

Association Between Residential Exposure to Outdoor Alcohol Advertising and Problem Drinking Among African American Women in New York City

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We evaluated the association between residential exposure to outdoor alcohol advertising and current problem drinking among 139 African American women aged 21 to 49 years in Central Harlem, New York City. We found that exposure to advertisements was positively related to problem drinking (13% greater odds), even after we controlled for a family history of alcohol problems and socioeconomic status. The results suggest that the density of alcohol advertisements in predominantly African American neighborhoods may add to problem drinking behavior of their residents. (*Am J Public Health*. 2009;99:228–230. doi: 10.2105/AJPH.2007.132217)

Substantial literature shows that alcohol advertisements are disproportionately located in African American neighborhoods.^{1–3} Much of this research was conducted in the 1990s, and it was argued that the alcohol industry's marketing strategies targeted 2 vulnerabilities in the African American community: "high aspirations for upward mobility at one end, and social despair and a general lack of economic vitality at the other."^{4(p454)} In the 1980s, given the economic deprivation associated with urban African American enclaves, the proliferation of advertising at that time has been described as a blatant attempt to profit from human misery.⁵ Today, outdoor advertisements promote alcohol as a means to realize social mobility and reproduce stereotypical narratives about African American

individuals.⁶ Taken together, the targeted marketing of health-damaging products has been described as a form of institutional racism,⁷ and community activists have resisted their proliferation.⁸

Large-scale econometric data on the effects of advertising on alcohol intake are mixed,⁹ but neighborhood-level research suggests that the local alcohol environment affects behavior. Studies have shown that the density of alcohol retail outlets is associated with heavy drinking among college students¹⁰ and negative outcomes, including violence and injury.¹¹ However, to date, researchers have not studied the effects of outdoor advertising on the alcohol intake of residents in African American neighborhoods. We addressed this gap in knowledge by investigating whether exposure to alcohol advertisements is related to problem drinking among African American women.

METHODS

Participants

Participants were 139 women residing in Central Harlem, New York City. We limited our study to women because the study was part of an investigation of alcohol intake as a risk factor for breast cancer.¹² Women were eligible if they were aged 21 to 49 years, grew up in the United States and identified as African American or Black, drank at least 1 alcoholic beverage per month for the 6 months before the study, and had no history of cancer or substance or alcohol abuse. We screened 807 individuals at recruitment sites, including retail outlets (e.g., laundromats, beauty salons, restaurants) and outdoor locales (e.g., sidewalks, parks, subway stops). Of those initially screened, 253 (31%) were eligible for participation in the study. The response rate was 60%.¹³

The participants' mean age was 34.4 years (SD=8.2), and their mean per capita household income was \$25 023 (SD=\$18 435); 24% were married or in a lifetime partnership, 67% had some college education, 34% held a college degree, and 56% were employed full-time.

Measures

Problem drinking, the outcome variable, was assessed with the CAGE questionnaire,¹⁴ a 4-item screening measure. Problem drinking was defined as answering "yes" to 2 or more

questions, which is suggestive of alcohol abuse or dependence.¹⁴ This measure has been shown to have high accuracy in identifying a diagnosed alcohol use disorder in African American women.¹⁵

Family history of alcohol problems, a control variable, was measured with an item based on Behavioral Risk Factor Surveillance System assessments¹⁶ of medical history: "Has anyone in your family ever been told by a doctor, nurse, or other health professional that they have an alcohol problem?" Socioeconomic status was measured with 2 separate indicators as control variables: education (self-reported highest level of education) and income, which was a report of adequacy of income to meet needs (based on a modification of National Health and Nutrition Examination Survey items measuring food insecurity¹⁷).

The independent variable, outdoor alcohol advertising, was assessed via street observation. First, we completed a census of all outdoor advertising panels in the Central Harlem neighborhood in 2005.¹⁸ Second, after completing the census, we assessed whether panels contained alcohol advertisements. Outdoor media spaces tend to rotate advertisements once per month, with posting often occurring on Monday.¹⁹ Thus, we investigated the presence of alcohol advertisements after the second Monday in the month and completed assessments within 1 week. Research staff traversed neighborhood streets and marked whether an alcohol advertisement was present at each location, and, if so, the type of alcohol (i.e., beer or liquor) was noted.²⁰ Geocoding of these data, construction of advertisement density, and importation of census data were conducted by a commercial geographic information system firm and quantified with average exposure, a measure of facility density.²¹ We counted the number of advertisements within a 152-meter radius from the center of each cell in a 60×60 m grid (overlying the study area), and each cell within the grid received that count. Summing these values and dividing by the number of cells yielded the average exposure for the block group.²¹

Participants were assigned the exposure value for their block group of residence. To protect identifying information, participant addresses were initially collected as cross streets only, later refined according to online address locators from the New York City

Department of City Planning, and geocoded with ArcGIS 9.2 (ESRI, Redlands, CA). Figure 1 shows participant geographic distribution. Missing data for alcohol exposure because of incomplete address information for 26 respondents rendered a final sample size of 113.

