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The risk of assimilating? Alcohol use among immigrant and U.S.-born Mexican youth

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Abstract

Rising rates of substance use among Hispanic youth, coupled with substantial growth of this minority group, merit grounds for concern. The process of assimilation is frequently examined in studies of Hispanic substance use and has been cited as a reason for higher rates of substance use by U.S.-born Hispanics, compared to their foreign-born peers. However, many previous studies use individual or unidimensional measures of assimilation, when this term is multifaceted, representing different concepts. The current study addresses this gap by testing the longitudinal effect of different assimilation processes (acculturation as well as structural, spatial, and straight-line assimilation), while simultaneously controlling for important familial and social risk and protective factors on the likelihood of alcohol use among U.S.-born Mexican and Mexican immigrant youth. Results indicate that, although alcohol use is higher among immigrant youth, assimilation measures do not predict alcohol use for immigrants or U.S.-born youth. We conclude that the effects of assimilation may vary by person and place, particularly in ethnic enclaves, and suggest the use of measures that incorporate cultural, personal, social, and environmental factors.

Keywords

Immigrant; Mexican; Hispanic; Assimilation; Acculturation; Alcohol; Substance Use; Youth

Introduction

Hispanic youth have relatively high rates of alcohol and illicit substance use. The 2007 *Monitoring the Future* study found that 16.8% of Hispanic 8th graders reported past year illicit substance use, compared to 12.7% of Black students and 13.1% of White students. In that same year, 23.0% of Hispanic 8th graders reported past month alcohol use compared to 12.3% of Black students and 15.6% of White students (Johnston, O'Malley, Bachman, and Schulenberg 2008). These trends are important given the increasing size of the Hispanic population in the United States. In 2006, Hispanics accounted for 14.8% of the population, with a growth rate

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three times that of the total population (U.S. Census Bureau 2006). Given the potentially long-term detrimental impact of substance use, particularly during developmental adolescent years, there is a need to address and understand its patterns among Hispanic youth.

Although research has documented the higher rates of substance use by Hispanics compared to Black and White youth (e.g. Brindis, Wolfe, McCarter et al. 1995; Chavez and Swaim 1992; Johnston et al. 2008) there are conflicting findings from attempts to identify Hispanic ethnic groups with the highest rates of use and to determine if and when foreign-born Hispanics have higher rates of use than their U.S.-born counterparts. Assimilation, the integration of a minority group into the majority group through the sharing of cultures, values, and norms (Park 1950), is frequently used to understand Hispanics' high rates of substance use. The current study incorporates multiple measures of assimilation, while controlling for other relevant risk and protective factors (e.g., family support and perceived peer alcohol use), to identify potential differences between U.S.-born and Mexican¹ immigrant youth as they may relate to alcohol use. Previous research on assimilation rarely examines these measures simultaneously, and some factors, such as family support, play a particularly important role in the social behaviors of Hispanic families (Sale, Sambrano, Springer et al. 2005) and are thus crucial components of any analysis of substance use within this group.

Background

Alcohol Use by Immigrant and U.S.-born Mexican Youth

Researchers have frequently found that substance use is higher among U.S.-born Hispanics compared to immigrants, and that assimilation is positively associated with substance use. For example, Gil, Wagner, and Vega (2000) found higher rates of alcohol use among U.S.-born Latino youth than among immigrant youth in South Florida. Using data from the *National Survey on Drug Use and Health*, Gfroerer and Tan (2003) found that approximately 19% of U.S.-born Mexicans reported alcohol use, compared to about 13% of immigrants, and this difference narrowed with length of U.S. residence.

Alcohol use was highest among second generation Latinos (11.6%), followed by third (7.5%) then first (6.3%) generation youth in the Add Health data (Hussey, Hallfors, Waller et al. 2007). Another analysis of those data revealed that although first generation Mexican American youth were significantly less likely to drink than third generation youth, they were not significantly different from second generation youth (Cavanagh 2007). English language use with parents was positively associated with substance use in Epstein et al.'s (2001) sample of Hispanic youth in New York City.

Assimilation: Risk or Protective Factor?

