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Epidemiology of Alcohol Abuse Among US Immigrant Populations

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Abstract

The knowledge of racial and ethnic variations in alcohol abuse among US immigrants is limited. We compared the prevalence and correlates of alcohol abuse among US foreign-born versus US-natives by race-ethnicity using data from the National Epidemiological Survey on Alcohol and Related Conditions. Alcohol abuse outcomes included clinical diagnosis, excessive drinking, and intoxication. The foreign-born respondents had lower rates of alcohol abuse than the US-born, but some variations were noted by race-ethnicity. The risk of clinical diagnosis due to traumatic events was higher for the foreign-born population. Future research should continue to investigate the role of stress, the specific traumatic events most problematic for immigrant groups, and the interplay of the original and host culture in shaping the patterns of alcohol abuse in the immigrant population.

Keywords

Immigrant status; Race/ethnicity; Alcohol abuse; Alcohol dependence; Excessive drinking; Epidemiology

Introduction

The epidemiology of alcohol abuse among US immigrants is poorly developed but of increasing importance as the US population becomes more diverse. The foreign-born population has more than tripled since 1970 [1,2], and it currently constitutes 12.5% of the US population [3,4]. Past research indicates that when most immigrants enter the US, their risk of alcohol abuse is lower than in the native population, even among those of the same ethnicity [5]. However, the longer immigrants stay, the greater are their risks for alcohol abuse.

There has been considerable variability across ethnicity and country of origin in patterns of immigrant alcohol abuse. In historical research, Malzberg [6] found high variability of

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alcohol abuse by country of origin among the foreign-born, with Irish having higher than average and Italians lower than average standardized rates. Much of current knowledge is based on the literature examining drinking among Hispanics/Latinos and Asians. For example, studies show that among Latinos generally drinking becomes heavier with each generation [7]. Foreign-born Latinos are also less likely to experience DSM-IV substance use disorders [8] than are US-born Latinos [9]. Asian immigrants also tend to have lower rates of substance use disorders [10], but their alcohol use patterns vary by country of origin [7,11]. Some exceptions are found among immigrant Japanese women who tend to have higher rates of moderate and heavy drinking than women in Japan, and immigrant Japanese men have *higher* rates of drinking than American-born Japanese men [7]. Notably, alcohol use is increasing significantly among Asian Americans [12].

Patterns of alcohol abuse among other immigrant populations are still largely unknown. Although Mexico and China have been the leading countries of origin among the foreign-born in the recent decades, the top ten countries also included Germany, Italy, and the Soviet Union [4]. Rates of alcohol use are very high for some of these countries [13], and several studies describe alcohol-related problems among European immigrants [14–16]. Few studies have considered the impact of nativity on alcohol abuse among individuals of African descent. In this group, nativity was found to be related to the likelihood of any substance use disorder in the past year, with the risk being lower for foreign-born men and women [17]. More research is needed to confirm this finding.

Several explanations have been offered for variations in alcohol use/abuse in the immigrant population. According to the *multiculturalism* perspective, alcohol use occurs worldwide but is not uniform throughout the world, and migrants take their drinking habits with them [18]. For example, compared to Africa and Asia, consumption is generally higher in Europe and North America [18]. These regional variations in alcohol use likely produce similar patterns within multicultural societies, such as the US.

The host society also shapes alcohol-related practices of immigrants. This occurs through *acculturation*, a process between two cultural groups, which results in numerous cultural changes in both parties, but has greater impact on the nondominant group [19]. Acculturation may be a powerful factor in alcohol use among immigrants when the protective elements of the original culture (families, elders) are absent in the new country. The learning perspective postulates that if the average level of drinking is higher in the host country than in the country of origin, then through acculturation and assimilation, the average immigrant will begin to drink more than she/he did in their old culture [7]. Acculturation and measures of assimilation (e.g., length of time in the host country) have been linked to increased substance abuse in many studies, mainly of US Hispanics [5,20]. Evidence suggests that drinking frequency increases as acculturation increases across generations [21]. Once assimilated, ethnic minorities such as Hispanics carry a disproportionate burden of alcohol-attributable mortality (e.g., suicide) [22,23]. Concentration of ethnic minorities in inner-cities and alleged alcohol marketing of at-risk ethnic groups (e.g., high density of alcohol-related bill-board advertising in Latino communities) [24] exacerbate the problem.

Another risk factor is acculturative stress. The experience of immigration is often disorienting and stressful [25]. As “dislocated persons,” immigrants may show signs of psychological distress manifesting itself in excessive drinking [20,26]. Immigration can be especially stressful when involuntary (as among Cambodian refugees escaping violence) [27,28]. These immigrants may never stop grieving the loss of their home culture. Also, the fact that males often migrate first and wait for their families to join them, adds to stress. Studies have reported correlations between substance abuse and measures of acculturative

stress (e.g., loneliness, social isolation, family separation, economic worries) [20]. In addition, racial-ethnic discrimination and prejudice are major stressors linked to increased substance use [29,30], as well as traumatic events [31,32] (e.g., death in a family, job loss) [33], though their effects may vary by race-ethnicity [34].

