From:	Joanne Heil
To:	licensing
Subject:	iLiquor Store - Liquor license application for December 16th meeting
Date:	Wednesday, December 09, 2015 8:13:08 AM

Good Morning:

I own a townhouse in the neighborhood of 6706 Raymond Rd and I understand you are considering an application for a liquor license for this address on December 16, 2015. As a property owner in the immediate neighborhood, I would like to go on record of opposing the opening of this liquor store for the following reasons.

In the last 9 years, property values have plummeted in this neighborhood and the crime rate has increased. There is a daycare center immediately next door to this proposed store as well. The liquor store would have a further adverse effect on what was once a desirable part of town. The fact that there is a police station up the street from this store does nothing to curb the crime that occurs daily in this neighborhood. I am putting my town house on the market in a few months and do not need a liquor store in the neighborhood turning away potential buyers. There are more appropriate areas for this store to open in and this neighborhood is not it.

Thank you,
Joanne Heil

From:	Joanne Heil
To:	McKinney, Barbara; licensing
Subject:	Proposed iLiquor Store for 6706 Raymond Rd.
Date:	Friday, December 11, 2015 8:03:37 AM
Attachments:	how-alcohol-outlets-affect-nbhd-violence.pdf liquor_store3.pdf rr2011-019.pdf

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Good Morning:

In addition to my comments that were sent on December 8 and 9 opposing the proposed liquor license application for 6706 Raymond Rd., attached are scientific studies showing how the location of liquor stores adversely affects children and community health, for your review.

Thank you,
Joanne Heil

From:	Joanne Heil
To:	McKinney, Barbara; licensing
Subject:	Proposed iLiquor Store for 6706 Raymond Rd.
Date:	Monday, December 14, 2015 9:17:23 AM

Good Morning:

In furtherance of my previous emails expressing my opposition to the liquor license for 6706 Raymond Rd., I am outlining below the distances between this proposed store with other stores that sell alcohol in the area, as well as its proximity to the Kindercare Daycare Center.

1. Woodman's Liquor Store and Grocery: 1.5 miles away from the proposed iLiquor store. This store is on the Busline and as such is very accessible for people in my neighborhood. Woodman's Liquor commonly has the best prices for alcoholic beverages on the west side of Madison.

2. Sam's Club and Walmart: 1.6 miles away from the proposed iLiquor store. These stores are on the Busline and as such are very accessible for people in my neighborhood.

3. Steve's Liquor: 2.6 miles away from the proposed iLiquor store, located on McKee Rd/PD. This store is on the Busline and as such is very accessible for people in my neighborhood.

4. Kindercare Daycare Center: 112 FEET away from the proposed iLiquor store. I am not sure why we would put a liquor store next to a place of learning. I am not sure this is the kind of example Madison wants to set for its next generation.

Thank you,
Joanne Heil

Pacific Institute
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PIRE

Translating **Science** *into* **Practice**

How Alcohol Outlets Affect Neighborhood Violence

Kathryn Stewart

Prevention Research Center
PACIFIC INSTITUTE FOR RESEARCH AND EVALUATION

www.resources.prev.org

Pacific Institute for Research and Evaluation is one of the nation's preeminent independent, nonprofit organizations merging scientific knowledge and proven practice to create solutions that improve the health, safety and well-being of individuals, communities, nations, and the world.

Introduction

Neighborhoods where bars, restaurants and liquor and other stores that sell alcohol are close together suffer more frequent incidences of violence and other alcohol-related problems, according to recent research by the Prevention Research Center and others. The strong connection between alcohol and violence has been clear for a long time – but now we know that this connection also relates to the location of places that sell alcohol.

Government agencies with authority over land-use and/or liquor licenses can help fight crime and blight and improve quality of life by controlling licenses to sell alcohol and the location of licensees. Governments can make rules that set minimum distances between alcohol outlets; they can limit new licenses for areas that already have outlets too close together; they can stop issuing licenses when a particular location goes out of business; and they can permanently close outlets that repeatedly violate liquor laws.

This paper presents some of the questions and answers about alcohol sales outlets and alcohol problems – especially the relationship between outlet location and violence.

What is the relationship between outlet density and violence?

A number of studies have found that in and near neighborhoods where there is a high density of places that sell alcohol, there is a higher rate of violence. That is, when bars, liquor stores, and other businesses that sell alcohol are close together, more assaults and other violent crimes occur.

Some of the important findings about outlet density and violence are described below.

- In a study of Camden, New Jersey, neighborhoods with alcohol outlet density had more violent crime (including homicide, rape, assault, and robbery). This association was strong even when other neighborhood characteristics such as poverty and age of residents were taken into account.[1]

- In a study of 74 cities in Los Angeles County, California, a higher density of alcohol outlets was associated with more violence, even when levels of unemployment, age, ethnic and racial characteristics and other community characteristics were taken into account.[2]

- In a six-year study of changes in numbers of alcohol outlets in 551 urban and rural zip code areas in California, an increase in the number of bars and off-premise places (e.g., liquor, convenience

and grocery stores) was related to an increase in the rate of violence. These effects were largest in poor, minority areas of the state, those areas already saturated with the greatest numbers of outlets.[3]

- Violence committed by youth was more common in minority neighborhoods where there are many outlets that sell alcohol for consumption off the premises (such as liquor and convenience stores).[4] This finding makes sense because underage drinkers are more likely to purchase alcohol in a store than in a bar or restaurant.

- In neighborhoods where there are many outlets that sell high-alcohol beer and spirits, more violent assaults occur.[5]

- Large taverns and nightclubs and similar establishments that are primarily devoted to drinking have higher rates of assaults among customers.[6]

A larger number of alcohol outlets and a higher rate of violence might be expected in poorer neighborhoods or in neighborhoods with a larger population young people. But as the research described above shows, even when levels of poverty and the age and the ethnic background of residents are taken into account, a high density of outlets is strongly related to violence regardless of a neighborhood's economic, ethnic or age status.

All of the characteristics of alcohol outlet location can be important. It is easy to see that a town with many bars, restaurants, and stores that sell alcohol could be different from one that has fewer outlets. It is also easy to see that a neighborhood that has a bar on each corner and a liquor store on each block has a completely different environment than one that has few outlets or none at all. Other characteristics of the environment make a difference, too. For example, a strip of bars near a college campus presents a different environment from a similar density of bars in an upscale city center and also different from a similar density in a poor neighborhood. But in each case, some form of increased violence would be expected as compared to comparable areas with fewer alcohol outlets. A study of changes in outlet density over time as related to violence in California found that regardless of other neighborhood characteristics, an increase in outlets increased violence. In neighborhoods with a high minority population and low incomes, the effect was more than four times greater than for the statewide sample of communities.

What accounts for the relationship between outlet density and violence?

The research that has been done so far cannot pinpoint exactly why having more outlets in a small area seems to result in more violence. Various explanations have been proposed. One is that alcohol outlets can be a source of social disorder. A liquor store parking lot full of people drinking in their cars or on the curb and broken bottles littering the area outside a bar may send a message that this is a neighborhood in which normal rules about orderly behavior are not enforced. Another possible explanation is that a neighborhood with a large number of outlets acts as a magnet for people who are more inclined to be violent or more vulnerable to being assaulted. It is also possible that a high number of outlets results in a large number of people under the influence of alcohol – which makes them both more likely to be violent and less able to defend themselves.[7] It is most probable that all of these factors come into play.

What is the relationship of outlet density to other alcohol problems?

The density of alcohol outlets has also been found to be related to other alcohol problems such as drinking and driving, higher rates of motor vehicle-related pedestrian injuries, and child abuse and neglect.[8][9]

How do governments regulate outlet density?

States and communities can regulate the number of bars, restaurants, and stores that sell alcohol in a given area. Sometimes the number and location of alcohol outlets is not limited at all. In some jurisdictions, the number of alcohol outlets is limited based on the population of the area – only so many outlets per thousand residents, for example. In other cases, the location of outlets is regulated – for example, some states or communities set minimum distances from schools or churches. Research increasingly finds, however, that geographic density is the key aspect of outlet location – that is, the distance between outlets. Where over-concentrations of outlets occur, greater problems arise.