As noted above, a dominant characteristic in studies of Hispanic substance use is assimilation. A multidimensional concept, Gordon (1964), expanding Park's (1950) original definition, described assimilation as a process of both "acculturation" (also referred to as "cultural assimilation"), through which minority groups adopt the majority group's cultural patterns, and "structural assimilation," which is the development of affiliations between members of minority and majority groups. It is assumed that as immigrants become more familiar with mainstream culture, they become more likely to adopt its attitudes and values (Liang 1994), lose their cultural and socioeconomic distinctiveness, and blend into the "melting pot" of American society (Landale, Oropesa, and Llanes 1998:458). The classic assimilation model

¹The terms Hispanic and Latino have often been used interchangeably to describe groups that are largely Mexican, Puerto Rican, or Cuban, or some other combination (Katims and Zapata 1993; Gil et al. 2000). When discussing previous literature, we use the terms Hispanic or Latino as they are used by the authors of those studies. However, because the present study was limited to Mexicans and Mexican-Americans, we use those terms when describing our sample and findings.

suggests that assimilation should lead to positive outcomes for immigrants, an assumption that may have been the case for the European immigrants to whom the theory was originally applied. However, a central tenet of prior studies on Hispanic substance use is the belief that current mainstream U.S. culture expresses more favorable attitudes toward substance use than Hispanic cultures; therefore, rates of substance use may increase as members of minority groups assimilate and adopt the values, norms, and beliefs of U.S. culture (Masel, Rudkin, and Peek 2006).

In order to understand this relationship, it is necessary to consider the different conceptualizations of assimilation and how it may operate as a risk factor for substance use. Many analyses assume a linear process of assimilation, whereby length of residence and English language acquisition are positively related to both adoption of majority culture practices (which can be a risk factor) and a loss of culture of origin practices (which may have had protective effects). Classical theories of assimilation and immigrant adaptation portrayed assimilation as a necessary process for upward mobility among immigrants (Alba and Nee 1997). However, recent data have illustrated the associations between assimilation and risky behaviors, and researchers have questioned whether these traditional ideals are still relevant for current immigrant adolescents in the U.S. (see Greenman and Xie 2008; Lee and Bean 2004; South, Crowder, and Chavez 2006).

To explain why assimilation may not be entirely beneficial, Portes and Zhou (1993), providing an alternative viewpoint on the assimilation process, proposed the theory of segmented assimilation, arguing that because the U.S. is a fundamentally unequal society, immigrants are not necessarily able to assimilate into all of its segments. There are three general patterns of immigrant adaptation: (1) acculturation and integration into the white middle class, (2) assimilation into the urban underclass, or (3) economic advancement with some assimilation, but also preservation of country of origin culture and values. According to this theory, assimilation can be detrimental when immigrants merge into the urban underclass, adopting the unhealthy and antisocial behaviors that are often prevalent among this group (also termed “downward assimilation”) (Frank, Cerda, and Rendon 2007; Portes and Zhou 1993; Valdez 2006). Aspects of the social context, such as skin color, geographic location, and the absence of mobility ladders, influence immigrants’ vulnerability to downward assimilation (Landale et al. 1998). Conversely, the third path, economic advancement with cultural preservation, has also been termed “selective assimilation,” representing a type of biculturalism whereby country of origin culture and values are preserved in a manner that is compatible with host culture values (Gibson 2001). These perspectives recast classical assimilation theory, highlighting the influence of individual decision making, ethnic social networks, and the social structure (Brown 2006).

Other derivations of classic assimilation theory have emerged in addition to acculturation, structural assimilation, and segmented assimilation. For example, generational or “straight-line” assimilation proposes that as the immigrant generation expands, assimilation increases, almost by default (Alba and Nee 1997). Spatial assimilation (Massey and Denton 1985), which equates spatial distance with social distance, suggests that if assimilation leads to upward socioeconomic mobility, it will also lead to residential mobility of immigrants out of areas heavily populated by minorities and toward more economically advantaged communities (Iceland and Nelson 2008). Research supports the notion that immigrant residential mobility into more socioeconomically advantaged neighborhoods is affected by individual socioeconomic status (e.g., South et al. 2006).