Achieving clear explanations for the impact of immigration on alcohol abuse across racial-ethnic groups has been challenging. Most research to date has relied on small, regionally specific samples that often include only a single racial-ethnic group or do not include comparisons to US-born adults of the same race-ethnicity. Prior work also often fails to include factors known to affect alcohol use and that may vary by nativity (e.g., age, education) [35,36].

In this study, we addressed some of the limitations of prior research and sought to better understand the epidemiology of alcohol abuse in the foreign-born population. Using nationally representative data, we compared the prevalence of clinical alcohol abuse/dependence and drinking behaviors in the foreign-born and the US-born populations. We extend current knowledge by simulta-neously considering a fuller array of racial-ethnic populations and a broad range of factors associated with alcohol abuse.

Methods

Data

Data for the study are derived from Wave 1 (2001–2002) of the National Epidemiological Survey on Alcohol and Related Conditions (NESARC) [37]. The NESARC is a nationally representative sample of the civilian, non-institutionalized population aged 18 years or older and is the primary source of recent data on alcohol abuse for the US population. The NESARC sampling frame included households and non-institutional group quarters (boarding houses, nontransient motels, shelters, and living quarters for and college students), capturing subgroups with heavy substance abuse patterns that are not often included in general surveys. The survey was conducted through face-to-face interviews and over-sampled blacks, Hispanics, and 18–24 year olds. The overall response rate was 81% providing a total of 43,093 respondents. The NESARC provides weights to adjust for its complex sampling design and non-response at the household- and person-level.

In our data set, less than 1% of values were missing for drinking behaviors and nativity. We used multiple imputation (MI) techniques to minimize problems introduced by missing data [38,39]. We conducted MI by chained equations [40–42] to create five imputed datasets (SAS [43] MI procedure) that were analyzed using standard techniques. The final results from the MI procedures generated parameter estimates based on the pooling of results from the analyses using five imputed data sets with final standard errors adjusted for uncertainty in the estimates resulting from variability across the imputed samples [38]. For this step, we used the SUDAAN program [44].

Measures

Dependent Variables—Clinical alcohol abuse/dependence was measured with the NIAAA Alcohol Use Disorder and Associated Disabilities Interview Schedule—DSM IV [45]. A binary measure of clinical diagnosis (last 12 months) was constructed by combining three original categories: “alcohol abuse only,” “alcohol dependence only,” and “alcohol abuse and dependence” (vs. “no alcohol diagnosis”). Exceeding the low-risk daily drinking limit, or excessive drinking, was defined as five or more drinks for men and four or more drinks for women at least 1–2 times in the last 12 months. This is based on NIAAA’s

guidelines [46] for being at risk for alcohol-related problems. Intoxication was defined as having drunk enough to feel intoxicated at least 1–2 times in the last 12 months.

Independent Variables—*Nativity* was dichotomized as US-/foreign-born. To assure sufficient statistical power and meaningful group comparisons, NESARC's 58 origin/ethnic descent categories were collapsed into seven *racial-ethnic origin groups*: African, European, Asian/Pacific Islander, Mexican, Puerto Rican, "Other Hispanic/Latino", and "Other/unknown origin." *Length of stay* in the US was measured in years. Acculturative stress was not specifically assessed in the NESARC. We used *traumatic events* in the last 12 months as a proxy for recent stressful experiences and assessed them by summing 12 items: death of someone close, illness of self/someone close, living arrangement change, trouble with boss/co-worker, change of job responsibilities, marital breakup, problems with neighbor/friend/relative, job loss/unemployment, financial crisis, own/relative's trouble with police, and criminal victimization of self/relative. The Cronbach's alpha for the items was 0.63, consistent with other research using the same data [47].

Other correlates of alcohol abuse included: sociodemographics (age, gender, marital status, household size, and US region); socioeconomic variables (education, work status, family income, public assistance, and housing arrangement); childhood trauma (not living with biologic/adoptive parent/s; parental death/divorce/separation before age 18); and, self-reported health. The distribution of these variables according to nativity and racial-ethnicity is shown in Appendix.

Analysis

Hypotheses—Based on the past literature, we hypothesized that (1) The rates of alcohol abuse would be higher in the US-born than the foreign-born population, but they would vary based on race-ethnicity; for example, immigrants from advanced industrial societies (e.g., Europe) would have higher rates of alcohol abuse than immigrants from less developed regions (e.g., Latin America); (2) Immigrants' risk of alcohol abuse would increase with length of stay; (3) Traumatic events would be associated with higher rates of alcohol abuse among immigrants and natives; and (4) Alcohol abuse would generally be associated with younger age, male gender, and lower education, income, and work status [36].

