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Reconsidering the Relationship between Age at Migration and Health Behaviors among US Immigrants: The Modifying Role of Continued Cross-border Ties

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Abstract

Age-at-migration is commonly utilized as a proxy measure for assimilation. We re-consider this approach by examining the role of continued connection with places of origin on alcohol use. Cross-border connections may diminish the association between earlier age-at-migration and alcohol use by providing an alternative channel of influence for behavioral norms. Alternatively, a stress and coping perspective on cross border ties suggests potentially countervailing impacts of these connections on alcohol use. We use data from the 2002/2003 National Latino and Asian American Study (NLAAS) (n=1641/1630 Asian and Latino origin respondents, respectively). We first estimate the association between age-at-migration (child/adolescent versus adult migrant) and any past-year alcohol use. We subsequently test the interaction between age-at-migration and two measures of cross-border contact. All models are stratified by region of origin and gender. For Latin American-origin women, cross-border ties are associated with increased risk for alcohol use among those who migrated early in life. In contrast, Asian-origin men and women who migrated as adults and have contact with family and friends abroad have the lowest predicted probabilities of past-year alcohol use. The results among Asians support the idea that cross-border ties can be alternative influences on health behavior outcomes, particularly for adult migrants. Overall, we find qualified support for both transnational and assimilationist perspectives on alcohol use behaviors among US immigrants -- as well as the interaction between these two frameworks. The joint influences of cross-border ties and age-at-migration were observed primarily for immigrant women, and not always in expected directions. We nevertheless urge future research to consider both US and country-of-origin influences on a wider range of health and health behavior outcomes for immigrants, as well as the potential intersection between US and cross-border connections.

Keywords

immigrants; alcohol use; cross-border ties; transnationalism; assimilation; age at migration

Scholarship on immigrant health behaviors has been historically dominated by an assimilationist framework, focused on how change and adaptation to the US "mainstream" may in turn impact behaviors that are influential for health and wellbeing. Within an assimilation-focused framework, the age at which immigrants migrate to the United States is a key predictor of norms, preferences, and behaviors that may be relevant for health. Scholars have observed that individuals who migrate as children or adolescents are more likely to engage in poor health behaviors, including smoking, drinking, and substance abuse compared to their counterparts who migrate as adults (Alegría, Sribney, Woo, Torres, & Guarnaccia, 2007; Kimbro, 2009). These findings are seen as the result of longer exposure to norms and preferences in the US that favor poor health behaviors at critical developmental time points (e.g. childhood, adolescence), as well as greater cumulative exposure to the US over one's lifetime (Caetano, 1987; Vaeth, Caetano, & Rodriguez, 2012).

More recently, immigrant health scholars have begun to consider a transnational framework (Abraído-Lanza, Echeverría, & Flórez, 2016; Acevedo-Garcia, Sanchez-Vaznaugh, Viruell-Fuentes, & Almeida, 2012; Villa-Torres et al., 2017), drawing on decades of scholarship in the social sciences that has considered the social, cultural, economic, and political engagement that immigrants often maintain even long after arrival in the US (Glick-Schiller, Basch, & Szanton-Blanc, 1995; Znaniecki & Thomas, 1918 [1996]). A transnational framework highlights immigrants'cross-border ties, or contact with family and friends in their country of origin through long-distance communication, remittance-sending, political participation and return visits (Faist, Bilecen, Barglowski, & Sienkiewicz, 2015; Falicov, 2007; Waldinger, 2015). Scholars have begun to develop theory outlining hypothetical cultural and psychological pathways by which these transnational connections may impact health and health behaviors, as well as test the associations between ongoing cross-border connection and these outcomes (Alcántara, Chen, & Alegría, 2015; Alcántara, Molina, & Kawachi, 2015; Gorman & Novoa, 2016; Samari, 2016; Torres, Alcántara, Rudolph, & Viruell-Fuentes, 2016; Torres, Lee, González, Garcia, & Haan, 2016).

The adoption of a transnational framework represents an important correction to the dominance of a straight-line, assimilationist focus in immigrant health scholarship. Nevertheless, social scientists have suggested that an exclusively transnational lens may not accurately reflect the everyday lives of immigrants in the US and elsewhere. Instead, a combined approach that considers the simultaneous and interwoven processes of both US-oriented assimilation and transnational engagement may be preferable (Portes & Rumbaut, 2014; Safi, 2017; Waldinger, 2015). These processes may not only inform one another, but also work together to inform health behaviors among US immigrants.

In this paper, we adopt this combined approach by first considering the independent associations between age-at-migration – a commonly utilized indicator of US assimilation – and ongoing cross-border ties with immigrant health behavior in a national sample of Latino and Asian-origin migrants. We use alcohol consumption as the health behavior of interest in

our empirical example; alcohol is, a significant public health issue globally and in the US (WHO, 2014). In addition, no studies to our knowledge have examined the relationship between cross-border ties and alcohol use. Subsequent to the main effect associations, we test the interaction between age-at-migration and cross-border ties in their association with US immigrants' alcohol use. We hypothesize that continued cross-border connection may diminish the adverse impact of earlier age-at-migration on subsequent health behaviors by providing an alternative channel of influence for immigrants' behavioral norms and consumption preferences. On the other hand, emerging perspectives linking cross-border connections and health from a stress and coping perspective suggest that there may be both positive and negative impacts of these connections on health behaviors. We additionally consider differences by gender and region of origin, given prior research suggesting that the relationship between age-of-migration and alcohol use differs by gender as well as substantial differences in the prevalence of alcohol consumption across immigrants' countries of origin.

Background

The emergence of a transnational framework in immigrant health behavior research

Immigrant health research has historically been dominated by attention to the ways in which immigrants assimilate, or acquire the social, cultural, economic, and political attributes typically ascribed to the US “mainstream”. There has been a particularly notable emphasis on the relationship between cultural dimensions of assimilation, or acculturation (Abraido-Lanza, Armbrister, Florez, & Aguirre, 2006; Abraído-Lanza et al., 2016; Lara, Gamboa, Kahramanian, Morales, & Bautista, 2005). This literature typically adopts a “straight-line” assimilationist orientation, either explicitly or implicitly assuming that with increased time in the US, immigrants will be at greater risk of adopting the norms, preferences, and behaviors that are characteristic of their US-born counterparts (Abraído-Lanza et al., 2016).

This paper considers age at migration as our measure of assimilation, a commonly adopted indicator of US assimilation that incorporates information about both relative years spent in the US as well as the developmental timing of that exposure. In general, those who migrate at earlier ages may have a more accelerated assimilation trajectory than their counterparts who migrate in adulthood, and are often hypothesized to be at greater risk for adopting behaviors that are typical of the US population at large. Age at migration factors also heavily contribute to the development of key social influences on health behaviors, such as language, social networks, and environments (Leu et al., 2008). Compared to adults, children and adolescent immigrants are exposed to a greater number of institutions, such as schools, youth organizations, social clubs, and friendship networks that facilitate integration into their new society (Takeuchi, Hong, Gile, & Alegría, 2007). These early social relationships and environments may establish immigrants' orientation towards alcohol use into adulthood (Zucker, Donovan, Masten, Mattson, & Moss, 2008), which is the focus of our empirical example.