Governments can use their regulatory powers to reduce violence by:

- Making rules that set minimum distances between alcohol outlets;
- Limiting new licenses for areas that already have outlets too close together;
- Not issuing a new license when a particular location goes out of business;
- Permanently closing outlets that repeatedly violate liquor laws (such as by selling alcohol to minors or to intoxicated persons or allowing illicit drug sales or prostitution on the premises).

What implications do these findings have for state and local licensing policies?

The research strongly suggests that limits on outlet density may be an effective means of reducing alcohol problems, especially violence. States and communities can use controls on the number and location of alcohol outlets as a tool for reducing violence, creating a safer and healthier alcohol environment, and improving the quality of life of a community.

What other alcohol policies are important?

Alcohol is a legal and widely consumed commodity; but it is also a commodity that can create a variety of serious health and social problems. Alcohol policies are an important tool for preventing these problems. Every day, states and communities make decisions about the sale of alcohol: who can sell it, when and where it can be sold, who it can be sold to. State and local laws and policies control many aspects of the system by which alcohol is manufactured, marketed, sold, purchased, and consumed.

Regulations serve a variety of purposes, for example, they help ensure that tax revenues are collected. But the regulation of the business of selling alcohol goes beyond economic concerns. Each element of the regulatory system provides opportunities for creating a healthier social environment with respect to alcohol. For example, regulations can prevent unsafe sales practices – such as prohibiting all-you-can-drink specials that encourage intoxication. Regulations can control advertising and promotion that appeals to minors and establish the minimum age and training qualifications for people who sell and serve alcohol. Each type of regulation has the potential to ensure that alcohol is consumed in a safe and healthy manner.

What aspects of alcohol availability can be regulated?

The regulation of alcohol sales can have an impact on the availability of alcohol – that is, how easy and convenient it is to buy. Some states and communities try to make alcohol less available by selling it only in limited places – for example, state liquor stores. Other communities sell it more freely – making it available in grocery stores, convenience stores, gas stations, laundromats, drive-through windows, and so forth. States and communities can also limit the hours and days of sale, and other aspects of the conditions of sale. The regulation of availability is important because research generally shows that when alcohol is more easily available, people drink more and more alcohol problems occur.

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Liquor Stores and Community Health

Excerpted from:

Measuring What Matters: Neighborhood Research for Economic and Environmental Health and Justice in Richmond, North Richmond, and San Pablo

PACIFIC INSTITUTE
654 13th Street, Oakland, CA 94612
www.pacinst.org

In partnership with West County Toxics Coalition, Neighborhood House of North Richmond, Contra Costa Interfaith Supporting Community Organization, Historic Triangle Neighborhood Council, Morada de Mujeres del Milenio, North Richmond Shoreline Open Space Alliance, and Richmond Progressive Alliance

With support from The California Wellness Foundation, The San Francisco Foundation, East Bay Community Foundation, The Wallace Alexander Gerbode Foundation, Y & H Soda Foundation, Rose Foundation for Communities and the Environment, California Environmental Protection Agency, Firedoll Foundation, Robert & Patricia Switzer Foundation, and The California Endowment

The full report is available at http://www.pacinst.org/reports/measuring_what_matters/

LIQUOR STORES AND COMMUNITY HEALTH

A liquor store across the street from Nystrom Elementary School in Richmond

An eighth grade Helms Middle School student sets out on his ten-block walk to school. He has an assignment to track what he sees on his walk. A block from his home, he stops at the first store to buy something to drink—it is a liquor store. He leaves with a soda. He has barely begun drinking it before he reaches the next liquor store. He decides to buy a soda at every liquor store he passes as an indicator of how prevalent these stores are in his neighborhood. He continues his walk to school. He does not go into a few of the liquor stores because he is nervous about the activity happening in front of them. By the time he gets to school, he has collected six soda cans over just ten blocks.[1]

High exposure to liquor stores and the easy availability of alcohol in the community affects this San Pablo eighth grader and the public health, safety, and quality of life of his community. On his walk to school, he may be exposed to public drunkenness, harassment of passers-by, and criminal activities—like gambling, prostitution, and drug dealing—that contribute to an environment of social disorder around many liquor stores. At the community level, these stores can act as magnets for crime and violence and expose residents to potential harm.

A high density of liquor stores can contribute to a variety of health and safety problems. Studies show that neighborhoods with higher concentrations of liquor stores also have higher rates of alcohol-related hospitalizations, drunk driving accidents, and pedestrian injuries.[2, 3]

A recent study across all California zip codes found that neighborhoods with a higher density of liquor stores had higher numbers of childhood accidents, assaults, and child abuse injuries.[4] Liquor stores become places where social controls are weaker, increasing the likelihood of criminal and nuisance activities.[5] A high density of liquor stores is linked to higher levels of crime and violence.[6, 7, 8] A study conducted in Los Angeles found that each new liquor store in a neighborhood resulted in 3.4 more assaults per year.[9] In New Jersey, researchers found that the number of liquor stores was the single most important environmental predictor of why some neighborhoods have higher crime rates than others—a stronger predictor than unemployment rate or median household income.[10]

Since merchants often use storefronts to advertise alcohol products, the concentration of liquor stores also influences the amount of alcohol advertising in a community. This advertising can have a powerful impact over time, especially when the advertisements are located in areas where youth often congregate or pass by. Exposure to alcohol advertising on television has been related to youth having positive attitudes about the social uses of alcohol.[11, 12] The influence of this advertisement is especially troubling for youth whose immediate physical and social environments are dominated by liquor stores and alcohol advertisements.

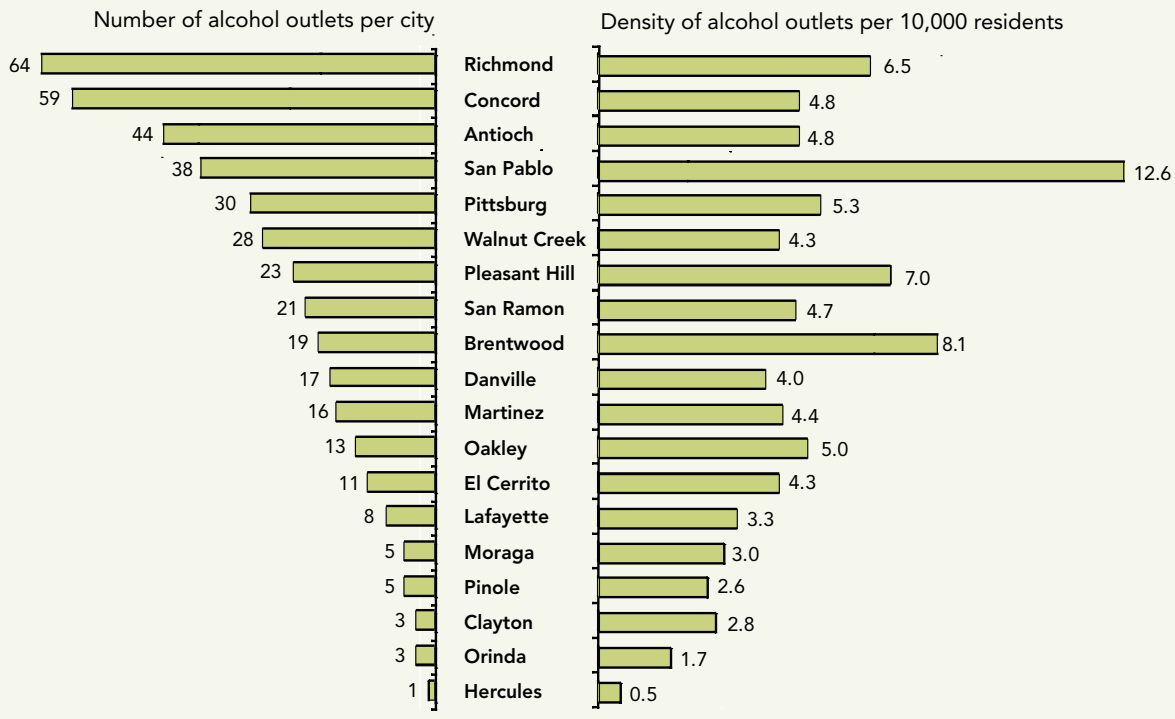
This high concentration of liquor stores and outdoor alcohol advertising disproportionately affects low-income communities of color. Research shows that black people face higher exposure to liquor stores in their neighborhoods than do white people, and similarly nonwhite youth live in neighborhoods with higher concentrations of liquor stores than white youth.[13, 14] For example, a study found that West Oakland—home to predominantly people of color—contains one liquor store for every 298 residents, while the largely white neighborhood of Piedmont has one liquor store for every 3,000 residents.[15] As a result, communities like West Oakland tend to have far more access to liquor stores and alcohol than to grocery stores and fresh produce.