Procedure—Multivariate logistic regression models were used in analyzing the dependent variables, including associations between dependent variables and length of stay in the foreign-born subsample. Estimates of odds and/or odds ratio derived from logistic models were adjusted by the NESARC sample weight. Variances of odds and/or odds ratio were estimated with a Taylor series linearization (generalized estimation equation) to account for within-cluster correlation in the complex sampling design.

Results

The prevalence of each alcohol abuse outcome was significantly lower among foreign-born than US-born respondents (Table 1). This difference persisted across racial-ethnic groups with some variations. Excessive drinking was reported more frequently than the other outcomes for both US- and foreign-born. The largest, threefold difference was observed in the rate of excessive drinking between the foreign-born Asians/Pacific Islanders and their US-born counterparts. Substantial differences in excessive drinking were also observed among the other racial-ethnic groups, including Europeans, Mexicans, "Other Hispanics/Latinos," and Africans. The lower prevalence of clinical alcohol abuse/dependence in the foreign-born versus the US-born respondents also persisted across the racial-ethnic groupings, except for Europeans and Puerto Ricans. For intoxication, the lowest rate was observed for the foreign-

born Africans and Asians/Pacific Islanders; Puerto Ricans and “Other Hispanics/Latinos” had similar rates regardless of nativity.

The multivariable results (Tables 2, 3, 4) show that most of the nativity-based differences in the prevalence of any of the alcohol abuse outcomes were explained after adjustment for length of stay, stress, and other factors. Some but not all of the correlates remained significant in the multivariate models. Notably, length of stay was not associated with any of the outcomes in the foreign-born population, regardless of racial-ethnicity and after controlling for other factors.

As expected, traumatic events were associated with increased risk of any of the alcohol abuse outcomes in both US-born and the foreign-born population, controlling for other factors. However, the risk of clinical abuse/dependence due to traumatic events was higher for the foreign-born than the US-born population overall, as well as for the foreign-born vs. US-born Asians/Pacific Islanders specifically (Table 2). Furthermore, though traumatic events did not significantly increase the risk of intoxication among US-born Asians/Pacific Islanders, they did so for their foreign-born counterparts (Table 4). Item-level analyses (available upon request) showed that death of someone close increased the risk of intoxication in the foreign-born but not the US-born Asians/Pacific Islanders. Also, crises involving close family or friends (e.g., marital breakup, illness, death) had a greater effect on excessive drinking among the Asians/Pacific Islanders foreign-born than their US-native counterparts.

The relationships between the alcohol abuse variables and the sociodemographic factors were also largely as expected. For example, being female or older significantly reduced the odds of experiencing any of the alcohol abuse outcomes for most groups. On the other hand, not being married increased the risk of each of the alcohol abuse outcomes regardless of nativity or racial-ethnic status. A few nativity-based and racial-ethnic differences were found. For instance, the odds of excessive drinking and intoxication did not decrease with age as much for the foreign-born as for the US-born overall (Tables 3, 4). Also, the foreign-born women of Asian/Pacific Islander origin had similar odds of drinking to intoxication as their male counterparts (Table 4). Furthermore, the foreign-born Asians/Pacific Islanders who were widowed, divorced, or separated actually had more than 50% lower odds of clinical alcohol abuse/dependence than their married counterparts (Table 2).

Notably, the relationships between the alcohol abuse variables and the socioeconomic variables were largely non-significant, after adjustment for the acculturation, stress, and sociodemographic factors—with a few exceptions. For example, among the US-born overall, the odds of excessive drinking were higher for those with less than a college degree vs. those with a college degree (Table 3). Also, those with some college education had higher odds of clinical alcohol abuse/dependence than those with a college degree, regardless of nativity; however, the odds were higher for the foreign-born than US-born (Table 2). Another exception was that family income was associated with decreased odds of excessive drinking for the foreign-born and US-born overall, though the odds for the US-born were slightly more favorable (lower). Furthermore, the foreign-born Mexicans who were unemployed had 60% lower odds of excessive drinking than their employed counterparts (Table 3).

Discussion

The expected growth of the foreign-born population calls for a deeper understanding of the health challenges of immigrant groups, including their needs related to alcohol abuse. This study used data from a large national survey to investigate variation in alcohol abuse

patterns between US-and foreign-born adults across racial-ethnic groups. Our findings confirmed past research showing lower rates of alcohol abuse in the foreign-born population vis-á-vis the US-born population as well some variations in the rates by racial-ethnic origin. Notably, foreign-born Puerto Ricans and "Other Hispanic/Latino" (e.g., Cubans, South Americans) had alcohol abuse rates similar to US-natives', suggesting that they may be at a higher risk of alcohol abuse vis-á-vis other foreign-born groups. In contrast, foreign-born Mexicans, with their relatively low rates, seem to be better protected. Foreign-born Asians/Pacific Islanders had the lowest rates of alcohol abuse, followed closely by the foreign-born of African descent. These findings are consistent with a recent report [17] from another national dataset showing the relatively low prevalence of alcohol abuse among foreign-born Africans.

