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Offsetting the Effects of Neighborhood Disadvantage on Problem Drinking

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Abstract

Residence in disadvantaged neighborhoods can amplify individual risk for adverse health conditions, including substance use disorders. Using data from a probability sample of problem drinkers in Northern California (N=616) interviewed at baseline and re-interviewed one year later, this study examines whether social support can buffer negative effects of neighborhood disadvantage on problem drinking. Living in a disadvantaged neighborhood increased the likelihood of problem drinking at follow-up (OR=2.33, $p=0.015$). Although baseline support for reducing drinking was unrelated to problem drinking at follow-up, there was a significant interaction between neighborhood disadvantage and support. Among those living in disadvantaged neighborhoods, baseline support significantly decreased the likelihood of problem drinking at follow-up (OR=0.19, $p=0.048$). Bolstering indigenous community resources where residents can interact with others in recovery or that foster sober activities may offset individual risk. Research is needed to determine whether this may also produce second-order neighborhood change.

Keywords

neighborhood disadvantage; poverty; alcohol; problem drinking; social support

Introduction

Community psychologists have long recognized the importance of multiple levels of influence on behavior and person-environment interactions. When considering risky health behaviors such as problem drinking, the influence of multiple settings can be operationalized in terms of the neighborhood where someone lives and the people with whom they interact.

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Although this is a common framing for studies of adolescents, less is known about the interplay between neighborhoods and social networks for adults, despite the critical role such research can play in helping us to understand why some people stop drinking heavily and recover from alcohol problems. Thus, here we examine independent and interactive effects of neighborhood disadvantage and support for reduced drinking in a longitudinal study of heavy drinkers recruited from the community.

Theories of concentrated disadvantage posit that neighborhoods characterized by poverty and social disorder can trap residents in a cycle of poverty that amplifies individual risk for a variety of adverse outcomes. Disadvantaged neighborhoods are not only economically impoverished and socially removed from opportunities for advancement, but they also are often characterized by social disorganization (weak social bonds between residents and limited social control of deviant behaviors), physical deterioration (vandalism, litter, abandoned or dilapidated structures), and crime (Sampson, Raudenbush, & Earls, 1997). Individuals living in such neighborhoods experience stress and depression, with substance use linked to both for residents of disadvantaged neighborhoods (Boardman, Finch, Ellison, Williams, & Jackson, 2001; Jackson, Knight, & Rafferty, 2010; Latkin, Curry, Hua, & Davey, 2007).

Social capital, in general, and social networks, in particular, are very important predictors of health and well-being. Individuals who are actively involved in their communities and socially engaged with others live longer, are healthier, and experience less psychological distress (Kawachi & Berkman, 2001). Social network characteristics, such as the association with substance-using peers and perceived peer approval of substance use are well-recognized risk factors for the development of problematic alcohol and drug use (Donovan, 2001; Hawkins, Catalano, & Miller, 1992). Among those recruited from substance use treatment programs (Bond, Kaskutas, & Weisner, 2003) and those in recovery support settings (Jason, Davis, & Ferrari, 2007), support for abstinence among those in one's social network has been found to be robustly predictive of abstinence at follow-up. Yet despite strong evidence for the role of social support for abstinence in predicting abstinence among those seeking treatment and in recovery, less is known about the relationship between social support for abstinence or reducing drinking with alcohol problems among those in the general adult population. This is important because, in the US, only a small fraction of individuals who need substance abuse treatment actually receive it. In fact, recent data from the National Survey on Drug Use and Health indicate that only 7.6% of individuals ages 12 or older in the US with alcohol use disorder (an estimated 1.3 million individuals) received treatment in the prior year (Substance Abuse and Mental Health Services Administration, 2015).

