



Original article

Ecological Momentary Assessment of the Association Between Exposure to Alcohol Advertising and Early Adolescents' Beliefs About Alcohol



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A B S T R A C T

Purpose: To evaluate the momentary association between exposure to alcohol advertising and middle-school students' beliefs about alcohol in real-world settings and to explore racial/ethnic differences in this association.

Methods: Middle-school students (N = 588) carried handheld data collection devices for 14 days, recording their exposures to all forms of alcohol advertising during the assessment period. Students also responded to three investigator-initiated control prompts (programmed to occur randomly) on each day of the assessment period. After each exposure to advertising and at each control prompt, students reported their beliefs about alcohol. Mixed-effects regression models compared students' beliefs about alcohol between moments of exposure to alcohol advertising and control prompts.

Results: Students perceived the typical person their age who drinks alcohol (prototype perceptions) more favorably and perceived alcohol use as more normative at times of exposure to alcohol advertising than at times of nonexposure (i.e., at control prompts). Exposure to alcohol advertising was not associated with shifts in the perceived norms of black and Hispanic students, however, and the association between exposure and prototype perceptions was stronger among non-Hispanic students than among Hispanic students.

Conclusions: Exposure to alcohol advertising is associated with acute shifts in adolescents' perceptions of the typical person that drinks alcohol and the normativeness of drinking. These associations are both statistically and substantively meaningful.

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IMPLICATIONS AND CONTRIBUTION

This study uses momentary data collected in naturalistic settings to characterize the temporal association between exposure to alcohol advertising and beliefs about alcohol. The findings demonstrate that adolescents, when exposed to alcohol advertising, perceive the typical person their age who drinks alcohol more favorably and perceive alcohol use to be more normative.

Despite alcohol industry self-regulation, young people are exposed to alcohol advertising at a startling rate. Youth see nearly 300 alcohol advertisements each year—an estimate that excludes online advertisements, promotional items, product

placements, and advertisements for wine [1]. This level of exposure is worrisome given that more than a dozen prospective cohort studies link adolescent advertising exposure to initiation and escalation of alcohol use and the development of alcohol-related problems [2–6]. Little is known, however, about the process underlying this association. This makes it difficult to design interventions to reduce the harmful influence of alcohol advertising on adolescent drinking.

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According to cognitive social learning and decision-making theories, exposure to alcohol advertising affects behavior by fostering more favorable beliefs about drinking. Proalcohol beliefs are engaged at each advertising exposure and strengthened with repeated exposure, thus creating the susceptibility to drink when an opportunity arises [7–9]. To test this process, it is crucial to measure beliefs about alcohol at the moment of exposure to advertising.

Experimental studies have used between-subjects designs to compare the beliefs of participants who have been exposed versus not exposed to alcohol advertising and found some evidence for a short-term effect of exposure on beliefs about drinking [10]. These studies permit estimation of causal effects but typically expose respondents to advertising in the artificial context of the laboratory, making it difficult to draw conclusions about the effects of alcohol advertising in natural settings.

Correlational field studies have assessed prior exposure (typically via retrospective or cued recall) and attempted to link that exposure to beliefs measured much later [11–13]. Such studies typically demonstrate positive associations between levels of exposure and proalcohol beliefs, evidence that is consistent with the theoretical process described previously. Although these studies provide important information, their assessment of exposure is subject to recall bias [14] and they lack information about the immediate changes in beliefs that are theorized to occur on exposure to advertising and mediate changes in drinking behavior [7].

The present study addresses these limitations by using ecological momentary assessment (EMA) to gather real-world data on adolescents' beliefs about alcohol at moments of exposure to alcohol advertising. EMA is a valuable tool for minimizing recall bias and obtaining detailed information on events of interest and people's immediate cognitive and behavioral reactions to those events [15]. In this study, youth served as their own controls by completing assessments of their beliefs at randomly sampled moments of nonexposure to advertising during a 2-week monitoring period. This within-subjects analysis allowed us to test the hypothesis that youths' beliefs about alcohol would be more favorable directly after exposure to alcohol advertising than at times of nonexposure. The specific beliefs that we investigated include normative beliefs, alcohol expectancies, and alcohol prototypes. Normative beliefs (beliefs about the prevalence of alcohol use among one's peers) and expectancies (beliefs about the consequences of alcohol use) are key features of social cognitive models of media influence [7,8]; each has been linked to exposure to alcohol advertising or media depictions of alcohol use and increased alcohol use over time [11,12,16–18]. Alcohol prototypes (beliefs about the typical person one's age who uses alcohol) are a key feature of the prototype-willingness model, which has proven to be a particularly useful model for examining media effects on adolescent alcohol consumption [16,19].

Given that youth from different racial/ethnic groups may identify differently with the people portrayed in alcohol advertisements or be differentially skeptical of the motives or messages of advertisers [7], we also explored whether momentary associations between exposure and beliefs differed by students' race/ethnicity. This is an important issue for investigation, given that Hispanic and African-American youths are more exposed to alcohol advertising [20–23] and may be targeted by alcohol advertisers [24].

Methods

Participants

We recruited 606 middle-school students from two large school districts, after school clubs and community organizations in Southern California with flyers and other notices. Enrollment occurred on a rolling basis over 10 months (September 2013–June 2014). We talked with parents by phone to determine children's eligibility. Children were eligible if they were aged 11–14 years, could speak and write English, and had no psychological condition that would preclude participation. Multiple children per family were eligible provided that each child met all eligibility criteria. All procedures were reviewed and approved by RAND's institutional review board.

General procedures

Each participant and a parent/guardian came to a neighborhood study center for assessment and training immediately before beginning the EMA protocol. During this session, participants completed a paper questionnaire that assessed demographics, intentions to drink alcohol in the next six months (1 = definitely no to 4 = definitely yes), and lifetime alcohol use (even a sip; yes/no), and were trained to use a handheld device for EMA. The standardized training consisted of a 60-minute oral presentation accompanied by electronic slides. Participants were also given a phone number for technical support throughout the study. The median number of participants per training session was nine.

EMA procedures

We issued each participant a handheld data collection device with custom-built EMA software installed. Devices used included the Samsung Galaxy Player, Samsung Galaxy Mini, Samsung Galaxy Y Duos (Samsung, Seoul, South Korea), and HTC Explorer (HTC Corporation, New Taipei City, Taiwan). The same data collection application was used regardless of device. All device functions besides the EMA software were inaccessible to participants. Data were encrypted and secure on the device, and each device required a password for entry. Participants were instructed to keep their device with them at all times except while at school, charge the device at night, initiate data entry each time they encountered an alcohol advertisement, and respond to random prompts (see the following section). Participants were told to practice using the device during the training day and that the study's data collection period would begin the following day and continue for 14 total days. Before leaving the study center, participants practiced recording an advertisement and responding to a random prompt (practice data were excluded from the analysis). At the end of the assessment, participants returned the device to the study center for data uploading.

Exposure event reports. We instructed participants to initiate an assessment whenever they encountered an alcohol advertisement during the 14-day monitoring period. They reported exposure to television, radio, newspaper, and magazine advertisements; billboards; sponsorship of music and sporting events; retail point-of-sale advertisements; brand-logged items such as hats and t-shirts; and various forms of online advertising (banner advertisements, video advertisements, and advertisements on

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