A high density of liquor stores also contributes to economic and social disintegration.[16] Similar to power plants and refineries, alcohol outlets represent a form of locally unwanted land use that conflicts with desirable land uses such as schools, parks, and residences. The over-concentration of liquor stores increases the perceived lack of safety and limits walkability in the community. Moreover, concentrations of liquor stores in a neighborhood can constrain economic opportunities for current and new businesses and therefore are both a symptom and accelerator of economic decline.

WHAT DID OUR RESEARCH FIND?

We looked at two indicators of youth and resident exposure to liquor stores: 1) liquor store density and 2) proximity of liquor stores to schools or parks. We looked only at alcohol outlets that are not grocery stores and that sell liquor for consumption off the premises. Similar to most of the studies cited above, we did not look at full-service grocery stores that sell alcohol, as these stores do not present the same types of risks (easy access to liquor, storefront advertising) as liquor stores.

Figure 1. NUMBER AND DENSITY OF ALCOHOL OUTLETS PER CITY, CONTRA COSTA COUNTY, 2006[17,18]



Total off-site outlets in cities in Contra Costa County: 408

Liquor Store Density

This indicator examines the number of liquor stores in an area in relation to the size of the population that lives there. It allows us to compare the density of liquor stores across Contra Costa communities of varying populations and determine the communities that have the highest concentrations.

Richmond and San Pablo have 25% of Contra Costa County's liquor stores, but less than 14% of its population.

Figure 1 shows the number and density of alcohol outlets within each Contra Costa County city. The cities of Richmond, Concord, Antioch, and San Pablo have the most liquor stores. San Pablo and Richmond neighborhoods—compromised mostly of people of color (84% and 79% respectively)—have 12.6 and 6.5 liquor stores for every 10,000 residents. In contrast, neighboring Orinda and Lafayette—both 16% people of color—have 1.7 and 3.3 liquor stores for every 10,000 residents, respectively. In fact, Richmond and San Pablo are home to a quarter (25%) of Contra Costa County's liquor stores, but represent less than 14% of the county population.

Proximity of Liquor Stores to Schools and Parks

Land-use compatibility is an important component of the well-being and health of communities. Liquor stores in close proximity to schools and parks expose youth to the negative effects of alcohol outlets and advertising. This indicator measures the number of liquor stores within 1,000 feet of a school or park.[19]

Figure 2 shows the proximity of liquor stores to schools and parks in West County neighborhoods. Each school and park is encircled by a 1,000-foot radius (or buffer) to determine whether liquor stores are located within short walking distance. Almost 60% of West County schools and parks are within 1,000 feet of a liquor store. In fact, roughly 30% of parks and schools in West County are within 1,000 feet of two or more liquor stores.

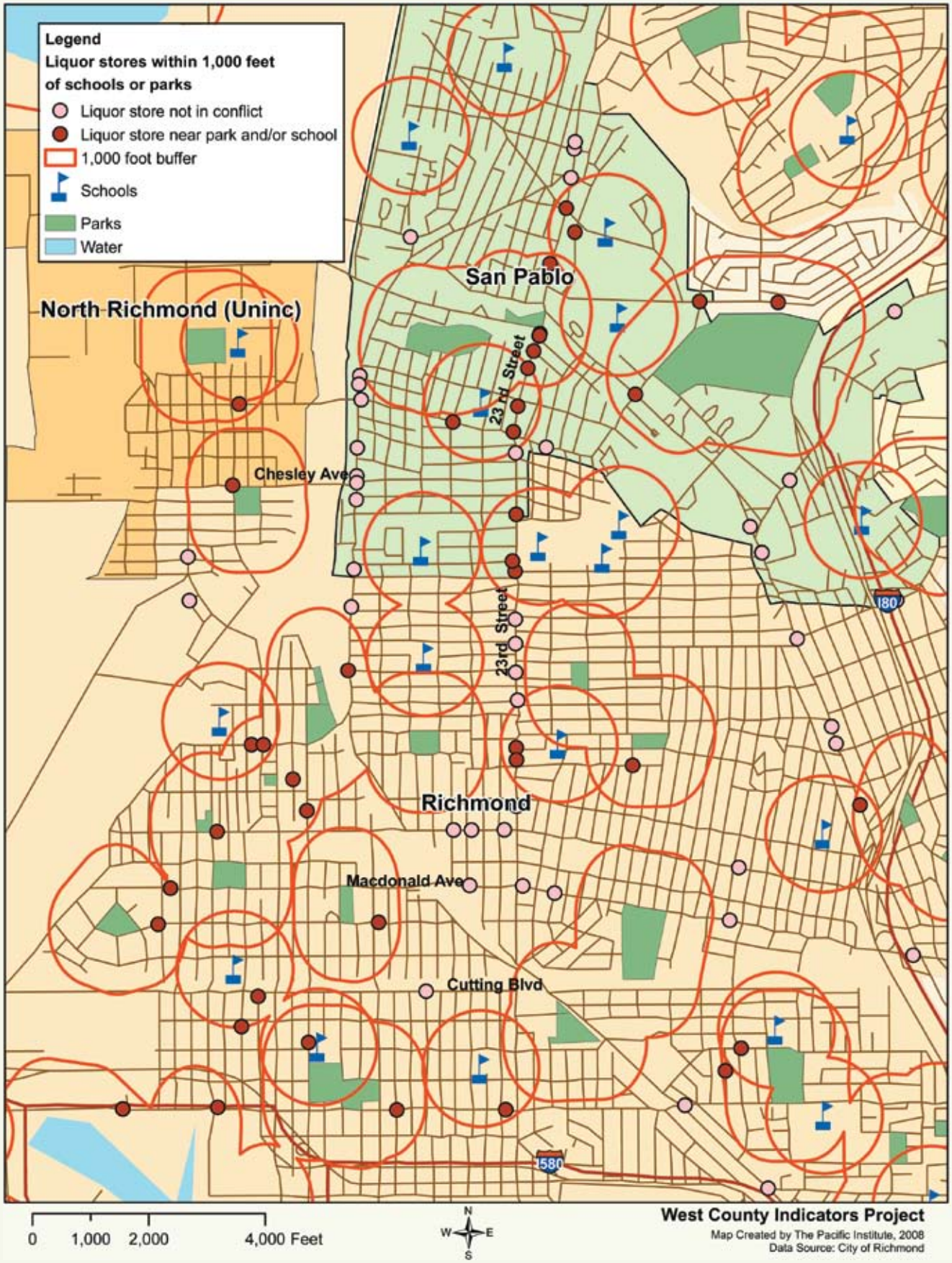
Table 1 shows, for each city in Contra Costa County (excluding the cities with zero liquor stores), the number of liquor stores located within 1,000 feet of any park or school, along with the median household income and the percentage of residents of color.

