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14. ABSTRACT The purpose of this study is to investigate the relative influence of individual and ecologic/macro-level determinants of alcohol intake among African American women. More specifically, we are interested in the effects of perceived racism, depressive symptoms, and cultural identity (individual-level); and the presence of liquor stores and public alcohol advertisements (macrolevel). The study hypotheses are as follows: 1) African American women who report higher levels of perceived racism will consume more alcohol. 2) African American women who experience high levels of racism, but who are also high in cultural identity, will not have high levels of alcohol consumption. (3) The magnitude of the association between perceived racism and alcohol intake will be larger for women who live in an environment where alcohol is heavily marketed and readily available. In the second year of the grant, research staff have interviewed 105 of 150 women for the study.					
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INTRODUCTION

This report provides a summary of research accomplishments for Year 3 of a three-year multidisciplinary postdoctoral training award. Because a one-year, no-cost extension was granted on August 8, 2007, this report is an annual report, rather than a final report. The no-cost extension will enable salary support for a Research Assistant (RA), data analysis, publication and scientific presentations, and dissemination of study results to study participants and community members. IRB renewal from Columbia University was obtained on July 19, 2007. As noted in previous annual reports, the grant was originally awarded to the Mt. Sinai School of Medicine, and was later transferred to Columbia University, as of September 1, 2004. Thus, the original Statement of Work was constructed with the resources and infrastructure of Mt. Sinai in mind. The research has proceeded on schedule at Columbia although with some divergence from the original plans.

The project combines a research study on the relative influence of individual and ecologic/macro-level determinants of alcohol intake among African American women with advanced training in integrating individual/psychological and ecological/community factors in cancer prevention among minorities, particularly African Americans. These two overarching goals are described below.

BODY

Research Plan

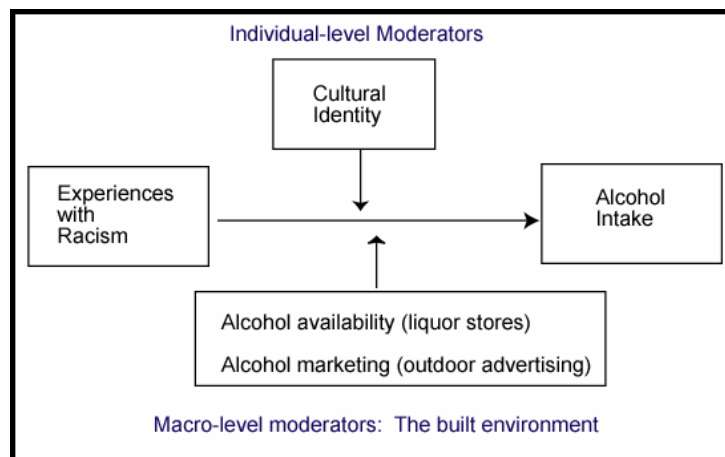
Alcohol intake is an established risk factor for breast cancer incidence, is associated with increased mortality among African American women, and unlike factors such as heredity, is a modifiable behavior. Given that African American women suffer from a disproportionate burden of breast cancer, empirical research must begin to elucidate determinants of alcohol consumption in this population. African American women have a higher risk of developing the disease at younger ages than European American women and suffer from higher mortality across all age spans. In addition, these discrepancies are not attributable solely to socioeconomic status or access to care. It is possible that for African American women, patterns of alcohol consumption contribute to disparities in breast cancer. In general, African Americans are less likely drink than European Americans; however, African American women have higher rates of heavy drinking and problems associated with drinking. Thus, many African American women who consume alcohol, may not be following the American Cancer Society recommendation to limit consumption of alcohol, thus increasing their risk for breast cancer. If relevant cancer prevention strategies are to be implemented, a multilevel analysis of determinants of alcohol consumption is critical. The present research investigates the effects of perceived racism, depressive symptoms, and cultural identity (individual-level); and the presence of liquor stores and public alcohol advertisements (macro-level).

The Specific Aims are as follows:

Aim 1: To investigate the relationship between the experience of racist events, and alcohol intake. We hypothesize that African Americans who report higher levels of experienced racism will consume more alcohol.

Aim 2: Step 1: To investigate the role of depressive symptoms as a mediator. We hypothesize that after controlling for relevant variables, individuals who experience high levels of racism will have high levels of depressive symptoms, and in turn, high levels of alcohol intake. **Step 2:** To investigate the role of cultural identity as a moderator. We hypothesize that after controlling for relevant variables, individuals who experience high levels of racism, but who are also high in cultural identity, will not have high levels of alcohol consumption.

Aim 3: To investigate the role of the built environment (public alcohol advertisements, liquor stores) as a moderator. We hypothesize that the magnitude of the association between experienced racism and alcohol intake will be larger for individuals who live in an environment where alcohol is heavily marketed and readily available.



Career training plan

The training program was proposed as a multidisciplinary program based on the integration of psychology, the social sciences, and public health. The program content emphasizes the interactions among the social, economic and physical contexts in which African Americans live with the individual behaviors implicated in disease and cancer risk. The PI's primary mentor is Ilan H. Meyer, Ph.D., Associate Professor of Sociomedical Sciences at Columbia University's Mailman School of Public Health. Dr. Meyer's background is in social psychology, psychiatric epidemiology, and sociomedical sciences. For the past ten years he has been studying public health issues related to minority health. His area of research includes stress and illness, biopsychosocial models of health, and community interventions. He is currently investigating the impact of minority stress—such as prejudice and discrimination -- on mental health (NIMH 5R01MH066058-02). Thus, Dr. Meyer's expertise has direct bearing on the research aims.

The career training plan is designed to assist the PI in using a multidisciplinary approach to research behaviors that increase breast cancer risk among African Americans. In addition, the career plan includes teaching and mentoring. The grant provides the PI with the opportunity to conduct an active research program that not only addresses health disparities, but also serves as a training ground for the next generation of minority scholars.

The original Statement of Work (SOW), when awarded to Mt. Sinai, was as follows:

Task 1. Study start-up, Months 1-5

- a. Hire and train part-time Research Assistant.
- b. Prepare data entry and participant tracking systems.
- c. Pilot test and refine unstandardized measures.

Task 2. Develop participant recruitment procedures, Months 5-11

- a. Determine dates of special events to be used for recruitment (e.g., health fairs).
- b. Contact ongoing EHPCA sites (e.g., barbershops, public libraries) to identify appropriate times to recruit participants.
- c. Establish new contacts with community-based organizations in Central & West Harlem.

Task 3. Preparation for data collection, Months 11-15

- a. Hire and train second Research Assistant
- b. Assemble measures into packets, in counterbalanced order.
- c. Create census tract maps.
- d. Create tally sheets for counting/coding liquor stores and advertisements.

Task 4. Participant recruitment and data collection, Months 15-27

- a. Recruit 150 participants
- b. Data entry and quality control measures will be ongoing
- c. Tabulate number of liquor stores and advertisements for randomly selected census tracts

Task 5. Analyses and report writing, Months 27-36

- a. Work with mentors and consultant Dr. Winkel to conduct analyses.
- b. Present findings at scientific meetings.
- c. Prepare manuscripts for publication.

Although the same tasks were to be completed at Columbia, the scheduling has been modified, and the personnel and resources reflect those of this new institution.

This annual report covers tasks originally outlined for months 15-27 and portions of months 27-36. According to the original SOW, the planned tasks (through month 27) included recruiting 150 participants and tabulating the number of liquor stores and advertisements for census tracts. As noted in the annual report for Year One, some tasks were completed ahead of schedule (identifying and mapping alcohol in the built environment). In Year 2, much of the data collection was completed. Thus, this report focuses on the completion of data collection and the beginning of data analysis.

At the time of the last report, 105 women remained to be recruited to reach the target N of 150. One of the strength of the study is the methodical recruitment in community locations throughout

the study area. We used active, street-based face-to-face recruitment by 2-3 trained recruiter/interviewers. Potential participants were screened in-person and then invited to be interviewed either on-the-spot at a convenient location that allowed privacy (e.g., a café, bench in a quiet area of a park), or interviews were scheduled for a later date at our offices or at the participant's home. Participants were selected from among eligible screened individuals using a representative case quota sampling method to fill 4 cells of a table corresponding to variation in age and study area (see Table 1).

Table 1: Recruitment quota cells			
	< 135 th Street	> 135 th Street	
AGE GROUP	NUMBER OF WOMEN	NUMBER OF WOMEN	
21-35	IA	IIA	IA+IIA
35-49	IB	IIB	IB+IIB
TOTAL	IA+IB	IIA+IIB	IA+IIA+IB+IIB

Women were eligible to participate in the study if they (a) self-identified as Black; (b) lived within the boundaries of Central Harlem; (c) were between the ages of 21 and 49; (d) grew up in the U.S.; (e) drink alcohol at least once per month for the past 6 months; and (f) had never been diagnosed with cancer or a substance abuse disorder. Additionally, based on data collected in Year 1, in which alcohol ad and outlet density was tabulated, potential participants were to be recruited from high and low alcohol areas (above or below 135th St.) to obtain variation in the structural-level moderator (alcohol environment).