Our findings provide support for the acculturative stress hypothesis. In our study, traumatic events were associated with an increased likelihood of alcohol abuse regardless of nativity, controlling for other factors. However, traumatic events tied to health problems and close relationships posed a greater risk of alcohol abuse for the foreign-born than the US-born Asians/Pacific Islanders. Although generally the foreign-born appear to be less likely to abuse alcohol, this finding suggests that the impact of some traumatic events may be more challenging for foreign- than US-born Asian/Pacific Islander adults, contributing to higher levels of alcohol abuse. Programs that provide additional support for immigrants experiencing traumatic life changes may aid in reducing stress and preventing adoption of harmful drinking behaviors. Other research already suggested that alcohol-related prevention and treatment efforts may be more effective when based on an understanding of the ethnic context [48,49]. Interestingly, Asian Americans tend to utilize personal resources rather than professional help to address their alcohol problems, but some strategies have been proposed to overcome this issue [50].

Finally, the findings generally support our hypotheses regarding sociodemographic factors associated with alcohol abuse in the foreign-born population. Namely, alcohol abuse in the foreign-born population was associated with male gender, younger age (with few exceptions), lower education, and lower work status. Against our expectations, length of stay was not associated with an increased risk of alcohol abuse in the foreign-born population after controlling for other factors. Our control for traumatic events may reduce some of the variation in alcohol abuse that is tied to length of stay through acculturative stress. Alternatively, ethnic-based residential concentrations of some immigrant groups (e.g., ethnic enclaves) may buffer the impact of the host culture in altering alcohol use patterns established in the home country.

The study findings are limited in that they are based on cross-sectional data that cannot confirm causal relationships between some of the associated factors (e.g., income, traumatic events) and alcohol abuse. Another concern is potential sample selection bias due to the sampling procedures that may exclude illegal immigrants and individuals with the lowest income and poorest health. Aggregation of some ethnic groups due to limited cell sizes also may mask important heterogeneity in the outcome variables [51]. As with other survey data, the NESARC's self-report data may be biased due to recall errors and social desirability tendencies among respondents. How-ever, nativity-based differences in substance abuse appear not to be affected by these factors [5]. An additional study limitation is that though a correlate of acculturation (length of time in the US [52]) is included, it is unlikely to capture fully the acculturation process or its impact on alcohol abuse [5].

Despite these limitations, we have enhanced the existing literature on alcohol abuse in the US immigrant populations and have identified subgroups that might be at increased risk of alcohol problems. Future research should investigate the role of stress (especially, stress

associated with the immigration process), the specific traumatic events most problematic for immigrant groups, and the interplay of the original and host culture in shaping the patterns of alcohol abuse in the immigrant population. However, longitudinal data are needed to better document the contribution of acculturation and stress to alcohol abuse, as well as the diagnosis and treatment patterns, among various immigrant groups.

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Appendix

See Table 5.

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Table 1

Prevalence of alcohol abuse in the US-born and foreign-born, by nativity and racial-ethnic origin: NESARC 2001–2002

	Clinical alcohol abuse/ dependence[a] (% ± SE in %)	**Excessive drinking[b] (% ± SE in %)**	**Intoxication[c] (% ± SE in %)**
All			
US-born	6.11 ± 0.22	11.26 ± 0.29	4.86 ± 0.17
Foreign-born	3.99 ± 0.50***	6.39 ± 0.67***	2.93 ± 0.41***
African			
US-born	4.20 ± 0.26	6.57 ± 0.37	3.62 ± 0.29
Foreign-born	1.27 ± 0.58***	2.62 ± 0.74***	1.54 ± 0.60**
European			
US-born	6.46 ± 0.24	12.37 ± 0.33	5.50 ± 0.19
Foreign-born	6.02 ± 1.03	8.45 ± 1.28**	3.84 ± 0.72**
Asian/Pacific Islander			
US-born	6.75 ± 1.26	12.30 ± 1.55	3.70 ± 0.73
Foreign-born	1.65 ± 0.33***	2.61 ± 0.43***	1.45 ± 0.28**
Mexican			
US-born	6.38 ± 0.69	12.50 ± 1.09	3.97 ± 0.45
Foreign-born	2.58 ± 0.45***	7.93 ± 0.77***	2.01 ± 0.32***
Puerto Rican			
US-born	4.86 ± 1.02	7.37 ± 1.18	3.09 ± 0.78
Foreign-born	4.62 ± 1.54	11.33 ± 2.06	5.04 ± 2.06
Other Hispanic/Latino			
US-born	6.58 ± 1.31	8.91 ± 1.85	2.74 ± 0.84
Foreign-born	1.96 ± 0.41***	4.62 ± 0.49*	2.04 ± 0.50

