



ELSEVIER

Contents lists available at ScienceDirect

## Addictive Behaviors

journal homepage: [www.elsevier.com/locate/addictbeh](http://www.elsevier.com/locate/addictbeh)

## Pro-tobacco advertisement exposure among African American smokers: An ecological momentary assessment study

Cendrine D. Robinson<sup>a,\*</sup>, Christine Muench<sup>b</sup>, Emily Brede<sup>c</sup>, Romano Endrighi<sup>d</sup>, Edwin H. Szeto<sup>c</sup>, Joanna R. Sells<sup>c</sup>, John P. Lammers<sup>c</sup>, Kolawole S. Okuyemi<sup>e</sup>, Grant Izmirlian<sup>a</sup>, Andrew J. Waters<sup>c</sup>

<sup>a</sup> National Cancer Institute, Division of Cancer Prevention, 9609 Medical Center Drive, Rockville, MD 20850, United States

<sup>b</sup> National Institute on Alcohol Abuse and Alcoholism, Section on Clinical Genomics and Experimental Therapeutics, 10 Center Dr, Bethesda, MD 20814, United States

<sup>c</sup> Uniformed Services University of the Health Sciences, Department of Medical Clinical Psychology, 4301 Jones Bridge Rd, Bethesda, MD 20814, United States

<sup>d</sup> Boston University, Division of Behavioral Science Research, Henry M Goldman School of Dental Medicine, 560 Harrison Avenue, Boston, MA 02118, United States

<sup>e</sup> University of Utah, Department of Family and Preventive Medicine, 375 Chipeta Way, Suite A, Salt Lake City, UT 84108, United States

### HIGHLIGHTS

- African American smokers reported frequent exposure to pro-tobacco marketing.
- Advertisement exposure is cross-sectionally associated with impulse purchases and smoking.
- No prospective association between more advertisements than usual and cigarette purchases/smoking.

### ARTICLE INFO

#### Keywords:

Tobacco advertising  
Ecological momentary assessment  
African Americans  
Tobacco  
Minority health

### ABSTRACT

**Introduction:** Many African Americans live in communities with a disproportionately high density of tobacco advertisements compared to Whites. Some research indicates that point-of-sale advertising is associated with impulse purchases of cigarettes and smoking. Ecological Momentary Assessment (EMA) can be used to examine associations between tobacco advertisement exposure and smoking variables in the natural environment.

**Methods:** Non-treatment seeking African American smokers were given a mobile device for 2 weeks ( $N = 56$ ). They were prompted four times per day and responded to questions about recent exposure to tobacco advertisements. Participants were also asked to indicate the number of cigarettes smoked, and if they made any purchase, or an impulse purchase, since the last assessment. Linear mixed models (LMMs) analyzed between- and within-subject associations between exposure and outcomes.

**Results:** Participants reported seeing at least one advertisement on 33% of assessments. Of those assessments, they reported seeing menthol advertisements on 87% of assessments. Between-subject analyses revealed that participants who on average saw more advertisements were generally more likely to report purchasing cigarettes and to purchase cigarettes on impulse. Within-subject analyses revealed that when an individual participant reported seeing more advertisements than usual they were more likely to have reported purchasing cigarettes, making an impulse purchase and smoking more cigarettes during the same period, but not the subsequent time period.

**Conclusions:** Many African American smokers are frequently exposed to pro-tobacco marketing. Advertisement exposure is cross-sectionally associated with impulse purchases and smoking. Future research should assess prospective associations in more detail.

### 1. Introduction

Tobacco use remains the leading cause of death and disease in the United States (Surgeon General, 2014). African American smokers suffer from tobacco-related diseases at a higher rate than White smokers

(DeSantis et al., 2016). For instance, lung cancer incidence and mortality are higher among African American men compared to White men (DeSantis et al., 2016; Siegel, Miller, & Jemal, 2015). While African Americans smoke at similar rates as Whites and have a higher number of quit attempts, they are less likely to quit than White smokers (Jamal

\* Corresponding author.

E-mail address: [robinsoncd@mail.nih.gov](mailto:robinsoncd@mail.nih.gov) (C.D. Robinson).

<https://doi.org/10.1016/j.addbeh.2017.10.015>

Received 30 June 2017; Received in revised form 8 September 2017; Accepted 13 October 2017  
0306-4603/ Published by Elsevier Ltd.

et al., 2015; Kulak, Cornelius, Fong, & Giovino, 2016). Given that quitting smoking can reduce the impact of tobacco-related diseases (Jha et al., 2013), it is important to understand factors that prompt smoking in African Americans.

Several studies indicate that many African Americans live in communities with a disproportionately high number of tobacco advertisements compared to Whites (Lee, Henriksen, Rose, Moreland-Russell, & Ribisl, 2015) (although see review in Lee et al., 2015 for null findings). For instance, one study reported that census block groups with a greater number of African Americans had more advertisements in general and more advertisements for menthol brands (Widome, Brock, Noble, & Forster, 2013). This disparity reflects marketing targeted at African Americans by tobacco companies (Anderson, 2011).

Much of tobacco advertising research focuses on the tobacco retail outlet environment, also referred to as Point of Sale (POS) (Bettigole & Farley, 2016; Richardson, Ganz, & Vallone, 2015). POS environments include gas stations/convenience stores, liquor stores, and tobacco stores (Widome et al., 2013). Advertising in convenience stores and gas stations is of concern because individuals are exposed to tobacco advertisements in locations where they may not intend to purchase tobacco.