In contrast to the focus on US-oriented assimilation of health behaviors, immigration scholars across the social sciences have long considered and debated the role of ongoing connection to places of origin for immigrants and their family members (Levitt & Jaworsky,

2007; Waldinger, 2015). These connections may be maintained through ongoing communication by mail, phone, text, or social media, through financial transfers or remittances, through return visits back to communities of origin, as well as ongoing engagement with political, economic, and cultural practices, even from a far.

A recent groundswell of literature theorizes and tests the relationships between ongoing transnational engagement – primarily by way of cross-border ties to family and friends and return visits -- and the health of immigrants (Acevedo-Garcia, Sanchez-Vaznaugh, Viruell-Fuentes, & Almeida, 2012; Viruell-Fuentes & Schulz, 2009). Within the transnationalism framework, cross-border ties are defined as the social connections maintained with close kin in countries-of-origin that, not only include physical contact (such as visits), but may also include financial and cultural aspects of transnationalism.[1] Scholars have found evidence that cross-border contact with family and friends living in countries of origin is significantly associated with mental health and overall wellbeing among immigrant populations in the US (Alcántara, Molina, et al., 2015; Samari, 2016; Torres, Alcántara, et al., 2016). While we are not aware of any empirical work examining the relationship between cross-border ties and alcohol use, some work has found a relationship between cross-border ties and other health outcomes including self-rated health (Afulani, Torres, Sudhinaraset, & Asunka, 2016; Torres, 2013), and health behaviors such as smoking (Alcántara, Molina, et al., 2015) as well as self-reported body mass index (Gorman & Novoa, 2016).

Most of the extant research on transnationalism and health has emphasized a stress and coping perspective, suggesting that maintaining contact with family and friends in communities of origin can serve as both a protective and a risk factor for emotional wellbeing (Alcántara, Chen, et al., 2015; Torres, Alcántara, et al., 2016). In particular, scholars suggest that ongoing cross-border connection may offer immigrants an “alternative space of belonging” (Viruell-Fuentes and Schulz, 2009) within a broader familial or ethnonational network that might have otherwise been disrupted by migration (Torres, Alcántara, et al., 2016). On the other hand, as with other social relationships, cross-border relationships may serve as a source of strain or burden. However, cross-border relationships are unique in that they necessarily entail cross-border separation; cross-border separation may be linked to acute psychological distress for immigrants, particularly in a geopolitical context in which return visits to places of origin and/or family reunification in the US may be impossible.

Yet there may be other pathways by which cross-border ties influence health behaviors among immigrants. Cross-border ties may serve as an important source of norms and social influence. For example, greater contact with the country of origin may contribute to patterns of health behavior that reflect country of origin trends. This viewpoint is informed by social

[1]As with prior studies (e.g. Samari, 2016; Afulani et al; 2016), we do not restrict our use of the term “cross-border ties” to refer to immigrants from countries that share a *physical* border with the United States. The term “cross-border” is instead meant to draw attention to the fact that the social and physical connections that we test in this analysis occur across international boundaries and borders (Waldinger, 2015). Cross-border ties are therefore shaped by both macro-level factors such as US immigration policy and foreign relations with countries of origin, as well as individual-level factors such as documentation status and socio-economic status (e.g. occupational characteristics, capacity to afford remittances and international visits (Waldinger, 2015; Torres et al, 2016). We nevertheless use the term “cross-border ties” interchangeably with other terms such as “country-of-origin ties” or “country-of-origin connections”.

norms theory, in which perceptions of peer behaviors have an effect on the individual's own behavior (Maxwell, 2002; Rosenquist, Murabito, Fowler, & Christakis, 2010; Unger & Molina). In general, social networks and relationships play an important role in predicting one consumption behavior (Rosenquist et al., 2010). Norms around health-related consumption patterns in countries of origin have been found to have long-term effects on health behaviors among immigrants. For example, Asian immigrants from countries with strong ethnic drinking cultures are more likely to have problematic drinking patterns after migrating to the US (Cook, Karriker-Jaffe, Bond, & Lui, 2014).

Continued cross-border ties may thus reinforce behavioral patterns that reflect immigrants' places of origin, serving as an ongoing channel of influence for immigrants even after migration. Qualitative research has documented the influence of cross-border connections on the everyday dietary behaviors of immigrants in the US (Handley et al., 2013). In an analysis of data from a national sample of foreign-born Latinos living in the US, Alcántara and authors (2015) found that more frequent return visits to countries of origin was associated with greater odds of being a current smoker. On the other hand, sending remittances to family and friends abroad was associated with *lower* odds of being a current smoker, with particularly strong protective effects for women.

A combined approach: Considering both assimilation and transnationalism frameworks

Theoretical and empirical contributions on transnational engagement and the health and health behaviors of immigrants represent important steps toward expanding the geographic lens of immigrant health research. Nevertheless, a perspective that incorporates both assimilationist and transnational frameworks may more accurately reflect the everyday lives of US immigrants (Waldinger, 2015; Safi 2017). For one, a singular focus on transnationalism and health belies the heterogeneity in immigrants' transnational engagement. US immigrants do not universally participate in transnational activities, and the vast majority doing so by way of cross-border familial connection, rather than economic or political participation. Immigration policies that have elevated the risks associated with crossing the US-Mexico border have largely curtailed frequent, circular migration between the US and Latin America, meaning that Latin American migrants increasingly settle permanently within the US after migration. Economic, occupational, and political constraints may prevent ongoing return visits for other migrant groups as well. Work informed by assimilation-based theories should therefore not be abandoned for a singular focus on transnationalism in immigrant health scholarship.

Instead, social scientists suggest that immigrant assimilation within US communities often informs cross-border connection and vice versa (Portes & Rumbaut, 2014; Waldinger, 2015). Ongoing transnational engagement may inform the ethnic and cultural identities and preferences of immigrants and their descendants in the US, which may in turn impact orientations to the American mainstream. It may be that ongoing cross-border connection alters the (often deleterious) behavioral influences often associated more time spent in the US such as those encapsulated by measuring age at migration. However, this strength of this relationship may be weakened for those who are exposed to ongoing cross-border influences, buffering the adverse effect of earlier age at migration on poor health behaviors.

Of course, the capacity of ongoing cross-border connection to alter the relationship between earlier age at migration and alcohol use behaviors in adulthood likely varies greatly by country of origin and gender, which we discuss below with more specific attention to country-level differences in alcohol use patterns, as well as variation by gender.

Empirical example: Age at migration, cross-border ties, and alcohol use

We focus our analysis on alcohol use behaviors among a nationally representative sample of Asian and Latin American-origin migrants. Alcohol use is a significant public health problem; even moderate alcohol use has been linked to poorer health outcomes, including cirrhosis of the liver and accidents (Corrao, Bagnardi, Zambon, & La Vecchia, 2004). On the other hand, moderate alcohol use has been found to be protective of some health outcomes, including heart disease and mortality (Corrao, Rubbiati, Bagnardi, Zambon, & Poikolainen, 2000). Finally, scholars have yet to examine the relationship between cross-border ties – either alone, or in combination with indicators of US assimilation -- and alcohol use.

