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Adolescent males' responses to blu's fake warnings

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Abstract

Objective—Blu's 'Something Better' advertising campaign ran in popular print magazines in 2017. The campaign included advertisements with fake warnings conveying positive messages, which mimicked the Food and Drug Administration (FDA)'s warning requirements for electronic cigarette (e-cigarette) advertisements that took effect in 2018. We report adolescent males' recall of these fake warnings and how exposure to fake warnings affected recall of other advertisement components, including the actual warning or health risks, brand and product.

Methods—Ohio males ages 12–19 years (N = 775; 73.8 % white non-Hispanic) were randomly assigned to view an e-cigarette advertisement with or without a fake warning. Afterward, they were asked what they remembered most about the advertisement. Responses were qualitatively coded. Statistical analyses included survey-weighted descriptive statistics and logistic regression.

Results—Of participants who viewed an e-cigarette advertisement with a fake warning, 27.0 % reported the fake warning was what they remembered most, and 18.8 % repeated the fake warning message. Participants viewing advertisements with a fake warning had lower odds of recalling the actual warning or health risks (OR = 0.29; 95% CI: 0.11 to 0.77) or brand (OR = 0.43; 95% CI: 0.22 to 0.85), compared with participants viewing other e-cigarette advertisements.

Conclusions—Adolescents viewing an advertisement with a fake warning were less likely to recall the advertisement's actual warning or health risks. Although e-cigarette advertisements now carry large FDA-mandated warnings, this tactic could be used for cigarette advertisements that

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continue to carry small warnings in the USA. Findings underscore the necessity of tobacco advertisement surveillance and study of advertisements' effects on adolescents.

INTRODUCTION

As of 10 August 2018,¹ warnings on electronic cigarette (e-cigarette) advertisements must include the opening text 'WARNING', occupy 20% of the top of the advertisement and use contrasting colours, a rectangular border and large font.² Prior to this implementation, blu's 'Something Better' advertising campaign ran from June to December 2017. Advertisements featured large, boxed, positive messages about e-cigarettes at the top,² mimicking the formatting of e-cigarette warnings.³ Messages in blu's fake warnings included 'IMPORTANT: Contains flavour' and 'IMPORTANT: Less harmful to your wallet'. Actual warnings also appeared at the bottom of blu advertisements, as they have since 2014,⁴ but were difficult to read.

Because the "Something Better" campaign appeared in magazines read by youth,² adolescent e-cigarette users and nonusers were exposed to these fake warnings. Adolescents' susceptibility to tobacco advertising has been well established.^{5,6} However, to our knowledge, this is the first tobacco advertising campaign to use fake warnings, and thus it is unknown how adolescents might respond to them. The aims of the current study, therefore, were to describe whether adolescent males exposed to fake warnings: (1) recalled the presence and content of fake warnings and (2) were more or less likely to recall other advertisement components, including the actual warning or health risks, brand or product.

METHODS

Setting and participants

Male participants enrolled in the Buckeye Teen Health Study in 2015 and 2016 when they were 11-year to 16-year old (N=1220). Only males were included because the aim was to measure predictors of smokeless tobacco (SLT) use. Participants lived in urban or Appalachian Ohio at baseline (T1) and were sampled via address-based (N=991) or convenience sampling (N=229); procedures are provided elsewhere.⁷ Data for the present study come from the 2-year follow-up (T2), which occurred from January 2017 to August 2018 when participants were 12-year to 19-year old (N=899).

Procedures

At T2, participants viewed one e-cigarette, cigarette, SLT, alcohol and soft drink advertisement for 8 s. The five advertisements were randomly selected and ordered, and the stimulus set included advertisements appearing in recent print issues of magazines with high youth readership, including *Sports Illustrated*, *People*, *Popular Science*, *ESPN Magazine* and *Rolling Stone*. After viewing each advertisement, interviewers asked participants what they remembered most about the advertisement and recorded their responses verbatim. Only participants who completed the in-person interview at T2 were included here (N=778). Responses from three participants were lost in data transfer, yielding a final sample of N=775 participants.