Because advertisement density was significantly correlated with alcohol retail outlet exposure density (constructed with the same method as advertisement density, described earlier; $r=0.710$; $P<.001$), we included it as a possible confounding factor as well.

RESULTS

Of the sample, 31.7% were problem drinkers. The median exposure to alcohol advertising was 14.1 advertisements per block group (SD=6.5). Of all observed ads, beer was the most frequently advertised alcoholic beverage (72.6%), with hard liquor (generally vodka, gin, rum, and cognac) at 27.4%.

We used logistic regression to examine the relation between alcohol advertisement density and being a problem drinker, after we controlled for family history of alcohol problems, socioeconomic status, and alcohol retail outlet density. As shown in Table 1, women with a positive family history had 2.5 times the odds of being a problem drinker. Still, after we controlled for family history and all other variables, exposure to advertisements was significantly related to problem drinking (odds ratio [OR]=1.13; 95% confidence interval [CI]=1.03, 1.25).

DISCUSSION

This study was the first to report an association between outdoor advertisement exposure and adult alcohol consumption. A 1-unit increase in average exposure to advertisements was associated with 13% greater odds of being a problem drinker. This finding has public health significance because residents in the study area were highly exposed to alcohol advertisements, and the associations between exposure and outcome persisted after we controlled for potential causes and confounders of problem drinking.

The advertisements did not target women in particular, but the language, imagery, and themes clearly targeted African American