All analyses used weighted data and took into account the design effects resulting from the complex sampling design. A total of 14.2% of the sample reported “Other/unknown racial-ethnic origin” (results not shown). *SE* standard error

*$P < 0.05$,

**$P < 0.01$,

***$P < 0.001$; difference is significant between US-born and foreign-born within the total population or within a racial-ethnic group

[a] DSM IV-based diagnosis; a binary variable combining three original categories: "alcohol abuse only," "alcohol dependence only," and "alcohol abuse and dependence," vs. "no alcohol diagnosis"

[b] 5+ drinks for men or 4+ drinks for women at least 1–2 times in the last 12 months

[c] Having drunk enough to feel intoxicated at least 1–2 times in the last 12 months

Table 2

Odds ratios for clinical alcohol abuse/dependence[a] in US-born and foreign-born, by racial-ethnic origin: NESARC 2001–2002

Factor/Predictor	African		European		Asian/Pacific Islander		Mexican		Puerto Rican		Other Hispanic/Latino	
	US-born	Foreign-born	US-born	Foreign-born	US-born	Foreign-born	US-born	Foreign-born	US-born	Foreign-born	US-born	Foreign-born
Length of US stay (years)[b]	N/A	0.99	N/A	1.00	N/A	1.01	N/A	1.01	N/A	1.03	N/A	1.01
Traumatic events in last 12 months (scale 0–12)[b]	1.35	1.82	1.30	1.46	1.19	1.71*	1.57	1.46	1.20	1.38	1.37	1.47
Age (years)[b]	0.97	0.83*	0.96	0.95	0.96	0.93	0.95	0.97	0.93	1.01*	0.97	0.95
Gender[c]												
Man (reference)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Woman	0.32	0.35	0.39	0.36	0.32	0.44	0.23	0.14	0.24	0.15	0.48	0.45
Marital status[c]												
Married/living as if married (reference)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Widowed/divorced/separated	1.62	&0.08	2.13	2.41	5.72	0.45*	1.52	3.45	1.59	0.08*	1.09	1.35
Never married	0.99	1.59	1.43	2.36	1.81	2.00	0.90	1.23	2.21	1.18	1.06	1.66
Number of children under 18 in household[b]	1.05	0.28	1.01	0.88	1.11	0.83	1.05	0.95	0.86	0.80	0.90	1.02
Number of related persons age 18+ in household[b]	0.86	1.09	0.87	0.70	0.88	0.71	1.03	0.99	0.79	1.31	0.72	1.03
Education[c]												
Less than high school	1.11	&17.93	1.07	0.67	17.84	1.90	0.60	0.27	1.59	1.45	&50.1	&9.44
High school diploma	0.82	&13.67	1.06	1.23	5.55	1.95	0.64	0.27	3.19	0.65	&58.68	&11.19
Some college (no degree)	0.83	&14.09	1.18	1.58	7.38	2.46	0.55	0.38	5.30	0.97	&96.74	&16.9
College degree (reference)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Family income (×$1,000)[b]	1.00	1.00	1.00	1.00	1.00	1.00	1.01	1.01	1.00	0.99	1.01	1.00
Work status[c]												
Employed (reference)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Unemployed	1.48	&0.07	0.99	1.22	1.24	1.50	0.81	0.81	0.37	2.42*	0.78	0.66
Other	0.83	0.94	0.70	1.20	1.25	0.40	0.34	0.39	0.14	0.33	1.59	1.51

All analyses used weighted data and took into account the design effects resulting from the complex sampling design. Confidence intervals for each of the estimates are available from the authors upon request. A total of 14.2% of the sample reported “Other/unknown racial-ethnic origin” (results not shown). The results are based on the full NESARC sample and a model that also included: receipt of public assistance, housing, childhood trauma, self-reported health, and US region

[*] $P < 0.05$; ORs are different between US-born and foreign-born in the total population or within a racial-ethnic origin group

[&] Estimates preceded by a “&” have a “too large” standard error and should be used with caution as they do not meet the standard of reliability or precision

[a] DSM IV-based diagnosis; a binary variable combining three original categories: “alcohol abuse only,” “alcohol dependence only,” and “alcohol abuse and dependence,” vs. “no alcohol diagnosis”

[b] Values in cells are OR in response to one unit increase of the predictor variable

[c] Values in cells are OR against the reference group

Table 3

Odds ratios for excessive drinking[a] in US-born and foreign-born, by racial-ethnic origin: NESARC 2001–2002

