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## Psychosocial and Contextual Determinants of Alcohol and Drug Use Disorders in the National Latino and Asian American Study\*

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### Abstract

**Background**—In the U.S., Latino and Asian American immigrants and ethnic minorities may be at increased risk for alcohol and drug use disorders (AUDs/DUDs). The role of psychosocial and contextual characteristics as potential factors underlying this increased risk is unresolved.

**Methods**—Participants include 4,649 adults from the National Latino and Asian American Study. Logistic regression was used to determine the relationship between acculturation, acculturative stress, neighborhood characteristics, family characteristics, and discrimination and AUDs/DUDs. Models were stratified by age of immigration and ethnicity and controlled for demographic and mental health characteristics.

**Results**—Overall, 9.6% of Latino and 4.1% of Asian participants met criteria for lifetime AUDs/DUDs. Acculturation, family conflict, and discrimination were positively associated with AUDs/DUDs (odds ratios [ORs] and 95% confidence intervals [95% CIs]: 1.80[1.54–2.09], 1.24[1.12–1.36], and 1.54[1.38–1.73]), while neighborhood safety and family cohesion were protective for AUDs/DUDs (ORs[95% CIs]: 0.75[0.66–0.85] and 0.79[0.69–0.90]). Acculturative stress and neighborhood cohesion were not related to AUDs/DUDs. The relationships between family conflict and family cohesion with AUDs/DUDs were attenuated after accounting for other

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#### Contributors

J. Savage developed the research question, conducted statistical analyses, and wrote the first draft of the manuscript. B. Mezuk supervised the development of the research question and statistical analyses and revised the manuscript. All authors contributed to and have approved the final manuscript.

#### Conflict of Interest,

The authors have no conflicts of interest to declare.

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psychosocial and contextual factors. These relationships were generally consistent across ethnic and age of immigration subgroups.

**Conclusions**—Factors such as acculturation, discrimination, and neighborhood safety, are robustly and largely universally related to AUDs/DUDs among first and later generation Latino and Asian immigrants. Further research is required to understand how and why these factors relate to risk of substance misuse, and to identify ways to apply these factors in prevention and intervention efforts.

### Keywords

Immigrants; Alcohol Use Disorders; Drug Use Disorders; Latino; Asian American

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## 1. INTRODUCTION

The populations of Latino and Asian ethnic groups in the U.S., consisting largely of first- and second-generation immigrants, have each increased by over 40% in the past decade (Humes et al., 2011). There is a corresponding need to understand and address the rising mental health care needs of these growing populations, particularly in the area of drug and alcohol problems. Although the prevalence of drug and alcohol use among Latino immigrants is lower than the U.S. native-born population, (lifetime alcohol use: 77–82% versus 90–92%; lifetime drug use: 17–26% versus 40–54% [Borges et al., 2011]) some studies have found that it is higher relative to the prevalence in their countries of origin (lifetime alcohol use: 77–87% versus 69–80% [Torres et al., 2008]; lifetime drug use: 17–26% versus 8–11% [Borges et al., 2011]). Little evidence exists to determine whether or not this is also true for Asian immigrants. However, the risk of alcohol and drug use and misuse appears to increase with greater exposure to the U.S. for both ethnic groups. Second-generation (U.S.-born) descendants of Latino and Asian immigrants have higher prevalence of both alcohol and illicit drug use and alcohol/drug use disorders (AUDs/DUDs) than first-generation immigrants (Latinos: AUDs: 15–20% versus 5–6%, DUDs: 11% versus 2–4% [Borges et al., 2011]; Asians: AUDs: 25% versus 7%, DUDs: 8% versus 2% [Breslau and Chang, 2006]). Even among first-generation immigrants, length of residence in the U.S. is positively associated with the development of AUDs/DUDs (Breslau et al., 2007; Breslau and Chang, 2006), suggesting that environmental and sociocultural exposures in the U.S. may play a direct role in increasing substance use and misuse.

Prior research has found differences in risk for AUDs/DUDs based on age of immigration (Breslau et al., 2007) and ethnic subgroup (Caetano et al., 2009). Alegría et al. (2004) theorize that differences in risk for psychiatric disorders between such subgroups reflect differences in social position, environmental context, and psychosocial factors. The process of immigration and transition to a new culture creates a unique set of circumstances reflecting the joint, and potentially competing, influences of the old and new cultures. Members of immigrant and ethnic minority groups may face challenges in harmonizing cultural differences in social identity, values, roles, and expectations, often while encountering language barriers and negative experiences such as discrimination due to their immigrant/minority status (Thomas, 1995; Tran et al., 2010). Simultaneously, immigration may disrupt social bonds and contribute to a loss of influential factors such as familialism

and communalism, which are important constructs within Latino and Asian ethnic groups (Diaz, 2002; Markus and Kitayama, 1991; Schwartz et al., 2010) and have a demonstrated protective effect against alcohol and drug use and misuse (Gil et al., 2000; Unger et al., 2002). Studies suggest that psychosocial and contextual factors, including familial conflict, level of acculturation, discrimination, language, and neighborhood characteristics are associated with the development of AUDs/DUDs among immigrants (Bhattacharya, 1998; Canino et al., 2008; Gibbons et al., 2010; Molina et al., 2012; Saint-Jean et al., 2008). However, it is unresolved whether these and other risk factors are universal in their relationship to AUDs/DUDs or whether they differ between ethnicities or other relevant subgroups.