Greenman and Xie (2008) tested a facet of each of these assimilation theories on educational, psychological, and substance use outcomes among Asian and Hispanic youth. English language and length of U.S. residence were used as measures of acculturation; ethnic composition of

friendship network as a measure of structural assimilation; immigrant generation (e.g., second versus third generation) to measure straight-line assimilation; and ethnic composition of neighborhood to measure spatial assimilation. The findings demonstrated that acculturation and straight-line assimilation measures (length of residence, generation, and English language use) were positively associated with substance use and similar risky behaviors for Hispanics. However, they were inconsistent in their effect on educational outcomes and psychological well-being for Hispanics, suggesting that classical assimilation theory (e.g., the idea that assimilation is good) may not be entirely applicable (Greenman and Xie 2008).

The Current Study

Greenman and Xie (2008) provide a useful framework for exploring the effects of different components of assimilation theory on substance use, even in datasets not specifically designed to measure assimilation. Assimilation, social, and familial factors are not often examined simultaneously for their effect on alcohol or illicit substance use among Hispanic immigrant and U.S.-born Hispanic youth. The current study expands upon Greenman and Xie's (2008) design by including measures of structural, straight-line, and spatial assimilation, acculturation, while also controlling for two other influential social and familial risk and protective factors: family support and perceived peer alcohol use. Rates of alcohol use are compared between U.S.-born and Mexican immigrant youth by generational status, and potential risk and protective factors are assessed for their differential influence across these groups.

Data and Research Methods

Using longitudinal data from the Cicero Youth Development (CYD) Project (Fishbein, Warner, Krebs et al. Forthcoming; Warner, Krebs, and Fishbein 2008), the current study aims to identify factors that predict youth's alcohol use. The primary purpose of the CYD Project was to explore the association between neurocognitive functioning and substance use; however, data were collected on a host of behavioral, attitudinal, and cognitive factors, as well as demographics, substance use, and attitudes about family, peers, and school. Interviews were conducted with 553 parent-child dyads from a suburb of Chicago. The children interviewed were 10 to 12 years-old during the baseline interview, so the large majority of respondents had not previously used drugs or alcohol, allowing for the study of factors associated with risk prior to onset. The current analyses were subset to respondents who self-identified as Mexican ethnicity and were not missing on country of birth (492 of the 553 youth interviewed). Twenty-one (4.2%) respondents who reported alcohol use at wave 1 and 14 (2.9%) who reported illicit substance use at wave 1 were excluded (numbers and percentages not cumulative, and not significantly different across generational statuses), resulting in a final analytic sample of 441 youth (interestingly, baseline alcohol use was highest among first generation and lowest among third generation youth). Of these youth, 24.2% were first generation immigrants, 65.1% were U.S.-born of immigrant parents (second generation), and 10.7% were U.S.-born of native parents (third generation).

Sample Recruitment and Surveying Procedures

Based on data from the National Evaluation of the Safe Schools/Healthy Students Initiative, Cicero, Illinois was characterized as a community where adolescents were at particularly high risk for substance use. The town of Cicero, Illinois is suburb of Chicago, located on its western border. In the last decade, Cicero transitioned from a predominantly Italian and Eastern European community to a largely Hispanic (primarily Mexican) one. Unlike immigration patterns in California (which draws from western Mexico) and Texas (which draws from border towns of Mexico), most of the Mexican immigrants in Chicago and surrounding suburbs and states are from central Mexico (Tellegen 2000). Although Illinois ranks fifth in the list of U.S. states with the largest Hispanic populations (U.S. Census 2006), most research on substance

use by Hispanics has been concentrated in Texas, Florida, and California (e.g. Katims and Zapata 1993; Vega, Zimmerman, Warheit et al. 1993; Yin, Zapata, and Katims 1995), or is based on nationally represented surveys that tend to oversample Hispanics in these areas, which are geographically and demographically very different from the Midwest.

A stratified random sample of children aged 10 to 12 was collected from five public schools in Cicero, Illinois (see Fishbein et al. Forthcoming; Warner et al. 2008, for a detailed description of sampling procedures). Although the schools were not chosen randomly, they do share similar demographic profiles with the Cicero School District overall (e.g., they are over 90% Hispanic, over 70% of students, on average, are classified as low-income, and their overall academic achievement test scores are at, or are slightly above, the district averages). This age group was selected due to the likelihood that they had not yet initiated drug or alcohol use at baseline. At the same time, this age group includes children who are on the threshold of manifesting behavioral problems of interest to the larger study due to the increasing social demands and autonomy that characterize entry into middle school, as well as the ability to more aptly measure emerging neurocognitive abilities.