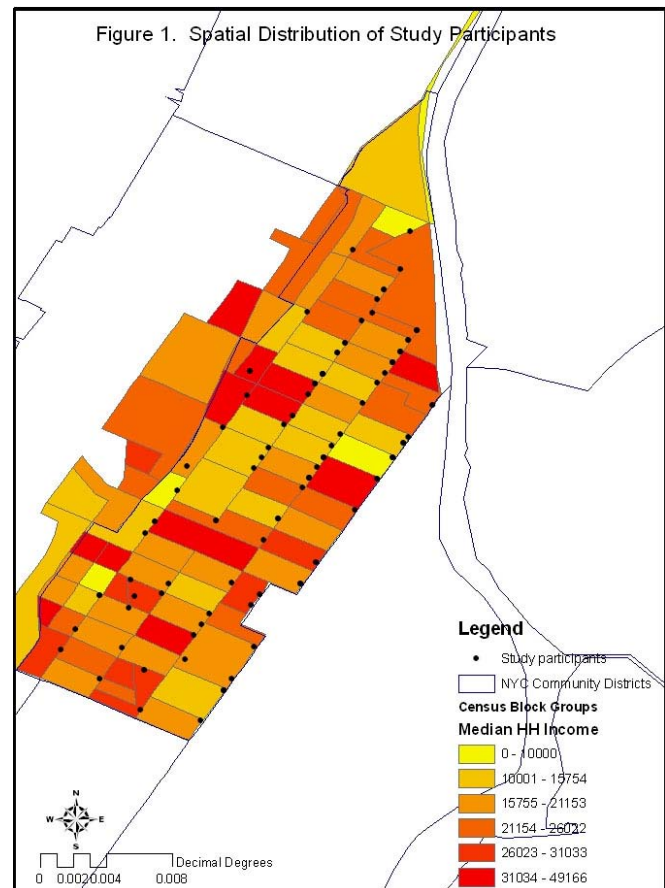
Recruitment concluded with an N of 143 women due to budget and timeline constraints. During the winter months, outdoor recruitment was extremely difficult and those women who were successfully recruited often did not keep appointments. The amount of funds needed to pay three Research Assistants to continue recruitment in these conditions was beyond what the study could sustain. Thus, recruitment was halted with a sample that contained 7 fewer women than planned.

The questionnaires included a demographic measure, an assessment of medical history and health behaviors (including the primary outcome, alcohol intake), measures of racial and cultural identity (The Africentrism Scale and The Multidimensional Inventory of Black Identity), a measure of depression (Beck Depression Inventory), and measures of perceived racism (The RA-LES). Interviews lasted approximately 45 minutes on average, and no adverse events were reported. After completion of the interview, most women gave contact information to receive information about the study results. Data have been stored, cleaned, and checked for reliability and integrity of the data as of August.

We were able to recruit a sample of women that lived throughout the geographic study area, which will facilitate the analyses for Aim 3. The geographic distribution of participants' residences against census tract median household income is shown in Figure 1. This mapping was completed by an RA first translating address data (cross streets) into specific, geocodable addresses using New York City address locators from the Department of City Planning. Next, ArcGIS was used to geocode participant residences to the census block groups comprising Central Harlem.

The mean age of participants was 34.42 (SD=8.25); 23.7% were married or in a lifetime partnership; 66.9% had children; and 93.5% grew up on the East Coast. With regard to socioeconomic status (SES), although Central Harlem is primarily low income, with a median income of \$19,924, there is a great deal of variation in household incomes, particularly as more affluent households have entered the community in the past several years. We were also able to obtain a sample that was heterogeneous in SES. Table 2 shows the education levels of the sample.

Participants initially reported income through a 5-point ordinal scale indicating pre-tax household income brackets (e.g., Less than \$10,000, \$10,000-\$19,999, etc.). This was then converted to a continuous measure indicating the midpoint of each bracket in dollars. Finally, a per capita measure that accounts for the number of people supported by the midpoint dollar amount was created. The mean income by this method was \$25,023 (SD=\$18,435).



Career training plan & training progress

In Years 1 and 2, the PI participated in a working group directed by Dr. Meyer on stigma, prejudice and discrimination. This group promoted interdisciplinary research on stigma, prejudice and discrimination and their impact on public health. Group members explored questions concerning the role of stigma in disease etiology, the various meanings and forms of stigma, methods of measuring these variables, and ways to understand the use of stigma in public health education and prevention. The group met on a monthly basis and promoted a unique venue for a diverse group of scholars from disciplines ranging from psychiatry,

Table 2. Education levels in the Sample

Education Level	Frequency	Percent
Less than H.S.	23	16.55
H.S. Diploma	23	16.55
Some college	46	33.09
College degree or Higher	47	33.81
Total	139	100

sociology, epidemiology, medicine, psychology, history, and public health to study the social context of health. Over the course of Year 2, the PI was invited to become an affiliated faculty member of the Robert Wood Johnson Health & Society Scholars Program, which will provide further opportunities to expand collaborative networks, attend lectures, seminars and short courses on a variety of topics, and to apply for seed grants for research proposals. The PI also collaborates with two of the HSS research groups: a new working group directed by historian Dr. Samuel Roberts, which aims to facilitate cross-disciplinary discussion between historians and health and social science researchers specializing in African American populations; and the Built Environment & Health group, led by Drs. Andrew Rundle and Kathy Neckerman. This is an interdisciplinary program of research that examines the implications of the built environment, including land use, public transit, and housing, for physical activity, diet, obesity, and other aspects of health. The group includes faculty and researchers from disciplines including urban planning, sociology, geography, and public health.

Drs. Bruce Link and Jo Phelan, senior investigators whose work in social inequality is widely known, have invited the PI to participate as a core member of the Center for the Study of Social Inequalities and Health at the Mailman School of Public Health. Situated in the Departments of Epidemiology and Sociomedical Sciences, the Inequalities Center is a multidisciplinary collaboration of researchers dedicated to understanding and addressing connections between social inequalities and health. The Center will provide opportunities for research collaboration, monthly working groups in which the PI can receive feedback on scholarship, and the opportunity to attend special lectures.

Teaching & Mentoring

Over the course of Year 2, several students worked with the PI on the research study, and from there sought mentorship on their Master's theses. The PI served as a sponsor for the Master's thesis for three students. One of the students based her work on the association between racism and negative health outcomes, another focused on neighborhood aesthetic infrastructure, and the other investigated fast food, after having worked with the PI on GIS. All three students were women from underrepresented groups in the biomedical sciences.

The PI continues to serve as Co-Director of the Department's Community Scholars Program, a departmental fellowship for students interested in public health in urban and underserved communities. At the time of the Year 2 annual report, the PI was embarking on teaching her first course, Social and Economic Determinants of Health. The course evaluations were very positive, with 70% of students reporting that the PI was "Extremely Effective" in teaching the course; only 20 of 101 courses in the School of Public Health received such a rating. The current semester (fall) is the second time the PI is teaching the course. In addition, last year the PI was selected last year to direct the Department's Research Track for MPH students, and she reevaluated the curriculum and designed a program in which students interested in research careers would be grounded in social science theory.

KEY RESEARCH ACCOMPLISHMENTS

Because analyses for the study's three primary aims are underway, there are no scientific findings to report. Analyses on the local alcohol environment were described in the Year 2 report.

REPORTABLE OUTCOMES

Thus far, a number of outcomes have emanated from the training grant. These include: grants applied for based on training supported by this grant; presentations at national conferences; and the preparation of manuscripts.

Scientific Presentations

Two invited presentations took place based on the PI's work on racism and neighborhood context:

Kwate, N.O.A., Davis, N., Hatch, S., & Meyer, I.H. (2006). What do we mean by racism? Conceptual and measurement issues in discrimination and stigma among African Americans. The Robert Wood Johnson Health & Society Scholars—Stigma, Prejudice and Discrimination Conference. September 28, New York, NY.

Kwate, N.O.A. (2007). Race and Place: Reproducing Health Disparities in New York City Neighborhoods. Grand Rounds. Grand Rounds, HIV Center for Comprehensive Care, St. Luke's-Roosevelt Hospital Center.

One poster presentation at a national conference was completed:

Kwate, N.O.A. (2007). Inequality in a bottle: Themes in Outdoor Alcohol Advertising in Central Harlem, New York City. The 28th Annual Society of Behavioral Medicine Meeting, Washington, DC.

Manuscripts

At the time of last year's annual report, the following paper was accepted at the Journal of Urban Health. It has since been published.

1. Kwate, N.O.A., & Lee, T.H. (2007). Ghettoizing outdoor advertising: Neighborhood disadvantage and ad panel density in African American communities. Journal of Urban Health, 84, 21-31.

At the time of last year's annual report, another paper was being revised for resubmission to the American Journal of Public Health. It has since been published at Alcohol and Alcoholism.

2. Kwate, N.O.A., Jernigan, M., & Lee, T.H. (in press). Prevalence, proximity, and predictors of alcohol ads in Central Harlem. Alcohol & Alcoholism.