It is important to examine variation between these ethnic groups because cultural norms and experiences differ across Asian and Latino ethnic groups (Waters and Eschbach, 1995; Portes and Zhou, 1993), which may have implications for substance use/misuse. Similarly, the relationship between psychosocial and contextual risk factors may depend on immigration status (e.g., first or second generation, age at migration) within ethnic groups, as lifestyles and experiences may differ substantially between those who immigrated as children with their parents, those who came independently as adults, and those who never experienced immigration. However, other risk factors may be universally experienced by all individuals that are members of ethnic minorities in general, or immigrant populations specifically. Some psychosocial/contextual factors have shown similar relationships to health status between ethnic subgroups (Bauer et al., 2012), but many have not been examined in Asian Americans or compared across groups.

The current study had two aims: (1) to identify psychosocial and contextual risk and protective factors for AUDs/DUDs within a nationally representative sample of Latino and Asian Americans, and (2) to assess whether or not these risk factors differ between ethnic groups and between groups with different immigration histories. We hypothesized that level of acculturation, acculturative stress, adverse neighborhood and family characteristics, and discrimination would be positively associated with the likelihood of meeting criteria for lifetime AUDs/DUDs. We also expected that ethnicity and immigration status would modify the effect of many of these risk factors. Specifically, we hypothesized that the relationships between acculturation, acculturative stress, and discrimination with AUDs/DUDs would be similar across these ethnic minority groups but would differ for immigrants versus U.S. natives, based on the theoretical ties between these constructs and the process of immigration. We also hypothesized that family and neighborhood characteristics reflect culture-specific differences in familialism or communalism, and their effects on AUDs/DUDs would therefore vary between Asian and Latino ethnic groups.

## 2. METHODS

### 2.1 Sample

The National Latino and Asian American Study (NLAAS) ( $N=4649$ ) is a nationally representative community household survey conducted as part of the Collaborative Psychiatric Epidemiologic Surveys (CPES; Alegria et al., 2004). The study utilized a multi-stage national area probability sample, weighted to be representative of the U.S. population

of Latinos and Asian Americans. The sample and study methods have been described elsewhere (Alegria et al., 2004; Heeringa et al., 2004; Pennell et al., 2004) and more details are available in the Supplementary Materials<sup>1</sup>. Data was collected from 2002–2003 via face-to-face household interviews. Respondents were required to be 18 years or older, non-institutionalized, and of Latino (Cuban, Mexican, Puerto Rican, or Other;  $n=2554$ ) or Asian (Chinese, Filipino, Vietnamese, or Other;  $n=2095$ ) descent. The final weighted response rate was 73.2% (Heeringa et al., 2004). The Institutional Review Board Committees of Cambridge Health Alliance, the University of Washington, and the University of Michigan approved the study, and informed consent was obtained for all participants.

## 2.2 Measures

**2.2.1 Exposures**—The key exposures examined were: (1) acculturation, (2) acculturative stress, (3) family characteristics, (4) neighborhood characteristics, and (5) discrimination.

*Acculturation*, a construct reflecting assimilation into the cultural norms, values, and practices of the host country, is difficult to measure objectively. However, previous research has found that language use (native vs. English) is an appropriate index of acculturation (Caetano, 1987; Caetano et al., 2009; Canino et al., 2008; Saint-Jean et al., 2008). Blanco et al. (2013) noted that although multiple dimensions of acculturation predict DUDs, language use is most salient. For the present study, an acculturation score was constructed from four language use variables and an indicator for citizenship in the U.S. (see Supplemental Table 1). Using exploratory factor analysis, these measures loaded onto a single factor accounting for 66.9% of the variance with a high reliability (Cronbach's  $\alpha=.84$ ). A sum score of these variables was computed, with possible range of 0–14. Language use as an indicator of acculturation has previously been criticized for the problematic usage of a single binary item to account for a complex phenomenon, but utilizing several indicators with graded response options should allow for a more nuanced construction.

The remaining four exposure variables were assessed by scales containing multiple items, each with two to six response options on a Likert-type scale (see Supplemental Table 1 and Supplemental Methods<sup>2</sup>). Exploratory factor analysis, using an Eigenvalue cut-off of 1.0 and Varimax rotation, and reliability analysis using Cronbach's alpha, were run for each scale to determine if items could be condensed to fewer dimensions.