In addition to the public health importance of alcohol use as an outcome, prior studies have reported links between earlier age at migration -and alcohol use (Reingle, Caetano, Mills, & Vaeth, 2014). For example, Kimbro (2009) found Latino adult immigrants in Los Angeles to be substantially less likely to binge drink compared to their US-born counterparts, but the risk for binge drinking rose as the age of migration decreased. Li and Wen (2015) similarly found the highest risk of binge drinking to be among immigrants who migrated at the youngest ages in a sample of legal immigrants to the US. Among immigrant women, migrating during childhood (between 0 and 9 years) was associated with greater odds of binge drinking compared to those who migrated as adolescents (10 to 18 years). For immigrant men, there was no significant main effect association between age-at-migration and binge drinking. While these studies have primarily focused on binge drinking and not general alcohol consumption, they collectively suggest that those who migrated at earlier ages, especially women, may have higher alcohol use.

As with the majority of immigrant health literature, the observed associations between age at migration and alcohol use specifically have largely been explained through an assimilationist framework. In particular, scholars suggest that the longer an immigrant has lived in the US, the more exposure they have to a context in which risk behaviors may be highly prevalent and presented as normative or desirable in media, advertising, and within social networks (e.g. among peers) (Lara, et al., 2005). Because those migrating as children or adolescents have spent a larger proportion of their lives in the United States compared to adult migrants, this theory assumes that they have a higher propensity towards Americanized views on alcohol use. Immigration to a new context is also associated with hardships, including discrimination, social isolation, economic strain, and stressors associated with social and cultural assimilation (Berry, 1997). Greater cumulative exposure to these stressors may contribute to increased alcohol use as a means of coping (Neff, Hoppe, & Perea, 1987). Those who migrate as children or adolescents not only have experienced more cumulative exposure to structural and acculturative stressors and utilize alcohol in order to cope with this stress, but may be more inclined to utilize alcohol given greater exposure to more accepting norms towards alcohol use in the US.

In incorporating a transnational perspective into our empirical example, we seek to examine the independent associations between cross-border ties and alcohol use among US immigrants while also reassessing this association by considering ongoing cross-border connection. In particular, we expect that if continued cross-border contact continues to be influential for migrants' health behaviors even after migration, it may serve to moderate the effect of age at migration on health behaviors. That is, continued cross-border connection – either through communication with family and friends or return visits home – may alter the typical observation of poorer health behaviors with younger age at migration.

A note on expected heterogeneity by country of origin and gender

The relationships between age at migration, cross-border ties, and alcohol use are likely to differ by country of origin. Specifically, the nature of this moderating effect of cross-border ties on the relationship between age at migration and alcohol use should depend on the specific country of origin with which migrants maintain contact. For example, continued cross-border ties for immigrants from countries of origin with lower alcohol use than observed in the US might be protective, and may buffer the effect of earlier age at migration. On the other hand, continued cross-border contact for migrants from countries of origin with higher alcohol use than those in the US may serve as a risk factor, and may exacerbate the adverse effects of earlier age at migration on alcohol use behaviors. In Asia and Latin America, the two regions of origin that we include in our analysis, the rates of alcohol use vary from one another and from the United States (WHO, 2014).

We additionally expect that there will be differences in the relationship between cross-border ties and alcohol use -- as well as in the potential for cross-border connection to modify this association -- by gender. For one, men have higher drinking rates than women across the globe (Rahav, Wilsnack, Bloomfield, Gmel, & Kuntsche, 2006), and are more likely to be current drinkers, engage in high-volume drinking, high-frequency drinking (5 or more days per week), and heavy episodic drinking (Wilsnack, Wilsnack, Kristjanson, Vogeltanz-Holm, & Gmel, 2009). Additionally, there may be substantial differences in the relationship between cross-border ties and health behaviors for men and women. Prior research suggests that cross-border ties, including contact with family members, and return visits to places of origin, may have significantly adverse impacts on the health and wellbeing of women, with null or positive effects for men (Alcántara, Molina, et al., 2015; Torres, Lee, et al., 2016). Scholars suggest that women may bear a greater burden for providing emotional and logistic support to family members, and maintaining family networks across borders. Continued cross-border contact may therefore represent a behavioral risk factor for women, to the extent that alcohol use may be a means of coping with the strain of supporting cross-border family networks.

On the other hand, from the perspective of social norms theory, cross-border contact may be linked to lower alcohol consumption among immigrant women. Average alcohol consumption is lower for women in major immigrant sending countries, such as Mexico, China, Philippines, and Vietnam.[2] Contact with places of origin through visits or connection with family and friends may therefore serve as a channel of context exposure to contexts with lower average alcohol consumption. Cross-border contact may therefore be associated

with lower levels of alcohol consumption for immigrant women, and may serve to protect the risk for greater alcohol consumption associated with younger age-at-migration.

In contrast, we may be more likely to see null effects of cross-border contact on alcohol consumption for immigrant men if we consider prior literature that found weak or null effects of cross-border contact on the mental health and wellbeing of immigrant men in the US. But this hypothesis is also driven by the fact that alcohol consumption for men in some of the most common immigrant sending countries appears to be similar compared to average consumption for men in the US.[3] This may mean that cross-border contact may have less measurable impact on alcohol consumption for immigrant men compared to women.

Hypotheses

In the present study, we first examine whether age at migration is associated with alcohol use among Latino and Asian immigrants, with all analyses stratified by gender. We expect a younger age at migration to be associated with higher alcohol use among our sample of immigrants. We expect cross-border ties to modify this relationship, assuming they represent an alternative source of normative behaviors. We further expect that the nature of this modified effect might differ by gender. Specifically, we expect that cross-border ties have the greatest potential for moderating the association between age-at-migration and alcohol consumption among women, given prior literature finding significant associations between cross-border ties and health for women (but often not for men), and that the difference in average rates of alcohol consumption between countries of origin and the US are greater for women versus men. However, we expect that this moderating effect could be protective (i.e. buffering the adverse effect of earlier age-at-migration) or adverse (i.e. exacerbating this adverse effect). On the other hand, we expect weaker moderating effects for men given that average rates of alcohol consumption are similar for men in countries of origin as compared to the US.