A third, new manuscript was also published:

3. Kwate, N.O.A. (in press). Take one down, pass it around, 98 alcohol ads on the wall: Outdoor advertising in New York City's Black neighborhoods (photoessay). International Journal of Epidemiology.

Applications for Research Funding

Two grant proposals that were developed based on the PI's work on the DOD grant were funded.

1. The PI's work on racism and neighborhood context allowed her to develop a grant proposal under Columbia University's internal research funds through the Vice Provost for Diversity Initiatives. The award will allow me to conduct pilot research to investigate under what circumstances segregation acts as a negative health determinant. The goals are to identify some of the factors that may mediate the relationship between living in a racially segregated neighborhood and health status and to explore the extent to which residents in predominantly Black neighborhoods access goods, services and social contacts throughout the city.

Columbia University, Diversity Research Fellowship

Principal Investigator: "When does place matter? Racial segregation, neighborhood perceptions, and health status among African Americans."

Total funding = \$20,000

2. The PI's work in mapping the alcohol environment gave her proficiency in using GIS, which she used in a grant proposal to study African American and Latino children's food environments:

Robert Wood Johnson Foundation

Principal Investigator: "Studying spatial associations between the density of schools and the density of fast food outlets."

Total funding = \$99,963

A third grant proposal, to the NIH Director's New Innovator Award, was developed, but not funded.

1DP2OD001211-01 (Kwate, PI) 9/1/07 – 8/31/12 Direct costs-\$1,499,934

NIH

Neuroimmunological pathways in the embodiment of racism

The project aims to investigate the role of institutional and individual racism on African American immune function and overall health, brain activity, and brain structure.

The Innovator mechanism "addresses two important goals: stimulating highly innovative research and supporting promising new investigators. New investigators may have exceptionally innovative research ideas, but not the required preliminary data to fare well in the traditional peer review system. As part of its commitment to increasing the success of new investigators, NIH

has created the NIH Director's New Innovator Award to support exceptionally creative new investigators who propose highly innovative approaches that have the potential to produce an unusually high impact." Ultimately, 29 of 2,200 applications were funded. Although the PI's proposal was not one of these select few, positive reviewer comments were received, such as "This is an outstanding project. It addresses a fundamental problem in public health and science: how does discriminatory treatment affect physiological functioning?"

CONCLUSION

Over the course of Year 3 of this 3-year, multidisciplinary postdoctoral training award, data collection was completed, manuscripts on the alcohol environment were published, and the PI made important career development advances. The remaining tasks as given by the SOW are now publication of results relating to the primary study aims, and are anticipated to be completed over the course of this no-cost extension year.

Ghettoizing Outdoor Advertising: Disadvantage and Ad Panel Density in Black Neighborhoods

Naa Oyo A. Kwate and Tammy H. Lee

ABSTRACT *This study investigated correlates of outdoor advertising panel density in predominantly African American neighborhoods in New York City. Research shows that black neighborhoods have more outdoor advertising space than white neighborhoods, and these spaces disproportionately market alcohol and tobacco advertisements. Thus, understanding the factors associated with outdoor advertising panel density has important implications for public health. We linked 2000 census data with property data at the census block group level to investigate two neighborhood-level determinants of ad density: income level and physical decay. Results showed that block groups were exposed to an average of four ad spaces per 1,000 residents and that vacant lot square footage was a significant positive predictor of ad density. An inverse relationship between median household income and ad density did not reach significance, suggesting that relative affluence did not protect black neighborhoods from being targeted for outdoor advertisements.*

KEYWORDS *African American/black, Neighborhoods, Outdoor advertising, Disorder.*

Public health literature corroborates what residents and activists in black neighborhoods have long argued: alcohol and tobacco are pervasive in these communities, both in retail outlets^{1,2} and advertising.^{3–5} Outdoor tobacco advertising was only recently eliminated after the 1998 Master Settlement Agreement, wherein the tobacco industry agreed to various restrictions as part of its settlement with states.⁶ In addition to differential rates in the marketing of “vice products”, as alcohol and tobacco products have been called,⁷ research also shows that black neighborhoods have more *total* billboards (regardless of content) than white neighborhoods. Two studies conducted in Chicago revealed that predominantly black and minority wards contained a disproportionate number of billboards—in some cases almost twice the number as white majority wards.^{3,4} Research conducted in San Francisco found 2.2 billboards per 1,000 residents in black communities versus 1.1 in white and other communities,⁸ and an investigation of New Jersey cities also showed higher numbers of total billboards in black neighborhoods.⁵

We argue that these findings are meaningful from a public health perspective. While some outdoor marketers contend that “outdoor [advertising] has gotten away from the old tobacco/liquor advertising syndrome”,⁹ alcohol advertisements clearly continue to be a mainstay in outdoor advertising.¹⁰ Research suggests that

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most of these advertising dollars find their way to black communities. For this reason, the correlates of total outdoor advertising space density in these neighborhoods warrant careful study. Although we know that black neighborhoods across the United States have been disproportionately targeted compared to white neighborhoods, we know little about heterogeneity *within* black communities. Are these neighborhoods uniformly populated with billboards and other advertising spaces, or are there factors that induce higher or lower levels of advertising density?

In this paper we examine the influence of area-based indicators of income and physical decay as determinants of ad space density in predominantly black neighborhoods in New York City. With regard to income, it is logical to expect that more affluent areas would be less densely populated with outdoor advertising, particularly because outdoor marketers use certain ad formats (e.g., the 8-sheet poster) primarily to target low income consumers.^{11,12} Indeed, research shows that neighborhoods with high percentages of families below the poverty level and with less than 12 years of education have been shown to have higher concentrations of total billboards.⁴ Because individuals in predominantly black neighborhoods with higher socioeconomic levels would be expected to have greater exposure to a variety of media (e.g., newspapers, magazines, television, Internet), outdoor advertising should be less dense in these areas.

However, it is also possible that outdoor advertisers simply target African American communities regardless of area income status. To the extent that predominantly black areas are generally seen as “the ghetto” by advertisers, placement of ad spaces may show little variability between high or low-income neighborhoods. Spatially segregated areas of black residents are often seen as culturally inferior, thereby facing the same institutional insults as poorer communities.¹³ In addition, African Americans with higher incomes are often not spatially distinct from those with lower incomes,^{13–15} making it possible that relatively affluent African American neighborhoods will not be protected from “spillover” of advertising from lower income areas.

With regard to physical decay, the structural nature of the neighborhood is also likely to determine the advertising landscape. One reason poor neighborhoods and predominantly African American and Latino neighborhoods contain more billboards is because white neighborhoods are generally more affluent and better able to control their environment.³ In this vein, physical disorder (e.g., litter, graffiti) is a salient visual signal that communicates how effective residents are at seeking neighborhood improvement and triggers attributions and predictions in residents and outsiders of a community.¹⁶ Physical decay (e.g., burned-out and deteriorated housing) is a closely related construct.¹⁷ We were particularly interested in the presence of vacant lots as a form of physical decay because this form of physical decay is one of the most visible and demoralizing signs of inner city decline, particularly in northeast cities.¹⁸ In addition to negatively affecting the visual character of neighborhoods, vacant lots are often used for illicit activities such as drug sales or prostitution.¹⁹ Thus, vacant lots in African American neighborhoods may serve to attract more outdoor advertisements because: (a) deteriorated space may be perceived by advertisers as markers of a community that may not be as well able to fend off unwanted outdoor ads, and/or one in which municipal regulations are minimally enforced; (b) landlords may be more inclined towards the financial rewards conferred by installing billboards on their buildings; and (c) deteriorated spaces simply create more available space within which ads may be placed, compared to neighborhoods that are more fully built up.

In the present study, we examine the relative influence of area socioeconomic status (median household income) and physical decay (square footage of vacant lots) on the density of outdoor media controlled ads (defined below) in predominantly black New York City neighborhoods. We hypothesized that median household income would be negatively related to the number of ad spaces per 1,000 residents at the census block group level. We also hypothesized that the total square footage of vacant lots would be positively related to the number of ad spaces per 1,000 residents at the census block group level.