*Acculturative stress* was indexed by nine items specifically targeting immigration-related stressors (e.g., “Have you felt guilty for leaving friends or family in your country of origin?”), which initially loaded onto three factors relating to three types of stressors, accounting for 55.3% of the variance. However, including all items in a single scale led to a higher reliability ( $\alpha=.66$ ) than any of the three factors separately. Items may have grouped together into specific types of stressors, but they all seemed to assess an overall measure of stress, so all were combined into a single score. The acculturative stress items were not asked of U.S.-born individuals.

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<sup>1</sup>Supplementary material can be found by accessing the online version of this paper at <http://dx.doi.org/10.1016/j.drugalcdep.2014.03.011> and by entering doi: 10.1016/j.drugalcdep.2014.03.011.

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*Family characteristics* was indexed by 15 items which loaded onto two factors accounting for 59.2% of the variance: (1) family cohesion (e.g., “Family members feel very close to each other”) and (2) family conflict (e.g., “Because you have different customs, you have had arguments with other members of your family”), with reliability scores of  $\alpha=.93$  and  $\alpha=.77$ , respectively.

*Neighborhood characteristics* was indexed by seven items which loaded onto two factors accounting for 65.0% of the variance: neighborhood cohesion (e.g., “People in my neighborhood look out for each other”) and neighborhood safety (e.g., “People get mugged, robbed, or attacked in my neighborhood”); these two factors had reliabilities of  $\alpha=.81$  and  $\alpha=.71$ , respectively.

*Discrimination* was indexed by nine items indicating past year frequency of various types of discrimination experiences (e.g., “People act as if they think you are not smart”). These items loaded onto a single factor that accounted for 58.2% of the variance and had a reliability of  $\alpha=.91$ .

For each of these scales, scores were summed into a single continuous score, with the possible score ranges of 0–10 for acculturative stress, 0–30 for family cohesion, 0–10 for family conflict, 0–12 for neighborhood cohesion, 0–9 for neighborhood safety, and 0–45 for discrimination. Standardized scores were used for all analyses to facilitate direct comparison of the effect size across exposures.

**2.2.2 Outcome**—Lifetime diagnoses of alcohol abuse (AA) or dependence (AD) and drug (cannabis, cocaine, hallucinogens, inhalants, opioids, sedatives, or stimulants) abuse (DA) or dependence (DD), as indicated by the Diagnostic and Statistical Manual of Mental Disorders – IV (DSM-IV; American Psychiatric Association, 2000), were assessed using the World Mental Health Survey initiative version of the World Health Organization’s Composite International Diagnostic Interview (WMH-CIDI; Kessler and Üstün, 2004). The WMH-CIDI is a fully structured diagnostic instrument modeled after a clinical psychiatric interview. Diagnoses of AUDs and DUDs identified by the CIDI have good agreement with clinical interviews (e.g., AD: Cohen’s kappa  $\kappa=.77$ ; DD:  $\kappa=.59$  [Haro et al., 2006]). Of 299 individuals who met criteria for AA, 107 (35.8%) also met criteria for AD. Of 177 individuals who met criteria for DA, 69 (39.0%) also met criteria for DD. In total, 329 individuals (85 Asian Americans [4.1%] and 244 Latinos [9.6%]) met criteria for either lifetime AA or AD (collectively, alcohol use disorders, AUDs) or lifetime DA or DD (collectively, drug use disorders, DUDs). Of those meeting criteria for DUDs, 147 (83.1%) also met criteria for AUDs. To increase statistical power, these highly comorbid outcomes were combined into a single binary variable indicating lifetime AUDs/DUDs. Post-hoc sensitivity analyses indicated no substantial differences in associations for AUDs versus DUDs.

**2.2.3 Covariates**—A number of demographic characteristics have been identified as risk factors for AUDs/DUDs. We included sex, age, socioeconomic status, marital status, geographic region, and a combined measure of DSM-IV major depressive disorder and

generalized anxiety disorder as covariates in our analyses, as described in the Supplemental Materials<sup>3</sup>.

### 2.3 Analysis

Initially, characteristics of those meeting criteria for lifetime AUDs/DUDs were compared to those not meeting diagnostic criteria, using Chi-squared tests for binary variables and t-tests for continuous variables. Next, binary logistic regression models were fit for each exposure: first, Model 1 looked separately at each exposure, and was adjusted for all covariates, and second, Model 2 included all Model 1 covariates and additionally controlled for all exposures simultaneously to determine whether these factors were individually contributing to AUDs/DUDs or were mediated through other exposures. All models were run in SPSS version 21 using the CSLOGISTIC procedure, which uses Taylor series linearization variances to obtain correct standard errors from the complex sampling design.