Methods

Data come from the 2002/2003 National Latino and Asian American Survey (NLAAS), a nationally representative in-person survey of US and foreign-born Latino and Asian-Americans (Alegria et al., 2004). Despite being an older study, no other population health survey to our knowledge has collected data on both the detailed cross-border social ties of immigrant populations and health behaviors. The NLAAS included a multi-stage national area probability sample of the non-institutionalized US adult population, with supplemental samples that targeted regions with a high density of Latino and Asian households (Heeringa et al., 2004). Interviews were conducted in either English or Spanish. A total of 4649

[2]For example, in 2011 the alcohol per capita consumption (APC) for women in the US was 4.9 liters of pure alcohol, compared to 2.6 liters for women in Mexico, 2.2 liters for women in China, 1.7 liters for women in the Philippines, and 0.7 liters for women in Vietnam (World Health Organization, 2014). Country-level APCs have also been reported for 2003-2005, closer to the time the survey was fielded that we use for our analyses, although gender-specific figures are not available for this timeframe, leading us to present more recent figures. The APC for the US remained stable, from 9.5 liters per adult per year in 2003-2005 compared to 9.2 in 2011. The total APC in Mexico was higher in 2003-2005, at 8.5 liters per year compared to 7.2 in 2011. In 2003-2005, China, the Philippines, and Vietnam reported APCs of 4.9, 6.4, and 3.8 liters of pure alcohol per adult per year, respectively (compared to 6.7, 5.4, 6.6 APC in 2011).

[3]For example, while the APC for men in the US was 13.6 liters for men in 2011, the APC was 12.4 liters for men in Mexico, 10.9 liters for men in China, and 9.2 liters for men in the Philippines, and 12.1 liters for men in Vietnam in 2011.

respondents were included in the final sample, with an overall response rate of 73%. Given that US-born respondents did not answer questions about cross-border ties, we only include the foreign-born respondents in our analysis. A total of 1630 respondents were born in Latin America, including those born in Puerto Rico, and 1641 were born in Asian countries.

Measures

Alcohol Use

The prevalence of alcohol dependence and/or abuse was very low in the NLAAS sample; with such rare outcomes, we would have limited power to detect significant effects – and significant interaction effects in particular. We therefore carried out our analyses with measures that capture alcohol utilization generally. These include a measure of past-year alcohol use; given that the majority of foreign-born NLAAS respondents had been in the US for five or more years at the time of responding to the survey, this measure largely captures alcohol use after migrating – in the context of exposure to both the US and country of origin through ongoing social ties and return visits. Respondents were queried about their lifetime and past-year drinking history; we contrasted those who volunteered that they did not drink in the past 12 months (or who never drank in their lifetime) with those who reported consuming at least one drink in the past 12 months. We also examined measures of past-month alcohol use – a binary measure of any alcohol use in the past month – as well as a count measure of the number of drinks per day respondents consumed when they drank (values for those who did not report drinking were set to zero). The results for the past-month alcohol use and number of drinks per day are presented in the Sensitivity analysis and available in Appendix tables.

Age at Migration

Respondent age at migration was provided as a five-category indicator with possible response categories of “less than 12 years old”, “13-17 years”, “18-34 years”, and “35+ years”. We contrasted immigrant respondents who migrated at 17 years old or younger with those who migrated at 18 years old or older. While it would have been ideal to identify child migrants, there were too few in the sample to conduct our analyses.

Cross-Border Ties

We include two indicators of cross-border contact –ties to family and friends and visits to places of origin. The first measure comes from a question asking respondents whether or not respondents had limited contact with family and friends in their countries of origin. We coded responses such that those who report limited contact are the reference group, in contrast to those who do not report limited contact with family and friends abroad. A small number of respondents (49 Asian-origin respondents, or 3%; 33 Latin American-origin respondents, or 2%) who indicated that this question was not applicable – i.e. they did not have family and friends abroad -- were grouped with those who had “limited” contact. The question about contact is non-specific about the nature of this contact (e.g. in-person or via phone, letters, or Internet) or the frequency of contact. Nevertheless, prior research on cross-border ties suggests that migrants may attach substantial importance to infrequent contact with family and friends abroad, even if that contact does not entail in person visits.

The measure of visits comes from a question asking respondents to indicate the frequency with which they return to their countries of origin, with possible response categories of “often”, “sometimes”, or “rarely”; respondents could alternatively volunteer that they never returned to their country of origin. Again, given the potential importance of *any* cross-border contact for migrants' self-identity, subjective sense of wellbeing, and everyday activities, we contrasted those who reported never visiting with those who reported any visits to their country of origin.

We retain these measures as separate indicators given that prior research has shown divergent relationships between distinct forms of cross-border ties and health and health behavior (e.g. Alcántara, Molina, et al., 2015). Specific to the present study, we might expect that actual return visits may have a stronger association with alcohol use – and may also be more likely to modify the relationship between age-at-migration and alcohol use. Return visits may provide an immersive experience within country-of-origin cultural practices and societal influences, serving as a channel of exposure to place-specific policies and practices that either promote or prohibit alcohol use. These might include the marketing (or lack thereof) around alcohol use and the use and meaning (or lack thereof) of alcohol within cultural and religious celebrations. In contrast, cross-border contact (e.g. through phone calls) with family and friends might not provide the same exposure to macro-level country-of-origin context. These ongoing social connections may entail complex dynamics of (bi-directional) behavioral influence as well as emotional support and strain that may contribute to mental health and coping practices.

Covariates

We controlled for a parsimonious set of socio-demographic and economic characteristics including respondent age in years and marital status – contrasting married versus single, widowed or divorced respondents. Controls for economic status and employment are particularly important given that these factors may influence both cross-border contact and alcohol use. For example, individuals who have higher income may be more likely to have the resources to afford costly international flights necessary to return to countries of origin (Portes & Rumbaut, 2014). Alcohol use is also patterned by socioeconomic status (Keyes & Hasin, 2008; van Oers, Bongers, van de Goor, & Garretsen, 1999). We therefore controlled for respondents' annual household income in dollars, logged to reflect the skewed income distribution, as well as whether or not respondents were employed at the time of the survey. We additionally controlled for whether or not respondents were naturalized citizens at the time of the survey given the importance of respondent legal status in enabling – or inhibiting – immigrants' return visits to countries of origin.

Statistical Analyses

We first examined descriptive characteristics across all covariates, stratified by gender and broad ethno-national subgroup. All models were stratified by broad region of origin – Asia or Latin America. While further stratification for specific country of origin would have yielded sub-sample sizes that were too small to produce reliable estimates of multiplicative interactions between cross-border ties and age-at-migration, we control for respondents' specific ethno-national origin: Chinese, Filipino, Vietnamese and “other Asian” for the

Asian-origin sub-sample, and Mexican, Cuban, Puerto Rican, and "other Latino" for the Latin American-origin sub-sample. We then estimated multivariable logistic regression models of past-year alcohol use on 1) age-at-migration, 2) measures of cross-border ties–contact with family and friends, and visits to countries of origin, and 3) both age-at-migration and measures of cross-border ties, all controlling for socio-demographic characteristics. Finally, we introduced multiplicative interaction terms between age-at-migration and each of two cross-border ties measures in turn. Each set of models was stratified by gender, given our expectation that cross-border ties might have different meaning for men and women, including different impacts on alcohol use. Analyses incorporated the complex survey design, including sampling weights and stratification by ethno-national subgroup (Heeringa et al., 2004), using the –svy—package in STATA (v.13). Fewer than 2% of cases were missing data across covariates and were excluded from the analysis.