MATERIALS AND METHOD

Study Geography

New York City remains a highly segregated city. The dissimilarity index is a commonly used measure of segregation²⁰ and refers to the distribution of populations across an urban area. Ranging from 0 to 100, 0 indicates no segregation and 100 indicates total segregation. For example, an index of 42 indicates that 42% of black residents would have to move in order to achieve equal distribution of blacks and whites; values above 60 are thought to indicate very high segregation.²¹ Based on 2000 census data, the black–white dissimilarity index was 85.3,²² compared to 81.0 in 1970.¹⁵ As can be seen in Figure 1, the largest black populations are spatially contained in the Northeast Bronx, Upper Manhattan, Southeast Queens, and Central Brooklyn. For the purposes of the present study, we

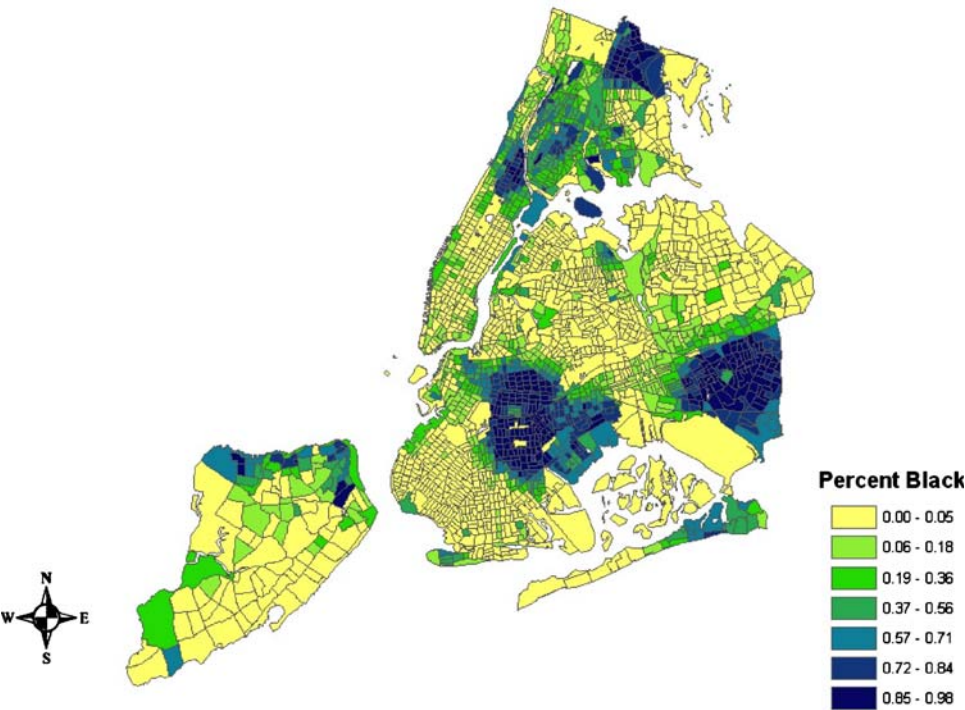


FIGURE 1. Percent black at the block group level (year 2000) across New York City’s five boroughs. (Map created with ArcGIS 9).

sought to identify neighborhoods from these areas that were matched on key population and land use characteristics, but which differed in income levels. Using neighborhoods boundaries commonly recognized by both residents and the NYC Department of Planning, we selected Central Harlem (Manhattan), Fort Greene, and Clinton Hill (Brooklyn).

We chose these neighborhoods because all three have moderate to high population density and, though historically black, have seen increased numbers of white residents and gentrification in recent years. These neighborhoods also share similar historical experiences with regard to such policies as urban renewal and the building of public housing. Land use is characterized by residential and mixed-use streets, and housing structures are brownstones and multifamily apartment buildings. In 2000, Central Harlem's median household income was \$19,924, while Fort Greene was approximately \$33,000 and Clinton Hill was approximately \$39,000.²³ Black neighborhoods with higher median household incomes are also located in Queens, but because these are more suburban in nature, with lower population densities and a preponderance of detached single-family housing, they were not included in this study.

Our investigation focused on residential census block groups (zoned R6 or R7, which includes mixed-use, but not general commercial districts) that were at least 60% black. We also restricted our analysis to block groups where the total population and the total number of housing units totaled 100 or more. Taken together, these parameters allowed us to examine predictors of ad space density in areas that were all predominantly black, matched on land use and population characteristics, but varied in area income.

Data Sources

Our analysis is based on outdoor advertising spaces that were permanently affixed to the built environment and managed by outdoor marketing companies. Outdoor advertising takes a variety of forms in New York City. "Billboards" is a generic term that actually encompasses several formats. These include large bulletins, wallscapes, and smaller formats that are placed on buildings (e.g., 30-sheets, 8-sheets). Advertisements also appear on "street furniture" (phone kiosks, bus shelters), and subway entrances. Although outdoor advertising spaces generally must be registered with the New York City Department of Buildings, there is no comprehensive database with listings of all advertising spaces. To obtain this information, each individual building address must be queried to determine if an advertisement is mounted there. Thus, as described below, we counted these spaces through systematic observation at the street level. This method also allowed us to count ad spaces which may have been unlicensed.

Data on vacant lots were obtained from PropertyShark,²⁴ a website that provides consolidated New York City property records gleaned from a variety of local government sources, and in this case, the Department of Buildings. The site contains a clickable map feature with which one can quickly find and explore neighborhoods at the tax lot level, with color coding used to demarcate building class. Vacant lots were thus easily identified on each street in the study area. Clicking on a lot yielded a report detailing the lot dimensions in feet as well as the total square footage. Because there were some discrepancies between the lot dimensions and the reported square footage, we re-calculated square footage in our database using the reported dimensions.

Procedure

We conducted a census of all the locations where outdoor advertising appeared by walking up and down all streets within neighborhood boundaries, recording the presence of ad spaces by type. Some ad formats presented multiple spaces per location. For example, bus shelters are fitted with one or more glass panes which allow two ads to be placed inside, back to back. Thus, each side was counted as an ad space. The same was true for phone kiosks, which contained between two and four available ad spaces. Face blocks from both sides of north–south running avenues and east–west running major streets were studied in their entirety, but approximately the first hundred feet of east–west running residential streets were studied, as advertising is generally absent from buildings in the center of residential blocks.

The presence of ad spaces was recorded on a tally sheet, with approximate address location. That is, ad spaces which were adjacent to buildings with visible addresses were recorded with the same address. Those that were located in areas without visible addresses nearby were initially coded with general directional information (e.g., north side of 115th between 5th Avenue and Lenox) and later coded with approximate addresses based on online address locators from the NYC Department of City Planning. All geocoding and spatial analyses we conducted with ArcInfo geographic information systems software (ArcGIS 9). Census data from the 2000 census summary files 1 and 3 were merged with the selected census tract files in ArcGIS in order to examine demographic information.

ANALYTIC PLAN

A total of 90 block groups were included in the analyses. The dependent variable in the study was ad density, defined as the number of ad spaces per 1,000 residents. Initial inspection of the data revealed moderate positive skew for ad density, and square root transformations were used for the dependent variable in the regression analysis.

To test the influence of area income and physical decay on ad space density at the census block group level, we conducted an ordinary least squares regression with primary independent variables of median household income and total vacant lot square footage. We also adjusted for percent black, because although the included block groups were all predominantly black, a block group that is 60% black may differ from one that is 90% black. Our initial model assessed possible covariates, but none emerged as significant. These included percent unemployed, percent with a college degree, percent of residents aged 21 years or younger, and average feet of bus routes per acre. Thus, linear regression was completed with the three independent variables entered simultaneously; data were analyzed using SPSS 13.0.

RESULTS

We counted a total of 475 advertising spaces, listed by category in Table 1. As can be seen, the majority of advertising spaces were located on “street furniture” ($n=374$; 79%), which were predominantly phone kiosks, followed by bus shelters and subway entrances. Billboards ($n=101$) comprised 21% of all ads, with 8-sheet posters representing the most common type.

TABLE 1. Descriptive statistics by ad format

	Frequency of ad spaces by subtype (<i>n</i>)	Percentage frequency of ad spaces by subtype (%)
Billboard subtypes		
8-sheet	84	18
Wallscape	9	2
Billboards	4	1
30-sheet	4	1
Subtotal	101	21
“Street furniture” subtypes		
Phone kiosk	201	42
Bus shelter	107	23
Subway entrance	66	14
Subtotal	374	79
Total (<i>N</i>)	475	100

Table 2 shows block group descriptive statistics. As can be seen, block groups had on average approximately 4 ad spaces per 1,000 residents, ranging as high as almost 29 ads. These higher densities generally reflect the presence of several ad formats with multiple spaces (e.g., a block group might contain several phone kiosks and bus shelters, each with multiple spaces, in addition to billboards). Vacant lots were common throughout the study area, and the total square footage was higher in areas with lower median household incomes. Median household income ($r=-0.234$, $p=0.03$) and vacant lots ($r=0.321$, $p=0.002$) were significantly correlated with ad density, and percent black was just outside the range of significance ($r=0.202$, $p=0.056$).

The regression analysis (shown in Table 3) yielded adjusted $r^2=0.21$, $F(3, 86)=7.50$, $p=0.000$. Vacant lot square footage emerged as a significant predictor of ad density, but our hypothesis regarding income was not supported. After accounting for vacant lots, median household income was not significant.

DISCUSSION

This study sought to examine determinants of outdoor ad space density in predominantly black New York City neighborhoods. Overall, we found advertising panel density at a rate of approximately 4 spaces per 1,000 residents, which is higher than in some reports.⁶ The higher densities we found may be due to changes in the formats used to advertise (e.g., multi-face phone kiosks), changes over time in outdoor marketing strategies, or simply idiosyncrasies in New York City.