In order to assess whether the relationship between these exposure variables varied across and within Latinos and Asian Americans, these models were then stratified by ethnicity and, separately, by age of immigration (U.S.-born, immigrated before age 18, or immigrated at age 18 or older). Ethnicity and age of immigration were correlated (i.e., Latinos were more likely to be U.S.-born while Asian Americans were more likely to be first-generation immigrants), and therefore analyses that were stratified by ethnicity also included age of immigration as a covariate, and vice versa. We acknowledge that Latinos and Asian Americans in the U.S. are comprised of heterogeneous subgroups with unique immigration histories, but due to the low prevalence of AUDs/DUDs in many subgroups, we were unable to examine nativity-specific relationships.

## 3. RESULTS

Consistent with previous research, individuals meeting criteria for lifetime AUDs/DUDs differed significantly from those not meeting criteria for AUDs/DUDs on almost all sociodemographic and mental health variables (Table 1). Of note, Asian Americans were underrepresented in the AUDs/DUDs group relative to Latinos ( $\chi^2[7]=88.80, p<.01$ ) and U.S.-born individuals were overrepresented relative to immigrants ( $\chi^2[2]=199.47, p<.01$ ).

Table 2 shows the results of logistic regression models fit in the entire sample. Male sex significantly predicted AUDs/DUDs (OR[95%CI]: 5.46[3.52–8.45]) as did lower educational attainment (OR[95%CI]: 3.07[1.66–5.69] for 0–11 versus 16 or more years) and meeting criteria for a MDD or GAD diagnosis (OR[95%CI]: 3.58[2.40–5.35]), but no other covariates were significant. Model 1 results indicate that higher levels of acculturation, family conflict, and discrimination were positively associated with lifetime AUDs/DUDs, and higher levels of neighborhood safety and family cohesion were significantly protective against AUDs/DUDs. Acculturative stress and neighborhood cohesion were not significantly associated with AUDs/DUDs. Direct comparison between the standardized exposure scores indicates acculturation as the strongest predictor (odds ratio [OR] and 95% confidence

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interval [95%CI]: 1.80[1.54–2.09]). However, including all exposures in the model simultaneously (Model 2) resulted in an attenuation of the effect of family conflict and family cohesion, indicating that the effects of these exposures on risk for AUDs/DUDs are partially explained by their relationship with these other factors.

The effect sizes of the significant exposures were relatively small, but nonetheless may contribute to important differences between individuals. As a specific example, the predicted probability for an individual with the highest level of acculturation ( $z = 2.02$ ) having an AUD/DUD diagnosis, averaged across all individuals with this score, was 18.90%, as compared to an average predicted probability of 7.37% for individuals with lower levels of acculturation. The average predicted probability of an AUD/DUD diagnosis for individuals with the highest level of neighborhood safety ( $z = 1.04$ ) was 6.78%, as compared with an average predicted probability of 8.96% for individuals with lower neighborhood safety scores.

### 3.1 Stratified Analyses

Figures 1 and 2, respectively, illustrate the results from the age of immigration- and ethnicity-stratified analyses. These results indicate that the associations of nearly all risk/protective factors with AUDs/DUDs remain consistent for all subgroups. Across groups, acculturation was a significant risk factor for U.S.-born individuals, child immigrants, and Latinos, but not adult immigrants or Asian Americans. Neighborhood safety was a significant protective factor for U.S.-born individuals and, marginally (OR[95%CI]: 0.71[0.49–1.02]), Asian Americans. Discrimination was a significant risk factor for U.S.-born individuals, adult immigrants, Latinos, and Asian Americans, but not child immigrants. However, overlapping confidence intervals and statistical tests for interaction effects (Table 2, right-hand column) indicate that these differences, while potentially important in terms of conceptualizing how risk factors operate within and across groups, are not statistically significant and that results from the full, non-stratified models are most representative of the relationships between these exposures and AUDs/DUDs. The only instance in which confidence intervals do not overlap – indicating significant effect moderation – is between U.S.-born individuals and child immigrants for family conflict, with family conflict having a positive association with substance use for child immigrants (OR[95%CI]: 1.67[1.22–2.28]) but not U.S.-born individuals (OR[95%CI]: 0.94[0.80–1.11]).

## 4. DISCUSSION

### 4.1 Key Findings

In a nationally representative study of Latinos and Asian Americans living in the U.S., acculturation, family conflict, and discrimination emerged as significant risk factors, and neighborhood safety and family cohesion as significant protective factors, for alcohol and drug use disorders. For the most part, these results confirmed our first hypothesis – that all investigated exposures would be significantly associated with risk for AUDs/DUDs – although neighborhood cohesion and acculturative stress did not have significant associations with AUDs/DUDs. Additionally, we found that while family conflict and cohesion were individually significant predictors of AUDs/DUDs, these associations were

primarily attributable to their correlations with other psychosocial and contextual exposures (e.g., acculturation, discrimination, and neighborhood safety). These results replicate previous findings that identified acculturation, family conflict, and discrimination as risk factors for AUDs/DUDs in immigrant populations (Bhattacharya, 1998; Canino et al., 2008; Gibbons et al., 2010; Saint-Jean et al., 2008). Our study extends the existing literature by identifying neighborhood safety as an additional robust predictor of AUDs/DUDs, and examining whether these risk factors differed across ethnic groups or according to age of immigration.