Results

Descriptive Analysis

We present unweighted Ns and weighted percentages for each variable of interest in Table 1, stratified by region of origin and gender. Only 19% of Asian women reported any past-year alcohol use compared to over 50% of Asian men. Latinos reported a similar gender disparity; 28% of Latina women reported past-year alcohol use compared to nearly 70% of men. More Latino immigrants migrated at younger ages compared to Asian immigrants; over 40% of Latino men compared to 26% of Asian men. The level of cross-border ties was similar across all four groups. Approximately half of Latina women and men reported having contact with family and friends in the country of origin. Asian immigrants had slightly higher contact; approximately 60% of Asian men and women reported contact. For all four groups, around 70% reported visiting their countries of origin.

Main Effect Associations Age at Migration

For Asian-origin women, migrating as an adult was associated with significantly lower odds of past-year alcohol use (OR: 0.42, 95% CI: 0.22-0.80, Table 2a, Model 1) relative to migrating as a child or adolescent. However, for Asian-origin men and for both Latin American-origin men and women, there was no significant association between age-at-migration and past-year alcohol use.

Main Effect Associations, Cross-Border Ties

For Asian-origin men, contact with family and friends in countries of origin was associated with lower odds of past-year alcohol use (OR: 0.49, 95% CI: 0.33, 0.74, Table 2b, Model 2). An association between ever visiting one's country of origin and greater odds of past-year alcohol use was marginally significant for Latina women (OR: 1.66: 95% CI: 0.96, 2.87).

Interaction between Age-at-Migration and Cross-Border Ties

The baseline reference group for the interaction terms was child/adolescent migrants without contact with family or friends, or who do no visit their origin countries (Table 2, Model 4). With these interaction terms, the coefficients for contact and ever visit indicate the odds of

past-year alcohol year use for child/adolescent migrants with these cross-border ties compared to child/adolescent migrants without them. We additionally present predicted probabilities of past-year alcohol use based on models that include the interaction terms between age-at-migration and cross-border ties (Figure 1). For Asian-origin women, cross-border ties do appear to significantly moderate the relationship between age-at-migration and alcohol use. Specifically, Asian women who migrated as adults and also reported cross-border contact had lower predicted odds of past-year alcohol use relative to child/adolescent migrants with no cross-border connection (OR: 0.38, 95% CI: 0.19, 0.76).

For Latina women, there was one significant interaction term between age-at-migration and cross-border connection. Specifically, adult migrants who reported cross-border contact had significantly greater odds of past-year alcohol use compared to the reference group of child/adolescent migrants with no cross-border connection (OR: 2.11, 95% CI 1.05-5.26). In addition, child/adolescent migrants who ever visited their place of origin actually had higher odds of past year alcohol use compared to child/adolescent migrants with no cross-border connection (OR: 2.25, 95% CI 1.21-4.18). However, there was no significant difference in alcohol consumption for child/adolescent migrants by contact with friends and family. There were no significant interaction terms between age-at-migration and cross-border ties for Asian or Latin American-origin men.

Sensitivity Analyses

We found qualitatively similar results in analyses that utilized the alternative measure of past-month alcohol use, although there were fewer statistically significant associations between age-at-migration, cross-border ties, and past-month alcohol use as compared to the past-year alcohol use measure (Appendix Table A). However, we note that the prevalence of past-month alcohol use was quite low for female respondents; models that used this outcome had large standard errors and were likely underpowered to detect significant associations. We also found limited statistically significant relationships between age-at-migration or cross-border ties, respectively, and the count of number of drinks consumed per day, estimated with negative binomial regression models (Appendix Table B).

We also re-ran the analyses for immigrants from different countries of origin. Asian immigrants were separated into Chinese, Vietnamese, and Filipino groups and Latino immigrants were separated into Puerto Rican, Cuban, and Mexican groups. Results stratified by individual origin countries did not vary considerably from the aggregated results, leading us to believe that the intra-group patterns within the Asian and Latino aggregated samples were relatively consistent. The small samples sizes for the disaggregated results created large standard errors for many of the estimates, however, and we present the aggregated results for stability. Results for these sensitivity analyses are available upon request.

Discussion

Immigrant health research has historically been dominated by an assimilationist framework, with a focus on exposure to the US and resulting cultural and behavioral shifts. Age of migration is often thought of as a critical indicator of exposure to the US, given that immigrants who migrate earlier in life spend a greater proportion of their lives in the US and

because of the important developmental implications for migration during ‘critical’ periods of childhood and adolescence. Health researchers have historically paid less attention to the role of continued exposure to places of origin; however, some have recently begun to adopt a transnational framework, developing theoretical links between cross-border ties and the health of immigrants and their family members in the US, and testing these empirically (Acevedo-Garcia et al., 2012; Alcántara, Molina, et al., 2015; Handley et al., 2013; Torres, 2013).

We move this research forward by suggesting that both assimilationist and transnational frameworks both be incorporated into models of immigrant health and health behavior. We then presented an empirical test case, in which we examined associations between age at migration, cross-border ties, and alcohol use among a nationally representative sample of Latino and Asian-origin adults. We proposed that cross-borders ties might serve as an alternative source of norms regarding alcohol use and that ties to sending countries would buffer the relationship between earlier age at migration and past-year alcohol use. On the other hand, given prior research suggesting significant associations between cross-border contact and mental health and wellbeing in both positive and negative directions, we posited that cross-border contact might have impacts on alcohol consumption patterns through pathways related to emotional wellbeing and coping.

We first examined the main effects associations between age at migration and past-year alcohol use. We found that earlier age of migration was associated with greater odds of past-year alcohol consumption for Asian-origin women only; earlier age at migration was not associated with greater odds of past-year alcohol use among Asian men, Latina women, or Latino men. While other research has similarly found no differences in alcohol use by age at migration for men (Kimbro 2009), our findings for Latina women were unexpected, particularly given the commonly evoked expectation that more exposure to the US – especially at earlier ages – will contribute to increased risk for adverse health behaviors among immigrants.

One possibility for our null findings for all but Asian-origin women might be that the age range for child/adolescent migration was too large; other research has suggested that migration during childhood (i.e. before age 13) is a particularly meaningful cut-off for studies linking US exposure to adult health behaviors (Borges et al., 2016). We did test an alternative cut-off for early age-at-migration, contrasting individuals who migrated at less than 12 years of age to those who migrated at 13 years or older; this cut-off was partially informed by the available response categories for age-at-migration in the NLAAS (i.e. 12 years or under, 13 to 17 years, 18 to 34 years, or 35 years or more). We found similar results (Appendix Table C), although the results for Latina women were no longer significant. On the other hand, given the relatively small number of respondents who migrated in childhood meant, we had limited power to detect significant interaction effects with cross-border ties when using the younger cut-off for early age at migration.