Table 1. CITIES WITH ONE OR MORE LIQUOR STORE WITHIN 1,000 FEET OF ANY PARK OR SCHOOL, CONTRA COSTA COUNTY, 2006

City	Liquor stores within 1,000 ft of a park or school	Total liquor stores in city	Median Household Income (Census 2000)	Percent People of Color (Census 2000)
Moraga	1	5	$ 98,080	22%
Pinole	2	5	$ 62,256	52%
San Ramon	2	21	$ 95,856	28%
Danville	3	17	$ 114,064	17%
El Cerrito	2	11	$ 57,253	46%
Lafayette	3	8	$ 102,107	16%
Pleasant Hill	4	23	$ 67,489	23%
Brentwood	5	19	$ 69,198	37%
Walnut Creek	5	28	$ 63,238	19%
Pittsburg	6	30	$ 50,557	69%
Antioch	7	44	$ 60,359	44%
Martinez	8	16	$ 63,010	24%
San Pablo	14	38	$ 37,184	84%
Concord	20	59	$ 55,597	39%
Richmond	25	64	$ 44,210	79%
Contra Costa County	113	388	$ 63,675	37%

Note: Cities not listed were found to have zero liquor stores near schools or parks.

Figure 2. PROXIMITY OF LIQUOR STORES TO SCHOOLS OR PARKS IN WEST COUNTY NEIGHBORHOODS, 2006



WHAT DOES THIS MEAN FOR WEST COUNTY?

When we step back and compare the cities of Richmond and San Pablo to the surrounding county, we find that an unusually high number of schools and parks in these cities are within a short walking distance of a liquor store. The five cities with the highest numbers of liquor stores near parks and schools all have median household income below the county median of $63,675.

It is evident that West County youth have far more liquor stores within their immediate environment compared to the rest of the county. In fact, 39 of the 113 (35%) liquor stores within 1,000 feet of a school or park in Contra Costa County are located within the cities of Richmond and San Pablo—the two cities in Contra Costa County with the highest percentage of nonwhite residents.

WHAT CAN WE DO?

In California, like many others states, the rules on issuing and revoking licenses to sell alcohol are set by the State; however, local governments have authority to regulate land use to protect the health, welfare, and safety of citizens. Many municipalities, including the cities of San Pablo[20] and Richmond,[21] have zoning ordinances in place that restrict the development of new liquor stores by enforcing minimum distance requirements either between outlets or between liquor stores and schools or parks. While these ordinances are successful at preventing the establishment of new liquor stores, they do not address the health and safety problems associated with existing ones. Below are successful approaches carried out by other cities across the state designed to address existing liquor stores in their communities:

Students walk home from Peres Elementary School in Richmond.

Enforce property maintenance and environmental design guidelines of liquor stores, particularly those in close proximity of schools and parks.
Environmental Prevention in Communities (EPIC) carried out a youth-driven survey of liquor stores in the city of Oakland. The survey assessed the number of outlets that were not in compliance with environmental design guidelines of the city. Results provided evidence for enforcement of design standards, including restrictions on storefront liquor advertising.[22]

Assist with conversion of liquor stores to other retail that meets community needs, such as access to healthy food.
Because many liquor stores are also independently owned corner stores, they can transition to other forms of retail that are greater assets to the neighborhood. To facilitate this transition, cities and counties could provide redevelopment dollars, credit for repair and loans, and business plan development assistance.[23]

Enforce ordinances to restrict nuisance activities around liquor stores.
Both the City of Oakland and the City of San Francisco passed legislation that strengthens local control and holds liquor store owners accountable for addressing nuisance and crime issues connected to their stores, such as litter, loitering and graffiti, assault, and prostitution.[24] Liquor store permits are revoked if proof of serious issues is obtained and violations persist.

COMMUNITY RESOURCES FOR INFORMATION AND CHANGE

California Department of Alcohol Beverage Control

www.abc.ca.gov

The Department of Alcohol Beverage Control (ABC) is the state agency responsible for "the protection of the safety, welfare, health, peace, and morals of the people of the State, to eliminate the evils of unlicensed and unlawful manufacture, selling, and disposing of alcoholic beverages, and to promote temperance in the use and consumption of alcoholic beverages… (for) the economic, social, and moral well-being and the safety of the State and of all its people."

City of Richmond City Council Meetings

www.ci.richmond.ca.us/index.asp?NID=29

Meetings are held on the first and third Tuesday of every month at City Hall, 1401 Marina Way South, Richmond CA 94804.

City of Richmond Neighborhood Council Meetings

Richmond Neighborhood Council meetings are typically held monthly in a community center in each neighborhood. For a particular neighborhood council meeting time and location, visit: www.ci.richmond.ca.us/DocumentView.asp?DID=306.

San Pablo City Council Meetings

www.ci.san-pablo.ca.us/main/citycouncil.htm

Meetings are held on the first and third Mondays of each month at 7:00 p.m. in the City Hall Council Chambers located at 13831 San Pablo Avenue.

The Marin Institute

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The Marin Institute works to protect the public from the impact of the alcohol industry's negative practices. The Institute serves as a resource for solutions to community alcohol problems by helping develop environmental prevention strategies, alcohol policy, and media advocacy. Access to fact sheets, community success stories, and other tools for success are also available through their website.

RESEARCH METHODS

Accessing Liquor Store Data

Information on the locations of businesses with licenses to sell alcohol comes from the California Department of Alcohol Beverage Control (ABC). To access a list of the current alcohol licenses in your city, go to the ABC website: www.abc.ca.gov/datport/SubscrMenu.asp. At this website, you may choose the type of information you would like to view by selecting from a list of reports available. For a list of the alcohol licenses in your city, select the "Query by City and License Type information" ad-hoc report near the bottom of the page. On the next page, you can select your city and the type of alcohol license you are interested in. For our research, we focused on "Active Off-Sale Retail Licenses," or businesses that sell alcohol to be consumed off the business property. If you select Active Off-Sale Retail Licenses, the next page will provide a full list of the businesses in your city with this type of license, including the addresses and owner name. By clicking on the license number of a specific store, you may also view detailed information about that business, including past violations of relevant laws. The laws and penalties related to alcohol businesses are available on the ABC webpage: www.abc.ca.gov/LawsRulesReg.html.

The information on the density of liquor stores per 10,000 city residents was produced using the alcohol license data from ABC along with Census data on the number of residents per city. To obtain Census data on the total population per city and town in your county, follow the steps described in the Demographics Research Methods section on page 105. To calculate the number of liquor stores per 10,000 residents, use the following formula: number of liquor stores in the city, divided by the city's total population, multiplied by 10,000.

For our research on the number of liquor stores near parks and schools per city, we used the computer mapping software ArcGIS. The ArcGIS buffer analysis tool was used to identify the parks and schools within 1,000 feet of liquor stores. For detailed methods for our analysis with ArcGIS, please contact the Pacific Institute: info@pacinst.org; 510.251.1600.

REFERENCES

1 Story is adapted from a conversation on June 19, 2008, with Antonio Medrano, a retired community college and high school teacher. The original mapping exercise, designed by Medrano, was actually carried out with teachers at Helms Middle School to understand the surrounding environments their students were exposed to on their daily walk to and from school. Helms Middle School is located in the city of San Pablo.

2 Rabow, J., and R.Watts. (1983). Alcohol availability and alcohol-related problems in 213 California cities. *Alcoholism, Clinical and Experimental Reserach.* 7:47–58.

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15 Mack, R. (1997). Bringing down the walls of pre-emption: California cities fight for local control of alcohol outlets. *African American Law and Policy Report* 3(1): 195–324.

16 Maxwell, A., and D. Immergluck. (1997). Liquorlining: liquor store concentration and community development in lower-income Cook County (IL) neighborhoods. Chicago, IL: Woodstock Institute.

17 Alcohol outlets include liquor stores and other retail outlets that sell liquor for consumption off the premises. This figure excludes full-service grocery stores that sell alcohol.

18 Figure 1 only includes Contra Costa County cities; it does not include unincorporated areas or census designated places (CDP) of the county.

19 On average, a person will walk 1,000 feet in less than five minutes. This distance was chosen as an estimate of the short distance that students at a school, users of a park, and customers of liquor stores would easily travel.

20 San Pablo, California, Municipal Code 17.30.020: Alcohol Beverage Sales (2008).

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The Association between Density of Alcohol Establishments and Violent Crime within Urban Neighborhoods

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Abstract

Background. Numerous studies have found that areas with higher alcohol establishment density are more likely to have higher violent crime rates but most of these studies did not assess the differential effects of type of establishments or the effects on multiple categories of crime. In this study, we assess whether alcohol establishment density is associated with four categories of violent crime, and whether the strength of the associations varies by type of violent crime and by on-premise establishments (e.g., bars, restaurants) versus off-premise establishments (e.g., liquor and convenience stores).