Outcome variables

Two researchers independently coded participants' responses. *A priori* themes, established at T1,⁸ included mention of the (1) warning or health risks, (2) brand or (3) product.

Acceptable inter-rater reliability was established prior to coding, and reliability was assessed regularly as coding progressed (range of Krippendorff 's alpha values: 0.78–1.00). Emergent themes related to fake warnings, which were double-coded, captured whether participants (1) mentioned the fake warnings or (2) repeated the message from fake warnings.

Only responses to e-cigarette advertisements are included here. Participants who did not provide sufficient responses to assess their recall (eg, 'none' or 'I don't know') were retained in analyses and coded as not recalling the outcome variables.

Exposure variable

The independent variable was exposure to an e-cigarette advertisement with a fake warning (yes vs no). Our stimulus set comprised 13 e-cigarette advertisements, and three included a fake warning. Brands included blu (N=8) and MarkTen (N=5).

Covariates

Covariates included T1 demographics and T2 ever e-cigarette use. Region (urban vs Appalachian) was determined on sampling. Age and race (white non-Hispanic vs other) were assessed using interviewer-administered items. Household-level tobacco use (at least one adult uses tobacco vs none) and highest level of parent/guardian education (college degree vs less) were assessed from participants' parents/guardians. Ever (vs never) e-cigarette use was measured using audio computer-assisted self-interviewing. Covariates had small percentages of missing data (<3%). Missing values were imputed using hot deck single imputation (described previously).⁷

Statistical analyses

Analyses were survey-weighted to account for the sampling design as described elsewhere.⁷ The proportions of adolescent males who (1) recalled the fake warning and (2) repeated the fake warning message, conditional on exposure to a fake warning, were calculated. Logistic regression modelled the odds of recalling the advertisement's (1) warning or health risks, (2) brand or (3) product by exposure to a fake warning. Prior to analyses, we used Rao-Scott χ^2 tests (categorical variables) or linear regression (continuous variables) to check whether covariates were balanced between the exposure groups. Any covariate that was imbalanced was controlled for in analyses. Analyses were completed using SAS V. 9.4.⁹

Ethics statement

Participants younger than 18-year-old provided assent, and parents/legal guardians provided permission. Participants aged 18 years or above provided consent. The Ohio State University's institutional review board approved all study procedures.

RESULTS

At T2, males were 15.8-year-old on average and 73.8% white non-Hispanic. A majority were from urban Ohio (74.9%), never users of e-cigarettes (85.4%), had parents or guardians who graduated college (61.9%) and lived in a household without adult tobacco users (74.3%). The proportion of participants with parents/guardians who graduated college was imbalanced by exposure group (70.4% exposed vs 60.0% unexposed; $p=0.06$). Thus, parent/guardian education was included as a covariate in all analyses. Of the 775 participants included in this analysis, 735 (94.8%) provided a sufficient response to code.

Recall of fake warnings

Of the adolescent males who viewed an e-cigarette advertisement with a fake warning (unweighted $N=186$; weighted 18.7%), 27.0% said the fake warning was what they remembered most from the advertisement, and 18.8% repeated the fake warning message in their response.

Recall of other advertisement components

Adolescents who viewed an e-cigarette advertisement with a fake warning had lower odds of recalling the warning or health risks associated with e-cigarette use or the brand than adolescents who viewed an e-cigarette advertisement without a fake warning (table 1). There was no difference in odds of recalling the product.

DISCUSSION

Adolescent males who viewed an e-cigarette advertisement with a fake warning were less likely than others to recall the advertisement's actual warning or health risks associated with e-cigarette use or the brand. Over a quarter of adolescents who viewed an advertisement with a fake warning reported it as the most memorable part of the advertisement, and nearly 20% repeated the message in their response.