Research on POS advertisements have used cross-sectional and longitudinal designs (Germain, McCarthy, & Wakefield, 2010; Wakefield, Germain, & Henriksen, 2008), post-purchase surveys (Carter, Mills, & Donovan, 2009; Clattenburg, Elf, & Apelberg, 2013), behavioral laboratory experiments (Kim et al., 2013; Paris et al., 2011), and diary-style surveys (Burton, Clark, & Jackson, 2012; Martino, Scharf, Setodji, & Shadel, 2012). A systematic review of 22 studies reported that there is a consistent relationship between reported exposure to POS advertisements and smoking among youth and adults (Robertson, McGee, Marsh, & Hoek, 2014). Exposure to POS cigarette advertisements is associated with craving, unplanned purchases of cigarettes and smoking (Burton et al., 2012; Paris et al., 2011; Robertson et al., 2014; Wakefield et al., 2008). Descriptive post purchase survey studies (where participants are assessed right after leaving a POS environment) reported that 11% to 22% of participants report purchasing a cigarette because they saw a POS display (Carter et al., 2009; Clattenburg et al., 2013). Additionally, a cross-sectional survey study reported that 25% of smokers purchased cigarettes because of exposure to a POS display (Wakefield et al., 2008).

Cross-sectional and post-purchase studies are limited because they do not include control groups that were not exposed to POS displays and because they could not assess the prospective association between exposure and purchases (Robertson et al., 2014). One longitudinal study did report that adult smokers with medium or high levels of sensitivity to POS displays were less likely to quit smoking (Germain et al., 2010). In addition, results from behavioral laboratory studies indicate that exposure to virtual tobacco POS advertisements is associated with greater craving and purchasing compared to virtual environments with no advertisements (Kim et al., 2013; Paris et al., 2011).

While these studies suggest a causal relationship between exposure to advertisements and purchasing/smoking, they have limited ecological validity. Recently, exposure to tobacco advertisements has been examined through daily diary assessments or Ecological Momentary Assessment (EMA) (Borzekowski & Chen, 2016; Burton et al., 2012; Shadel, Martino, Setodji, & Scharf, 2012), which involves assessing participants in the “real world” (Shiffman, Stone, & Hufford, 2008). EMA studies have examined the frequency of reported exposure to advertisements and the associations between reported exposure and smoking intention or behaviors (Martino et al., 2012; Scharf, Martino, Setodji, Staplefoote, & Shadel, 2013). Martino and colleagues reported an average of 8 exposures in a 21 day period in college students (Martino et al., 2012). Reported exposure to tobacco advertisements among college students may also be associated with smoking intention (Shadel et al., 2012; Shadel, Martino, Setodji, & Scharf, 2013). Burton et al. (2012) reported that Australian adult smokers reported seeing

tobacco displays on > 40% of the 4-hour periods that they were outside the home. Reported exposure to tobacco displays also increased the probability of smoking. A further benefit of using EMA is that the “within-person” effect of exposure can be examined (Within individuals, does reported exposure to advertisements increase current or future risk of smoking?) as well as the “between-person” effect (Do individuals who report generally more exposure smoke more?).

To the authors' knowledge, there are no published EMA tobacco advertising studies using U.S. adult smokers. Systematic reviews highlight the need for additional EMA research on studies examining advertisement exposure among adult smokers. Studies of youth and non-smokers include outcomes such as future smoking risk which do not provide information on how advertisement exposure impacts fluctuations in purchases and smoking behavior among established smokers (Martino et al., 2012; Shadel et al., 2012). In addition, given the disparities among African American smokers noted above, it is especially important to collect data on exposure to advertising among African American smokers. The current study uses EMA to assess associations between reported tobacco advertisement exposure and behaviors related to smoking among African American smokers. The main hypothesis is that reported exposure to tobacco advertisements will be positively associated with purchases and smoking behavior.

## 2. Materials and method

This is a secondary data analysis of data from 56 participants who were enrolled in a randomized controlled trial that examined the effect of attentional retraining (Robinson et al., 2017). In the parent study, 64 non-treatment seeking smokers were recruited from the Washington, D.C., area, of whom 56 provided EMA data. Participants were 18 to 65 years old; self-identified as African American; reported smoking 5 or more cigarettes per day for the past year; had a home address and telephone number and specified English as the first language. Participants were excluded if they used tobacco products other than cigarettes; used smoking cessation pharmacotherapies; were currently trying to quit smoking; had another household member enrolled in the study; color vision deficiency; breath carbon monoxide (CO) < 8 ppm or were pregnant or breastfeeding. The study was approved by the Institutional Review Board of the Uniformed Services University of the Health Sciences.

### 2.1. Procedure

Study procedures are reported in detail in Robinson et al. (2017). Briefly, participants attended a baseline visit (Visit 1) where research staff provided a description of the study, confirmed eligibility, and obtained written informed consent. Eligible participants performed cognitive assessments, completed self-report measures, provided breath and saliva samples, and received training on the use of a personal digital assistant (PDA). Participants were also trained on how to identify and record exposures to tobacco advertisements on the PDA. Participants were informed that tobacco advertisements were any poster or graphic promoting tobacco products seen in places such as a grocery store or convenience store, a bar/restaurant, and the internet. Participants were also trained to complete assessments on the PDA and they completed a practice assessment in the laboratory.

Participants carried the PDA with them for up to two weeks in the “field” (i.e., as they went about their daily life). They were instructed to complete four PDA random assessments (RA) per day. The PDA program divided the day into four equal “periods”. An RA was scheduled at a random time during each period. Participants were also permitted to complete a participant-initiated assessment if they missed an RA. The median interval between completed PDA assessments was 3.67 h. At each assessment, participants were instructed to report exposure to tobacco advertisements and the smoking outcomes (smoking and purchasing) (items described later). Participants were told that they could

Download English Version:

<https://daneshyari.com/en/article/7259113>

Download Persian Version:

<https://daneshyari.com/article/7259113>

[Daneshyari.com](https://daneshyari.com)