We know even less about whether social support for reducing drinking can buffer or offset deleterious effects of neighborhood disadvantage on adults' substance use. Understanding these relationships among those not currently in treatment could lead to insights on how to mobilize scarce resources in disadvantaged communities to reduce substance use. Using data collected from a probability sample of problem drinkers in Northern California who were interviewed at baseline and again one year later, the aim of this investigation was to examine the independent and interactive effects of neighborhood disadvantage and support for

reduced drinking on subsequent problem drinking. Although we expected neighborhood disadvantage to increase problem drinking at follow-up, we also expected social support to decrease problem drinking overall. We further expected social support would buffer negative effects from exposure to neighborhood disadvantage.

Methods

Participants and Procedures

The current secondary analysis uses data collected in a prior study conducted between 1995 and 2006. Details on study recruitment and data collection procedures can be found elsewhere (see Matzger & Weisner, 2007). In brief, a sample of 672 heavy drinkers was recruited from the general population to participate in a longitudinal interview study. Respondents primarily lived in one diverse Northern California county with a mix of socioeconomic and racial/ethnic groups living in urban, suburban and rural communities. Random digit dialing methods were used to screen for eligible participants who were at least 18 years old and who met criteria for problem drinking (see below) but who had not received treatment for a substance use disorder in the past year.

Baseline interviews were conducted in private locations (including respondents' homes), and follow-up assessments were completed as computer-assisted telephone interviews. Approximately 93% of the baseline respondents completed their 1-year follow-up interview. Protocols for the original interview study and the current secondary analysis were approved by the Institutional Review Boards at the University of California, San Francisco and the Public Health Institute, Oakland, CA.

For the present study, we limited our analytic sample to those who provided sufficient information to identify their neighborhood of residence at baseline and who reported their drinking status at follow-up ($N=616$; 92% of baseline sample). Table 1 displays demographic characteristics of these participants. The majority was male (60%), Caucasian (72%), age 18–45 years old (79%), and had a median annual household income of \$25,000 or more (69%).

Measures

Problem drinking—Problem drinking at both baseline and follow-up was defined based on meeting at least two of the following criteria in the 12 months prior to the interview: (a) drinking five or more drinks/day at least once a month for men (three or more drinks in a day weekly for women); (b) one or more alcohol-related social consequence (including such things as being arrested for/having an accident due to drunk driving or for disorderly conduct/public drunkenness); (c) one or more symptom of alcohol use disorder. At follow-up, 52.4% of respondents met criteria for problem drinking.

Neighborhood disadvantage—Participant addresses were geocoded and linked to US Census data using ArcGIS 10.2 (ESRI, 2013). Neighborhoods were defined by census tracts. On average, 8.8% of residents ($SD=8.2\%$) in each tract had incomes below poverty. Disadvantaged neighborhoods were defined as having 20% or more of residents with incomes below poverty; 9.3% of respondents lived in disadvantaged neighborhoods.

Support for reduced drinking—Support for reduced drinking was defined as being in regular contact with at least one person (family member, spouse/partner or friend) who actively supports the respondent in reducing their alcohol/drug use (43.5% of respondents). In treatment samples, single-item measures of support for reducing drinking are associated with abstinence from alcohol (Bond et al., 2003).

Demographic and control variables—We assessed a variety of demographic and other risk factors related to problem drinking. All multivariate models controlled for gender (female as the reference group), education (a high school diploma or less compared with at least some post-secondary education), income (above or below \$25,000 per year), marital status (two dummy variables for never married and separated/divorced/widowed, compared with married/partnered as the reference), and ethnicity (three mutually-exclusive dummy variables for Black/African American, Hispanic/Latino and other race/ethnicity, compared with White/Caucasian as the reference). The Addiction Severity Index (ASI) was used to assess past-30-day problem severity in three domains: alcohol, drug, and psychiatric problems (McLellan et al., 1992). For the multivariate analyses, baseline ASI scores were dichotomized at the median to indicate scores above the median for alcohol severity and drug or psychiatric severity. Finally, models also included an indicator of alcohol or drug problems in the respondent's biological parents.