## 4.2 Subgroup Comparisons

Our findings indicate that nearly all risk and protective factors had consistent associations between groups, particularly between ethnic groups. This suggests that these factors are largely universal in their effects among Latinos and Asian Americans in the U.S., regardless of their cultural background or immigration history. This is consistent with Breslau and colleagues' (2007) findings of similarity in relative risk for psychiatric disorders among immigrants of different racial/ethnic backgrounds, despite group differences in cultural contexts and life experiences. We hypothesized that discrimination, acculturation, and acculturative stress would be similar across ethnicities but differ by immigration, but found that no group differences were significant. This suggests that experiences of discrimination are experienced similarly between these ethnic minorities regardless of nativity (i.e. discrimination is based on being non-White in the U.S., not on being born outside of the country) and contributes to a higher likelihood of substance problems. Additionally, it indicates that the acculturative processes are similar across diverse ethnic groups. We also hypothesized that family and neighborhood characteristics would be culturally specific to each ethnic group, but our analyses did not support this hypothesis. However, individuals who immigrated in childhood were uniquely at risk for developing AUDs/DUDs with increased levels of family conflict, and this association was not mediated by other exposures, as it was for other age of immigration groups.

The findings here also indicate that acculturation was the strongest predictor of AUDs/DUDs even after controlling for all other exposures. These results support the widespread use of acculturation as an important construct in mental health research in immigrant and ethnic minority populations (Caetano, 1987; Caetano et al., 2009; Saint-Jean et al., 2008). However, it is important to recognize that many interrelated factors collude to impact AUDs/DUDs risk in first and later generation immigrants. Gil et al. (2000) argued that acculturation may be a proxy for other important behavioral influences, such as greater access to alcohol and drugs, distancing from a protective enclave (and into a more pronounced minority status), and increased conflict with family and cultural group members with whom the more acculturated individual no longer shares core values. This may explain the mediating effect we found for family characteristics, as well as the greater association we found for family conflict among child immigrants than U.S.-born individuals. Perhaps conflict with family is more troubling for those whose parents were raised in another culture, or whose family members still reside in their country of origin, creating greater feelings of isolation or triggering some other reason to misuse drugs or alcohol.



### 4.3 Limitations and Conclusions

The results of this study must be interpreted in the context of their limitations. Although the sample size was large and weighted to be representative of the national population, the prevalence of AUDs/DUDs was relatively low (particularly for Asian Americans [4.1%] and adult immigrants [2.7%]), and thus we had limited statistical power to detect true associations, particularly in the stratified analyses. Post-hoc power analyses demonstrated that we had sufficient power to detect large effects in the full sample (acculturation: power = 94%) but much less for predictors with small effects (acculturative stress: power = 70%) and in subgroups with low prevalence of AUDs/DUDs (acculturation in adult immigrants: power = 29%). In several instances, comparison of point estimates alone indicated other differences between groups – for example, acculturation had a significant positive association with AUDs/DUDs for Latinos (OR[95%CI]: 1.45[1.18–1.80]), but was not significant for Asian Americans (OR[95%CI]: 1.05[0.84–1.32]) – but overlapping confidence intervals show that these differences were not statistically significant. Low prevalence of AUDs/DUDs in some subgroups resulted in very large confidence intervals, meaning that there could either truly be no differences between the groups, or that there could be relatively small differences that we did not have power to detect. We cannot meaningfully distinguish between these possibilities with the available data.

Also, because this is a cross-sectional study, the temporal ordering of these exposures and development of AUDs/DUDs cannot be established, and there is likely a bi-directional relationship between many of these variables. However, prior work has shown that immigrants are often selected for better, not worse, mental health status (Burnam et al., 1987), and thus it is reasonable to posit that the majority of AUDs/DUDs cases investigated here onset after respondents immigrated to the U.S. Additionally, we found the same general pattern of results when using past year AUDs/DUDs as the outcome. While such findings certainly do not exclude the possibility of reverse causation, they provide incremental support for our main results. Finally, Latino and Asian ethnicities were compared as two homogenous groups, but patterns of substance use differ between subgroups of these ethnicities (Lee et al., 2013; Szaflarski et al., 2011), and combining these subgroups may have obscured true patterns of associations if they are in opposite directions between subgroups. More research is needed to explore the prevalence and etiology of AUDs/DUDs in these subgroups.