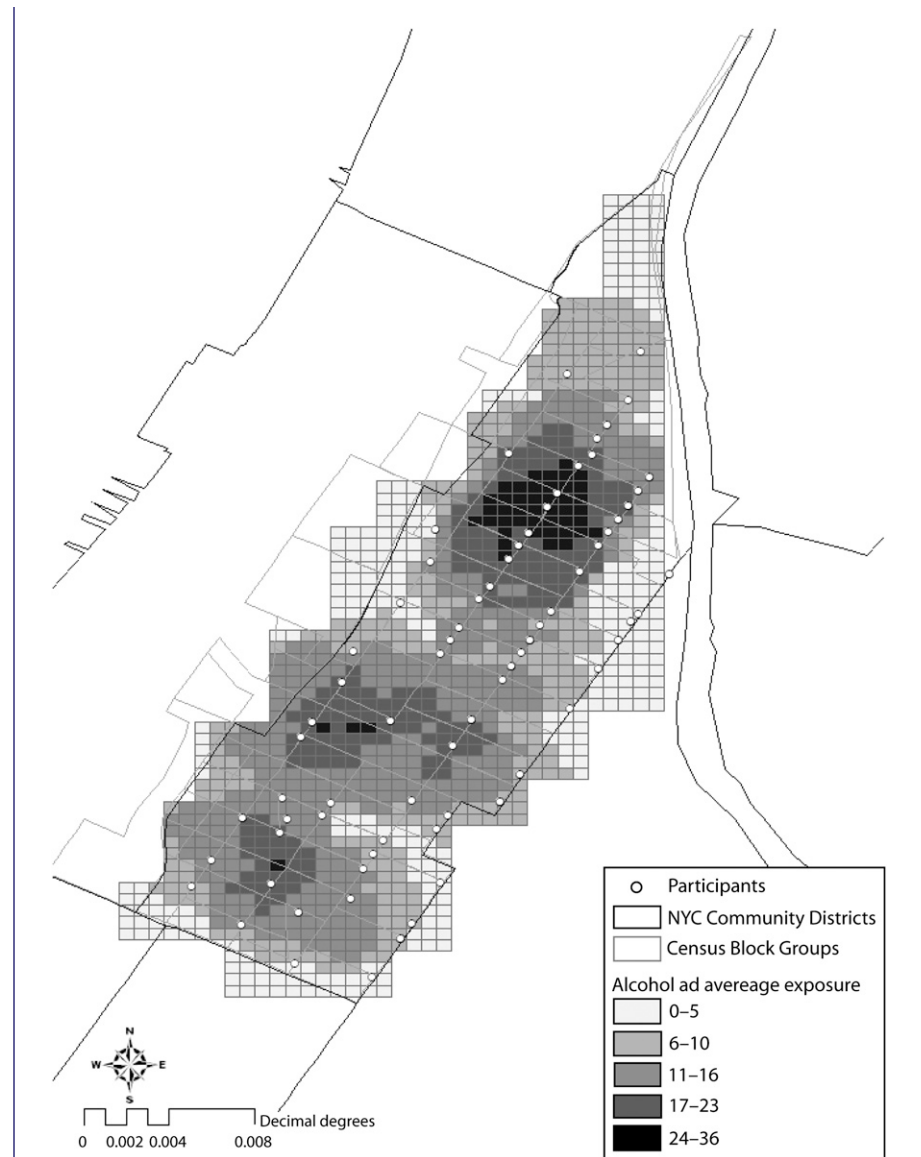


FIGURE 1—Study participants mapped by location of home residence, against average exposure to outdoor alcohol advertisements at the block group level.

people. Because we did not assess participants' perceptions about the advertising content, or how salient it was for them, the mechanisms by which outdoor advertisements affected problem drinking remain unknown. Advertisements may stimulate alcohol consumption for all residents, with high levels of consumption thereby increasing the risk for abuse and dependence. Outdoor advertisers note that these advertisement formats have a ubiquitous presence that provides exposure 24 hours a day, 7 days a week, and they ensure "that when a consumer is ready to purchase, the brand is top of mind

[sic]."²² When this passive exposure occurs throughout a neighborhood, the effect on residents' behavior may be strong.

Advertisements also may increase the likelihood of problematic drinking patterns only among individuals who are already susceptible. That is, individuals who are at risk for, or already contending with, alcohol abuse or dependence may be more likely to continue this behavior in an environment in which cues for alcohol use are prominent. Outdoor advertising also may affect drinking patterns through pathways unrelated to alcohol. Community

TABLE 1—Predictors of Problem Drinking Among African American Women (N = 113): Central Harlem, New York City, 2005

	Odds Ratio (95% Confidence Interval)
Alcohol advertisement exposure	1.13 (1.03, 1.25)
Family history ^a	2.50 (1.01, 6.15)
Education ^b	0.45 (0.18, 1.10)
Income ^c	0.46 (0.18, 1.20)
Alcohol retail outlet exposure	0.93 (0.83, 1.00)

^aCompares a family history of alcohol problems with no family history of alcohol problems.

^bCompares some college or more to less than college.

^cCompares adequate income to inadequate income (both as defined by a subjective self-report).

residents often perceive these advertisements to be unfairly marketed toward African American individuals and to represent a deliberate and nefarious targeting scheme for products that damage health. Thus, to the extent that these advertisements are perceived as manifestations of racism, they may increase the odds of problem drinking.²³ Future research should investigate these and other possible mechanistic pathways.

Some limitations of our study's ability to illuminate the effects of alcohol advertisements on the intake of community residents include a nonrandom, highly educated sample; a focus on women only; and a cross-sectional design. However, as noted earlier, because our sample had higher education levels than did area residents, and because problem drinking is inversely associated with education, our results may have underestimated the hypothesized association. Because the study was cross-sectional, we could not establish the causal role of advertisement density in inducing problem drinking. Still, the direction of the association is unlikely to be reversed—it is less plausible that problem drinkers move to block groups that have higher densities of alcohol advertisements. However, it is plausible that exposure to advertisements may exacerbate, but not cause, the drinking behavior among symptomatic individuals. Future research is needed to address these limitations, but the data suggest that the density of alcohol advertisements in predominantly African American neighborhoods may

add to the problem drinking behavior of their residents. ■

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Contributors

N. O. A. Kwate obtained funding, designed the research study, performed the data analysis, and led the development of the brief. I. H. Meyer collaborated on the study design, provided key input in all data collection efforts, and participated in the writing of the brief.

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Note. The views, opinions, and findings contained in this brief are those of the authors and should not be construed as an official Department of Defense position, policy, or decision unless so designated by other documentation.

Human Participant Protection

This study was approved by the institutional review board of Columbia University.

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