The Links between Acculturation, Other Forms of Assimilation, and Alcohol Use

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Draft
September, 2011

Acculturation is often cited as an explanation for increased alcohol use across immigrant generations, but the use of acculturation as a variable suffers from serious conceptual and methodological problems, making it difficult to reach conclusions about the mechanisms that link acculturation with drinking. This study uses a large, national survey of alcohol use to study three alcohol-related outcomes, and how they are associated with different measures of assimilation. Preliminary results suggest that language acculturation and ethnic identity assimilation are associated with increased alcohol use, but being more socially assimilated in terms of the ethnicity of friends and acquaintances, is associated with decreased alcohol use. The associations between generation, assimilation and alcohol use differ depending on the outcome variable. In general, more recent immigrant generations are less likely to be drinkers or to have alcohol use disorders, but the assimilation variables, while significant, do little to explain generational gradients.

Background

Though acculturation is often cited as an explanation for the declining health of immigrants (e.g. Singh and Siahpush 2002; Frisbie, Cho and Hummer 2001; Abraído-Lanza 2005), the use of acculturation as a variable in health research has been widely criticized on a number of grounds (Hunt, Schneider and Comer 2004; Lara et al. 2005; Salant et al. 2003; Thomson and Hoffman-Goetz 2008). A common critique is that culture is treated as a one-dimensional continuum, with ethnic culture at one end and American culture at the other. Immigrants are assumed to unilaterally drop elements of their own culture as they adopt the dominant culture, becoming more and more like the mainstream over time and across generations. The presumption behind this model is that immigrants come from traditional cultures that are less sedentary, consume healthier foods, discourage substance use and promote strong family and social ties. As immigrants assimilate, they supposedly exchange these healthy behaviors for unhealthy ones, with a potentially negative impact on health (Abraído-Lanza 2005). In this paper, I focus on alcohol use to test ideas about how acculturation is related to health behaviors.

The link between acculturation and drinking has been widely studied in the Latino population, though less is known about how acculturation is related to drinking for other groups. However, the general pattern is that acculturation tends to be associated with increased alcohol use across ethnic groups (Caetano, Clark & Tam 1998). A recent review of the literature on acculturation and alcohol use among Latinos found evidence of a strong, positive relationship between acculturation[1] and drinking for Latina women, but not men. Among women, acculturation typically predicted being a drinker rather than an abstainer, and was associated with higher volume and frequency of drinking as well as problem drinking. The evidence of such a relationship was weaker among men, for whom acculturation often predicted drinking status, but had positive, negative or no effects on volume, frequency and problem drinking (Zemore 2007). Studies of acculturation and its relationship to other health behaviors such as diet (Satia-Abouta et al. 2002 review this literature) and smoking (e.g. Abraído-Lanza 2005; Lopez-Gonzalez 2005; Shelley et al. 2004) have also reported mixed and sometimes contradictory findings depending on the outcome, the group under consideration, and how acculturation is operationalized.

Shortcomings in the conceptualization and measurement of acculturation almost certainly contribute to the inconsistencies in these findings from (Hunt, Schneider and Comer 2004; Lara et al. 2005; Salant et al. 2003; Thomson and Hoffman-Goetz 2008; Zemore 2007). Much of the public health literature relies on simple proxy measures of acculturation, such as immigrant generation, years in the U.S., English proficiency or language preference. Time-based measures such as immigrant generation and years in the U.S. presume that increasing exposure entails greater acculturation, while language-based measures equate the ability to speak English with more comprehensive cultural change. In addition to proxy measures, scholars have developed a multitude of composite acculturation scales, usually for use with single ethnic groups, making

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[1] The author included studies in her review only if they measured acculturation with composite scales, omitting studies that relied on single-variable proxy measures of acculturation such as birthplace, length of time in the U.S., or language preference. She argued that proxy measures do not adequately reflect "the overall construct of acculturation," and that "reliability and validity data on these measures are virtually nonexistent" (Zermore 2004: 1969).

interethnic comparisons difficult. Reviews of scales developed for use with Hispanics (Lara et al 2005; Wallace et al. 2010) and Asians (Salant and Lauderdale 2003), identified no fewer than 40 different scales (about 15 for Asians and 25 for Hispanics). Even when researchers adopt pre-existing scales for their surveys, they don't always include all of the scale items, hindering comparisons across surveys (Zemore 2007).