Despite these limitations, this study also has numerous strengths. This analysis utilized the largest available nationally representative sample of Latinos and Asian Americans, and assessed AUDs/DUDs with a validated diagnostic instrument. Respondents could complete the interviews in either English or their native language, which is particularly important for first-generation immigrants. We examined multiple risk factors, using multi-item scales, to provide a more comprehensive assessment of the complex psychological, social, and environmental factors that jointly influence risk for alcohol and drug use disorders.

This study indicates that psychosocial and contextual factors, particularly acculturation, discrimination, and neighborhood safety, are important determinants of substance use problems for Latino and Asian American immigrants and ethnic minorities. As immigration from these groups continues to increase, public health practitioners should work to

mobilize protective factors (e.g., familialism and communalism) that may be particularly relevant for Latinos and Asian Americans (cf. Blanco et al., 2013). The psychosocial risk and protective factors identified here may also be useful in the development of targeted interventions for Latinos and Asian Americans with alcohol or substance use problems; for example, addressing family conflict among childhood immigrants and discrimination among ethnic minority groups. While widespread efforts to eradicate discrimination and unsafe neighborhoods may be an ideal goal, programs that aim to educate at-risk individuals about substance abuse and teach healthier coping strategies may be of more immediate practical use. Finally, these findings indicate a need for further research to understand the nature of the relationship between these psychosocial and contextual factors and substance use disorders, and the etiology of the development of these disorders in immigrant and ethnic minority populations.

## Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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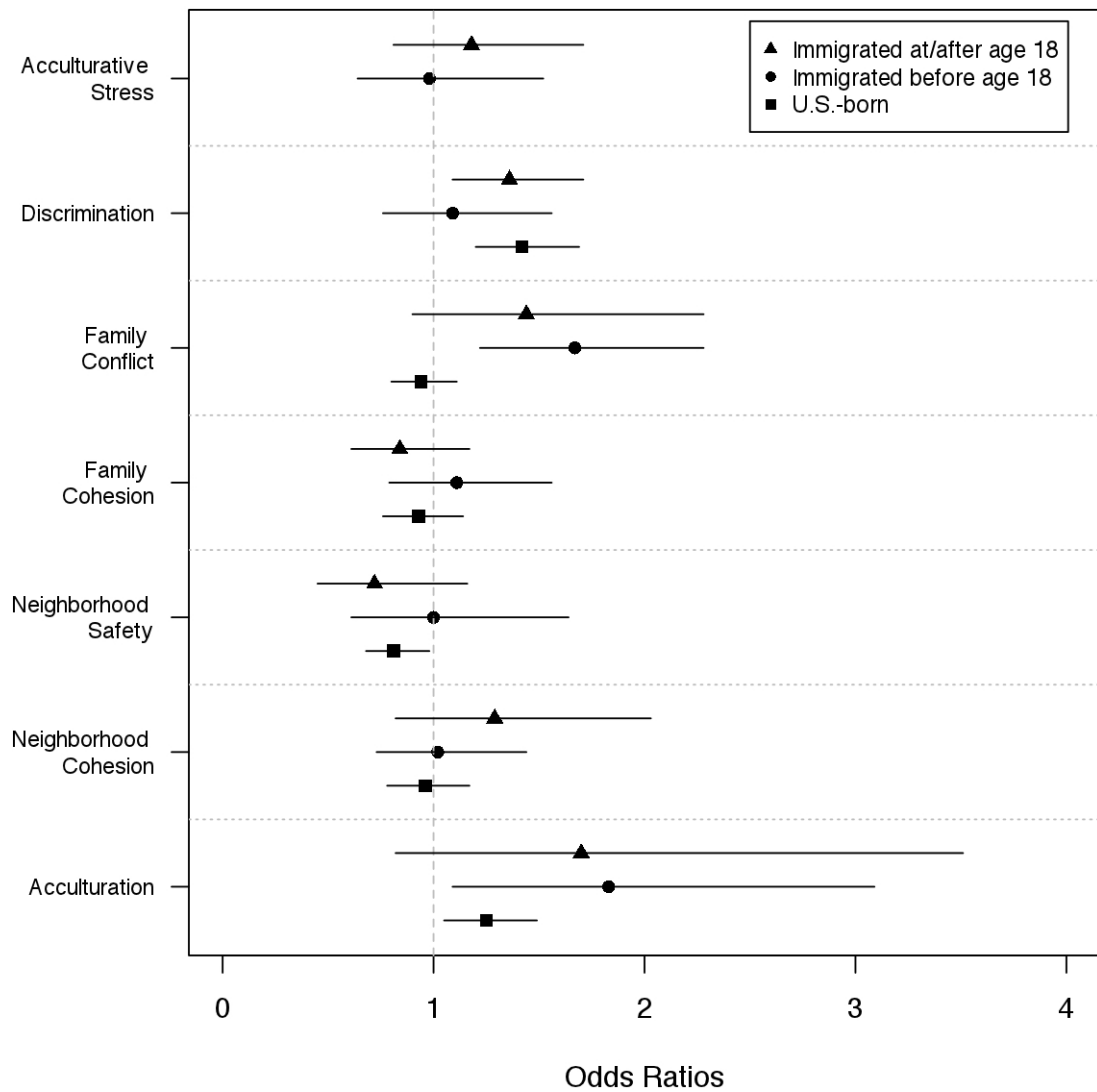
Some of these findings were presented at the 2013 Association for Psychological Science (APS) Convention in Washington, D.C.

