

Risk of Assaultive Violence and Alcohol Availability in New Jersey

ABSTRACT

Objectives. This study examined the relationship between rate of assaultive violence and density of alcohol outlets in New Jersey.

Methods. Data pertaining to assaultive violence, alcohol outlet density, and sociodemographic factors were obtained from municipalities in New Jersey ($n = 223$) and assessed through bivariate and multivariate analyses.

Results. Sociodemographic factors accounted for 70% ($R^2 = .70$) of the variance in the rate of assaultive violence. Outlet density did not add significantly to the explained variance of this model.

Conclusions. In New Jersey, alcohol outlet density is not geographically associated with higher rates of violence. Alternative methodological and analytic techniques are required to better specify the relationship between alcohol availability and violence. (*Am J Public Health* 1998;88:97-100)

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Introduction

This paper reports a replication of a study conducted by Scribner et al. that used data from 74 cities in Los Angeles County to assess whether rate of assaultive violence is related to density of alcohol outlets.¹ Their findings showed that the rate of violent crime was significantly associated with the density of both on-sale and off-sale alcohol outlets. A 1% increase in the density of alcohol outlets was found to be associated with a 0.62% increase in the rate of violent offenses.

This study involved an analysis almost identical to that presented for Los Angeles County. Data were derived from 223 widely distributed New Jersey municipalities with populations greater than 10 000.

Methods

Although we attempted an exact replication of the Los Angeles research, there are four main differences between the two studies. First, the liquor outlet categories used by the New Jersey Department of Alcoholic Beverage Control differ from their counterparts in California. The licensing categories used in California enabled Scribner et al. to divide outlets into off-premises sales and on-premises sales. The New Jersey licensing system separates outlets into off-premises sales, on-premises sales, and both off- and on-premises sales. Of the 7799 outlets in the 223 municipalities, 67.8% were bars and restaurants licensed to sell alcohol for both on-premises and off-premises consumption, 19.2% were off-sale only ("package goods"), and 12.8% were on-sale only (hotels and clubs).

Second, the Scribner et al. data sets all pertained to the same year (1990). In the present study, both the violence and the alcohol outlet data sets pertained to 1994, whereas the sociodemographic data were extracted from the 1990 census. The reason for this mismatch is that alcohol outlet data for 1990 were not available, and we considered it essential to use availability and violence data from the same time period. The census data were considered to have sufficient stability over a 4-year period to allow comparison with the other data sets.

Third, the sample used in the present study was three times larger than the Los Angeles County sample and was distributed across a larger geographic area. The 74 Los Angeles County cities are, for the most part, contiguous, introducing potential bias into the study's findings through the effects of cross-boundary purchases of alcohol and related outcomes.¹ They cluster around a core city (Los Angeles) containing a large proportion of the county's total population (about 3.5 million). In contrast, the New Jersey sample is distributed across a larger geographic area and is composed of two clusters (termed consolidated metropolitan statistical areas²) whose core cities are located outside the state (New York City and Philadelphia). The spatial breadth of the New Jersey sample introduces ecological variability, which is, at best, limited in the Los Angeles County sample. Nevertheless, it should be noted that the entire state of New Jersey is classified as "metropolitan" by the US Office of Management and Budget, and hence there were no "rural" municipalities in our sample.²

Finally, units of analysis in this study were selected for populations of 10 000 or more, just as in the Los Angeles County study. However, these units were not identical, New Jersey municipalities and Los Angeles County cities differing in terms of geographic size, spatial pattern, population density, and the time period and conditions under which they were established.³

The same variables assessed in the Los Angeles County study were examined here. These variables are described subsequently.

Assaultive Violence Data

Data on assaultive violence (defined as criminal homicide, forcible rape, aggra-

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vated assault, and robbery) occurring in municipalities during 1994 were obtained from state records.⁴ The numbers of each of these offenses for each municipality were summed, divided by the total population of the municipality, and multiplied by 10 000 to yield the rate of violent offenses per 10 000 population.

Alcohol Outlet Data

An address-specific list of alcohol outlets active at the end of 1994 was obtained from the New Jersey Department of Alcoholic Beverage Control. Outlets were grouped into three categories: off-sales, on-sales, and combined off-sales and on-sales. The numbers of each outlet type for each municipality were summed, divided by the total population of the municipality, and multiplied by 10 000 to yield the rate of outlets per 10 000 population.

Sociodemographic Data

Municipal-level data on sociodemographic variables were extracted from the 1990 census. The following variables (shown in previous research to be predictive of violent crime) were assessed: economic structure of the community (measured in terms of median household income and proportion of unemployed adults), racial/ethnic structure (measured in terms of proportion of Blacks and Latinos residing in the municipality), age structure (measured in terms of the ratio of men 20 to 29 years of age to men 40 to 44 years of age), level of urbanicity (measured in terms of total population and number of households per 10 000 population), and family characteristics (measured in terms of the proportion of female-headed households to total households). The means and standard deviations of the study variables are shown in Table 1.