The proliferation of acculturation measures is accompanied by a failure to adequately discuss what aspects of the acculturation experience the chosen indicators actually measure, and how these experiences are related to health. As noted above, a common assumption is that acculturation affects health through the acquisition of new behavioral norms, while another prominent explanation is that acculturation involves fundamental shifts in values and identities that may entail considerable conflict and stress, at least in the short term (Berry 1997; Finch et al. 2001; Kaestner et al. 2009). Scholars who study acculturation and assimilation[2] recognize that they are complex, multi-factorial processes that cannot be captured by one-dimensional proxy measures. They argue that it is relatively easy for immigrants to acquire the symbolic elements of the dominant culture – language, food and dress – but the values and beliefs that are central to group identity, e.g. religion and gender roles, take longer to change. Acculturation may therefore occur in some domains more quickly than others, and at different paces for different groups (Gordon 1964; Berry 2003). Another dimension of assimilation concerns social interactions. Gordon (1964) believed that once acculturation occurred, structural assimilation, as he called it, was the next inevitable step, but Berry (1997) and others (e.g. Portes and Zhou 1993) have argued that different responses are possible as immigrants adapt to new situations. The degree of social assimilation reflects both the opportunity and the desire to interact and form meaningful relationships with people outside an immigrant's own ethnic group (Berry 2003). As immigrants become more integrated into the social networks and institutions of mainstream society, they may even drop their ethnic identities, or replace them with hyphenated American identities (Rumbaut 1994). On the other hand, ethnic identities may become heightened among minority immigrants who experience substantial discrimination (Phinney 2003; Massey and Sanchez R. 2010; Waters 1999). Assimilation is thus a process governed by many contingencies. Acculturation, as one phase in this process, is also more complex than is often portrayed in the health literature, which has done a poor job of incorporating theoretical explanations of what acculturation is and how it unfolds.

To address these shortcomings, my research explores the relationship between acculturation and drinking behaviors within a theoretical framework that recognizes the possibility of non-linear or multi-dimensional assimilation. While changes in drinking behavior across the generations may represent nothing more than the adoption of "American" drinking norms, it is also possible that stress associated with incorporation into a racialized society contributes to increased drinking. Rather than relying on a single measure of acculturation, I investigate if measures of other aspects of assimilation are independently associated with

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[2] Disciplinary differences in the definition and usage of the terms acculturation and assimilation complicate efforts to incorporate assimilation theories and research findings in a single discussion. While sociologists tend to think of acculturation as one phase in the process of immigrant incorporation, cross-cultural psychologists use both acculturation and assimilation to refer to incorporation across multiple domains, including the cultural, social, structural, and political. In this paper, I draw upon the sociological tradition, distinguishing between cultural assimilation (acculturation) and other aspects of assimilation, recognizing that the process of immigrant incorporation occurs across multiple, interlinked domains.

drinking behavior, and whether they help explain previously observed relationships between acculturating and alcohol use. Using a large, nationally representative survey also permits exploration of whether the links between assimilation and drinking vary across ethnic groups.

Analytical methods

Data for this study are drawn from Wave 2 of the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC), a longitudinal survey that tracks alcohol consumption in a nationally representative sample of adults. The NESARC collected information on birthplace for respondents, their parents and grandparents. Using this information, I constructed a five-category variable representing immigrant generation. First generation refers to foreign-born respondents who arrived in the U.S. when they were over 12 years old (n = 4,265); while the 1.5 generation respondents migrated when they were 12 or younger (n = 1,094). Second generation refers to U.S. born respondents who have at least one foreign born parent (n = 5,010) while third generation respondents have U.S. born parents (n = 3,536). The last category includes those U.S. born respondents whose parents and grandparents were all born in the U.S. (n = 19,741). After dropping American Indians and Alaskan Natives due to small cell size and cases that were missing birthplace information, the resulting sample size was 33,091.

Alcohol use is assessed with three dependent variables. Drinking status is a dummy variable that indicates if the respondent had one or more drinks in the past year. Logistic regression is used to estimate the odds of being a drinker versus an abstainer. After limiting the sample to drinkers, I examine two other measures of alcohol use: average daily ethanol consumption, logged to reduce skew, and a categorical variable indicating the presence alcohol abuse, dependence or no disorder. I use OLS regression to estimate ethanol consumption, and multinomial logistic regression to estimate the odds of being dependent on alcohol or abusing alcohol relative to having no alcohol use disorder. Limiting the analysis of the latter two dependent variables to drinkers removes a potential source of bias from estimates of the relationship between acculturation and these measures (Zemore 2007). Others have found that acculturation is more strongly associated with drinking status than quantity and frequency of alcohol consumption, and associations between acculturation and drinking patterns may be confounded by drinking status in analyses which aggregate drinkers and non-drinkers (Zemore 2005). I control for socioeconomic status with measures of educational attainment and household income. Additional control variables include age, sex, marital status and race.