We additionally examined how the associations between cross-border ties and alcohol differed between men and women, in line with the emerging interest in examining transnational engagement as a determinant of immigrant health. While expected cross-

border ties to serve as an alternative source of norms that might be linked to lower alcohol use among women in particular, we found that ever visiting one's country-of-origin was associated with *greater* odds of past-year alcohol use for Latina women. Again, cross-border ties may entail substantial emotional and financial burden as immigrants – and women in particular – to continue to coordinate the logistics of schooling, healthcare, and long-term care for family members abroad, resulting in increased stress and anxiety (Abrego, 2014; Viruell-Fuentes, 2006). As a result, those who maintain such ties may turn to coping behaviors, including alcohol use. On the other hand, we note that there were null main effect associations between cross-border ties and past-year alcohol use for Asian women. Moreover, Asian-origin women who migrated as adults and maintained contact with family and friends abroad had *lower* odds of past-year alcohol use relative to child/adolescent immigrants with no cross-border ties. This contrasting finding suggests that there may be multiple pathways by which cross-border ties impact health and health behaviors that vary upon the nature of the contact and place-of-origin.

In contrast, cross-border contact with family and friends was associated with lower odds of past-year alcohol use for Asian-origin men. However, no other aspect of cross-border ties - either main effects or interacted with age-at-migration - were significantly associated with alcohol use. These findings lend further support to the idea that there may are likely important differences in the role of cross-border ties and health by gender. Although men and women reported equal levels of contact and visiting in our sample, it appears that the toll of these cross-border ties is largely shouldered by women. Other work has also suggested that the effect of cross-border ties on health outcomes is stronger among women than men (Alcántara, Molina, et al., 2015; Amoyaw & Abada, 2016). This raises the possibility that the nature of cross-border ties differs for men and women – and the subsequent health impacts are largely experienced by women.

We found qualified support for the capacity of ongoing transnational engagement to modify the relationship between age at migration and alcohol use behaviors, although in ways that diverged from expectations and only for immigrant women. In particular, we found little support for the hypothesis that cross-border ties *buffered* the impact of earlier age at migration on past-year alcohol use. In fact, we found Latina women who migrated as children or adolescents and visited their origin countries had a *higher* likelihood of alcohol use compared to Latina women who migrated as children or adolescents but had no cross-border connection. Cross-border ties, including visits to countries of origin, have been linked to poorer health outcomes for women in particular, as these ties may entail substantial burden related to cross-border caregiving (Abrego, 2014; Alcántara, Molina, et al., 2015; Torres, Lee, et al., 2016; Viruell-Fuentes, 2006). It is plausible that the strain of maintaining cross-border family relationships, may be linked to increased alcohol consumption, particularly for women.

We additionally found significant differences in past-year alcohol use between adult immigrants who maintain cross-border ties and child/adolescent immigrants who report no cross-border ties in the subsample of Asian-origin women. However, the direction of these differences varied by the type of transnational engagement we specified in the interaction term. The finding that cross-border ties were significantly associated with alcohol use for

Asian women who migrated in adulthood may be explained by the fact that those who migrate as adults often have stronger ties to close relatives and friends who remain abroad. Those who migrated as children or adolescents may maintain more distant familial connections in their sending countries; these more distal cross-border connections may be less influential for norms and behaviors, including alcohol use behaviors, for these early-life migrants. Despite the unexpected directions of these associations, these findings overall underscore the potential importance of considering both assimilation and transnational perspectives in research on alcohol use among US immigrants.

Limitations

The limitations of this analysis include the cross-sectional nature of the dataset, which makes it impossible to tease apart the causal relationship between age at migration, cross-border ties, and past-year alcohol use. For example, it may be that respondents' alcohol use patterns shape their engagement in social relationships, including cross-border social relationships. We also note that we lack more detailed measures of both age-at-migration and cross-border ties. In particularly, we did not have a continuous measure of age-at-migration in years; although we did have a more detailed categorical measure that would have allowed us to distinguish child migration (12 years and under) from adolescent migration (13 to 18 years), the number of those who migrated as children was too small to be able to test for interaction effects while also breaking out by sub-group and gender.

In addition, we lacked details about the specific social ties that respondents were in contact with in countries of origin; prior research has shown that the type of relationship (e.g. spouse, sibling) that an individual is connected to may be important in shaping health behaviors, including alcohol use behaviors (Rosenquist et al., 2010). We additionally note that the alcohol measure was broad in its timeframe and we were not able to capture more problematic drinking or refined daily drinking. Alcohol dependence was not analyzed due to limited sample who reported this behavior, yet we found qualitatively similar results when using a measure of past-month alcohol use.

Recommendations for future work

Despite these limitations, this study contributes to the literature by assessing the role of cross-border ties on alcohol use by countries-of-origin and gender. Future qualitative research may attempt to disentangle why women in particular may be vulnerable and how mechanisms such as parental separation, social and cultural norms of both the country of origin and receiving country may influence behaviors. Future research may also collect data on documentation status or refugee/asylum status. This may shape the conditions of return to countries of origin as well as maintaining relationships with those abroad. Moreover, future studies would ideally be able to stratify further into distinct country-of-origin subgroups given the heterogeneous context of migration and cross-border ties.

We also suggest that future research might extend the present analyses to examine the degree to which the trends described for alcohol use extend to other health behaviors, including those related to diet, physical activity, and health-care seeking and treatment practices. Application of our theoretical framework to other health behaviors in the NLAAS was

hampered by the lack of available information (e.g. regarding physical activity) or limited statistical power (e.g. for current smoking behavior, particularly among women). Future research might draw from other data sources to examine the contribution of assimilation and transnational frameworks in shaping health behavior. This work should pay continued attention to heterogeneity in the patterns for each of these health behaviors by country-of-origin, gender, and time in forming hypotheses and interpreting results.

Conclusions

Research into the determinants of health behavior for immigrant populations has historically taken an assimilationist perspective, focusing on US-based societal and cultural influences. Age-at-migration has often been considered as an important indicator within this perspective, given that the relative influence of US-based influences may vary critically by the age and developmental stage at which an individual migrates. More recent immigrant health research has instead adopted a transnational framework, examining the potential for ongoing influence of countries of origin -- through cross-border interactions with family and friends, return visits, and other forms of social and cultural engagement -- on behavioral outcomes. We proposed a framework that combines both assimilationist and transnational perspectives, thinking about the separate and joint influences of both age-at-migration and cross-border connections on alcohol use among a national sample of both Asian and Latin American-origin migrants. We find qualified support for both transnational and assimilationist perspectives, as well as the interaction between these two frameworks – the joint influences of cross-border ties and age-at-migration were observed primarily for immigrant women, and not always in expected directions. We nevertheless urge future research to consider both US and country-of-origin influences on a wider range of health and health behavior outcomes for immigrants, as well as the potential intersection between US and cross-border connections.