The 553 youth who participated at baseline were contacted at approximately 12 month intervals for follow-up interviews over the next three years. Most of the interviews and neurocognitive tasks were administered in English and, for those who spoke primarily Spanish (31.7%), survey items and task instructions were forward and back-translated into Spanish to ensure reliability. Interviewers used laptop computers and computer-assisted personal interviewing (CAPI) technology (Baker 1992; Bradburn, Frankel, Hunt et al. 1991; Weeks 1992). In almost all cases, interviews were conducted in the homes at baseline and waves 2 and 3. At wave 4, due to project time and cost constraints, an abbreviated version of the interview was conducted in an office space outside of the home and schools. Wave 4 data included measures of substance use and attitudes toward school; neurocognitive assessments and other instruments were not included. For both waves 3 and 4, the data on substance use were collected using audio computer-assisted self-interviewing (ACASI) technology. During these waves, substance use data were collected via ACASI to increase the likelihood that the youth would respond honestly; ACASI has been proven to increase comprehension, data quality, and honesty of respondents since they answer in complete privacy (Caspar 1999; Lessler and O'Reilly; Miller, Gribble, Mazade, and Turner; Tourangeau and Smith; Turner, Forsyth, O'Reilly et al. 1998; Turner, Ku, Rogers et al. 1998).

The response rate at baseline was 34.6% (Response Rate #2, American Association for Public Opinion Research 2006). Although this baseline response rate was relatively low, the cooperation rate was quite high. Of the cases we were able to locate and contact, 84.8% participated in the CYD Project (Cooperation Rate # 2, American Association for Public Opinion Research 2006), indicating that the majority of those who were directly approached and afforded an opportunity to participate in the CYD Project consented. Therefore, we attribute the low response rate more to the transitory nature of this sample (e.g., our difficulty in locating participants) than to potential respondents' disinterest in participation. The wave 2 conditional response rate (that is, the response rate among those who participated at baseline) was 91.9% and the wave 3 conditional response rate was 89.4%. At wave 4 the conditional response rate was 62.9%, which was significantly lower than response rates at previous waves because data were collected outside of the home and the data collection period was truncated.

Measures

Dependent Variable

Alcohol use: A time-varying measure of alcohol use was created from the question: “Have you ever, even once, had a drink of any type of alcoholic beverage? Please do not include times when you only had a sip or two from a drink.” Response options were 0 = no, 1 = yes.

Independent variables

Assimilation: We created four measures of assimilation. One of the first steps of immigrant assimilation (Gordon 1964), acculturation, is measured by dummy variables for language spoken with parents and length of time lived in the U.S. (for immigrants only). Because too few respondents reported speaking English only with their parents, respondents who reported speaking English or English and Spanish with their parents were coded 1 (compared to those reporting speaking Spanish only with parents, coded 0). Because over 96% of immigrants reported speaking Spanish only with their parents, language use was used in the models of U.S.-born Mexicans only. Among immigrants, length of residence was measured by dummy variables for 10 years or more, more than 5 years but less than 10, and less than 5 years (reference category).

A categorical variable for the proportion of the respondents’ friends who are non-Hispanic was used to measure structural assimilation, and the proportion of non-Hispanics in their neighborhood was used to measure spatial assimilation. Response options for both items were coded 0 = few or none of them, 1 = less than half of them, 2 = about half of them, 3 = all or nearly all of them, so that higher scores represent greater assimilation. Preliminary tests for nonlinear relationships (i.e., modeling the response options as separate dummy variables) were insignificant, supporting the use of these variables as continuous measures. Analyses excluded respondents missing this information (4.7% of U.S.-born Mexicans, and 3.3% of immigrants), as listwise deletion is appropriate when the proportion of respondents missing information is low (Allison 2001; DeMaris 2004). Dummy variables for generation were used to measure straight-line assimilation, coded for first generation (both child and parent born outside the U.S.), second generation (child born in the U.S., parent born outside the U.S.) and third generation (both child and parent born in the U.S.).

Youth and their parents were asked which language they speak better, English, Spanish, or both about the same. Acculturative stress is thought to occur when there is a disconnect between a more acculturated child and his/her less acculturated parent (Torres Stone and Meyler 2007), and this may be associated with substance use. To test this, a dummy variable indicating different language preference between parent and child was also included. All assimilation measures were collected at wave 1 (i.e., baseline) only.