The Wave 2 survey contained a series of questions that measure multiple dimensions of assimilation. Questions adopted from the Brief Acculturation Rating Scale-for Mexican Americans-II (Cuellar et al. 1995) assess language usage and ethnic composition of social interactions. Another set of questions measure ethnic identification. Questions are Likert-type scales that force respondents to choose between an ethnic orientation and a non-ethnic orientation, with middle values representing bi- or multi-cultural orientations. The language items capture language used at home and with friends, and the preferred language for TV, radio and movies. The questions regarding social interactions ask whether the respondent's friends and others in the respondent's social circle are mostly of the same ethnicity as the respondent, or of some other ethnicity, and what ethnicity the respondent would want their children's friends to be. The final set of questions assess the strength and importance of the respondent's ethnic heritage by asking whether the respondent agrees or disagrees using a 6 point Likert scale with a series of

statements such as "I am proud of my ethnic heritage" and "My values, attitudes and behaviors are shared by people of my ethnic origin." After validating the existence of three factors corresponding to assimilation within the domains of language, social environment, and ethnic identity I constructed a three scales that combine all the items within a domain into a single summary measure. For each scale, higher values indicate diminishing ethnic orientation and greater contact and identification with other ethnic groups.

Straight-line assimilation theories hypothesize that ethnic orientation will decline over time as immigrants assimilate into the mainstream, while segmented assimilation theory and bidimensional acculturation models recognize that other pathways to successful integration allow the retention of some aspects of ethnic culture and identity. Reflecting this, I expect to find that language acculturation increases drinking, but believe that the relationship between the other measures of assimilation and drinking will be more complicated. Retention of ethnic identity among those who have achieved high levels of language acculturation may indicate successful integration in both cultures (Phinney 2003), which has been shown to be beneficial for some ethnic groups and some outcomes (e.g. Coatsworth et al. 2005; Lee et al. 2000), but it could also be associated with cultural conflict and acculturative stress. Weak ethnic identity and a less co-ethnic social environment may be indicative of higher levels of acculturation, increasing alcohol use.

Preliminary Findings

Comparison of the three acculturation scales across immigrant generation separately for each race group reveals some interesting patterns. Language acculturation (Figure 1) follows the same general trajectory for each race group, with rapid acculturation between the first and 1.5 generations, and very high levels of English language ability and usage by the second and especially the third generation. Language acculturation levels for Hispanics remain below that of all other race groups, though they do begin to catch up in the third generation.

The patterns for social assimilation (Figure 2) and identity assimilation (Figure 3) are less uniform, with substantial variation by race and generation. Hispanics and Asians are increasingly likely to affiliate with people from other ethnic groups with as immigrant generation increases, while for blacks and whites, affiliation with other ethnic groups is never very high and declines across the generations after peaking in the 1.5 generation. This may reflect high levels of racial segregation, as whites and blacks experience high levels of segregation. Asians and whites have the weakest orientations towards their own ethnic groups through the second generation, but in the third generation Hispanics have surpassed Asians and caught up with whites in terms of identity assimilation, surpassing them in the fourth generation. Blacks remain the most strongly oriented towards their own ethnic groups in all generations.

Logistic regression analysis of drinking status (Table 1) reveals that the odds of drinking in the past year are lower in the first generation than the fourth generation, but are higher in every other generation. If drinking is less prevalent in immigrants' home countries, acculturation increases with generation, and acculturation entails the adoption of U.S. drinking norms, we would expect to see fewer drinkers in the first generation with increasing rates of drinking in subsequent generations, which we do. However, the behavioral norms framework does not

explain why there would be more drinkers in the 1.5, second and third generations than the fourth generation. Each assimilation measure is independently and positively associated with drinking status. Being more highly assimilated is associated with increased odds of drinking versus abstaining from alcohol. Controlling for language acculturation, first generation status is no longer associated with drinking. For first generation immigrants low levels of acculturation appear to explain low rates of drinking. Once background factors are added to the model, a significant first generation effect reemerges, but this time the effect is positive. Controlling for assimilation, race, socioeconomic status and marital status, first generation immigrants have slightly higher odds of drinking than the fourth generation.