Factor/Predictor	African		European		Asian/Pacific Islander		Mexican		Puerto Rican		Other Hispanic/Latino	
	US-born	Foreign-born	US-born	Foreign-born	US-born	Foreign-born	US-born	Foreign-born	US-born	Foreign-born	US-born	Foreign-born
Length of US stay (years)[b]	N/A	0.99	N/A	1.01	N/A	1.03	N/A	1.02	N/A	1.00	N/A	1.03
Traumatic events in last 12 months (scale 0–12)[b]	1.24	1.57	1.19	1.29	1.14	1.38	1.44	1.27	1.22	1.26	1.46	1.19
Age (years)[b]	0.98	0.97	0.96	0.96	0.96	0.96	0.97	0.97	0.96	0.99	1.00	0.99
Gender[c]												
Man (reference)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Woman	0.39	0.27	0.42	0.52	0.51	0.39	0.31	0.08*	0.38	0.12*	0.80	0.29*
Marital status[c]												
Married/living as if married (reference)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Widowed/divorced/separated	1.41	1.47	1.82	1.74	2.85	5.46	1.39	1.00	1.61	1.18	1.22	1.29
Never married	1.00	1.91	1.65	1.38	1.51	2.54	0.72	0.91	1.48	1.27	0.71	0.86
Number of children under 18 in household[b]	1.01	0.93	0.99	1.09	1.10	0.87	1.22	1.14	1.02	1.00	0.84	0.97
Number of related persons age 18+ in household[b]	0.84	0.84	0.91	0.76	0.85	0.39*	1.01	1.08	0.81	0.95	0.61	0.93
Education[c]												
Less than high school	2.24	0.43	1.42	0.46	1.95	1.2	2.27	0.65	0.72	1.25	2.08	0.79
High school diploma	1.4	0.18	1.59	1.77	1.93	1.71	1.89	0.64	1.34	0.58	7.68	0.50*
Some college (no degree)	1.37	0.43	1.42	2.09	2.16	1.08	1.69	0.46	1.38	0.6	6.53	0.65*
College degree (reference)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Family income (×$1,000)[b]	0.99	1.01*	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.99	1.00	1.00
Work status[c]												
Employed (reference)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Unemployed	1.20	&0.03	1.11	1.03	1.17	0.93	0.63	0.40	0.67	0.91	1.30	0.59
Other	0.74	0.59	0.81	1.11	0.79	0.93	0.62	0.22*	0.55	0.41	0.93	0.76

All analyses used weighted data and took into account the design effects resulting from the complex sampling design. Confidence intervals for each of the estimates are available from the authors upon request. A total of 14.2% of the sample reported “Other/unknown racial-ethnic origin” (results not shown). The results are based on the full NESARC sample and a model that also included: receipt of public assistance, housing, childhood trauma, self-reported health, and US region

[*] $P < 0.05$; ORs are different between US-born and foreign-born in the total population or within a racial-ethnic origin group

[&] Estimates preceded by a “&” have a “too large” standard error and should be used with caution as they do not meet the standard of reliability or precision

[a] 5+ drinks for men or 4+ drinks for women at least 1–2 times in the last 12 months

[b] Values in cells are OR in response to one unit increase of the predictor variable

[c] Values in cells are OR against the reference group

Table 4

Odds ratios for intoxication[a] in US-born and foreign-born, by racial-ethnic origin: NESARC 2001–2002

Factor/Predictor	African		European		Asian/Pacific Islander		Mexican		Puerto Rican		Other Hispanic/Latino	
	US-born	Foreign-born	US-born	Foreign-born	US-born	Foreign-born	US-born	Foreign-born	US-born	Foreign-born	US-born	Foreign-born
Length of US stay (years)[b]	N/A	1.01	N/A	1.00	N/A	1.012	N/A	1.021	N/A	1.00	N/A	1.00
Traumatic events in last 12 months (scale 0–12)[b]	1.24	0.98	1.21	1.10	1.09	1.66*	1.38	1.10*	1.14	1.13	1.17	1.15
Age (years)[b]	0.97	0.99	0.95	0.97*	0.94	0.93	0.96	0.98	0.99	1.00	1.00	1.02
Gender[c]												
Man (reference)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Woman	0.41	0.32	0.43	0.45	0.27	0.95*	0.35	0.23	0.30	0.23	0.79	0.26
Marital status[c]												
Married/living as if married (reference)	1.00	1.00	1.00	1.00	1.00	1	1.00	1.00	1.00	1.00	1.00	1.00
Widowed/divorced/separated	1.39	0.48	1.80	1.88	2.41	2.8	1.89	1.90	3.88	0.39*	0.84	0.75
Never married	1.05	0.43	2.03	1.93	1.68	2.19	1.49	1.14	2.99	1.08	0.84	0.92
Number of children under 18 in household[b]	0.99	0.51	0.94	0.75	0.90	0.98	1.07	0.96	0.69	0.69	0.58	1.11
Number of related persons age 18+ in household[b]	0.88	0.88	0.83	0.59	1.12	0.68	0.85	1.01	0.81	1.01	0.41	0.69
Education[c]												
Less than high school	1.32	&0.06	0.93	0.96	1.67	0.69	0.88	1.18	&4.34	0.60	&12.22	1.22
High school diploma	0.88	0.63	0.95	0.53	2.81	0.74	1.30	0.70	&43.6	0.27	&23.53	1.74
Some college (no degree)	0.83	1.37	1.14	0.67	2.62	0.73	1.46	1.64	&49.44	0.15	&39.99	1.26
College degree (reference)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Family income (×$1,000)[b]	1.00	1.00	1.00	0.99	1.00	1.01	1.00	1.01	1.00	1.00	1.00	1.00
Work status[c]												
Employed (reference)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Unemployed	1.33	0.50	1.28	1.91	1.07	0.44	0.76	0.36	0.83	1.70	0.40	1.40
Other	0.76	0.71	1.05	1.82	0.73	0.36	0.72	0.52	0.21	0.53	2.22	2.04