Methods. Data come from the city of Minneapolis, Minnesota in 2009 and were aggregated and analyzed at the neighborhood level. Across the 83 neighborhoods in Minneapolis, we examined four categories of violent crime: assault, rape, robbery, and total violent crime. We used a Bayesian hierarchical inference approach to model the data, accounting for spatial auto-correlation and controlling for relevant neighborhood demographics. Models were estimated for total alcohol establishment density as well as separately for on-premise establishments and off-premise establishments.

Results. Positive, statistically significant associations were observed for total alcohol establishment density and each of the violent crime outcomes. We estimate that a 3.9% to 4.3%. increase across crime categories would result from a 20% increase in neighborhood establishment density. The associations between on-premise density and each of the individual violent crime outcomes were also all positive and significant and similar in strength as for total establishment density. The relationships between off-premise density and the crime outcomes were all positive but not significant for rape or total violent crime, and the strength of the associations was weaker than those for total and on-premise density.

Conclusions. Results of this study, combined with earlier findings, provide more evidence that community leaders should be cautious about increasing the density of alcohol establishments within their neighborhoods.

Key words: Alcohol outlets, violent crime, neighborhood

Introduction

Research has found alcohol use to be associated with various types of criminal behaviors, including vandalism, rape, assault, and homicide (Greenfield, 1998, McClelland and Teplin, 2001). This relationship exists between multiple types of crime with varying degrees of severity; however, alcohol use is most strongly associated with violent criminal behavior (Greenfield, 1998). Intoxicated offenders are more likely to commit homicide, physical assault, and sexual assault than engage in other nonviolent offenses, such as burglary and theft (Felson and Staff, 2010). Victims are more likely to sustain both minor and serious injuries during a violent crime when alcohol is involved (Brecklin, 2002, Rand et al., 2010). A proven effective approach to reduce alcohol-related violent crime is to target environmental factors associated with alcohol use, such as the availability of alcohol. When these environmental issues are addressed, alcohol use and related problems decrease (Grossman et al., 1994, Popova et al., 2009, Wagenaar and Toomey, 2002). One factor shown to affect alcohol availability is the number of or density of alcohol retail establishments in an area (Voas and Fell, 2010).

Numerous studies have assessed the relationship between the density of alcohol establishments and rates of violent crime. Several older studies examined effects of alcohol establishment density in fairly large geographic areas such as states or cities but these were found to be fairly imprecise due to the variability in density of establishments within large areas (Gorman et al., 1998, Scribner et al., 1995, Stitt and Giacopassi, 1992). More recent studies have used smaller geographic units, such as the neighborhood, block or census tract level. Overall, these more recent studies have found that areas with higher alcohol establishment density are more likely to have higher violent crime rates, although some differences were found across studies as outlined below.

Most studies have examined the combined effects of all types of alcohol establishments including on-premise establishments (e.g., bars, restaurants) and off-premise establishments (e.g., liquor stores, grocery stores); these studies have consistently found a positive relationship between alcohol establishment density and violent crime (Franklin et al., 2010, Gorman et al., 2005, Gyimah-Brempong and Racine, 2006, Livingston, 2008a, Livingston, 2008b). Studies assessing effects of on-premise versus off-premise establishments separately have found inconsistent results. Approximately half of the analyses examining the relationship between density of *on-premise* alcohol establishments and violent crime found a positive relationship (Gruenewald et al., 2010, Livingston, 2008a, Scribner et al., 2010) and the rest found no relationship (Franklin et al., 2010, Gorman et al., 2005, Livingston, 2008b). Three studies examined effects of bar and restaurant density separately and also found mixed results (Gruenewald et al., 2006, Gruenewald et al., 2010, Lipton and Gruenewald, 2002); two of the analyses of effects of bar density on violent crime showed a positive relationship (Gruenewald et al., 2010, Lipton and Gruenewald, 2002) and two showed no relationship (Gruenewald et al., 2006, Gruenewald et al., 2010); three of the analyses of effects of restaurant density on violent crime results found no relationship (Gruenewald et al., 2006, Gruenewald et al., 2010) and one suggested a negative relationship (Lipton and Gruenewald, 2002). Similar to on-premise establishments, slightly more than half of the analyses examining the association between *off-premise* alcohol establishments and violent crime identified a positive association (Gorman et al., 2005, Gruenewald et al., 2006, Gruenewald et al., 2010, Livingston, 2008b, Scribner et al., 1999, Alaniz et al., 1998) and the remaining analyses found no relationship (Franklin et al., 2010, Lipton and Gruenewald, 2002, Livingston, 2008a, Scribner et al., 2010, Zhu et al., 2004).

Studies have differed on the type of violent crime outcomes assessed. Several studies used crime categories like the FBI's Uniform Crime Report (UCR) Part I offenses, which include but are not limited to rape, assault, homicide and robbery (Franklin et al., 2010, Gyimah-Brempong and Racine, 2006, Scribner et al., 2010). Researchers who have used an aggregate of Part I offenses as a single violent or severe crime variable have found a positive relationship between alcohol establishment density and total violent/severe crime (Britt et al., 2005, Franklin et al., 2010, Gorman et al., 2001, Gorman et al., 2005, Gyimah-Brempong and Racine, 2006, Speer et al., 1998, Zhu et al., 2006, Zhu et al., 2004). Results of studies assessing the relationship between density of establishments and a single category of violent crime vary somewhat by the type of crime. Studies examining the relationship between assaults and total establishment density have found positive associations (Lipton and Gruenewald, 2002, Livingston, 2008a, Livingston, 2008b, Nielsen and Martinez, 2003, Reid et al., 2003, Franklin et al., 2010); however, mixed results are seen when effects of off- and on-premise establishments are disaggregated (Franklin et al., 2010, Gruenewald et al., 2006, Gruenewald et al., 2010, Lipton and Gruenewald, 2002, Livingston, 2008a, Livingston, 2008b). In general, robbery is positively associated with alcohol establishment density but research is limited to only three studies (Franklin et al., 2010, Nielsen and Martinez, 2003, Nielsen et al., 2005). The relationship between alcohol establishment density and homicide is not clear: three studies found a positive relationship (Gyimah-Brempong, 2001, Gyimah-Brempong and Racine, 2006, Scribner et al., 1999) and another study found no association (Franklin et al., 2010). Alcohol establishment density as related to sexual offenses has only been investigated in one study and was found to be positively associated with the total number of establishments within a census tract (Franklin et al., 2010).

Previous research on alcohol establishment density and violent crime has several limitations. Only one third of the studies assessed the differential effects of type of establishments (on-premise, off-premise, and total) (Franklin et al., 2010, Gorman et al., 2005, Lipton and Gruenewald, 2002, Livingston, 2008a, Livingston, 2008b, Scribner et al., 1999, Zhu et al., 2004) and only one included multiple categories of violent crime (Franklin et al., 2010). Additionally, many of the earlier studies did not assess or control for spatial autocorrelation, potentially resulting in a Type I error. Geographic units, such as neighborhoods, may contribute to crime occurring in nearby units; thus, these geographic units may not be independent (Banerjee, 2004, Cliff and Ord, 1981). Furthermore, most studies assessing effects of alcohol establishment density have been limited to specific geographic areas; we identified only one study conducted within Midwestern states in the U.S. (Britt et al., 2005)

The purpose of this study is to answer the following questions: (1) Is alcohol establishment density associated with different violent crime categories, including, assault, rape, robbery, and total Part I and II violent crime?; (2) Does the strength of the associations vary by type of violent crime?; (3) Does the strength of the associations vary by density of on-premise versus off-premise alcohol establishments?

Materials and Methods

This two-year study examined the associations between alcohol establishment density and multiple types of violent crime in neighborhoods in Minneapolis, Minnesota.