Turning to the analysis of drinking patterns among drinkers, I find only weak relationships between immigrant generation, acculturation, and average daily ethanol consumption. Controlling for background factors, there is almost no difference in the amount of alcohol consumed on a daily basis across generations. Only the third generation differs from the fourth generation, drinking more on average. Though there are few generational differences, alcohol consumption varies by assimilation levels. In the full model, language acculturation is positively associated with quantity, while social assimilation is negatively associated with quantity. This means that individuals whose social interactions extend beyond their own ethnic group drink less on average than those whose social interactions are limited to their own ethnic group.

Assimilation seems to have similar, but more pronounced effects on problem drinking. Language acculturation is positively associated with both abuse and dependence, while social assimilation is associated with decreased odds of abuse and dependence, net of controls. Identity assimilation, on the other hand, is associated with increased odds of alcohol use disorders. There is a strong generational trend, with much lower odds of problems especially in the first generation. The assimilation variables reduce the magnitude of the generational effects for alcohol abuse, but they have little effect on alcohol dependence. For this outcome, in fact, the assimilation variables have more pronounced effects after sociodemographic variables are introduced in the final model.

These findings suggest that a commonly used measure of acculturation, language use, was positively associated with drinking behavior, but that it did little to explain generational differences. Given that language acculturation occurs fairly rapidly, there is not a great deal of variation in language usage after the second generation with which to explain variation in drinking behavior. Supplemental analyses that interacted immigrant generation and language acculturation (not shown) found that the effects of language acculturation are limited to the first, 1.5 and second generation, and has strongest effects on the 1.5 and second generation. These two groups consist of individuals who have foreign born parents yet who themselves were socialized as young children The fact that language acculturation matters most for the 1.5 and second generation, who migrated when they were quite young or were born in the

The most intriguing finding is that ethnic identity and ethnic social interactions have opposing effects. Though higher values on these measures would seem to indicate a greater degree of integration with the host society, only identity assimilation predicted alcohol use. Social assimilation had no effect on drinking status, but among drinkers, socializing outside

one's own ethnic group was associated with lower alcohol consumption and fewer drinking problems. While the positive effects of language acculturation and identity assimilation are commensurate with the thesis that assimilation to American drinking norms increases drinking, the protective effect of social assimilation provides some support for the hypothesis that biculturalism promotes positive outcomes such as reduced stress. Individuals who can successfully navigate other cultures and while retaining a strong sense of ethnic belonging may feel more grounded and more comfortable in a multicultural society.

To further test this hypothesis, I intend to extend the analysis by looking at interactions between the acculturation scales. Further, the addition of potential mediating factors such as drinking norms, stress, self efficacy and social support, will help to determine the exact mechanisms through which acculturation and assimilation influence behaviors. Zemore (2004) argues that acculturation affects appear to operate through the assimilation of new behavioral norms, but her research had limited ability to test for effects of acculturative stress. Research on Latino adolescents found that increasing acculturation was associated with language conflict and acculturative stress, which weakened bonds between youth and parents, indirectly increasing the propensity to initiate drinking (Cavanagh 2007). Finally, previous research on acculturation and drinking behavior has found gender-specific acculturation effects (Zemore 2007), so I will also stratify the analysis by gender.