TABLE 2. Descriptive statistics for the study area block group

	Mean	SD	Min	Max	Number of Block Groups
Ad density (ads per 1,000)	4.4	6.09	0	28.69	90
Vacant lot square footage (feet)	15,651.47	18,048.02	0	81,071	90
Median household income (dollar)	26,048.06	13,113.38	7,159	71,779	90
Percent black	0.8	0.097	0.6	1	90

TABLE 3. Regression model

Model	β	T	Sig.
(Constant)		0.291	0.772
Percent black	0.119	1.15	0.252
Vacant lot square footage	0.302	2.99	0.004
Median household income	-0.193	-1.85	0.067

$r=0.455$
 $r^2=0.207$
Adjusted $r^2=0.180$
Standard error=1.27

We asked whether area-based income level and physical decay predicted the density of ad spaces in residential census block groups that were at least 60% black. We hypothesized that areas with higher median household income would have fewer ad spaces, and that areas with high total square feet of vacant lots would have more ad spaces. Only the latter hypothesis was supported by the data. As noted earlier, vacant lots are likely to result in more ad spaces not only because it is a highly visible sign of disorder in a community, but because it allows for the installation of ads in a manner that would not be possible without them. For example, we observed several decrepit and unoccupied buildings that had ad panels installed over bricked-up windows. We also frequently observed standard outdoor ad panels mounted on posts in vacant lots, or affixed to buildings with walls adjacent to vacant lots. One lot in Central Harlem, which was abutted by buildings on two sides, and by sidewalks on the other two, contained eight total ad faces: one double-sided 8-sheet on a free-standing post, another five attached to the buildings, and a wallscape on one building (see Figure 2). These installations are pointed illustrations of the manner in which structural blight acts as a magnet for outdoor advertising.

In general, outdoor advertising reflects tensions between the accrual of revenue for cities and the aesthetic and public health imperatives of neighborhoods. This is particularly true for segregated black neighborhoods, because geographic isolation inhibits the ability to form political coalitions and enact desired public policies.¹⁵ As a result, political leaders have often cut services in these neighborhoods, leading to a decline in infrastructure.^{21,25} In our study, physical decline in the form of vacant lots was positively associated with ad density. Thus, it would appear that developing the land would be beneficial for neighborhoods on multiple levels. And yet, longtime community members may not fully reap these benefits. For example, in the late 1980s one city block in East Harlem was called “Little Beirut”; it contained only 13 buildings on 27 tax lots and was devoid of residents.²⁶ Today, four blocks from this location, new condominiums are being built, one of which features “12 exquisite homes which exhibit a classic feel fused with modern luxury”.²⁷ These apartments start at \$395,000 for a 726 sq. ft. one BR, in a census tract where the median household income is \$25,941, and the unemployment rate is 25.1%.²³ If such housing development continues, it is likely that outdoor advertising would decline, due to less available space for installations. However, it remains to be seen whether current residents would be able to afford living in the revitalized neighborhood.

We found that area income level was not significantly related to ad density after controlling for vacant lots. This suggests that the most economically vulnerable



FIGURE 2. A vacant lot at 128th St. and Adam Clayton Powell Jr. Blvd has several ad spaces installed in the ground and on the surrounding buildings.

segments within the communities in our study were not more burdened with outdoor advertisements than the more economically advantaged. At the same time, these results are testament to the finding that African Americans with higher incomes may not be insulated from certain neighborhood conditions. Despite descriptions of some formats (e.g., 8-sheets) as being used to reach people with less exposure to other forms of media, we found that predominantly black block groups with high incomes were equally exposed to outdoor advertising.

Some study limitations should be noted. First, we studied a small number of predominantly black neighborhoods in New York, and thus the number of block groups included in the study (90) was modest. This may have limited our ability to detect an effect for income, which did approach significance. In addition, we used demographic data from the 2000 census. In the neighborhoods we studied, both racial and socioeconomic demographics have undergone marked changes since that time, particularly due to gentrification. Thus, we may not have been able to detect associations between median household income and ad density simply because the census data is not current enough to reflect neighborhood transitions. Second, the cross-sectional design of the study means that we cannot define the association between vacant lot square footage and ad density as causal. For example, it is possible that rather than vacant lots “attracting” ad spaces, the presence of ads signals to landowners and real estate developers that a given area may not be an economically profitable one in which to build, resulting in more vacant lots. Longitudinal analyses would assist in elucidating the directionality of this relationship. Third, although we conceptualized vacant lots as an indicator of neighborhood decay, all lots may not be equally indicative of blight. Our data

source did not allow us to differentiate among lots that lay fallow and overrun with weeds or were subject to dumping, and those that were in the midst of new construction, or had been converted into community gardens.

Implications for Urban Health

Despite these limitations, our findings have implications for public health and well-being in African American communities. Because ad spaces tend to contain promotions for liquor (and formerly tobacco), they have often aroused the ire of community residents and activists across the nation,^{28,29} and black-oriented newspapers have given considerable attention to policies on alcohol advertising restrictions.³⁰ However, ad spaces themselves have also been described as “litter on a stick”³¹ and as destructive to community character.³² Thus, the visual disorder caused by a high density of outdoor ads may reproduce inequality by marking neighborhoods as “the ghetto” and reducing assessed value by residents and business owners. Indeed, billboards have been described as symbols that visually define ghettos.²⁶ The physical features of a community are highly visible class markers, such that in Boston’s affluent South End, “the diffuse light of the low-set lamps betrays a sense of tranquility, discretion, and privilege”.³³ What then, does an abundance of 8-sheets, bulletins and wallsapes evoke, and what feelings are they likely to engender among residents?

Research shows that perceived neighborhood disorder adversely affects mental health, increasing psychological distress^{34,35} and depressive symptoms³⁶ among residents. Some research indicates that high concentrations of alcohol density (sales and advertising) are perceived as disorder.¹⁷ Thus, it is possible that high ad space density in itself may also be perceived as disorder, and thereby act as a chronic stressor. Similarly, to the extent that individuals in predominantly African American communities perceive the proliferation of outdoor advertising as a form of racism, high ad density places people at risk of the negative outcomes associated with perceived racism, including psychological distress,^{37–39} poor mental health,^{40,41} increased smoking and drinking,^{42,43} and adverse health conditions, including cardiovascular problems.^{44–47} Future research should investigate associations between outdoor advertising and health in African American communities.

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PREVALENCE, PROXIMITY AND PREDICTORS OF ALCOHOL ADS IN CENTRAL HARLEM

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Abstract — **Aims:** This study examined the prevalence of alcohol ads, the spatial relationship between alcohol ads and schools, churches and playgrounds, and area-level determinants of alcohol ad density in Central Harlem, New York City. **Methods:** Alcohol advertising was quantified using street observation. Data on city demographics and infrastructure were obtained from the census and municipal databases. **Results:** Alcohol ads were densely distributed; almost half of ads fell within a 152 m buffer of schools, churches and playgrounds; and ad density was positively associated with retail liquor outlet density. **Conclusions:** Predominantly Black neighbourhoods continue to face high exposure to outdoor alcohol advertising, including around sites at which youth congregate.

In 1992, tobacco marketers were the largest outdoor advertisers, spending \$123 million (Outdoor Advertising Services, 2006), and research shows that Black and Latino neighbourhoods have borne a disproportionate burden of those advertisements (Ewert and Alleyne, 1992; Stoddard *et al.*, 1998). In New York City (NYC) (Graham *et al.*, 2006) and other cities, tobacco ads remain prominent through store window promotional material, but the Master Settlement Agreement in 1998 prohibited the marketing of tobacco products in standard outdoor advertising formats. In contrast to tobacco, however, alcohol advertising is unregulated. In 2002, Anheuser-Busch was ranked the #1 outdoor advertiser, spending \$49,264,700 (TNS Media Intelligence/LMR, 2004). As with findings for tobacco, communities of colour have borne the brunt of exposure to outdoor alcohol ads (Altman *et al.*, 1991; Hackbarth *et al.*, 1995; Hyland *et al.*, 2003; Mitchell and Greenberg, 1991), and these ads appear in a variety of formats and sizes, targeting both pedestrian and motor traffic.

In the 1990s, grassroots protests in several cities led outdoor media companies to voluntarily withhold advertisements of 'vice products' from within five blocks of schools, playgrounds, or houses of worship in some cities (Billboards Being Removed, 1990), and 500 feet (152 m) in others, including NYC (Neighbourhoods Fighting Signs, 1991). However, despite purported voluntary self-regulation by outdoor marketers (Outdoor Advertising Association of America, 2006a), research has shown that such ads continue to be placed in close proximity to these sites (Hackbarth *et al.*, 2001; Pucci *et al.*, 1998). At the national level, innovative local ordinances have been implemented to control alcohol retail outlets (Ashe *et al.*, 2003), but few controls are in place for alcohol advertising, as is true for NYC.

The present study sought to investigate the prevalence, proximity, and predictors of alcohol advertisements in Central Harlem, a historically segregated and predominantly Black neighbourhood in NYC. According to year 2000 data, census tracts in the neighbour ranged from 55 to 96% Black (average = 77.3%) and median household income was \$19 924 (New York City Department of City Planning, 2005).