All variables were transformed to their base 10 logarithms before they were used in correlational and regression analyses. An explicit search for influential outliers among the 223 municipalities (i.e., Cook's distance > 1; see Stevens⁵) revealed none. All interaction terms were tested simultaneously (via hierarchical regression analyses) rather than separately in order to reduce the total number of statistical tests and hence to decrease the likelihood of identifying chance occurrences.

Results

Bivariate analyses are shown in Table 2. With the exception of number of households

TABLE 1—Means and Standard Deviations for Alcohol Availability Variables, Sociodemographic Covariates, and Assaultive Violence Rate across the 223 New Jersey Municipalities

Variable	Mean	SD
Sociodemographic (n = 223)		
Unemployed, %	5.1	2.4
Median household income, \$	45 646	13 383
Black, %	9.0	14.6
Latino, %	6.8	10.6
Ratio of men 20–29 years old to men 40–44 years old	2.2	0.9
No. households per 10 000 population	3 661	368
Municipal population	27 931	29 057
Female-headed households per total households, %	10.2	4.7
Alcohol availability		
No. on-sale-only outlets per 10 000 population	1.9	1.6
No. off-sale-only outlets per 10 000 population	2.4	2.7
No. on-sale and off-sale outlets per 10 000 population	8.1	6.2
Total outlets per 10 000 population	12.3	8.1
Assaultive offenses per 10 000 population	40.1	57.7

Note. The range for total alcohol outlet density was 0–46.1 per 10 000 population (with quartiles of 0–6.7, 6.8–10.3, 10.4–16.8, and 16.9–46.1). The range for assaultive violence was 0–380.5 per 10 000 population (with quartiles of 0–10.6, 10.7–19.1, 19.2–42.7, and 42.8–380.5).

per 10 000 population, all covariates were found to be associated with the rate of assaultive violence. On-sale alcohol outlet density showed a weak correlation with just two of the eight covariates and did not correlate with violence rate. Both off-sale and on-sale/off-sale density showed a stronger pattern of correlations with the covariates than on-sale density, but in neither case was this as strong as the associations between violence rate and the covariates.

Multivariate regressions are shown in Table 3. Model 1 included only the eight sociodemographic covariates, which explained 70% of the variance in the rate of assaultive violence. Model 2 added total outlet density. The change in R^2 was .003, indicating that total outlet density did not add significantly to the explained variance of model 1.

Hierarchical regression analyses testing for interactions between all demographic background variables and total alcohol outlet densities yielded no significant increases in explained variance.

Discussion

Our findings from a study of 223 municipalities in New Jersey do not demonstrate a geographic association between rate of assaultive violence and density of alcohol outlets. Therefore, they do not support the findings from the Los Angeles County study.

Differences on a number of the variables assessed for the two areas could

account for these contrasting results. New Jersey has a much lower rate of assaultive violence (40.1 vs 114.1 incidents per 10 000 population) and a lower alcohol outlet density (12.3 vs 19.9 outlets per 10 000 population) than Los Angeles County. Also, the outlet types differ across the two settings. In Los Angeles County, 45% of outlets are off-sale only (minimarkets and liquor stores), as compared with 19% of New Jersey outlets. More than two thirds of outlets in New Jersey are licensed to sell alcohol for either on-premises or off-premises consumption, a category that does not exist in Los Angeles County. Differences with regard to most of the sociodemographic variables were minor. In comparison with Los Angeles County, New Jersey municipalities had a higher median household income (\$45 646 vs \$40 922), more Black residents (9.0% vs 6.2%), fewer female-headed households (10.2% vs 12.5%), and lower unemployment rates (5.1% vs 6.6%). In two respects, however, the differences between the areas were substantial. The New Jersey municipalities had a much lower percentage of Latino residents (6.8% vs 36.5%) (and, of course, the composition of this population differed in each area) and a much lower average population size (27 931 vs 104 632) than Los Angeles County. Since urbanization affects rates of violence and heavy drinking,^{6,7} and differences in drinking patterns and alcohol-related problems exist between Hispanics and non-Hispanics as well as within Hispanic subgroups,^{8,9} both factors could

TABLE 2—Pearson Correlations: Violence Rate, Sociodemographics, and Alcohol Outlet Density in 223 New Jersey Municipalities

	Violence Rate	Alcohol Outlet Density Variable			
		On-Sale Density	Off-Sale Density	On-Sale/Off-Sale Density	Total Density
Economic structure					
Median income	-.67	-.03	.17	-.27	-.23
Unemployed, %	.68	.01	.20	.30	.24
Ethnicity, %					
Black	.69	-.07	.14	.08	.07
Latino	.48	.07	.39	.37	.38
Age structure (ratio of men 20–29 years old to men 40–44 years old)	.54	.18	.24	.29	.32
Urbanicity					
Total population	.41	-.18	-.02	.04	-.05
No. households per 10 000 population	.09	.06	.27	.08	.17
Social structure (female-headed households, %)	.78	.06	.30	.34	.32
Alcohol outlet density					
On-sale density	.03	1.00	.30	.38	.69
Off-sale density	.26	.30	1.00	.45	.76
On-sale/off-sale density	.29	.38	.45	1.00	.84
Total density	.27	.69	.76	.84	1.00

Note. Coefficients smaller than .10 are nonsignificant. Correlations between .11 and .15 are significant at $P < .05$; those between .16 and .20, at $P < .01$; and those above .21, at $P < .001$.

influence the relationship between alcohol outlet density and arrests for assaultive violence. Thus, alcohol outlet density may relate to assaultive violence only when certain conditions prevail, for example, when average population size is large, alcohol outlet density crosses a certain threshold, and/or alcohol is sold through certain types of "easy access" retail outlets such as mini-markets.

