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Gender Differences in Associations of Neighbourhood Disadvantage with Alcohol's Harms to Others: A Cross-sectional Study from the United States

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Abstract

Introduction & Aims—To examine whether alcohol's harms to others are more prevalent in socioeconomically disadvantaged neighbourhoods and whether men or women are at differential risk in these neighbourhoods.

Design & Methods—Cross-sectional survey data from 2000 and 2005 National Alcohol Surveys were linked to geo-referenced indicators of neighbourhood disadvantage from the United States 2000 Decennial Census. The pooled sample included 10,121 adults (54% female; average age 44.4 years; 69% White; 13% African American; 13% Hispanic). A dichotomous indicator denoted neighbourhoods based on the top quartile on a 5-item measure of disadvantage (alpha=.90). We examined past-year family problems due to someone else's drinking (marriage difficulties and/or financial trouble) and victimisation by someone who had been drinking (having property vandalised and/or being pushed, hit or assaulted).

Results—During the prior 12 months, 6% of women and 3% of men experienced family problems from someone else's drinking, and 4% of women and 7% of men reported being victimised by drinkers. Multivariate logistic regression models adjusting for individual-level socioeconomic status and other demographic characteristics showed the relationship between neighbourhood disadvantage and harms from someone else's drinking was moderated by gender, with significantly higher odds of family problems in disadvantaged neighbourhoods for men but not for women, as well as significantly higher odds of crime victimisation in disadvantaged neighbourhoods for women but not men.

Discussion & Conclusions—Experiences of harms from someone else's drinking in disadvantaged neighbourhoods vary for men and women. Targeted intervention strategies are needed to reduce alcohol's harm to others.

Keywords

Alcohol-related harm; neighbourhood disadvantage; gender

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Declaration of Interest

The authors report no connection with the tobacco, alcohol, pharmaceutical or gaming industries, and have no conflicts of interest to report.

Consequences of alcohol use include harms experienced by drinkers themselves, as well as harms suffered by family members, friends and strangers. Interest in alcohol's harm to others (also called second-hand effects or externalities of drinking [1]) has grown with efforts to quantify costs of alcohol use. Aside from a few well-studied areas such as foetal alcohol exposure, relatively little is known about the epidemiology and context of harms engendered from someone else's drinking. Using data from two pooled national samples of US adults, we examine whether alcohol's harm to others are more prevalent in disadvantaged neighbourhoods, as well as whether men or women are at differential risk of these harms in such contexts.

Early work in the US framed the issue of alcohol's harm to others largely in terms of a drinker's victims, with an emphasis on classifying types of harms of varying severity and assessing characteristics of victims of these different harms. For example, Fillmore [2] described obnoxious behaviours, property damage, family and friend problems, violence, accidents, and threats to employment. She also noted that "social victims of drinkers" tended to resemble problem drinkers, in that they were often young, single and heavy-drinking themselves [2]. Subsequent studies have investigated a variety of alcohol-related harms, including drunk driving crashes and social problems ranging from marital problems to harassment to injury caused by another person's drinking. Current conceptualisation of alcohol's harm to others explicitly includes social problems caused by drinkers in different contexts, such as the family, workplace and public sphere [3]. In the present study, we focus on family problems and crime victimisation.

Work on alcohol's harm to others has included recent projects in Australia [4], New Zealand [5] and Ireland [6], as well as the US [7]. General findings mirror early observations from the US: Alcohol's harms to others are more commonly experienced by younger people and heavy drinkers [7, 8]. Furthermore, the body of evidence suggests there may be important gender differences. The early work of Fillmore in Northern California [2] found women reported more alcohol-related violence at home and men more in the street and at bars. Recent research also suggests women more frequently report marriage and family harms and financial impacts from other drinkers, while men appear more prone to harms from others' drinking in the form of assaults and being a passenger of a drunk driver [7].