Additional control variables: The current analysis included other factors which, although theoretically related to assimilation and/or alcohol use, are not of primary interest and are instead included as control variables. For example, the protective influence of family has been particularly illustrated in studies of Hispanic children, where certain characteristics of Hispanic families are theorized to protect children from substance use initiation. These characteristics, often termed “familism,” include strong family management, intensive supervision, strong relationships, consistent parenting practices, two-parent households that sometimes include extended family members, negative parental attitudes toward substance use, and the absence of parental substance use (Sale et al. 2005). These conditions seemingly position the family as an important buffer between potential risk factors and substance use (Schwartz, Pantin, Prado et al. 2005), and research has supported the inhibitory influence of close parent-child relationships on child substance use (Bahr, Hoffman, and Yang 2005). Given this, we included a time-varying measure of family support to control for familial characteristics which may

influence the likelihood of substance use. Family support was a single summed index of three survey questions: “There are people in your family (1) you can talk to who care about your feelings and what happens to you; (2) you can talk to who give good suggestions and advice about your problems; (3) who help you with practical problems, like helping you get somewhere or helping you with a job or project” (Cronbach’s alpha = 0.64 for both U.S.-born Mexicans and immigrants).

Peer substance use is frequently associated with children’s own substance use (e.g., Bahr et al. 2005; Cavanagh 2007; Kandel 1996; Kung and Farrell 2000; Windle 2000). It is possible that as youth assimilate they may begin to perceive higher substance use among their peers, which could in turn influence their own substance use (or, in accordance with the downward assimilation theory, they may be assimilating into peer groups where substance use is present). We controlled for this by including a measure of perceived peer alcohol use, assessed by the question: “How many of the students in your grade at school would you say use alcohol?” Original response options were 0 = none of them, 1 = a few of them, 2 = most of them, 3 = all of them, but this was dichotomized into 1 = a few or more, 0 = none, due to the nonlinearity of this relationship. The analyses also controlled for gender (dummy coded, with female as the reference category), yearly family income (a categorical variable with values ranging from less than \$5,000 to \$50,000 or more) as a proxy for SES, and age as a time-varying covariate.

Analytic Strategy—The current analyses were subset to respondents who self-identified as Mexican ethnicity and were not missing on country of birth (492 of the 553 youth interviewed in the CYD). In order to model the risk of substance use, it was necessary to limit the analytic sample to respondents who had not yet engaged in any substance use. Therefore, twenty-one (4.2%) respondents who reported alcohol use at wave 1 and 14 (2.9%) who reported illicit substance use at wave 1 were excluded. Additionally, youths missing on study covariates (the proportion of non-Hispanic friends and neighbors) were also excluded (4.7% of U.S-born Mexicans, and 3.3% of immigrants). These numbers and percentages were neither cumulative nor significantly different across groups, resulting in a final analytic sample of 441 youth. Because respondents participated in more than one wave of data collection, we examined alcohol use prospectively by transforming the data into a rectangular person-interval file (see Allison 1984; Allison 1995, for more information). Doing so makes the unit of analysis the observation interval, rather than the respondent. This file contained 1,075 observations. Analyzing person-intervals as individual observations does not inflate significance tests (Allison 1995).

Frequency distributions and means were calculated for first, second, and third generation Mexican youth across the variables of interest. A series of nested Cox proportional hazards models were used to assess the differential effects of assimilation and other risk and protective factors on alcohol use, first with dummy variables for generational status, then stratified by generational status for first and second generation youth, with covariates entered as blocks (we were unable to run multivariate analyses for third generation Mexican youth due to small cell sizes across the dependent and independent variables). Exposure time was measured as the interval between interview waves. These models are appropriate for studying alcohol use because as the risk set changes (i.e., a respondent reports alcohol use), the model adjusts the risks to reflect that shift. That is, once a respondent became an alcohol user he or she was censored and no longer in the analyses. This provides a more accurate prediction of alcohol use because the estimation uses only the characteristics of the population still at risk (Allison 1995). Note that because the dependent variable (alcohol use) was not associated with attrition (assessed by regressing attrition on alcohol use), the model coefficients were not biased by missing data (Allison 2001).