Our research aims were as follows: First, to determine the prevalence (as measured by density) and concentration (percentage of ad spaces that promoted alcohol) of alcohol ads in Central Harlem; second, to assess the extent to which alcohol advertisements were proximal (within a 152 m buffer) to schools, churches and playgrounds; and third, to determine area-level predictors of alcohol ad density in the neighbourhood. In this paper, outdoor advertising refers to ad panels that are permanently affixed to the built environment and managed by outdoor marketing companies (e.g. wallscapes, 30-sheets, phone kiosks, bus shelters, and subway entrances).

METHOD

Data sources

In order to examine the spatial relationship between alcohol ads and schools, and to determine which neighbourhood features predicted alcohol ad density, we had to obtain the spatial location of various sites, and did so as follows: we used NYC Department of City Planning databases to identify the addresses of schools (public and private, elementary through high school), churches, and parks/playgrounds. Locations of bars were initially obtained from online databases at the New York State Liquor Authority (2006) and were later verified at street level. The addresses of retail liquor outlets were obtained only at street level. In NYC, these outlets include liquor stores, grocery stores, and bodegas, small corner stores where food and sundries are sold. Because we were interested only in standard outdoor advertising, we did not include advertisements in storefronts or bars in our analyses. In fact, bars did not contain any advertisements other than those for the establishment itself. Retail outlets often contained ads; of 162 total retail outlets, eighty five contained alcohol ads, and these were primarily located at bodegas (79%). However, these ads tended to be banners, flags, sale notices, and promotional items (e.g. neon lights), which did not meet our definition of standard outdoor advertising.

To identify the spatial location of outdoor alcohol advertisements, we conducted street-level observation. In NYC, outdoor advertising includes a variety of formats, such as large bulletins (ranging in size from 10'6" × 36' to 20' × 60'), 30-sheet posters (12'3" × 24'6"), 8-sheet posters (6' × 12')

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(SRDS Media Solutions, 2003), phone kiosks, bus shelters, and subway entrances. Again, we did not include unregulated advertisements such as banners, placards or posters placed on nonstandard formats (e.g. lampposts, scaffolding).

Procedure

Central Harlem is a densely populated area comprising 1.4 square miles. Alcohol ads within these boundaries were counted through a two-step process of systematic street-level observation. First, we completed a census of all outdoor advertising locations (Kwate and Lee, 2007). Second, after completing the census, we assessed whether locations contained alcohol ads. Outdoor media spaces tend to rotate ads once per month, with posting often occurring on Monday (SRDS Media Solutions, 2003). Thus, we investigated the presence of alcohol after the second Monday in the month, and completed assessments within 1 week. Research staff traversed neighbourhood streets and marked whether an alcohol ad was present at each location and if so, the type of alcohol (beer, liquor) was noted. Geocoding of this data, construction of prevalence levels (described below), and importation of census data (current year, 2006) were conducted by a commercial GIS firm. We completed analyses of spatial relationships between alcohol ads and schools with ArcGIS 9.1.

ANALYTIC PLAN

To quantify prevalence of environmental variables (i.e. alcohol ads, schools, churches, playgrounds, bars, and liquor retail outlets), we used a measure of average prevalence at the block group level. Simple summation of the total number of sites in a given block group fails to take into account block group size and does not account for the fact that the sites of interest affect residents in adjacent block groups (Downey, 2003). Thus, after initial geocoding of all addresses, block groups were overlain with a custom grid demarcating smaller cells measuring 60 by 60 m (approximately 1/2 of a NYC block). The number of sites within a 152 m radius from the centre of each cell in the grid were counted, and each cell within the grid received the value of that count. Finally, summing the values of exposure and dividing by the number of cells yielded the average prevalence for the block group (Downey, 2003). This grid data formed the basis of our regression analyses to assess block group predictors of alcohol ad prevalence.

RESULTS

Prevalence of alcohol ads

We counted 536 total ad spaces, and 135 of them (25%) contained alcohol ads, most of which were for beer (73.13%) and distilled spirits (26.87%). Wine was infrequent, and in contrast to other studies, very few of the beer ads we counted were malt liquor. The average exposure to alcohol ads at the block group level was 11.61 (SD = 5.88), and ranged from 0.0 to 27.27 ads. Figure 1 shows point data and varied exposure to alcohol advertising across Central Harlem.

Spatial proximity of alcohol ads to schools, churches and playgrounds

Consistent with previous research, we found alcohol ads to be spatially proximate to schools, churches and playgrounds. Figure 2 shows average prevalence, schools, and ads that fell within a 152 m buffer (churches and playgrounds are not shown). Of 135 alcohol ads, fifty nine (43.7%) were within 152 m of a school, 45% were near a church and 24% near a playground. We examined whether these proportions reflected a pattern wherein only a few locations were exposed to many ads, but found that among thirty four schools, twenty seven (79.4%) were exposed within 152 m. The same was true for 83.3% of churches and 59.1% of playgrounds.

Predictors of alcohol ad density

We investigated predictors of alcohol advertising density in block groups containing a total population and housing units each greater than 100. Only two block groups did not meet these criteria. We first examined bivariate correlations between average prevalence of alcohol ads and census and infrastructural variables that we hypothesized would be associated with ad density. We anticipated that alcohol marketers would target areas with more potential consumers (population density, housing units), young consumers (median age), low-income consumers (median household income), and Black consumers (percent Black). Additionally, because there was such a close spatial relationship between alcohol ads and schools, churches and playgrounds, we hypothesized that average exposure to these locations would be positively correlated with alcohol ads. Finally, we hypothesized that alcohol ads would be more dense in areas where consumers can readily purchase alcohol for either on- or off-premise consumption (i.e. retail liquor outlets and bars).

To test these hypotheses, we first completed bivariate correlations between these IVs and alcohol ad prevalence. Of the census variables, only percent Black emerged as significantly correlated with ad prevalence, but all infrastructural variables (e.g. schools, bars) were significantly correlated with ad prevalence. Table 1 shows descriptive statistics and correlations with ad density for statistically significant variables. Based on these preliminary correlations, we next constructed a multivariable linear regression model to assess the relative contribution of the variables in Table 1 to ad density. Table 2 shows that the regression yielded adjusted $R^2 = 0.63$, $F(6, 76) = 24.59$, $P < 0.001$. Only retail liquor outlets and churches emerged as significant predictors when controlling for other variables in the model, and each additional retail outlet corresponded to an increase of 0.857 in ad exposure. This relationship was driven primarily by bodegas, which comprised the majority of outlets (79%). Each additional church was associated with nearly one and a half fewer ads. Confidence intervals around b for churches were fairly wide, ranging from -2.181 to -0.617 , due in part to the relatively large standard error for the model. As can be seen, the correlation between churches and ad density was positive in the bivariate model, but negative in the multivariable regression. Such an instance signals the presence of a suppressor variable, a variable that suppresses variance that is irrelevant to the prediction of the DV (Tabachnick and Fidell, 1996). One

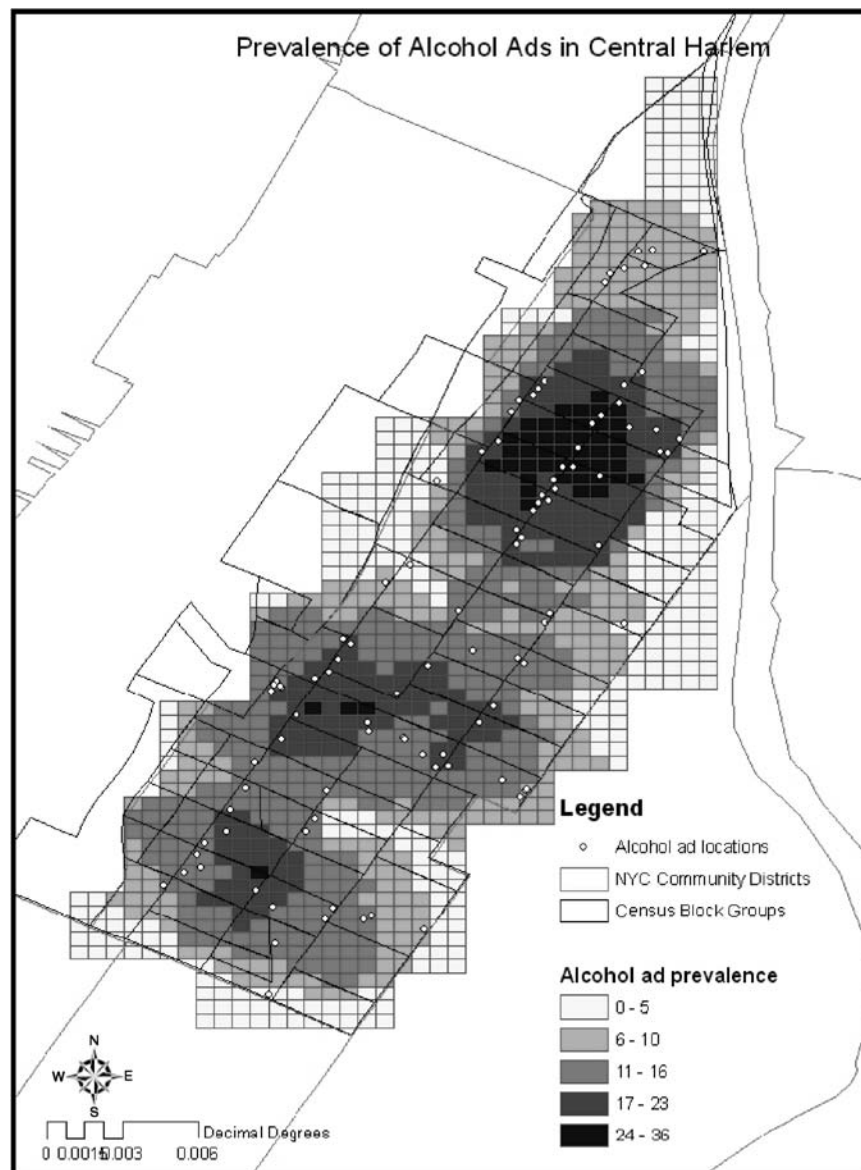


Fig. 1. Prevalence of alcohol ads in Central Harlem.