Notably rare in the extant literature are studies of neighbourhood contexts that increase social harms resulting from another person's drinking. There is a robust body of ecological studies (studies using aggregate community- or neighbourhood-level data for both the outcome and the exposure of interest) focusing on how densities of alcohol outlets such as bars and liquor stores relate to rates of alcohol-related crime [9], violent crime [10] and child abuse [11, 12]. Although these social problems often are attributed to increased alcohol consumption in areas with greater availability of alcohol, ecological studies such as these do not explicitly test this assumption. In addition to examining the role of alcohol outlets in alcohol-related harm, studies have often assessed the contribution of neighbourhood socioeconomic status (SES) to alcohol outcomes such as heavy drinking and alcohol problems [reviewed in 13]. A relative few studies have examined associations of alcohol-related social harms with neighbourhood SES, however. Wechsler and colleagues [14] found respondents in US communities with lower SES reported witnessing more negative

consequences of others' drinking such as fighting, vandalism or public urination by people who had been drinking. However, a recent study from Australia found neighbourhood disadvantage was not associated with five harms attributed to strangers who had been drinking such as night-time disturbances, property damage, or public urination and vomiting [15]. Another study of rural communities in New South Wales, Australia, found *increasing* SES was associated with higher alcohol-related crime rates [9]. The small number of studies, and their conflicting results, suggest additional research in this area is warranted. Thus, we examine relationships of neighbourhood socioeconomic disadvantage with alcohol-related family problems and personal victimisation by someone who had been drinking using a multilevel approach that links neighbourhood-level data on residents' SES with individuals' reports of these harms.

There are two key mechanisms by which neighbourhood disadvantage may increase alcohol's harms to others. First, disadvantage causes chronic strain that may deplete residents' psychosocial resources [16] and prompt some to drink alcohol to cope with stress or reduce tension [17]. Thus, the stress of living in a disadvantaged neighbourhood may increase residents' alcohol-related family problems. Gender differences in this effect are likely. Because men are more likely to drink heavily than women [18, 19], their family members, particularly women [4], may bear increased risks of harms related to their drinking. This may be heightened in disadvantaged neighbourhoods, as neighbourhood disadvantage often shows stronger effects on men's drinking than on women's [20, 21].

Second, socioeconomically disadvantaged neighbourhoods often are socially disorganised and lack strong social control of risky or deviant behaviours [22, 23]. Heavy per occasion drinking was associated with lack of neighbourhood cohesion in a New Zealand study taking account of both perceived and area-based cohesion measures [24]. Additionally, problems related to alcohol use, such as fights or vandalism, may contribute to general disorder in disadvantaged areas. As such, indicators of neighbourhood disorder often include public drunkenness and other nuisances associated with alcohol [see, for example, 25, 26]. Again, gender differences are likely. Because men may congregate more with heavy drinkers than women [27], their risk of experiencing harms such as aggression from those drinkers is increased [28]. These risks may be even more pronounced in disadvantaged neighbourhoods.

Consonant with these theories, we hypothesised that family problems and crime victimisation due to someone else's drinking each would be more common in disadvantaged neighbourhoods compared to other neighbourhoods. We further expected women in disadvantaged neighbourhoods to be at higher risk of family problems from others' drinking than their male counterparts, while men in disadvantaged neighbourhoods would be at higher risk than women of crime victimisation by other drinkers.

Methods

Dataset

Data for the current study come from the 2000 and 2005 National Alcohol Surveys (NAS). The NAS involves computer-assisted telephone interviews with randomly-selected samples

of US adults. Oversamples of African Americans, Hispanics and residents from sparsely-populated US states also were included in both 2000 and 2005. Data were collected under approval of the Institutional Review Board of the Public Health Institute, Oakland, CA. The methodology is described in more detail by Greenfield and colleagues [29].

The 2000 NAS included 7,613 respondents ages 18 and older (58% response rate), and the 2005 NAS included 6,919 respondents ages 18 and older (56% response rate). These response rates are typical for contemporary random-digit dial telephone surveys conducted in the US [30], and some evidence suggests that low response rates for telephone surveys may be less biasing than those for face-to-face interviews [31]. The analysis sample for the current study includes 10,121 respondents (2,550 from the 2005 NAS, with the remainder from the 2000 NAS) who were randomly selected to answer questions about alcohol's harms to others.

Geocoded respondent addresses had a 97% accuracy rate in comparison to the gold standard recommended by Krieger and colleagues [32]. Survey data were matched with indicators of neighbourhood disadvantage from the 2000 Census [33] at the census tract level. Census tracts are effective for delineating contextual socioeconomic determinants of substance use [13]. Most cases (60%) had geocodes assigned based on the street address; the remainder had a geocode assigned based on the ZIP Code centroid.

Preliminary analyses determined that associations between neighbourhood disadvantage and alcohol's harms to others did not differ by survey year or for cases with more precise versus less precise geocodes (data available upon request). Regardless, all analyses adjusted for survey year and the precision of the geocode to adjust for main effects of these variables.