In order to specify more precisely the relationship between alcohol outlet density and violent crime, future research will require methodological and analytical tech-

niques different from those used here and in the Los Angeles County study. More specifically, it will be necessary to combine the type of static macrolevel data used in these analyses with longitudinal and microlevel data pertaining to purchasing and consumption patterns.^{10–12} A major limitation of ecological analysis is that it assumes a fixed unidirectional relationship between alcohol availability and alcohol-related behavior, when in fact this relationship is dynamic and reciprocal, with consumers modifying their environments through the choices they make in pursuit of

alcohol.¹⁰ In addition, environmental factors other than the sociodemographic ones included in the present analysis influence the relationship between outlet density and violent crime (e.g., proximity of alcohol outlets to other criminal "hot spots"^{13,14}). Such factors should be incorporated into future models, which must also use statistical tests that account for the fact that alcohol outlet density affects the rate of problems across geographic units (so-called spatial autocorrelation).^{10,11} □

TABLE 3—Rates of Assaultive Violence Regressed onto Sociodemographics (Model 1) and Sociodemographics with Alcohol Outlet Density (Model 2) in 223 New Jersey Municipalities

	Model 1, Coefficients (SE)	Model 2, Coefficients (SE)
Sociodemographic variable (n = 223)		
Median income	-1.06 (0.31)***	-1.16 (0.32)***
Unemployed, %	-9.69 (4.44)*	-9.80 (4.43)*
Black, %	3.33 (0.59)***	3.50 (0.60)***
Latino, %	1.87 (0.66)**	1.67 (0.67)*
Ratio of men 20–29 years old to men 40–44 years old	0.47 (0.21)*	0.41 (0.22)
Total population	0.13 (0.07)	0.15 (0.07)*
No. households per 10 000 population	0.07 (0.49)	-0.10 (0.50)
Female-headed households, %	6.59 (2.36)**	5.47 (2.49)*
Total liquor outlet density	...	0.05 (0.03)
R ²	.695	.698
R ² change (relative to model 1)003

Note. All variables were entered as base 10 logarithms.
* $P < .05$; ** $P < .01$; *** $P < .001$.

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ABSTRACT

Objectives. This paper examines differences between joiners and nonjoiners of a voluntary smokers' registry.

Methods. A baseline prevalence survey was used to identify characteristics of smokers who joined or did not join a smokers' registry.

Results. Communities varied significantly in registry enrollment rates. Heavy-smoking joiners expressed more desire to quit, were more likely to live with nonsmokers, and were older than nonjoiners. Light-to-moderate joiners smoked more, were more addicted to cigarettes, and expressed more desire to quit than nonjoiners.

Conclusions. Few baseline characteristics differentiated joiners from nonjoiners. Nonjoiners were significantly more likely to achieve cessation than joiners. (*Am J Public Health* 1998;88:100-103)

A Voluntary Smokers' Registry: Characteristics of Joiners and Non-Joiners in the Community Intervention Trial for Smoking Cessation (COMMIT)

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Introduction

Community smoking cessation programs use regular and repeated messages to reach all smokers in the population.¹⁻⁷ One way to disseminate such messages is a "smokers' registry" in which smokers enroll to receive information about smoking cessation. Newsletters and other materials have been sent to smokers as adjuncts to community-wide trials.⁸⁻¹⁰ The Community Intervention Trial for Smoking Cessation (COMMIT) established smokers' registries in 11 intervention communities. Joiners received regular messages about smoking cessation. In this paper, characteristics and cessation rates of joiners and nonjoiners of smokers' registries are reported.

Methods

Setting

COMMIT was a 22-community study that tested a community approach to assisting smokers in quitting.¹ Eleven intervention communities implemented a comprehensive 4-year intervention.¹¹⁻¹⁶ The research included extensive evaluation.^{1,17}

Baseline Assessment of Smokers

A baseline prevalence survey of approximately 125 000 households asked smokers questions about previous quit

attempts, addiction to tobacco, desire to stop smoking, gender, education, marital status, living arrangements, and age.

Smokers' Registry

Each of the 11 intervention communities had a smokers' registry. Joiners received regular newsletters containing stories on local quitters, descriptions of local cessation services, tips for quitting, humorous stories about quitting, and descriptions of upcoming events. To enroll, joiners completed a registry card that asked only for their name and address, age, and number of cigarettes smoked per day.

The registered smokers were entered into a centrally developed computerized database that generated letters and mailing labels to minimize the staff effort required for mailing newsletters. Duplicates in the database were removed regularly.

Although any smokers were allowed to join the registry, smokers outside of the

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