All analyses used weighted data and took into account the design effects resulting from the complex sampling design. Confidence intervals for each of the estimates are available from the authors upon request. A total of 14.2% of the sample reported “Other/unknown racial-ethnic origin” (results not shown). The results are based on the full NESARC sample and a model that also included: receipt of public assistance, housing, childhood trauma, self-reported health, and US region

[*] $P < 0.05$; ORs are different between US-born and foreign-born in the total population or within a racial-ethnic origin group

[&] Estimates preceded by a “&” have a “too large” standard error and should be used with caution as they do not meet the standard of reliability or precision

[a] Having drunk enough to feel intoxicated at least 1–2 times in the last 12 months

[b] Values in cells are OR in response to one unit increase of the predictor variable

[c] Values in cells are OR against the reference group

Table 5

Selected chacteristics of the NESARC sample (2001–2002), by nativity and foreign-born's racial-ethnic origin

	Nativity		Foreign-born's Racial-Ethnic Origin					
	US-born	Foreign-born	African	European	Asian/Pacific Islander	Mexican	Puerto Rican	Other Hispanic/Latino
Unweighted n	35,622	7,320	449	1,010	989	2,227	434	1,747
Weighted% ± SE of total	85.41 ± 0.20	14.59 ± 0.20	0.78 ± 0.05	2.52 ± 0.09	3.3 ± 0.12	3.71 ± 0.10	0.48 ± 0.03	2.48 ± 0.08
Weighted % ± SE of foreign-born			5.34 ± 0.32	17.25 ± 0.59	22.61 ± 0.73	25.45 ± 0.64	3.32 ± 0.21	17.02 ± 0.51
Age (years),[a]% ± SE								
18–34	30.35 ± 0.30	38.34 ± 0.77	41.45 ± 3.12	24.57 ± 1.69	37.56 ± 1.85	54.06 ± 1.46	22.98 ± 2.84	37.07 ± 1.59
35–54	39.88 ± 0.32	40.62 ± 0.77	46.72 ± 3.08	36.43 ± 1.84	41.28 ± 1.87	35.67 ± 1.40	41.31 ± 3.07	44.78 ± 1.62
55 and older	29.77 ± 0.28	21.04 ± 0.62	11.83 ± 1.92	39.00 ± 1.77	21.16 ± 1.61	10.26 ± 0.76	35.71 ± 3.07	18.16 ± 1.15
Gender (women), % ± SE	52.36 ± 0.36	50.42 ± 1.00	53.74 ± 4.31	55.26 ± 2.65	52.98 ± 4.23	43.25 ± 1.65	54.49 ± 4.38	52.52 ± 2.15
Marital status, % ± SE								
Married or living as if married	60.73 ± 0.42	66.88 ± 1.25	48.79 ± 4.30	65.42 ± 3.13	71.09 ± 3.23	73.36 ± 2.45	57.46 ± 4.95	62.84 ± 2.55
Widowed, divorced, or separated	18.20 ± 0.21	13.11 ± 0.47	18.12 ± 2.16	19.64 ± 1.34	9.17 ± 1.13	7.89 ± 0.64	23.11 ± 2.53	15.36 ± 1.06
Never married	21.07 ± 0.27	20.01 ± 0.70	33.09 ± 3.91	14.94 ± 1.54	19.74 ± 1.59	18.75 ± 1.37	19.43 ± 2.97	21.80 ± 1.57
Education, % ± SE								
Less than high school	12.97 ± 0.22	31.36 ± 0.84	12.19 ± 1.93	12.71 ± 1.20	15.11 ± 1.60	63.95 ± 2.37	44.43 ± 4.23	34.80 ± 2.00
High school diploma	30.57 ± 0.32	22.03 ± 0.71	24.03 ± 2.67	26.41 ± 1.87	17.15 ± 1.66	20.06 ± 1.25	28.92 ± 3.38	24.27 ± 1.54
Some college (no degree)	44.81 ± 0.37	34.59 ± 0.93	51.47 ± 4.72	43.83 ± 2.58	44.97 ± 2.47	14.21 ± 1.05	22.58 ± 3.01	34.67 ± 1.84
College degree	11.65 ± 0.21	12.02 ± 0.55	12.31 ± 2.28	17.05 ± 1.53	22.77 ± 1.71	1.78 ± 0.32	4.07 ± 1.18	6.26 ± 0.69
Family income ($US),[a]% ± SE								
1–19,999	20.7 ± 0.24	26.45 ± 0.65	27.28 ± 2.72	21.85 ± 1.40	18.41 ± 1.38	34.57 ± 1.35	42.16 ± 3.08	28.86 ± 1.43
20,000–34,999	19.46 ± 0.24	22.65 ± 0.65	21.26 ± 2.67	17.74 ± 1.37	17.99 ± 1.45	31.39 ± 1.39	22.93 ± 2.56	23.78 ± 1.31
35,000–69,999	33.78 ± 0.31	30.40 ± 0.73	34.29 ± 2.94	30.18 ± 1.74	31.03 ± 1.77	25.92 ± 1.28	25.94 ± 3.00	34.49 ± 1.63
70,000 and higher	26.06 ± 0.29	20.50 ± 0.69	17.18 ± 2.26	30.23 ± 1.83	32.57 ± 1.84	8.13 ± 2.11	8.98 ± 2.11	12.87 ± 1.01
Work status, % ± SE								
Employed	64.70 ± 0.42	66.58 ± 1.25	79.54 ± 5.63	60.71 ± 3.03	64.26 ± 3.00	70.53 ± 2.54	46.36 ± 4.32	69.85 ± 2.68
Unemployed	7.58 ± 0.17	7.20 ± 0.37	6.42 ± 1.26	5.99 ± 0.84	5.50 ± 0.85	6.98 ± 0.67	20.14 ± 2.59	9.20 ± 0.97
Other	27.72 ± 0.29	26.21 ± 0.76	14.04 ± 2.18	33.30 ± 2.01	30.24 ± 2.13	22.49 ± 1.19	33.50 ± 3.80	20.95 ± 1.39
US region of residence, % ± SE								