way to identify suppressor variables is to systematically omit each IV in the regression and examine changes in the regression coefficient (Tabachnick and Fidell, 1996). In our analysis, retail outlets (which was positively correlated with churches) emerged as the suppressor variable.

DISCUSSION

This study sought to examine the prevalence of alcohol ads, the proximity of alcohol ads to schools, churches, and playgrounds, and the predictors of alcohol ad density in Central Harlem. We found that on average, census block groups had a prevalence of approximately eleven alcohol ads, and that 25% of outdoor advertising spaces contained promotions for

alcohol. Additionally, almost half of alcohol ads fell within 152 m of schools and churches, while one quarter fell within 152 m of playgrounds. Finally, data showed that prevalence of alcohol ads was positively associated with exposure to retail liquor outlets, and negatively associated with churches.

The ad prevalence we detected appears to be higher than other reports. For example, a 1991 San Francisco study reported alcohol ad prevalence at 0.5 ads per 1000 residents. Our finding regarding the concentration of alcohol ads (26% of outdoor media-controlled spaces) is concordant with studies published in the 1990s. These reports found alcohol ad concentration in African American neighbourhoods to be in the range of 22 to 23.4% (Altman *et al.*, 1991; Ewert and Alleyne, 1992; Mitchell and Greenberg, 1991). Although we did not systematically assess what comprised the remaining 74% of ad content in Central Harlem, we noted that

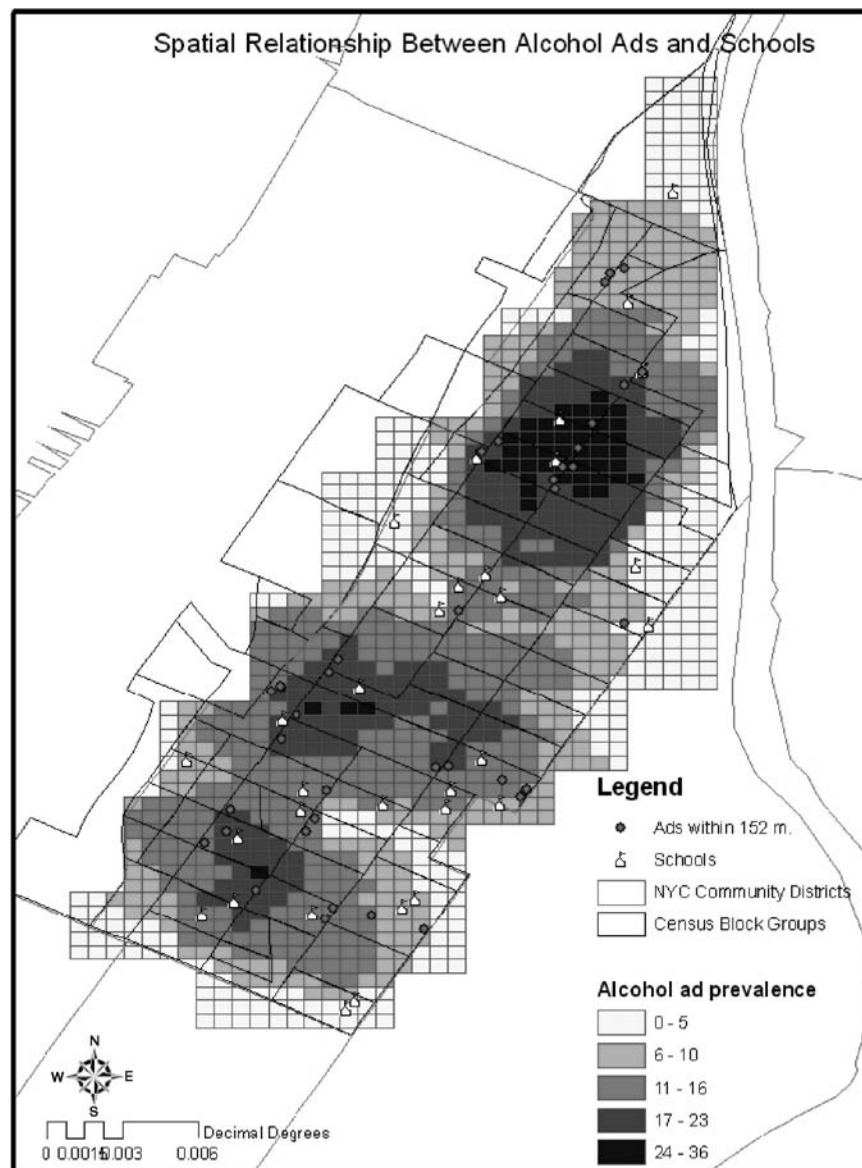


Fig. 2. Spatial relationship between alcohol ads and schools.

advertisements for a range of widely marketed commodities and services (e.g. clothing, fitness clubs, electronics) were infrequent. Instead, ads tended to be ‘public service’ oriented, such as reminders about the dangers of lead paint, or promotions for low-cost health care plans.

The Outdoor Advertising Association of America contends that its industry principles include establishing ‘exclusionary zones that prohibit stationary advertisements of products illegal for sale to minors that are intended to be read from, or within 500 feet of, elementary and secondary schools, public playgrounds, and established places of worship’ (Outdoor Advertising Association of America, 2006b). However, we did not find this goal realized in Central Harlem. Indeed, in our street observations, we frequently saw alcohol ads immediate adjacent to schools (e.g. in a bus stop on the school’s sidewalk). Taken together, our findings suggest that youth in Central Harlem are likely to have high exposure

to outdoor alcohol ads. This is of particular concern given that research has found that adolescent drinking is associated with exposure to alcohol advertising in stores (Hurtz *et al.*, in press).

Churches appeared to be ‘protected’ to some extent, as our analysis revealed that churches were negatively associated with alcohol ad density. However, the fairly large confidence limits around the coefficient for churches suggest that this result should be interpreted with some caution. The greater uncertainty for churches compared to liquor outlets may reflect their fewer numbers, and their limited dispersal throughout the neighbourhood. This is particularly true because our listing did not include storefront churches, which are absent from City Planning databases.

Retail liquor outlets were positively associated with alcohol ad density. This suggests that marketers target areas in which opportunities for advertising proximal to point-of-purchase

Table 1. Descriptive statistics and bivariate correlations in block groups

Variable	N	Mean	SD	Correlation with alcohol ad density (sig.)
Alcohol advertisement density	83	11.61	5.88	
Percent black	83	0.67	0.07	0.281 (0.010)
Retail liquor outlets	83	13.46	6.01	0.770 (0.000)
Bars	83	1.32	1.47	0.260 (0.018)
Schools	83	2.58	1.48	0.426 (0.000)
Churches	83	1.71	1.32	0.257 (0.019)
Playgrounds	83	1.41	2.01	0.325 (0.003)

Note: All variables except percent black depict values for average prevalence at the block group level.

Table 2. Regression model

Model	B	95% confidence interval for B	
		Lower bound	Upper bound
(Constant)	2.72	−6.16	11.587
Percent Black	−2.31	−16.76	12.128
Retail Liquor Outlets ^a	0.86	0.67	1.045
Bars	0.45	−0.17	1.080
Schools	0.12	−0.66	0.90
Churches ^a	−1.40	−2.18	−0.62
Playgrounds	0.29	−0.21	0.78

Note: ^aIndicates significance at $P < 0.001$.

$R = 0.812$

$R^2 = 0.660$

Adjusted $R^2 = 0.633$

Std. Error = 3.56

locations are many. In Central Harlem, most of these locations take shape in the form of bodegas. Because bodegas also sell alcoholic beverages (beer and malt liquor), their prevalence not only ‘attracts’ more standard outdoor alcohol ads, but they are also more likely to feature storefront ads. This is true for tobacco promotions as well, placards of which are hand-delivered, according to one bodega owner’s report to the first author.