Measures

Neighbourhood disadvantage—We defined neighbourhood disadvantage using a composite indicator based on the mean of five items from the US 2000 Census which are easily-interpretable and socially-relevant markers of an area's SES[34]: the proportions of people with incomes below poverty, families with incomes below 50% of the US median, households without access to a car, adults without a high school diploma and males who were unemployed or not in the labour force (Cronbach's alpha=.90). Preliminary analyses suggested non-linear relationships of neighbourhood disadvantage with the different harms, so the current analyses use a dichotomous indicator to identify those neighbourhoods in the top quartile on neighbourhood disadvantage (M=33.8%, SD=8.9% residents with low SES) versus all others (M=14.2%, SD=4.9% residents with low SES).

Alcohol's harms to others—*Family problems* was measured with dichotomous variables indicating whether the respondent had experienced (a) marriage difficulties and/or (b) financial trouble due to someone else's drinking during the past 12 months. Among those reporting past-year family problems, 89.6% reported marriage difficulties and 25.8% reported financial troubles. Reports of the two harms were significantly correlated (r=.31, p<.001), but both items identified unique respondents who had experienced family problems due to another person's drinking in the past year.

Crime victimisation was measured with dichotomous variables indicating whether the respondent (a) had property vandalised and/or (b) had been pushed, hit or assaulted during the past 12 months by someone who had been drinking. Among those reporting past-year crime victimisation, 45.1% reported vandalism of their property and 71.5% reported physical victimisation. Reports of the two harms were significantly correlated (r=.26, $p<.001$), but both items identified unique respondents who had experienced victimisation by someone who had been drinking.

Control Variables—In models assessing relationships of neighbourhood SES with individual-level outcomes, it is important to control for the individuals' SES as it is a likely confounder of any observed associations between neighbourhood context and behaviour [13, 35]. Neighbourhood and individual SES also have independent effects on health and behaviour[36]. Thus, the multivariate models adjusted for employment status (three dummy variables for unemployed, retired, and homemaker, with employed as reference), total household income before taxes (ranging from under $20,000 to more than $80,000/year in $20,000 increments) and education (with ordered categories for less than high school, high school graduate, some college, college graduate).

Multivariate analyses also adjusted for family history of alcohol dependence (indicator variable for respondents who lived with a problem drinker when growing up and/or have a biological relative who is or was an alcoholic), male gender, age (continuous), race/ethnicity (three mutually-exclusive dummy variables for African American, Hispanic, and Other, with Caucasian as reference), and marital status (two mutually-exclusive dummy variables for "separated, divorced or widowed" and for "never married," with "married or living with a partner" as reference). As noted above, multivariate models also included indicators of geocoding precision (whether geocode was based on ZIP code match vs. street address) and survey year (2000 NAS as reference).

Analysis Strategy

Because the national samples were selected by random-digit dialling, only 3% of neighbourhoods contained more than 5 respondents (maximum was 9 in any specific neighbourhood), and, with minimal clustering of the data, multilevel analysis was not required [37]. Analyses consisted of unadjusted and multivariate logistic regression. In multivariate models, interactions of gender and neighbourhood disadvantage were tested; moderation terms were dropped if they were not statistically significant (using $p<.10$ due to the reduced power to detect interaction effects in multivariate models [38]). Gender-stratified multivariate models were used to facilitate interpretation of the interaction models. All models used weights to adjust for sampling design and non-response.

Results

Descriptive Analyses

The sample was 54% female. The average age was 44.4 years. The majority of respondents (69%) were White, 13% were African American, 13% were Hispanic and 5% were another race/ethnicity. Men and women were equally likely to report any alcohol-related harm due

to someone else's drinking in the past year(9.0% men; 8.7% women), but more women (6.1%) reported an alcohol-related family problems than men (3.4%), and more men (6.7%) reported crime victimisation due to someone else's drinking than women (4.1%).

Regression Models

Bivariate logistic regression models for the full sample (Table 1) showed neighbourhood disadvantage was positively associated with the odds of reporting past-year harms due to someone else's drinking. Stratified bivariate models (also in Table 1) revealed some gender differences in associations of neighbourhood disadvantage with the harms due to others' drinking, with stronger relationships between disadvantage and family problems for men than for women and between disadvantage and crime victimisation for women than for men.