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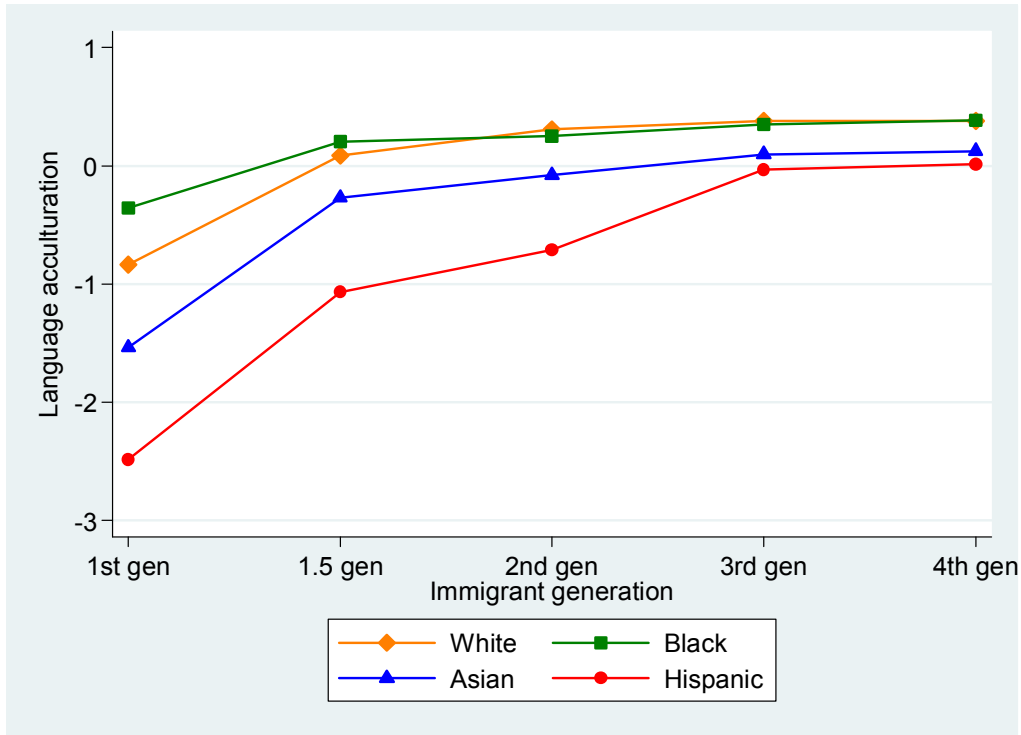Figure 1. Language acculturation by race and immigrant generation.

Figure 2. Social assimilation by race and immigrant generation.
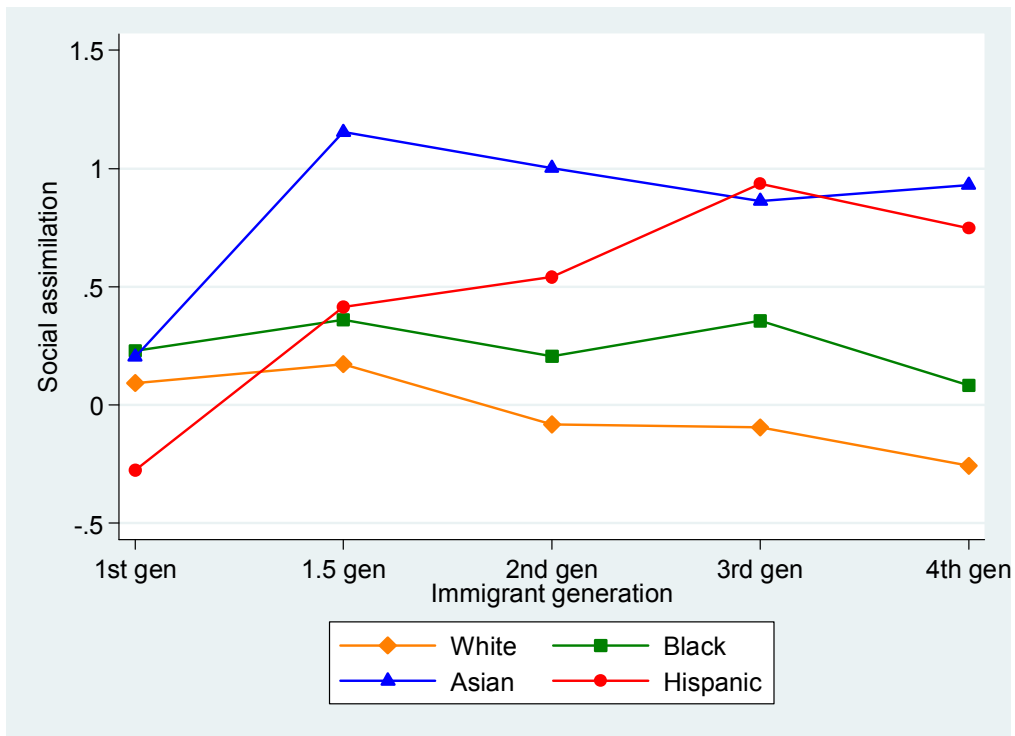
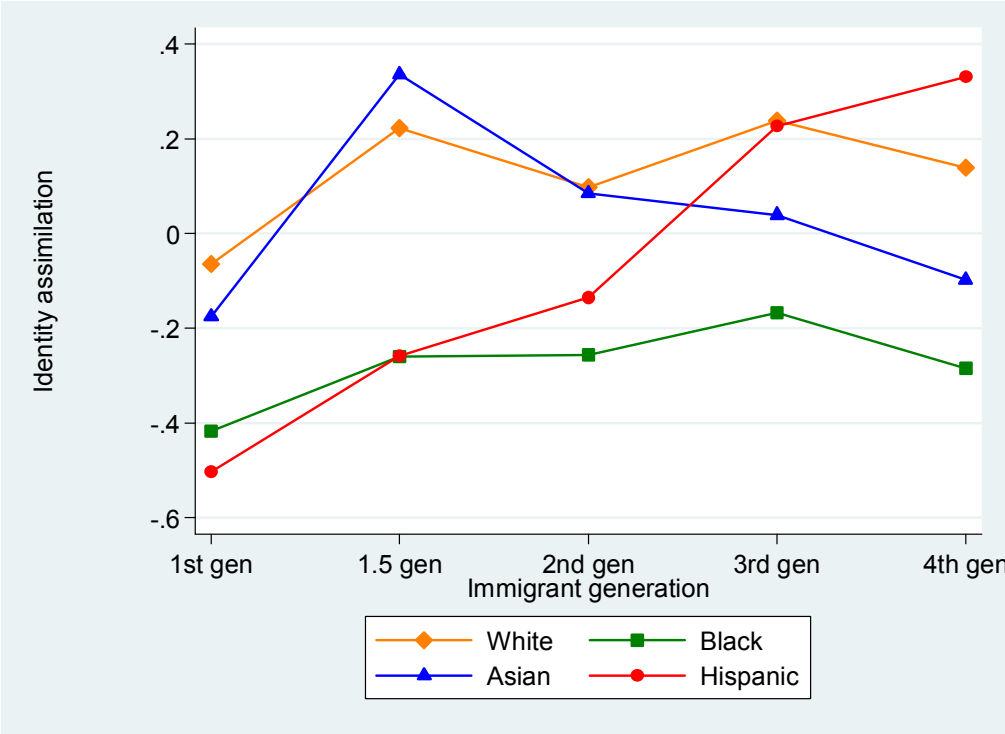Figure 3. Identity assimilation by race and immigrant generation.