Limitations and directions for future research

Some study limitations should be noted. First, we conducted our ad counts during the summer months. The data we obtained may not be generalizable throughout the year. For example, alcoholic beverage companies spend as much as 40% of their advertising budgets in November and December to generate sales for the holiday season (Hackbarth *et al.*, 1995). However, if advertising is greater at other times of the year, our results would underestimate the prevalence and concentration of alcohol advertising in Central Harlem; what is far less likely is that we have overestimated it. Nonetheless, it may be useful for future research to examine prevalence and concentration of ads at different times of the year, and for extended time durations. A second limitation is that our regression analyses did not control for possible

confounding compositional variables such as mean liquor expenditures. Third, the N for census block groups in our analyses was modest. The sample size contributed to a relatively large standard error, and thus introduced a greater level of uncertainty around regression coefficients. Fourth, a related issue is the fact that our study focused only on one neighbourhood—Central Harlem. Yet, within NYC, Central Harlem’s similarities to other Black neighbourhoods in social, economic, and land use characteristics makes it less of an isolated case study. It is possible that the trends we identified may also hold in predominantly White neighbourhoods in NYC. However, this is improbable, given that extant literature consistently documents disparities in the distribution of alcohol advertisements and retail outlets. More at issue is the extent to which our findings are generalizable to other predominantly Black urban communities.

We would argue that our results show clear relevance to Black neighbourhoods elsewhere in the U.S. To the extent that African American sections of cities across the nation are dominated by pawn shops, check cashing agencies, and liquor stores (Sugrue, 1996; Wilson, 1996), face stigmatization as culturally inferior (Pattillo, 2003) and share similar histories of racial segregation (Massey and Denton, 1993), our results speak to the nature of the built environment not only in Central Harlem, but in other cities as well. It is important to note that although median household income did not emerge as a significant predictor of alcohol ad prevalence in Central Harlem, it is possible that an inverse relationship exists in other neighbourhoods within NYC or in other cities, including those comprised of diverse racial/ethnic populations with low incomes.

In this regard, future research should investigate other determinants of the local alcohol environment. While our regression model accounted for a substantial proportion (63%) of the variance in outdoor alcohol advertisement density, variables we did not investigate are likely to exert an effect. Variables of interest might include the quality of the commercial sector or aesthetics of the built environment. Taken together, research on these and other determinants would be useful additions to the growing literature on the influence of neighbourhood context on health.

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PHOTOESSAY

Take one down, pass it around, 98 alcohol ads on the wall: outdoor advertising in New York City's Black neighbourhoods

Naa Oyo A Kwate*

A favourite song for US children taking long school trip bus rides is '99 Bottles of Beer on the Wall'. The lyrics, which are repetitive and simple, make for easy entertainment: '99 bottles of beer on the wall, 99 bottles of beer, take one down and pass it around, 98 bottles of beer on the wall. 98 bottles of beer on the wall, ...' One could sing a similar song about outdoor alcohol advertisements in Black neighbourhoods, with the exception that when these ads are taken down, new ones appear in their place.

Alcohol ads and liquor stores are disproportionately located in Black neighbourhoods,^{1,2} and the aggressive marketing of alcoholic beverages has long engendered contestations between community activists and outdoor marketers. Despite some industry concessions in the 1990s, alcohol ads remain stubbornly entrenched in these communities. The potential impact on consumption—and thereby, health risk—is significant, particularly because with outdoor ads, 'you can't turn it off, throw it away, or click on the next page. That means your message is reaching consumers everywhere—all the time, everyday'.³

This photoessay explores the ways in which alcohol is promoted in predominantly Black neighbourhoods in New York City. Photographs were taken between 2004 and 2005, primarily from Central Harlem in the borough of Manhattan, and the neighbourhoods of Clinton Hill, Crown Heights and Bedford-Stuyvesant in the borough of Brooklyn.

A vacant ad panel displays contact information for the company that owns the space. The website notes that 'All use our service to get there [sic] product and or [sic] service to the Urban community'.⁴ Outdoor marketing ranges from multinational corporations such as Clear Channel to smaller companies, such as that seen here. All offer specialized targeting of 'multicultural' or 'ethnic' populations. In general, 'outdoor's unsurpassed reach and frequency multiplied by its targeting ability (income, ethnicity, trading area) is a golden formula of success'.⁵

Many ads juxtapose alcohol with the penetration of otherwise formidable class barriers. This series for Guinness Beer (Extra Stout) profiles several fictitious Black men who have 'arrived'.

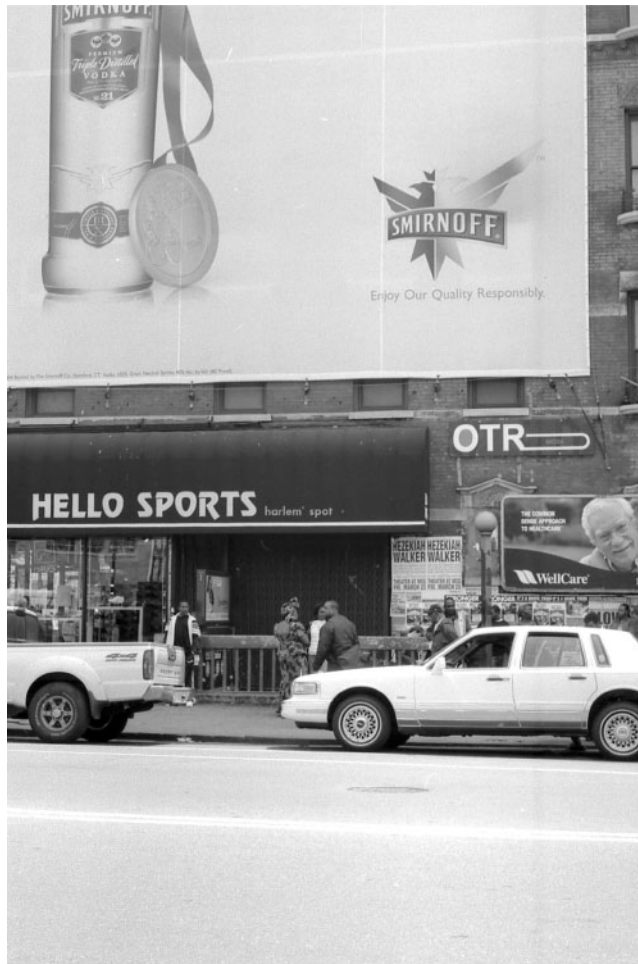
Courvoisier's XO Imperiale features a 'unique blend of very old cognacs resulting in a supremely rich product'.⁶ However,

the 'rich' in this ad clearly plays on the notion of Courvoisier as an exclusive product for those with abundant taste and economic resources. The product retails for approximately \$145; this ad appears in a census block group where the median household income in the year 2000 was \$18 245. Cognac has increasingly been marketed to Black and low-income consumers: 'Since 1994... marketers have targeted the twenty-something consumer with great success... Much of the younger brandy and cognac market skews ethnic—urban African American consumers in particular'.⁷

Outdoor marketing company Clear Channel describes wallscape as an ad format that 'towers above the streets,



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creating a spectacular landmark'. Indeed, as seen here, wallscapes can render bottles of liquor the most visually striking feature in the neighbourhood. Two adjacent sides of this building each displayed a wallscape for Smirnoff vodka that was several stories high. Because these formats are sold for extended periods, exposure levels are high. This ad appeared at the corner of Harlem's 125th St (a major shopping, motor and

pedestrian traffic artery) and St Nicholas Ave. The people in the photo are exiting a subway stop.

Given that blackness and (excessive) sexuality are linked in the US imagination,^{8,9} it is not surprising that sex and romance appear much more frequently in outdoor advertisements in Black than in White neighbourhoods.¹⁰ Young African American models are frequently depicted, as seen here. Adolescent and young adult viewers are likely to



identify with these images, and with the idea that alcohol fosters sexual attractiveness and success.

A relative newcomer to the cognac market compared with Courvoisier's centuries-old heritage, Alizé was launched in the US market in 1986. The product is 'an explosive blend of premium French cognac, fine passion fruit from exotic islands, and vodka'; Alizé Bleu was introduced in 2006, and has the highest alcohol content of the product line.¹¹ The product website features a hip-hop soundtrack and all photos depict African Americans, particularly scantily clad women—leaving no ambiguity in the intended demographic.

Here we see a forgotten bottle of malt liquor at a corner store (bodega) pay phone. Compared with the late 1980s and early 1990s, expenditures for malt liquor have shrunk compared with other beer categories. Outdoor alcohol advertising is frequently near point-of-purchase locations such as these. Sale prices for Newport cigarettes appear in the bodega window.

Whitewashing campaigns in the 1990s saw the painting over of alcohol and tobacco ads by community residents and leaders in several US cities. Here, one panel of a phone kiosk featuring a Heineken ad is obscured with cardboard. On the other side, white paint was used. These acts pointedly illustrate the extent to which community residents perceive alcohol ads as negative neighbourhood features.

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