In multivariate models for the full sample (Table 2), the association of neighbourhood disadvantage with any past-year harm was reduced to non-significance after accounting for individual characteristics. There were significantly elevated odds of reporting any past-year harm for respondents with a family history of alcohol dependence; for younger, unemployed and lower-income respondents; as well as for those who were separated, divorced, or widowed. Multivariate associations of neighbourhood disadvantage with the two specific sub-types of harms due to someone else's drinking were moderated by gender. Gender-stratified models revealed significantly higher odds of family problems in disadvantaged neighbourhoods for men, with no relationship between disadvantage and family problems for women, as well as significantly higher odds of crime victimisation in disadvantaged neighbourhoods for women, with no relationship between disadvantage and crime victimisation for men.

Discussion

In bivariate models, neighbourhood disadvantage was positively associated with alcohol's harms to others, with significant associations for both family problems (although marginally so) and crime victimisation due to someone else's drinking. Multivariate associations were moderated by gender, with a stronger association between disadvantage and alcohol-related family problems among men and a stronger association between disadvantage and alcohol-related crime victimisation among women.

The moderation findings were counter to our hypotheses, as we anticipated greater risk in disadvantaged neighbourhoods of family problems for women and of crime victimisation for men. Overall, regardless of neighbourhood context, women were significantly more likely to experience family problems than men, while men were at increased risk of crime victimisation than women. This pattern is consonant with prior research showing gender differences in experiences of these two types of alcohol-related harms due to another person's drinking [2, 4, 7]. However, neighbourhood disadvantage puts both men and women at elevated risk for types of harms that they typically are *less* likely to experience. These heightened risks of alcohol's harms to others experienced in disadvantaged neighbourhoods—for men, increased family problems, and for women, increased victimisation—has not been documented in any prior studies and merits replication. By focusing on factors in the neighbourhood environment, we should be able to develop a more

nuanced understanding of social determinants of alcohol's harm to others, going beyond the prior emphasis on characteristics of the victims or the drinkers causing these harms.

Our study adds to the relatively small body of literature [14, 15]that examines neighbourhood determinants of alcohol's harms to others using a contextual framework with data from general population samples. Our focus was limited to the socioeconomic context, and future studies of alcohol's harms to others examining the role of alcohol availability would be informative. It is possible that the effects of neighbourhood disadvantage, particularly on alcohol-related violence and property crimes, is mediated by alcohol availability. Disadvantaged neighbourhoods in the US often suffer from a proliferation of alcohol outlets [39], which have been linked with both higher alcohol consumption [40] and crime [9, 10]. Self-reported proximity to alcohol outlets was associated with harms from others who had been drinking in an Australian study [15], and one US study around college campuses found effects of lower community-level SES on negative consequences of students' drinking was partially mediated by self-reported alcohol outlet density near respondents' homes [14]. Another area for future research is examining the contribution of neighbourhood social control to alcohol's harms to others. It is likely that the more private harms, such as family problems due to someone else's drinking, would not be as strongly influenced by external social controls as would more public harms such as alcohol-related crime victimisation.

In addition to neighbourhood disadvantage, there were other important correlates of harms due to others' drinking. Consonant with the prior literature, risks were higher for people who were unemployed, while they were lower for those who were older and had higher incomes. Marital status was protective for alcohol-related crime victimisation, but the lowest risk for family harms due to another's drinking was among those who had never been married. There also was a strong association of a family history of alcohol dependence with all of the past-year harms due to another's drinking. There were no differences by race/ethnicity. An earlier US study considered gender differences in a larger set of harms perceived to be caused by drinkers using the 2005 NAS [7], but without the benefit of the much larger combined sample size or the geo-referenced neighbourhood data. The present study and future research that builds upon it should lead to more complete conceptualisations of how —maybe in distinct ways—women and men become victimised by others who drink, while accounting for the victim's personal characteristics, structural aspects like being partnered and/or having children, transactional features such as drinking in the event by the victim, as well as neighbourhood characteristics such as disadvantage and alcohol availability.

Despite the innovations, there are some limitations to this study that deserve mention. The data are cross-sectional, and causal attribution (that is, assuming exposure to neighbourhood disadvantage caused the reported harms) should be made with caution. Alcoholics are more likely to gravitate to disadvantaged neighbourhoods over time [41], and it may be that partners of such heavy drinkers are the ones reporting family problems. Multivariate models also adjusting for the respondents' own heavy drinking showed the same pattern of results as the models presented here (data available upon request); it is unclear whether downward social migration would account for the remaining effects observed. Another caveat relates to the subjectivity of assessment [42]. Harms due to others' drinking are perceptions, and in the

case of strangers, events may be mis-attributed to alcohol. An additional limitation is that we do not know whose drinking it was that led to the report of being victimised by another's drinking. In future studies, we need to gather more information on who the perpetrators were —partners, specific family members, friends or acquaintances, or strangers [2, 4]. In the present study it may be surmised that family problems stem mostly from another family member's drinking, often a partner. Still, more specificity is needed, as there may be gender differences in some harms such as financial problems due to a co-worker's drinking, which may be more prevalent among men [4]. A remaining research question is to understand the alcohol-attributable fraction of these harms from others' drinking, since drinking does not inevitably generate such externalities. This has been done for injuries attributed to another's drinking [43].