Appendix

Appendix Table A

Odds ratios and 95% confidence intervals for past-month alcohol use by age-at-migration and cross-border ties for Asian and Latino migrants to the U.S., National Latino and Asian American Survey

	Asian Women				Asian Men			
	Model 1		Model 2		Model 1		Model 2	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Ref: Child/Adolescent Migrant, no CBT								
Adult Migrant	0.40	(0.21, 0.75) **	0.36	(0.08, 1.67)	0.96	(0.55, 1.68)	1.73	(0.47, 6.45)
Cross-Border Ties								
Contact	0.74	(0.40, 1.39)	2.04	(0.68, 6.12)	0.61	(0.38, 0.96) *	0.81	(0.30, 2.22)
Ever Visit	1.36	(0.66, 2.82)	0.68	(0.19, 2.35)	0.84	(0.57, 1.24)	1.23	(0.50, 3.07)

	Asian Women				Asian Men			
	Model 1		Model 2		Model 1		Model 2	
	OR	**95% CI**	**OR**	**95% CI**	**OR**	**95% CI**	**OR**	**95% CI**
Interaction Terms								
Adult Migrant*Contact			0.19	(0.05, 0.77) *			0.67	(0.21, 2.10)
Adult Migrant*Ever Visit			3.12	(1.21, 8.08) *			0.46	(0.20, 1.03)
	Latina Women				**Latino Men**			
	Model 1		Model 2		Model 1		Model 2	
Ref: Child/Adolescent Migrant, no CBT								
Adult Migrant	0.68	(0.46, 1.00)	0.54	(0.13, 2.30)	0.83	(0.48, 1.42)	0.71	(0.22, 2.23)
Cross-Border Ties								
Contact	1.04	(0.64, 1.70)	0.89	(0.41, 1.94)	0.72	(0.47, 1.09)	0.58	(0.25, 1.36)
Ever Visit	1.67	(0.82, 3.37)	1.58	(0.64, 3.92)	1.03	(0.55, 1.91)	1.05	(0.35, 3.11)
Interaction Terms								
Adult Migrant*Contact			1.37	(0.42, 4.49)			1.45	(0.50, 4.24)
Adult Migrant*Ever Visit			1.06	(0.20, 5.72)			0.96	(0.29, 3.15)

* p<0.05,
** p<0.01,
*** p<0.001. Note: Controlling for age in years, ethno-national origin, U.S. citizenship, annual income (logged), employment status, marital status, and social desirability bias.

Appendix Table B

Coefficients and standard errors for negative binomial regressions of number of drinks consumed per day by age-at-migration and cross-border ties for Asian and Latino migrants to the U.S., National Latino and Asian American Survey

	Asian Women					Asian Men			
	Model 1			Model 2		Model 1		Model 2	
	Coef	**(SE)**		**Coef**	**(SE)**	**Coef**	**(SE)**	**Coef**	**(SE)**
Ref: Child/Adolescent Migrant, no CBT									
Adult Migrant	-1.20	(0.25)	***	-1.31	(0.83)	0.27	(0.24)	0.81	(0.56)
Cross-Border Ties									
Contact	-0.64	(0.25)	*	0.46	(0.49)	-0.19	(0.18)	-0.06	(0.48)
Ever Visit	0.65	(0.30)	*	-0.15	(0.46)	-0.15	(0.18)	0.27	(0.33)
Interaction Terms									
Adult Migrant*Contact				-1.58	(0.65) *			-0.22	(0.57)
Adult Migrant*Ever Visit				1.49	(1.04)			-0.64	(0.48)

	Asian Women				Asian Men			
	Model 1		Model 2		Model 1		Model 2	
	Coef	(SE)	Coef	(SE)	Coef	(SE)	Coef	(SE)
	Latina Women				Latino Men			
	Model 1		Model 2		Model 1		Model 2	
Ref: Child/Adolescent Migrant, no CBT	Coef	SE	Coef	(SE)	Coef	SE	Coef	(SE)
Adult Migrant	-0.18	(0.27)	0.17	(0.73)	-0.24	(0.14)	-0.16	(0.30)
Cross-Border Ties								
Contact	0.25	(0.32)	0.28	(0.38)	-0.06	(0.18)	-0.24	(0.32)
Ever Visit	0.51	(0.35)	0.79	(0.50)	0.01	(0.17)	0.19	(0.26)
Interaction Terms								
Adult Migrant*Contact			0.03	(0.71)			0.32	(0.38)
Adult Migrant*Ever Visit			-0.46	(0.73)			-0.32	(0.38)

+ p<0.10,
* p<0.05,
** p<0.01,
*** p<0.001. Note: Controlling for age in years, ethno-national origin, U.S. citizenship, annual income (logged), employment status, marital status, and social desirability bias.

Appendix Table C

Odds ratios and 95% confidence intervals for past-year alcohol use by age-at-migration and cross-border ties for Asian and Latino migrants to the U.S., National Latino and Asian American Survey

	Asian Women				Asian Men			
	Model 1		Model 2		Model 1		Model 2	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Ref: Child Migrant (under 12 yrs), no CBT								
Adolescent/Adult Migrant	0.36	*(0.17, 0.76)* ***	0.31	(0.11, 0.88) *	0.76	(0.33, 1.75)	1.57	(0.48, 5.08)
Cross-Border Ties								
Contact	0.78	(0.52, 1.17)	1.70	(0.78, 3.71)	0.49	(0.32, 0.74) **	0.74	(0.22, 2.49)
Ever Visit	1.06	(0.58, 1.94)	0.46	(0.17, 1.28)	0.95	(0.62, 1.46)	1.76	(0.80, 3.88)
Interaction Terms								
Adolescent/Adult Migrant*Contact			0.34	(0.14, 0.84) *			0.61	(0.16, 2.32)
Adolescent/Adult Migrant*Ever Visit			3.61	(1.16, 11.21) *			0.45	(0.19, 1.09)
	Latina Women				Latino Men			
	Model 1		Model 2		Model 1		Model 2	
Ref: Child Migrant (under 12 yrs), no CBT								

	Asian Women				Asian Men			
	Model 1		Model 2		Model 1		Model 2	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Adolescent/Adult Migrant	0.67	(0.39, 1.16)	0.68	(0.17, 2.72)	0.84	(0.52, 1.36)	0.59	(0.09, 3.98)
Cross-Border Ties								
Contact	1.17	(0.76, 1.80)	1.05	(0.45, 2.43)	0.74	(0.50, 1.11)	0.49	(0.17, 1.42)
Ever Visit	1.68	(0.97, 2.90)	1.83	(0.90, 3.72)	0.77	(0.40, 1.48)		
Interaction Terms								
Adolescent/Adult Migrant*Contact			1.16	(0.39, 3.45)			1.65	(0.46, 5.90)
Adolescent/Adult Migrant*Ever Visit			0.88	(0.31, 2.49)			0.74	(0.15, 3.61)

$^{+}$ p<0.10,
* p<0.05,
** p<0.01,
*** p<0.001. Note: Controlling for age in years, ethno-national origin, U.S. citizenship, annual income (logged), employment status, marital status, and social desirability bias.