	Nativity		Foreign-born's Racial-Ethnic Origin					
	US-born	**Foreign-born**	**African**	**European**	**Asian/Pacific Islander**	**Mexican**	**Puerto Rican**	**Other Hispanic/Latino**
Northeast	18.76 ± 0.18	25.00 ± 0.71	41.32 ± 3.88	34.72 ± 2.27	22.88 ± 1.82	3.68 ± 0.64	66.03 ± 4.91	34.95 ± 1.79
Midwest	25.31 ± 0.18	10.50 ± 0.49	8.29 ± 2.13	15.78 ± 1.40	11.78 ± 1.27	10.13 ± 0.82	5.98 ± 1.76	3.16 ± 0.55
South	36.19 ± 0.24	29.48 ± 0.75	41.46 ± 3.89	23.36 ± 1.74	19.81 ± 1.58	32.18 ± 1.61	25.35 ± 3.25	44.49 ± 2.05
West	19.75 ± 0.20	35.02 ± 0.88	8.94 ± 1.80	26.13 ± 1.90	45.53 ± 2.56	54.00 ± 2.08	2.64 ± 0.84	17.40 ± 1.34
Length of stay (years),[a] % ± SE								
Less than 5 years	N/A	16.22 ± 0.60	19.25 ± 2.73	10.50 ± 1.20	16.23 ± 1.33	21.58 ± 1.32	6.44 ± 1.51	15.55 ± 1.24
5–10 years	N/A	19.41 ± 0.64	21.11 ± 2.55	14.71 ± 1.39	20.91 ± 1.64	22.63 ± 1.27	9.24 ± 1.81	21.62 ± 1.44
11–15 years	N/A	15.38 ± 0.58	15.03 ± 2.20	8.00 ± 1.09	18.57 ± 1.52	17.17 ± 1.12	8.54 ± 1.93	17.94 ± 1.26
16 years or more	N/A	48.99 ± 0.78	44.61 ± 3.04	66.78 ± 1.82	44.29 ± 1.89	38.63 ± 1.37	75.78 ± 2.76	44.89 ± 1.60

Percent estimates with standard errors (SE) are reported. All analyses used weighted data and took into account the design effects resulting from the complex sampling design. A total of 14.2% of the total sample reported "Other/unknown racial-ethnic origin" (results not shown)

[a]Variable is shown as categorical for descriptive purposes only; a continuous variable was used in the multivariable analyses

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