This is one of the first studies of alcohol's harms to others that uses US national data linked to area-level indicators of neighbourhood disadvantage. The current study avails itself of a large sample and broadens our understanding by considering potential effects of harm from recipients' surroundings (though a limitation is that we do not know whether the reported harm actually occurred in the neighbourhood or elsewhere). One important reason to include the neighbourhood context when assessing alcohol-related harms to others is that, for policy purposes, the knowledge of the interaction between personal and environmental risk factors may provide clues for devising viable interventions or public health measures that can better deploy limited prevention resources. Certain environments may offer fewer social cues supporting socially-appropriate behaviour, including those cues known to attenuate alcohol-related aggression by intoxicated individuals under experimental conditions [44]. Besides potential remedies addressing the built and social environments, screening and brief interventions (with referrals to treatment) may help residents of disadvantaged areas by reducing alcohol-related self-harm as well as harms to others [45]. Furthermore, when information on drinking contexts as well as the macro-environment is collected, we could more cost-effectively target programs that train bar staff to defuse potentially violent situations [46, 47]. Since alcohol's harms to others is a burgeoning area of study by epidemiologists and other alcohol researchers, we recommend that future surveys gather geographically-referenced data to allow detailed analyses of the role of the environment in creating such alcohol-related harms.

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Table 1

Unadjusted odds of experiencing harms from others' drinking in the past year by adult respondents in the 2000 and 2005 National Alcohol Surveys

	Any harm in past year[a]	**Any family problem**[b]	**Any crime victimisation**[c]
	OR (95% CI)	***OR (95% CI)***	***OR (95% CI)***
	Full Sample (Weighted *N*=9,937)		
Disadvantaged neighbourhood [d]	1.34 (1.13, 1.59)**	1.25 (0.99, 1.57) †	1.59 (1.29, 1.96)**
	Men Only (Weighted *N*=4,776)		
Disadvantaged neighbourhood	1.46 (1.13, 1.84)**	1.64 (1.12, 2.41)**	1.40 (1.06, 1.85)*
	Women Only (Weighted *N*=5,160)		
Disadvantaged neighbourhood	1.25 (0.98, 1.59) †	1.06 (0.80, 1.41)	1.92 (1.39, 2.66)**

[a] *Any harm* includes both family problems and crime victimisation.

[b] *Any family problem* includes marriage difficulties and financial trouble due to someone else's drinking.

[c] *Any crime victimisation* includes property vandalism and physical victimisation by someone who had been drinking.

[d] Non-disadvantaged neighbourhood is reference.

† $p<.10$.

* $p<.05$.

** $p<.01$.

Table 2

Adjusted associations between residence in a disadvantaged neighbourhood and harms due to others' drinking in the past year reported by adult respondents to the 2000 and 2005 National Alcohol Surveys