Neighborhoods. We used neighborhood, as designated by the city of Minneapolis, as the geographic unit of analysis. Many previous studies examining effects of alcohol establishment density used smaller geographic units of analysis such as census tracts and census blocks, which have the advantage of greater statistical power; however, these units are not based on theory.

Collective efficacy provides the theoretical basis for our selection of neighborhood as the unit of analysis. Collective efficacy is defined by Sampson and colleagues (1997) as "the linkage of cohesion and mutual trust with shared expectations for intervening in support of neighborhood social control". Residents within a neighborhood may identify more with each other than with residents from other neighborhoods. Residents within a neighborhood also often work collectively to shape the development of the neighborhood and increase safety.

Minneapolis has 87 neighborhoods as defined by the City. We excluded three of these neighborhoods because they were industrial areas with no residents. We also excluded one neighborhood that had a 96% decline in its population between 1990 and 2000 resulting from an urban renewal project, leaving 83 neighborhoods that we used in our analyses. Population size across these 83 neighborhoods ranged from 128 to 15,247 (mean = 4,607), with the percentage of the neighborhood population that is Caucasian ranging from 15.0% to 94.9%.

Alcohol establishments. In 2009 we obtained a list of 663 licensed alcohol establishments from the Minneapolis Department of Regulatory Services. We identified and removed 40 duplicates, resulting in a final list of 623 establishments (503 on-premise establishments, 120 off-premise establishments). We geocoded addresses for the alcohol establishments using an address locator in ArcGIS and 2009 street address data from the Twin Cities Metropolitan Council; establishments were then assigned to neighborhood. Fourteen of the addresses did not have a 100% accuracy score; for these addresses we used other sources (i.e., Google Maps, Bing Maps, etc.) to confirm the accuracy of the address and assign each establishment to a neighborhood. See Figure 1 for a map of all establishments.

We developed three alcohol establishment density measures: (1) total establishment density, (2) on-premise establishment density, and (3) off-premise establishment density.

Because people move through their neighborhoods on roadway systems, we characterized alcohol establishment density based on these functional paths people take in their community—we calculated density as the number of establishments per roadway mile (Gruenewald et al., 1996, Lipton and Gruenewald, 2002). Our first step in calculating roadway miles was to remove alleys and freeway on/off ramps. Second, if a regular undivided road was on the border of two neighborhoods, we assigned the road equally to both neighborhoods. In our calculations, highways, freeways, and other divided roads were not double counted—in other words they were treated the same way as undivided roads. For roads that crossed neighborhood boundaries, we assigned the part of the road that fell within a given neighborhood to that neighborhood. We obtained information about roadway miles from the Minnesota Population Center at the University of Minnesota.

Crime. We obtained Uniform Crime Report (UCR) Part I and Part II crime data from the Minneapolis Police Department (MPD) for the time period from October 1, 2008 to September 30, 2009 (the most recent data available at the time of data collection). This dataset included the primary offense for each incident. We checked the accuracy of the address coordinates indicating the crime locations (e.g., latitude/longitude) by geocoding a subset of the crime incidents using an address locator in ArcGIS and 2009 street/address data from the Twin Cities Metropolitan Council. Because we found that the MPD address coordinates had a high level of accuracy (each coordinate was within 36 yards) we used these coordinates to assign crime incidents to the appropriate neighborhood when available. If a reported crime did not include coordinate information, we geocoded the address using the ArcGIS address locator. If an address for a crime fell outside the boundaries of Minneapolis, it was deleted from our final dataset. Ninety-nine percent of the crimes were successfully mapped and assigned to a Minneapolis neighborhood.

Crimes that fell on neighborhood boundaries were randomly distributed into neighborhoods that shared the boundary (1.04%). Figure 2 shows the raw standardized crime ratios (SCRs) for each crime outcome. SCRs are defined as 100 times the ratio of observed crime counts to the number we would have expected had the crime in question been uniformly distributed across the entire study region.

For these analyses, we include four violent crime categories that previous research/theory has shown to commonly be alcohol-related: assault (range = 0 - 128 per neighborhood, mean = 21), rape (range = 0 - 34 per neighborhood; mean = 4), robbery (range = 0 - 97 per neighborhood; mean = 19), and a combination of Part I and Part II violent crime that includes homicide, assault, rape, robbery, malicious punishment of a child, sexual molestation, and abuse of a vulnerable adult (0 to 272 per neighborhood; mean = 53). We considered assessing the association between alcohol establishment density and other specific crime categories (e.g., homicide), separately; however, the incidence was low (e.g., there were only 24 homicides in Minneapolis during that year and 75% of the neighborhoods did not have any homicides).

Neighborhood Demographics. We reviewed the research literature on the associations between alcohol establishment density and crime to identify neighborhood-level variables that had been found to be theoretically and empirically important in previous studies. Based on the work of previous studies (Kikuchi and Desmond, 2010, Morenoff et al., 2001), we created an index measuring economic and racial characteristics that was based on composite measures used in similar studies. This composite index included seven U.S. 2000 Census measures (we obtained all Census data from the City of Minneapolis at http://www.ci.minneapolis.mn.us/citywork/planning/census2000/): (1) percent female-headed

households (number households female householder with no husband present and own children < age 18 years divided by total number of households); (2) percent rental housing units (specified renter-occupied units divided by total number of housing units); (3) percent of families below poverty (number of families below poverty level divided by number of families for whom poverty status is determined); (4) percent unemployment (number unemployed in civilian labor force among those ≥ age 16 years divided by number in civilian labor force among those ≥ age 16 years); (5) median household income; (6) median home value; and (7) percent white (number of Caucasian divided by total population). These seven variables were standardized (mean=0, standard deviation = 1) and summed to create the index (range of index values: -13.14 to 10.688). The index had a high internal consistency, with an alpha coefficient of 0.87. We also included two other neighborhood demographic variables in our analyses: total persons aged 15-24 years and population density (total population divided by roadway miles). Percentage of males was also considered, but showed very little variability across neighborhoods and was not included in these analyses.

When using neighborhood-level Census data, an important question to answer is how much misalignment there is between the boundaries of neighborhoods and the Census block groups. Using ArcMap spatial analysis tools, we calculated this misalignment. We found that most of the misalignment occurred primarily in industrial areas that did not have residents. Excluding these areas, we found misalignment in less than 1% of residential areas, suggesting there is negligible bias in our census estimates resulting from misalignment.

Analyses. We used a Bayesian hierarchical inference approach to model the data. Unlike in a frequentist approach where model parameters are fixed values estimated from the data, the Bayesian approach views model parameters as random variables with a distribution that reflects

prior knowledge. Inferences are based on the *posterior* distribution of all parameter estimates obtained by combining this prior knowledge with the information from the collected data. The Bayesian approach is particularly well-suited for the complex, hierarchical models that are needed for spatially correlated data. For an overview on Bayesian statistical methods, see Carlin & Louis (2009).

We modeled crime counts from each neighborhood using a Poisson likelihood, where the expected number of crime incidents in the i^{th} neighborhood is where E_i is the number of crime incidents we would see in the i^{th} neighborhood if crime was uniformly distributed across the city, calculated by multiplying the number of roadway miles in the neighborhood by the city-wide crime per roadway mile rate. In addition, $\mathbf{x}_i$ denotes the vector of neighborhood-specific covariates, $\boldsymbol{\beta}$ is a corresponding vector of coefficients, and θ_i represents random (non-spatial) error. By contrast, φ_i are random effects that capture the spatial autocorrelation between the neighborhoods using the conditionally autoregressive (CAR) model first used in this context by Besag et al. (1991). We analyzed all models using the OpenBUGS software package, Version 3.1.1 (Lunn et al., 2009).

Because the $\boldsymbol{\beta}$ coefficients can be challenging to interpret, we also calculated the percent increase in model-predicted violent crime associated with a 20% increase in alcohol density in a neighborhood of average establishment density. The densities in our model were first standardized to have mean 0 and standard deviation 1 and thus, we compute this percentage as 100 times the quantity:

This is also the percent increase in crime that would be predicted to result from an increase in alcohol density in *any* neighborhood by 20% of the average alcohol density; i.e., all that matters is the size of the increase, not the baseline rate. We also remark that these values vary widely across the total (mean 0.577, SD 0.925), on-premise (mean 0.471, SD 0.862) and off-premise (mean 0.106, SD 0.127) cases, due to the comparative rarity of off-premise establishments in our study area.