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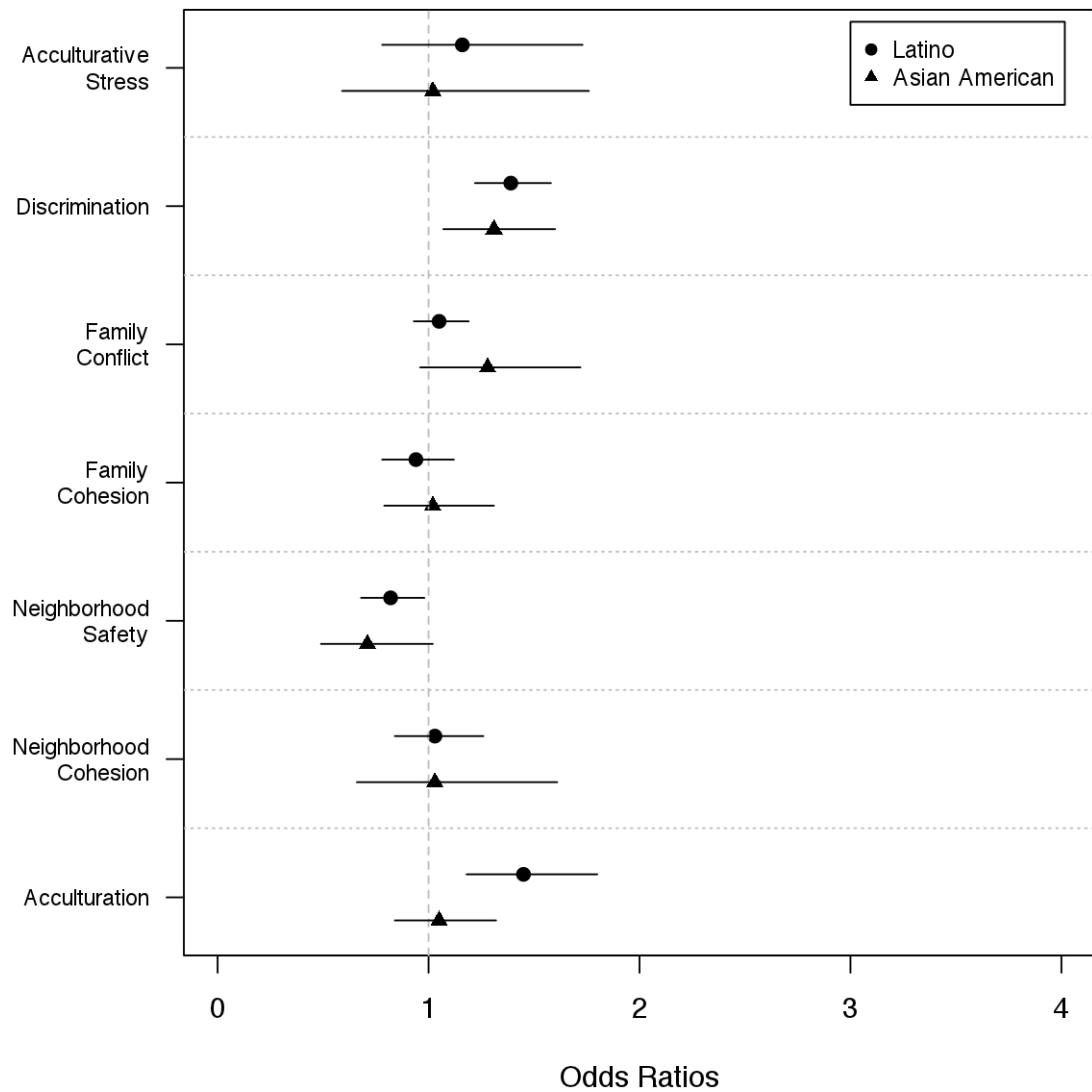
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**Figure 1.** Comparison of odds ratios (ORs) from multivariate binary logistic regressions of alcohol/drug use disorder diagnosis on psychosocial and contextual exposures, stratified by age of immigration. Odds ratios and 95% confidence intervals are derived from Model 2 results, adjusted for demographic characteristics, mental health indicators, and all exposures simultaneously. Full results can be found in Supplemental Table 2. U.S.-born individuals ( $n = 1378$ ) were not asked survey questions on acculturative stress.