	Full sample (Weighted N=8,537)			Men only (Weighted N=4,244)		Women only (Weighted N=4,294)	
	Any harm in past year	Family problems	Crime victimisation	Family problems	Crime victimisation	Family problems	Crime victimisation
Covariates	*OR (95% CI)*	*OR (95% CI)*	*OR (95% CI)*	*OR (95% CI)*	*OR (95% CI)*	*OR (95% CI)*	*OR (95% CI)*
Disadvantaged NBH [a]	1.09 (0.90, 1.33)	0.86 (0.63, 1.18)	1.65 (1.17, 2.33)**	1.60 (1.02, 2.49)*	1.15 (0.83, 1.59)	0.81 (0.59, 1.12)	1.47 (1.04, 2.08)*
Male gender	1.06 (0.88, 1.28)	0.47 (0.34, 0.64)**	2.09 (1.55, 2.81)**				
Disadvantaged* Male	---[h]	1.71 (1.03, 2.82)*	0.65 (0.41, 1.04)†				
Family history [b]	1.91 (1.58, 2.30)**	2.37 (1.83, 3.06)**	1.62 (1.29, 2.05)**	2.12 (1.38, 3.27)**	1.62 (1.20, 2.17)**	2.60 (1.88, 3.60)**	1.71 (1.16, 2.52)**
Age	0.96 (0.96, 0.97)**	0.98 (0.97, 0.99)**	0.95 (0.94, 0.96)**	0.99 (0.97, 1.01)	0.95 (0.93, 0.97)**	0.97 (0.96, 0.99)**	0.95 (0.93, 0.97)**
Separated/divorced/widowed [c]	1.53 (1.18, 1.99)**	1.22 (0.87, 1.70)	1.95 (1.39, 2.73)**	2.02 (1.17, 3.47)**	2.24 (1.43, 3.51)**	0.98 (0.65, 1.49)	1.57 (0.95, 2.61) †
Never married [c]	1.06 (0.85, 1.32)	0.62 (0.45, 0.85)**	1.33 (1.01, 1.74)*	0.88 (0.54, 1.44)	1.46 (1.04, 2.06)*	0.49 (0.33, 0.75)**	1.14 (0.73, 1.78)
Unemployed [d]	1.34 (1.05, 1.70)*	1.43 (1.05, 1.95)*	1.32 (0.98, 1.78) †	1.92 (1.19, 3.10)**	1.42 (0.96, 2.09) †	1.15 (0.77, 1.71)	1.16 (0.73, 1.82)
Homemaker [d]	1.19 (0.80, 1.79)	1.12 (0.72, 1.75)	1.25 (0.70, 2.25)	12.77 (1.35, 120.43)*	5.61 (0.70, 44.97)	0.96 (0.61, 1.51)	1.00 (0.53, 1.89)
Retired [d]	1.03 (0.64, 1.67)	1.04 (0.59, 1.82)	0.86 (0.39, 1.94)	0.98 (0.35, 2.72)	0.93 (0.31, 2.74)	1.08 (0.56, 2.08)	0.76 (0.23, 2.54)
Income	0.91 (0.84, 0.98)*	0.90 (0.81, 1.00)*	0.88 (0.79, 0.97)**	0.95 (0.80, 1.12)	0.91 (0.80, 1.04)	0.87 (0.76, 0.99)*	0.79 (0.67, 0.94)**
Education	0.94 (0.86, 1.04)	0.91 (0.80, 1.04)	1.03 (0.92, 1.17)	0.92 (0.75, 1.14)	1.12 (0.96, 1.31)	0.89 (0.75, 1.05)	0.91 (0.75, 1.12)
African-American [e]	0.92 (0.72, 1.17)	0.86 (0.62, 1.20)	0.94 (0.70, 1.26)	0.50 (0.27, 0.92)*	0.95 (0.64, 1.42)	1.08 (0.72, 1.61)	0.91 (0.59, 1.39)
Hispanic/Latino [e]	1.03 (0.81, 1.32)	1.07 (0.78, 1.48)	1.04 (0.77, 1.42)	1.09 (0.63, 1.88)	0.91 (0.61, 1.35)	1.06 (0.71, 1.57)	1.28 (0.80, 2.06)
Other race/ethnicity [e]	1.05 (0.72, 1.53)	1.32 (0.82, 2.12)	0.95 (0.59, 1.53)	0.99 (0.41, 2.43)	0.64 (0.34, 1.21)	1.53 (0.87, 2.69)	1.60 (0.80, 3.23)
2005 NAS [f]	0.73 (0.58, 0.92)**	0.69 (0.51, 0.93)**	0.72 (0.54, 0.96)*	0.55 (0.32, 0.92)*	0.77 (0.53, 1.12)	0.79 (0.55, 1.14)	0.66 (0.42, 1.04) †
Geocode precision [g]	0.91 (0.76, 1.10)	0.93 (0.73, 1.18)	0.88 (0.70, 1.11)	1.01 (0.67, 1.50)	0.94 (0.70, 1.27)	0.89 (0.66, 1.20)	0.80 (0.55, 1.15)

[a] Non-disadvantaged neighbourhood (NBH) is reference.

[b] Family history includes having a biological relative with an alcohol problem and living with an alcoholic or problem drinker while growing up.

[c] Married/living with a partner is reference.

[d] Employed is reference.

[e] Caucasian is reference.

[f] 2000 National Alcohol Survey (NAS) is reference.

[g] ZIP-code level geocode vs. street-level match.

[h] Interaction term not statistically significant ($p>.10$).

† $p<.10$.

* $p<.05$.

** $p<.01$.