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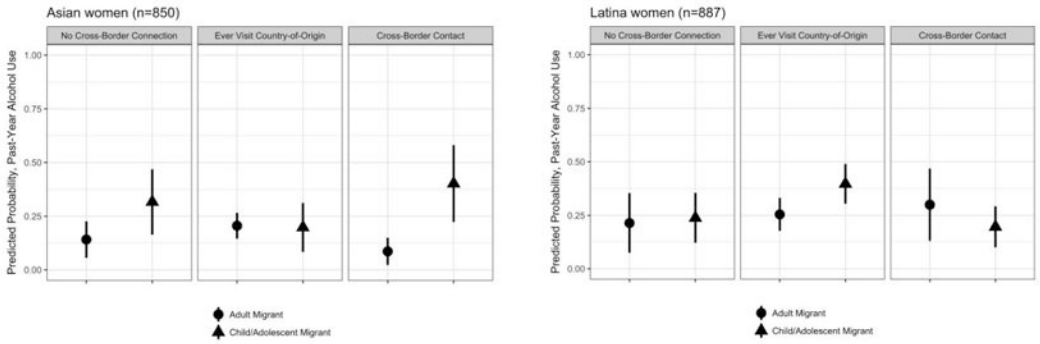

Figure 1. Predicted probabilities of past-year alcohol use by age-at-migration and cross-border connection for Asian and Latina immigrant women in the National Latino and Asian American Survey (NLAAS), 2002/2003

Table 1

Descriptive statistics for a national sample of Asian and Latino migrants to the US, National Latino and Asian American Survey 2002/2003

	Asian Women (n=869)		Asian Men (n=772)		Latina Women (n=906)		Latino Men (n=724)	
	n	**Weighted %**	**n**	**Weighted %**	**n**	**Weighted %**	**n**	**Weighted %**
Past-year alcohol use	158	(18.5)	407	(53.2)	273	(28.1)	506	(69.2)
Migrated as child/adolescent	176	(20.5)	191	(26.0)	311	(36.5)	270	(41.2)
Cross Border Ties								
Contact with family and friends in country of origin	520	(60.0)	463	(58.6)	471	(52.3)	345	(47.9)
Ever visit country of origin	628	(72.7)	519	(68.3)	607	(73.1)	454	(71.7)
Demographics								
Age, years, mean (sd)	43.1 (13.9)		41.7 (14.7)		40.2 (16.2)		37.9 (15.3)	
Annual income, dollars, mean (sd)	67,255 (58,600)		76,067 (59,305)		34,481 (41,539)		40,154 (44804)	
Employed	499	(54.8)	569	(72.4)	954	(63.1)	530	(78.8)
US Citizen	533	(61.1)	482	(57.4)	428	(35.0)	312	(33.2)
Married	648	(74.7)	592	(74.0)	564	(65.1)	522	(74.8)
Social desirability bias	79	(9.8)	61	(7.0)	65	(7.0)	50	(7.8)
Ethno-national Origin								
Chinese	253	(31.0)	222	(30.0)				
Filipino/a	266	(16.5)	236	(16.0)				
Vietnamese	195	(21.0)	154	(18.2)				
Other Asian	155	(31.4)	160	(35.7)				
Puerto Rican					118	(7.6)	99	(7.9)
Cuban					264	(6.8)	237	(6.8)
Mexican					257	(51.8)	231	(58.4)
Other Latino					267	(33.8)	157	(26.9)

Source: National Latino and Asian American Survey, 2002/2003

Table 2a

Odds ratios and 95% confidence intervals for past-year alcohol use by age-at-migration and cross-border ties for Asian and Latina migrants to the U.S., National Latino and Asian American Survey

	Asian-origin Women (n=850)											
	Model 1			Model 2			Model 3			Model 4		
	OR	**95% CI**		**OR**	**95% CI**		**OR**	**95% CI**		**OR**	**95% CI**	
Ref: Child/Adolescent Migrant, no CBT												
Adult Migrant	0.42	(0.22, 0.80)	*				0.41	(0.21, 0.79)	**	0.34	(0.12, 0.95)	*
Cross-Border Ties												
Contact with family/friends				0.82	(0.56, 1.20)		0.78	(0.54, 1.15)		1.49	(0.81, 2.74)	
Ever visit country of origin				0.88	(0.51, 1.51)		1.00	(0.56, 1.77)		0.51	(0.22, 1.20)	
Interaction Terms												
Adult migrant*Contact										0.38	(0.19, 0.76)	**
Adult migrant*Ever visit										3.12	(1.21, 8.08)	*
	Latin American-origin Women (n=887)											
	Model 1			Model 2			Model 3			Model 4		
	OR	95% CI		OR	95% CI		OR	95% CI		OR	95% CI	
Ref: Child/Adolescent Migrant, no CBT												
Adult Migrant	0.77	(0.51, 1.18)					0.85	(0.57, 1.28)		0.86	(0.27, 2.73)	
Cross-Border Ties												
Contact with family/friends				1.19	(0.77, 1.84)		1.17	(0.76, 1.79)		0.77	(0.43, 1.37)	
Ever visit country of origin				1.67	(0.96, 2.90)	+	1.66	(0.96, 2.87)	+	2.25	(1.21, 4.18)	*
Interaction Terms												
Adult migrant*Contact										2.11	(1.05, 5.26)	*
Adult migrant*Ever visit										0.57	(0.20, 1.63)	

+ p<0.10,

* p<0.05,

** p<0.01,

*** p<0.001. Note: All models control for age in years, ethno-national origin, U.S. citizenship, annual income (logged), employment status, marital status, and social desirability bias.

Table 2b

Odds ratios and 95% confidence intervals for past-year alcohol use by age-at-migration and cross-border ties for Asian and Latino migrants to the U.S., National Latino and Asian American Survey

	Asian-origin Men (n=751)											
	Model 1			**Model 2**			**Model 3**			**Model 4**		
	OR	**95% CI**		**OR**	**95% CI**		**OR**	**95% CI**		**OR**	**95% CI**	
Ref: Child/Adolescent Migrant, no CBT												
Adult Migrant	0.82	(0.45, 1.47)					0.75	(0.41, 1.34)		1.67	(0.27, 2.73)	
Cross-Border Ties												
Contact with family/friends				0.49	(0.33, 0.74)	**	0.49	(0.32, 0.73)	**	0.72	(0.28, 1.90)	**
Ever visit country of origin				0.90	(0.57, 1.43)		0.95	(0.60, 1.49)		1.60	(0.80, 3.23)	
Interaction Terms												
Adult migrant*Contact										0.59	(0.19, 1.87)	
Adult migrant*Ever visit										0.46	(0.20, 1.03)	+
	Latin American-origin Men (n=707)											
	Model 1			Model 2			Model 3			Model 4		
	OR	95% CI		OR	95% CI		OR	95% CI		OR	95% CI	
m												
Adult Migrant	1.02	(0.65, 1.60)					0.96	(0.62, 1.47)		0.91	(0.27, 3.03)	
Cross-Border Ties												
Contact with family/friends				0.74	(0.49, 1.13)		0.75	(0.50, 1.12)		0.56	(0.26, 1.21)	
Ever visit country of origin				0.75	(0.39, 1.44)		0.77	(0.40, 1.49)		0.90	(0.29, 2.75)	
Interaction Terms												
Adult migrant*Contact										1.63	(0.64, 4.11)	
Adult migrant*Ever visit										0.75	(0.24, 2.38)	

+ p<0.10,

* p<0.05,

** p<0.01,

***p<0.001. Note: All models control for age in years, ethno-national origin, U.S. citizenship, annual income (logged), employment status, marital status, and social desirability bias.