**Figure 2.** Comparison of odds ratios (ORs) from multivariate binary logistic regressions of alcohol/drug use disorder diagnosis on psychosocial and contextual exposures, stratified by ethnicity. Odds ratios and 95% confidence intervals are derived from Model 2 results, adjusted for demographic characteristics, mental health indicators, and all exposures simultaneously. Full results can be found in Supplemental Table 3. U.S.-born individuals ( $n = 1378$ ) were not asked survey questions on acculturative stress.

**Table 1**

Sample descriptives and demographic comparisons between individuals with and without alcohol/drug use disorders (AUDs/DUDs) from the National Latino and Asian American Study ( $N = 4649$ )

Sample Characteristic	Individuals with AUDs/DUDs	Individuals without AUDs/DUDs	t or $\chi^2$ value
Sample N	4320	329	%
Age (mean, (SE))	39.16 (0.56)	36.56 (0.62)	- 5.18**
Income-to-needs ratio (mean, (SE))	3.82 (0.15)	3.90 (0.25)	- .32
Female	2437	87	20.8 110.64**
Ethnicity			88.70**
Vietnamese	509	11	3.7 0.6
Filipino	479	29	6.0 3.2
Chinese	583	17	8.1 2.2
All other Asian	439	28	10.2 5.3
Cuban	543	34	3.5 2.1
Puerto Rican	430	65	6.9 12.2
Mexican	772	96	40.6 51.8
All other Hispanic/Latino	565	49	21.0 22.6
Marital Status			11.18**
Married	2874	195	66.1 61.8
Divorced/Separated/Widowed	615	46	13.2 11.0
Never married	831	88	20.7 27.2
Education			25.91**
0–11 years	1215	95	37.0 34.6
12 years	912	93	22.1 29.0
13–15 years	1006	90	21.6 26.3
16 or more years	1187	51	19.4 10.2
Employment Status			6.24*

Sample Characteristic	Individuals with AUDs/DUDs	Individuals without AUDs/DUDs	t or $\chi^2$ value
Employed	2745	206	66.6
Unemployed	293	34	10.4
Not in labor force	1282	89	23.0
Region			2.46
Northeast	752	53	11.4
Midwest	231	24	9.9
South	1105	82	22.7
West	2232	170	55.9
Age of Immigration			199.47**
U.S.-born	1171	207	68.5
Under 18	889	59	15.4
18 and older	2249	63	16.1
DSM-IV Major Depressive Disorder	489	100	28.0
DSM-IV Generalized Anxiety Disorder	166	27	6.6
			14.63**

Note: Values are N and weighted % unless otherwise specified. AUD/DUD – Alcohol/Drug Use Disorder;

\* p<.05,

\*\* p<.01



Results from binary logistic regressions of alcohol use disorder and drug use disorder (AUD/DUD) diagnoses on psychosocial and contextual exposures.

**Table 2**

Predictor	N	AUD/DUD combined		Interaction <i>p</i> value		
		Model 1	Model 2	Age of Immigration		
		OR (95% CI) <i>p</i>	OR (95% CI) <i>p</i>	U.S.-born <sup>e</sup>	Childhood <sup>b</sup>	Asian <sup>c</sup>
Acculturation	4649	1.80 (1.54–2.09) <.001	1.67 (1.40–1.98) <.001	.12	.67	.20
Neighborhood Cohesion	4603	0.92 (0.83–1.03) .16	1.08 (0.90–1.29) .41	.12	.98	.61
Neighborhood Safety	4626	0.75 (0.66–0.85) <.001	0.79 (0.67–0.94) .01	.42	.62	.29
Family Cohesion	4639	0.79 (0.69–0.90) .001	0.90 (0.77–1.04) .16	.86	.62	.28
Family Conflict	4638	1.24 (1.12–1.36) <.001	1.02 (0.91–1.13) .79	.05	.60	.07
Discrimination	4639	1.54 (1.38–1.73) <.001	1.40 (1.25–1.58) <.001	.73	.20	.28
Acculturative Stress <sup>d</sup>	3259	1.06 (0.84–1.34) .62	1.01 (0.99–1.03) .24	–	.15	.74

Note: Model 1 is adjusted for demographic characteristics (age, sex, education level, ratio of household income to federal poverty level, marital status, employment status, and geographic region) and mental health indicators (combined DSM-IV lifetime diagnoses of Major Depressive Disorder or Generalized Anxiety Disorder); Model 2 is adjusted for Model 1 + all other psychosocial/contextual predictors simultaneously. Interaction models are adjusted for Model 2 + ethnicity (for age of immigration models) or age of immigration (for ethnicity models). OR = odds ratio; CI = confidence interval.

<sup>a</sup>Reference category is immigrants (any age);

<sup>b</sup>Reference category is adult immigrants;

<sup>c</sup>Reference category is Latino ethnicity;

<sup>d</sup>U.S.-born individuals (n=1378) were not asked survey questions on acculturative stress (immigration-related experiences).