Results

The number of reported crime incidents varies across neighborhoods (see Figure 2). Estimates and confidence intervals for establishment density and each crime outcome are shown in Table 1. Positive, statistically significant associations were observed for total alcohol establishment density and each of the violent crime outcomes. Results were similar for estimates of the percent increase in each of the crime types resulting from a 20% increase in establishment density in a neighborhood with an average density, ranging from 3.9% to 4.3%. The estimated percent increase in crime was lower for violent crime combined (3.4%), although the relationship with this outcome and total alcohol establishment density was still statistically significant.

Figure 3 maps the spatial residuals from our hierarchical CAR model fit. These residuals illustrate excess spatial variability in the fitted SCRs that are not explained by the alcohol establishment density and other covariates. As such, maps like Figure 3 are often used to generate hypotheses regarding spatially-varying covariates that may still be missing from the model. In our case, the neighborhoods with highest residual SCRs for rape are those in the downtown, near west, and near east (University of Minnesota) regions. Lower residuals are seen in a few scattered far northwest and southern neighborhoods. By contrast, elevated SCRs for robbery and assault are largely confined to the economically deprived and largely minority

northwest, with lower SCRs predominantly clustering in a vertical strip of neighborhoods in the more affluent neighborhoods of southwest.

The associations between on-premise density and each of the individual violent crime outcomes were also all positive and statistically significant (Table 1). The strength of the associations across crime outcomes was very similar to those between total establishment density and each of the crime outcomes. Estimates for the percent increase in crime for a 20% increase in on-premise establishment density were slightly lower than for total establishment density (3.3% to 3.8%). Again, the association between on-premise density and all violent crime combined was slightly lower than for the individual crime types, but still statistically significant.

The relationships between off-premise density and the individual crime outcomes were all positive, but they were not all statistically significant (Table 1). The association was not statistically significant for rape or the combined violent crime outcome. The strength of the associations for robbery and assault was weaker than the associations between these outcomes and total establishment density and on-premise density.

Discussion

We found that overall alcohol establishment density was positively associated with violent crime, indicating that neighborhoods with more alcohol establishments tend to have more assault, rape, robbery, and overall violent crime than neighborhoods with fewer alcohol establishments. This relationship was stronger and more consistent for on-premise establishments than off-premise establishments. These findings are similar to findings from several earlier studies (e.g. Franklin et al., 2010, Gorman et al., 2005, Gyimah-Brempong and Racine, 2006, Livingston, 2008a, Livingston, 2008b), although some previous studies found no association between certain violent crime outcomes and alcohol establishment density when

density was disaggregated into on-premise and off-premise density (Scribner et al., 2010, Franklin et al., 2010, Livingston, 2008a, Gorman et al., 2005, Zhu et al., 2004, Lipton and Gruenewald, 2002).

An interesting finding in this study is that the strength of the association between establishment density and crime was lower for the combined Part I and Part II violent crime outcome than for individual crime categories. Additionally, the association between off-premise density and the combined violent crime outcome was not statistically significant. The explanation for these findings is not clear. However, this combined variable included incidents of other types of violent crime, including homicides, which mostly occurred within a few geographic areas. This may have lowered the strength of the overall association.

The Task Force on Community Preventive Services (http://www.thecommunityguide.org/alcohol/outletdensity.html) has recommended "...the use of regulatory authority (e.g., through licensing and zoning) to limit alcohol outlet density on the basis of sufficient evidence of a positive association between outlet density and excessive alcohol consumption and related harms." Given the growing research literature that suggests adding alcohol establishments—especially on-premise alcohol establishments—could increase several types of violent crime, neighborhood residents and leaders should be cognizant of proposals to add establishments within their neighborhoods.

A limitation of this study and of many of the previous studies examining the association between alcohol establishment density and crime is the cross-sectional design. Based on this study alone we cannot conclude that an increase in alcohol establishment density in a neighborhood will lead to an increase in violent crime. However, there is a growing body of research literature that has demonstrated this positive relationship across various types of violent

crime and across different geographic areas. Additionally, a few studies have assessed effects of changes in alcohol establishment density and found that adding more establishments increases the risk of violence and hospitalizations resulting from assaults (Norstrom, 1996, Gruenewald and Remer, 2006). Furthermore, a higher density of alcohol establishments means more availability of alcohol. Many studies show that as we increase availability of alcohol (e.g., through an increase in the hours that alcohol can legally be sold, a decrease in the price of alcohol, etc.), we see an increase in crime and other alcohol-related problems (Middleton et al., 2010, Elder et al., 2010, Babor et al., 2003). In addition to increasing alcohol availability, an increase in alcohol establishments, particularly on-premise establishments, may also contribute to increased violence because of an increase in the number of people gathering socially at the establishments (social aggregation of drinkers; Norstrom, 1996).

Another limitation of this study is that the police report data only include incidents of crime that were reported to police and where there was sufficient evidence to write a report. Additionally, only the primary offenses are included in the database (i.e., if a lesser crime occurred during the same event by the same person as the primary offense, the lesser offense was not included). Both of these limitations could lead to an underestimation of crime across neighborhoods; however, it is unlikely that these underestimations differ substantially across neighborhoods. Because the study was conducted in only one metropolitan area, generalizability of study findings may be limited. However, many previous studies also have been conducted in one metropolitan area (e.g., Gorman et al., 2001, Scribner et al., 1999, Speer et al., 1998) and the combined results across these different regions provide confidence that the results can be generalized to other geographic areas.

In addition to these limitations, we also identified a few methodological limitations. First, we did not control for potential edge effects of alcohol establishments located in other communities near the Minneapolis border that could influence crime in the nearby Minneapolis neighborhoods. However, this is likely not a significant limitation because most of the communities surrounding Minneapolis are suburban communities that do not have a significant number of alcohol establishments near their Minneapolis borders. In our analyses, we also explored the use of multivariate CAR models (see e.g. Banerjee, 2004, Sec. 7.4) that would allow us to account for correlation across crime outcomes as well as neighborhoods; however, the CAR models only contributed to modest additional smoothing and did not improve the fit to the data.

Despite these limitations, this study contributes to the growing research literature assessing the association between alcohol establishment density and violent crime. Similar to other studies, we observed a positive association between total establishment and on-premise density and multiple violent-crime outcomes. Results were less consistent for off-premise density. This study builds on previous studies by including several violent crime outcomes, assessing on- versus on-premise and total establishment density, controlling for geospatial autocorrelation, and using advanced Bayesian analytical methods. Results of this study, combined with earlier findings, provide more evidence that community leaders should be cautious about increasing the density of alcohol establishments within their neighborhoods.

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Table 1. Associations between alcohol establishment density and violent crime (estimates and 95% confidence intervals).