Our findings support the previously stated concern that fake warnings might reduce effectiveness of actual warnings on advertisements.² Adolescent males viewing advertisements for e-cigarettes, cigarettes and SLT were most likely to recall the warnings from SLT advertisements, which carried the largest warnings.⁸ Among adults, larger versus smaller text warnings have been associated with increased warning salience.¹⁰ Thus, the *size* of fake warnings was likely one mechanism that increased adolescents' attention to them and decreased their attention to the actual warnings. As adolescents are also price sensitive¹¹ and find flavours appealing,¹² the *messages* used in blu's fake warnings highlighting low prices and flavours were another likely mechanism that attracted attention.

Adolescents viewing e-cigarette advertisements with fake warnings were also less likely to recall the brand. One reason for this may be that the brand was featured prominently in some of the MarkTen advertisements in the stimulus set – sometimes projected over nearly the full advertisement. A second may be related to the increased attention to fake warnings, making participants less likely to notice the brand. As recall of warnings decreased recall of brand-

relevant advertisement components among adolescent males,⁸ it is plausible that recall of fake warnings also decreased recall of the brand in the present study.

The following limitations apply to this study. First, exclusion of females prevented evaluation of how they might respond to fake warnings. Next, the ‘Something Better’ campaign was launched after T2 data collection began. Thus, a relatively small number of participants viewed the fake warnings, and this limited our ability to make potentially informative comparisons related to advertisements’ models or messaging. Additionally, the actual warnings on e-cigarette advertisements in the stimulus set were not uniform in size nor content, and we did not assess whether participants had already seen advertisements with fake warnings. Both could have affected recall of advertisement components.

This research also has several strengths. First, by using advertisements that appeared in recent issues of magazines read by youth, results describe how adolescents reacted to fake warnings they could encounter in their everyday lives. Next, by randomly selecting and ordering advertisements that were shown to each participant, we minimised the probability of order effects or confounding. Finally, coding procedures for warning or health risks, brand and product recall were established before the current study was conceptualised—reducing the chance that knowledge of this research question biased the coding process.

E-cigarette advertisements now carry FDA-mandated warnings,¹³ making it difficult for e-cigarette brands to replicate this campaign. However, no rule bans fake warnings on tobacco advertisements, which may distract adolescents from recalling actual warnings. This is especially concerning for cigarette advertisements that continue to carry small warnings in the USA.¹³ Findings emphasise the need for warnings with high visual salience as well as continued surveillance of tobacco advertisements and study of their effects on adolescents.

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What this paper adds**What is already known on this subject**

- Months before the Food and Drug Administration's warnings were required on electronic cigarettes (e-cigarette) advertisements, blu, a subsidiary of Imperial Brands, launched an advertising campaign that featured fake warnings.
- Fake warnings advertised positive qualities of e-cigarettes, including lower prices and flavours.

What important gaps in knowledge exist on this topic

- Adolescents are susceptible to the effects of tobacco advertising, but how they respond to advertisements with fake warnings was unknown.

What this paper adds

- Adolescent males who were randomly assigned to view e-cigarette advertisements with fake warnings were less likely than others to recall the advertisement's actual warning or health risks associated with e-cigarettes.
- Over a quarter of adolescents reported the fake warning as the most memorable part of the advertisement.

Table 1

Ohio adolescent males' recall of magazine e-cigarette advertisement components by exposure to blu's fake warnings, 2017–2018*

	Advertisement component recalled		
	Warning or health risks OR (95% CI)	Brand OR (95% CI)	Product OR (95% CI)
No fake warning	1.00	1.00	1.00
Fake warning	0.29 (0.11 to 0.77)	0.43 (0.22 to 0.85)	0.64 (0.32 to 1.27)

* ORs and CIs were estimated using survey-weighted logistic regression. Analyses controlled for highest level of parent/guardian education.
e-cigarette, electronic cigarette.

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