Table 1. Associations between immigrant generation, assimilation and drinking outcomes.

	Drinker vs. abstainer			Average volume, drinkers			Abuse disorder, drinkers			Alcohol dependence, drinkers		
	(1)	(2)	(3)[a]	(1)	(2)	(3)[a]	(1)	(2)	(3)[a]	(1)	(2)	(3)[a]
1st generation	-0.661***	-0.077	0.177*	-0.402***	-0.262**	-0.104	-1.345***	-0.983***	-0.941***	-1.169***	-1.214***	-0.847***
	-0.06	-0.082	-0.094	-0.077	-0.111	-0.109	-0.124	-0.137	-0.146	-0.121	-0.144	-0.158
1.5 generation	0.273***	0.473***	0.298**	-0.089	-0.005	-0.026	-0.419***	-0.214	-0.23	-0.270*	-0.283*	-0.346**
	-0.099	-0.099	-0.113	-0.115	-0.114	-0.111	-0.144	-0.141	-0.149	-0.158	-0.162	-0.172
2nd generation	0.109*	0.185***	0.356***	-0.098*	-0.057	0.003	-0.364***	-0.271***	-0.263***	-0.478***	-0.473***	-0.340***
	-0.055	-0.054	-0.061	-0.051	-0.052	-0.051	-0.068	-0.069	-0.07	-0.079	-0.077	-0.081
3rd generation	0.601***	0.562***	0.583***	0.153***	0.153***	0.217***	0.055	0.057	0.046	-0.093	-0.113*	0.175**
	-0.046	-0.046	-0.05	-0.049	-0.049	-0.047	-0.049	-0.049	-0.053	-0.064	-0.064	-0.066
Lanaguage acculturation		0.223***	0.262***		0.044	0.079**		0.135***	0.225***		-0.065	0.268***
		-0.025	-0.034		-0.036	-0.037		-0.046	-0.059		-0.05	-0.059
Social assimilation		0.04	-0.03		-0.074***	-0.063**		-0.175***	-0.137***		-0.03	-0.156***
		-0.026	-0.026		-0.027	-0.026		-0.03	-0.034		-0.034	-0.039
Identity assimilation		0.293***	0.130***		0.111***	0.002		0.235***	0.112***		0.214***	0.153***
		-0.024	-0.025		-0.025	-0.025		-0.032	-0.034		-0.033	-0.037

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
a. Models include controls for race, sex, age, education, household income and marital status.