Crime outcomes	Alcohol Establishment Density	CONTROL VARIABLES			% Increase[1]
		Population Density	SES	Age 15-24	
Total establishments					
Rape	**0.31 (0.16, 0.46)**	**0.42 (0.2, 0.65)**	**-0.54 (-0.74, -0.33)**	-0.17 (-0.38, 0.04)	3.9%
Robbery	**0.32 (0.17, 0.46)**	**0.57 (0.37, 0.77)**	**-0.7 (-0.88, -0.51)**	**-0.24 (-0.42, -0.05)**	4.1%
Assault	**0.34 (0.21, 0.47)**	**0.4 (0.22, 0.58)**	**-0.82 (-0.99, -0.66)**	**-0.26 (-0.42, -0.08)**	4.3%
Combined Crime	**0.27 (0.16, 0.38)**	**0.45 (0.29, 0.6)**	**-0.67 (-0.82, -0.52)**	**-0.2 (-0.34, -0.05)**	3.4%
On-premise establishments					
Rape	**0.31 (0.16, 0.46)**	**0.42 (0.2, 0.64)**	**-0.54 (-0.75, -0.34)**	-0.16 (-0.37, 0.04)	3.4%
Robbery	**0.3 (0.16, 0.44)**	**0.57 (0.38, 0.77)**	**-0.7 (-0.88, -0.51)**	**-0.23 (-0.42, -0.05)**	3.3%
Assault	**0.34 (0.22, 0.47)**	**0.41 (0.23, 0.58)**	**-0.83 (-1, -0.67)**	**-0.26 (-0.43, -0.08)**	3.8%
Combined Crime	**0.27 (0.16, 0.38)**	**0.46 (0.31, 0.62)**	**-0.67 (-0.81, -0.52)**	**-0.2 (-0.35, -0.06)**	3.0%
Off- premise establishments					
Rape	0.15 (-0.04, 0.33)	**0.4 (0.14, 0.65)**	**-0.47 (-0.71, -0.25)**	-0.15 (-0.39, 0.08)	2.5%
Robbery	**0.19 (0.04, 0.35)**	**0.54 (0.33, 0.75)**	**-0.64 (-0.83, -0.44)**	**-0.22 (-0.41, -0.03)**	3.2%
Assault	**0.17 (0.03, 0.31)**	**0.37 (0.17, 0.58)**	**-0.76 (-0.95, -0.57)**	**-0.24 (-0.44, -0.04)**	2.9%
Combined Crime	0.11 (0, 0.23)	**0.44 (0.27, 0.62)**	**-0.61 (-0.77, -0.46)**	**-0.18 (-0.35, -0.02)**	1.9%

[1]Percent increases corresponding to a 20% increase in density in a neighborhood with average density.

Note: Bold text = statistically significant at the $p < 0.05$ level.

Figure 1. Number of alcohol establishments (per roadway mile) in Minneapolis by neighborhood.

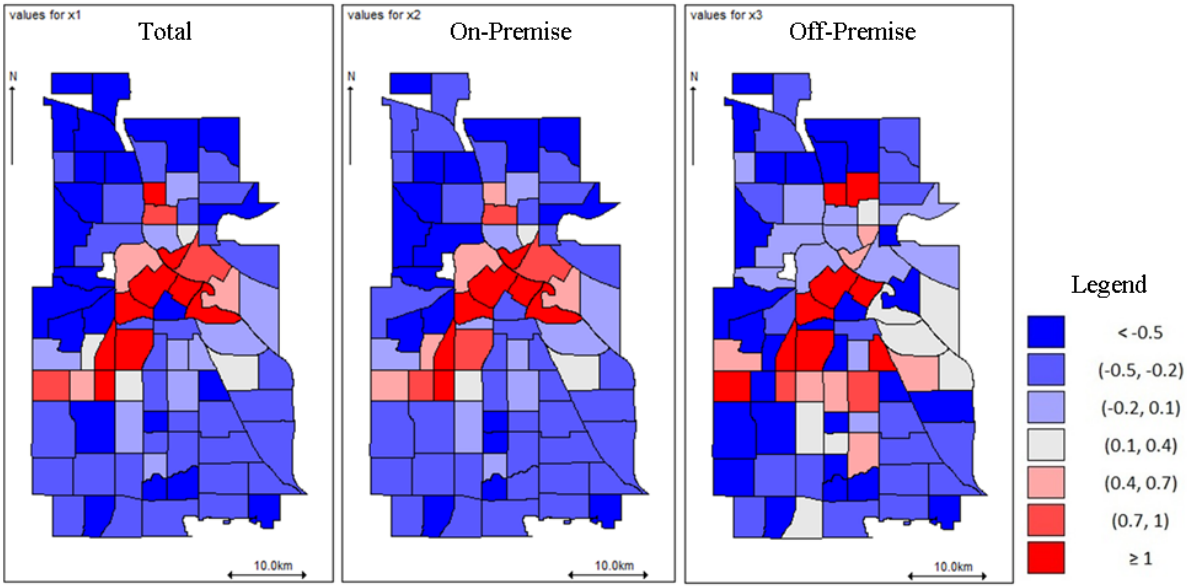

Figure 2. Raw standardized crime ratios (SCR) in Minneapolis by neighborhood.

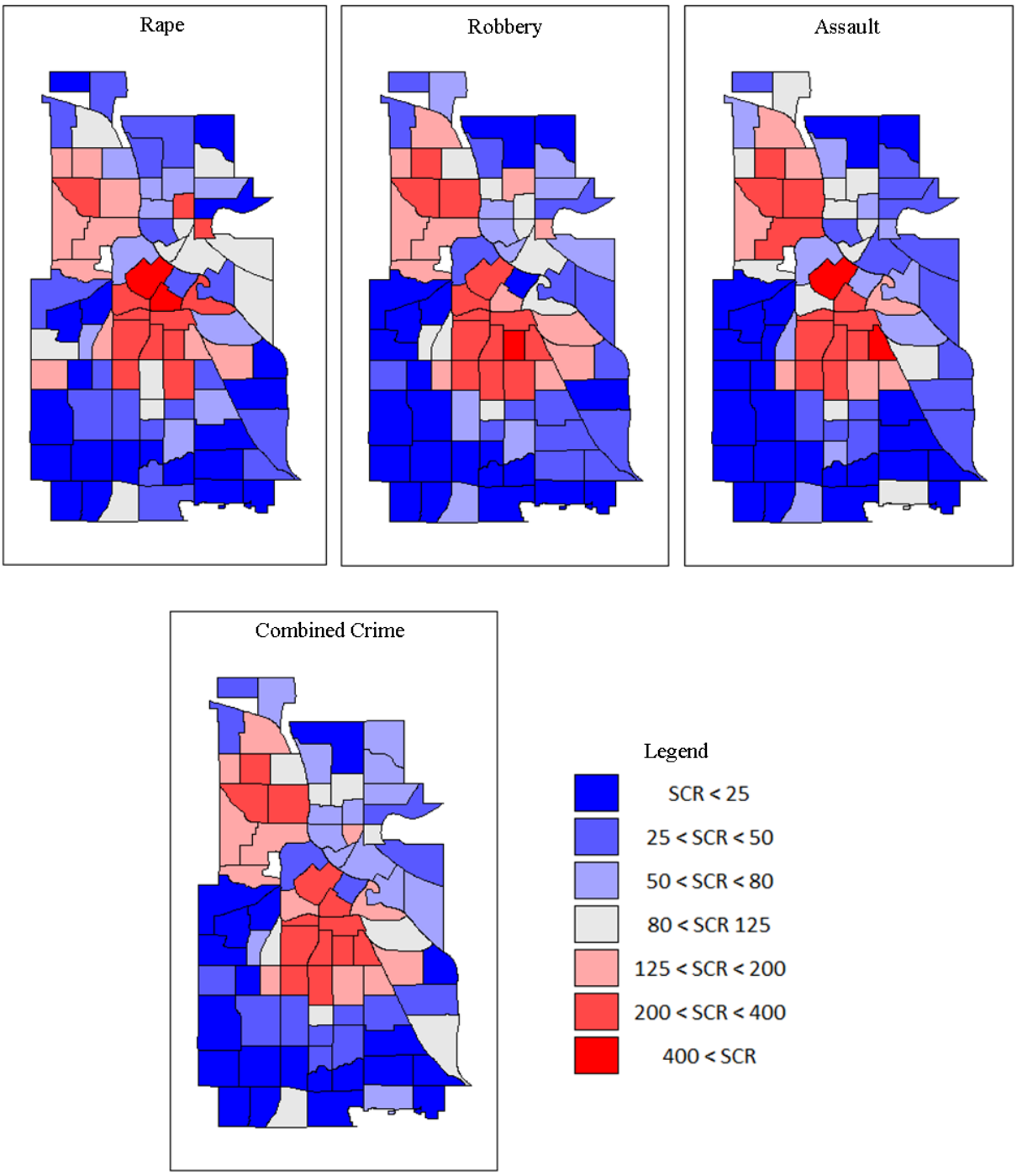

Figure 3. Residuals for standardized crime ratios in Minneapolis neighborhoods.