Statistical Analyses

Descriptive analyses were used to generate sample characteristics for the full sample and by type of neighborhood (disadvantaged vs non-disadvantaged) that participants reported living in at baseline. General estimating equations (GEEs) were used to test the effects of baseline characteristics on the likelihood of problem drinking at follow-up while adjusting for clustering of participants within neighborhoods. Models were developed to isolate and test the individual main effects of both neighborhood disadvantage and support for reduced drinking. The moderating effect of support for reduced drinking on the effect of neighborhood disadvantage was modeled and tested two ways: (1) We used one model containing neighborhood disadvantage, support for reduced drinking, and an interaction of the two; and (2) we also tested effects of support for reduced drinking on problem drinking at follow-up in models stratified by neighborhood disadvantage. All models controlled for the covariates listed above. All analyses were conducted in Stata v14 (Stata Corp., 2015).

Results

The 616 respondents lived in 213 different neighborhoods. A total of 57 participants lived in one of 26 neighborhoods classified as disadvantaged. As Table 1 displays, compared to residents in non-disadvantaged neighborhoods, a greater percent of residents in disadvantaged neighborhoods were racial/ethnic minorities (67% vs. 24%, $p<0.001$); a smaller percent of residents were married or living with a partner (25% vs. 42%, $p=0.009$), had household income above the poverty level (46% vs. 71%, $p<0.001$), and had completed some post-secondary education (28% vs. 52%, $p=0.001$).

Table 2 displays results from the multivariate GEE models predicting problem drinking at follow-up. In models testing the main effects of neighborhood disadvantage and support for

reduced drinking, only neighborhood disadvantage was associated with problem drinking at follow-up. Participants living in disadvantaged neighborhoods at baseline were significant more likely (OR=2.33) to be problem drinkers at follow-up. Although support for reduced drinking was not related to problem drinking at follow-up in the main effect model, there was a significant interaction between neighborhood disadvantage and support for reduced drinking (OR=0.18) on subsequent problem drinking. The stratified models showed that among those in disadvantaged neighborhoods, those with support for reduced drinking at baseline were significantly less likely (OR=0.19) to be categorized as problem drinkers as follow-up. Support for reduced drinking was not significantly associated with problem drinking for those in non-disadvantaged neighborhoods.

Discussion

The aim of this study was to examine the independent and interactive effects of neighborhood disadvantage and support for reduced drinking on problem drinking in a longitudinal community sample of heavy drinkers. As has been found in other studies, we found that living in a disadvantaged neighborhood increased the likelihood of substance use, in this case, problem drinking. While peer influences are often cited as a risk factor for substance use, and social support for abstinence has been found to be a significant predictor of abstinence among individuals in treatment and in recovery, we did not find a main effect of support for reduced drinking on problem drinking at follow-up. We did, however, find that support for reduced drinking significantly moderated the effect of neighborhood disadvantage—those living in disadvantaged neighborhoods who received support for reduced drinking were significantly less likely to be problem drinkers at follow-up than their counterparts in disadvantaged neighborhoods without such support.

To isolate effects of social support for reduced drinking received from community sources, we conducted post hoc analyses by rerunning our models to control for receiving any treatment for alcohol use (e.g., DUI classes, alcohol detoxification, inpatient care or outpatient treatment) in the past year; the interaction between neighborhood disadvantage and support for reduced drinking remained significant, suggesting that there is something robustly protective about abstinence social support for those in disadvantaged neighborhoods. These findings bolster the work of Tucker et al. (2015) who conducted a cross-sectional study of adolescents from lower-income neighborhoods in Birmingham, Alabama and found that peer discouragement of substance use was associated with reduced risk of substance use. Our findings also suggest that harnessing community resources where residents can interact with others in recovery or that foster sober activities may offset risk conferred by living in disadvantaged neighborhoods.

