes were less likely to report the cigar warnings to be very believable.

**Conclusions:** The messages of cigar warning labels are not viewed as equally believable among adolescents. Future studies should examine how youth process messages about health effects of cigars and the impact of different cigar warnings on youth experimentation with and use of cigars. © 2016 Society for Adolescent Health and Medicine. All rights reserved.

## IMPLICATIONS AND CONTRIBUTION

This study empirically examines the believability of Food and Drug Administration proposed cigar warning labels among adolescents. Results show that while many adolescents find cigar warnings very believable, some messages are more believable than others and that youth susceptible to using tobacco report messages as less believable.

Cigars are one of the most widely used tobacco products among adolescents in the U.S. [1]. In the 2014 National Youth Tobacco Survey, a nationally representative survey of adolescents, the prevalence of current cigar use was 8.2% among high school students, which closely mirrored that of cigarettes (9.2%) [1]. Cigar use is especially concerning among African-Americans, among whom cigars are the most commonly used tobacco product [1]. Moreover, dual use of cigars and cigarettes is one of the most popular two-product combinations among youth and young adults [2], which is worrisome given that there is

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evidence suggesting that youth who use both cigars and cigarettes are more likely to use both products more frequently [3]. While risks to health from using cigars are related to frequency and extent of inhalation, even without inhalation, cigar users are at increased risk of oral, pharyngeal, laryngeal, and esophageal cancers [4,5]. Despite these negative effects on health, studies have shown that some youth report cigars to be less harmful than cigarettes [6,7].

Before 2016, most cigars sold in the U.S. carried a warning message as a result of settlements in 2000 between the Federal Trade Commission and the seven largest U.S. Cigar manufacturers [8]. Effective August 2016 with new regulations from the FDA, all cigars will also carry two additional warning statements, in addition to four of the already existing warning statements from the Federal Trade Commission [9]. The warnings are as follows:

- 1. Warning: Cigar smoking can cause cancers of the mouth and throat, even if you do not inhale.
- 2. Warning: Cigar smoking can cause lung cancer and heart disease.
- 3. Warning: Cigars are not a safe alternative to cigarettes.
- 4. Warning: Tobacco smoke increases the risk of lung cancer and heart disease, even in nonsmokers.
- 5. Warning: This product contains nicotine derived from tobacco. Nicotine is an addictive chemical.
- 6. Warning: Cigar use while pregnant can harm you and your baby.

The first four warning statements were created to counter false beliefs that cigars do not carry health risks regardless of inhalation, that cigars are safer than cigarettes, and that cigar smoke does not affect nonsmokers [8]. The fifth cigar warning statement regarding nicotine, an addictive chemical, has been required for inclusion on all FDA-covered tobacco products, including cigars [8]. This warning is intended to help reduce consumers' beliefs that certain tobacco products are safe for use and that quitting tobacco products is easy [8]. The final cigar warning statement is new and reflects the dangers of tobacco smoke during pregnancy [9].

Previous research has shown that tobacco control messages, including warnings, that produce negative emotions or that highlight the negative esthetic effects of smoking may be associated with believability of the messages, recall of health risks, and cessation behavior, especially among youth [10]. Moreover, recent meta-analyses of warning experiments [11] and observational studies [12] have demonstrated a greater impact of pictorial versus text-only warnings on various outcomes, including warning believability. However, no research to date has examined the believability of any specific warning labels for cigars among youth, which we investigate in this study.

#### Methods

### Sampling

Data utilized in this research come from a national phone survey administered by the Center for Regulatory Research on Tobacco Communication between November 2014 and June 2015. The survey included questions on tobacco regulatory constructs. Two independent and nonoverlapping random digit dialing frames were used for sampling, ensuring coverage to approximately 98% of U.S. households. The weighted sample is nationally representative of 13- to 17-year-olds living in the U.S., with cell or landline access, who could expect to obtain consent from a guardian for a tobacco use phone survey. Both parent/ guardian consent and adolescent assent were required for all adolescent participants. The sample resulted in 1,125 interviews and a weighted response rate of 66%, which is comparable to the 2014 National Youth Tobacco Survey response rate of 73% [1]. Participation was voluntary and anonymous. All procedures were approved by the UNC Chapel Hill Institutional Review Board (# 13–2779).

#### Experimental data

Using a  $4 \times 3$  experimental design, participants were told "imagine seeing this cigar warning" and then randomly assigned to receive 1 of 12 conditions. These included three of the six proposed cigar health messages that focused exclusively on cigars and were available at the time of this experiment: cigar smoking can cause lung cancer and heart disease, cigar smoking can cause cancers of the mouth and throat, even if you do not inhale, and cigars are not a safe alternative to cigarettes. Warnings began with one of four randomly assigned sources: FDA warning, Surgeon General warning, Centers for Disease Control and Prevention (CDC) warning, or warning (no source). This experiment was preceded by questions assessing awareness of the CDC and FDA (but not the Surgeon General) and recall of tobacco prevention campaigns. To control for previous exposure to the source of the warnings and previous health messages about tobacco, these variables were included as covariates, described below.

Believability was assessed with "how believable is this warning?" with responses for "very," "somewhat," or "not at all." We used this item since previous studies have demonstrated the importance of believability in assessing how warning labels are processed by adolescents [13,14] and demonstrating warning label impact [15,16]. For instance, in an experimental study examining affective and cognitive mediators of cigarette warning label impact, Emery et al. [17] demonstrated that believability of warning label text was associated with decreased desire to smoke, increased feelings toward quitting, and heightened risk perceptions of cigarettes. We used cognitive interviewing to determine if adolescents understood the measure; no problems were reported.

#### Measures

Survey questions included demographic characteristics (i.e., age, sex, race, and ethnicity). Additional covariates used in our study included self-reported health status, awareness of the FDA and CDC, susceptibility to cigarette use, any tobacco use, and mean exposure to tobacco prevention campaigns.

Self-reported health status. Self-reported health status was measured with the item: "Would you say that in general your health is...". Responses were dichotomized into "excellent or very good" or "good or fair."

Awareness of the CDC and FDA. Awareness of the CDC and FDA were measured with two questions: "Have you ever heard of the CDC or the Centers for Disease Control and Prevention?" and "Have you ever heard of the FDA or the Food and Drug

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