This study has some limitations that deserve mention. Although it is a longitudinal study in which problem drinking was re-assessed one year after study enrollment, longer-term follow-up of residents in disadvantaged neighborhoods could help identify specific points in the lifecourse when social support for abstinence might be most influential. Another possible limitation is that the data were collected prior to implementation of health reforms that should increase the likelihood that problem drinkers from disadvantaged communities can access treatment for substance use disorders; thus, our findings call for replication in new

samples. Finally, our measure of social support for abstinence was limited to a single question; future studies should consider multi-dimensional measures of social network characteristics supportive of a healthy lifestyle.

Future research collecting additional information on the type and nature of support for reduced drinking received and the types of indigenous community resources available within disadvantaged neighborhoods may help researchers identify critical points of community intervention. Research is also needed to determine whether harnessing community resources to reduce substance use may also produce second-order neighborhood change.

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Table 1

Baseline Sample Characteristics by Neighborhood Type

	Full Sample (N=616)		Residents in Disadvantaged Neighborhoods (N=57)		Residents in Non-disadvantaged Neighborhoods (N=559)		p-value ^f
	n	%	n	%	n	%	
Male	369	59.9	34	59.7	335	59.9	
Race/Ethnicity (N=612)							
Caucasian/White	439	71.7	19	33.3	420	75.7	<0.001
African American/Black	51	8.3	23	40.4	28	5.1	
Hispanic	73	11.9	13	22.8	60	10.8	
Other	49	8.0	2	3.5	47	8.5	
Age							
Under	30	24.5	39.8	28	49.1	217	38.8
30-44	240	39.0	19	33.3	221	39.5	
45 or older	131	21.3	10	17.5	121	21.7	
Marital Status (N=614)							0.033
Married/Partnered	250	40.7	14	24.6	236	42.4	
Separated/Divorced/Widowed	125	20.4	15	26.3	110	19.8	
Never married	239	38.9	28	49.1	211	37.9	
Educational Attainment (N=615)							0.001
High school degree or less	311	50.6	41	71.9	270	48.4	
More than high school	304	49.4	16	28.1	288	51.6	
Household Income of \$25K or Greater (N=604)	416	68.9	26	46.4	390	71.2	<0.001
Parental History of Alcohol or Drug Problems (N=605)	250	41.3	23	40.4	227	41.4	
ASI Problem Severity ²							
Alcohol (N=614)	306	49.8	26	45.6	280	50.3	
Drug or psychiatric	411	66.7	41	71.9	370	66.2	

Notes: The analytic sample consists of those who provided information about their neighborhood at baseline and information to determine whether they could be classified as a heavy drinker at follow-up. Valid percentages displayed; sample sizes for variables with missing data are noted in parentheses.

^f All other p-values > 0.10.

Indicator of a score above the median domain score for the sample.

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Table 2

Effects of Neighborhood Disadvantage and Support to Reduce Drinking on Subsequent Problem Drinking

	OR	95% CI	p-value ^I
Main Effects Models			
Neighborhood disadvantage	2.33	[1.17 – 4.60]	0.015
Support to reduce drinking	1.11	[0.78 – 1.58]	
Interaction Model			
Neighborhood disadvantage	5.85	[2.09 – 16.36]	0.001
Support to reduce drinking	1.28	[0.88 – 1.89]	
Neighborhood disadvantage*Support to reduce drinking	0.18	[0.05 – 0.65]	0.009
Neighborhood-stratified: Residents in Disadvantaged Neighborhoods			
Support to reduce drinking	0.19	[0.04 – 0.99]	0.048
Neighborhood-stratified: Residents in Non-disadvantaged Neighborhoods			
Support to reduce drinking	1.29	[0.89 – 1.89]	

Notes: Models were analyzed using general estimating equations to account for participant clustering within neighborhoods. All models controlled for gender, ethnicity, age, marital status, educational attainment, income, parental history of alcohol/drug problems, and baseline problem severity (ASI alcohol and ASI drug or psychiatric scores above the median).

^I All other p-values > 0.10.