Results

Sample Descriptives

Descriptive information on the study participants is presented in Table 1, stratified by generational status. The groups are fairly evenly distributed by gender. Not surprisingly, a much higher proportion of first and second generation youth reported speaking Spanish with their parents than third generation U.S.-born youth. Interestingly, more second generation youth (82.7%) reported a language preference different from their parents, compared to 60.8% of first generation immigrants and 41.7% of third generation youth. More third generation youth reported that at least half of their friends are non-Hispanic (16.5%), whereas only 9.2% of first generation youth reported this. In general, it appears that U.S.-born Mexicans (both second and third generation youth) were more assimilated than their immigrant counterparts. Also, a higher proportion of immigrants reported that at least a few of their peers use alcohol (42.7%). Alcohol use was highest among first generation youth (20.8%), followed by 16.6% of second generation youth and 11.3% of third generation youth. This is contrary to our expectations based on the extant literature which frequently finds a higher prevalence of use by U.S.-born youth.

Multivariate Analyses

In order to assess the impact of assimilation on alcohol use, as well as these effects net of other risk and protective factors, we conducted a series of nested multivariate hazards models, entering covariates in blocks. We first ran a model on the full sample, using dummy variables for generational status, and then stratified the models for first and second generation youth. Although it is often the convention to combine first and second generation youth as “children of immigrant parents,” the CYD sample was predominately children of Mexican immigrants (over 80% of the sample); therefore, we kept the three groups separate, estimating models for each group, to the extent that we were able (we were unable to estimate a separate multivariate model for third generation youth, as the model was unstable due to small cell sizes). Preliminary analyses and the descriptive statistics revealed that immigrants (first generation youth) differed from U.S.-born (second and third) generation youth on the dependent variable as well as a number of independent variables. Separate models allowed us to test assimilation measures that were differentially applicable across groups (for example, length of time lived in the U.S. was only relevant for first generation youth). We tested indicators of several types of assimilation: acculturation (language use with parents), structural assimilation (proportion of non-Hispanic friends), straight-line assimilation (generation), and spatial assimilation (proportion of non-Hispanic neighbors).

Table 2 displays the results of nested multivariate hazard models for the full sample, with first generation immigrant youth as the reference group. Second generation youth did not differ from first generation youth in their risk of alcohol use; however, third generation youth were significantly *less* likely than immigrant youth to use alcohol. Also interesting, in Model 5, family support was negatively associated with the risk of alcohol use; however, this finding became nonsignificant once perceived peer alcohol use was included. Perceiving that peers use alcohol was positively associated with the risk of alcohol use.

The analyses in Table 3 were subset to immigrant (first generation) youth. Here the assimilation measures tested included acculturation (length of U.S. residence), structural assimilation (proportion of non-Hispanic friends), spatial assimilation (proportion of non-Hispanic neighbors), and acculturative stress (parent-child language conflict). The proportion of non-Hispanic friends approached significance in Models 3-5, but in the opposite direction than expected. That is, having more non-Hispanic friends may *lower* the risk of alcohol use among first generation youth. Contrary to our expectations, none of the other assimilation measures

were significant. Family support was not significantly associated with alcohol use, but perceived peer alcohol use did predict risk of alcohol use.

Among U.S.-born (second generation) Mexicans, the assimilation measures tested included acculturation (speaking English with parents), structural assimilation (proportion of non-Hispanic friends), spatial assimilation (proportion of non-Hispanic neighbors), and acculturative stress (parent-child language conflict). Here a similar pattern emerged, where none of these assimilation measures were significant, even after controlling for the effects of other risk and protective factors (Table 4, Models 3-5). Perceived peer alcohol use, however, remained significant for second generation youth. Although the prevalence of alcohol use was higher among immigrant youth, our data provide no support for the notion that assimilation is a risk factor for substance use.

Discussion

This study sought to address the question “Is assimilation a risk factor for alcohol use?” Our findings suggest that it is not. Contrary to much previous research (e.g. Cavanagh 2007; Gfroerer and Tan 2003; Gil et al. 2000; Hussey et al. 2007), alcohol use in the CYD sample was slightly higher among immigrants than second and third generation U.S.-born youth. We explored this within a framework that allowed us to test if assimilation as a generic concept may be neither universally beneficial nor universally detrimental. We focused on the assessment of several different *types* of assimilation which may be differentially related to substance use. Additionally, the present study controlled for other theoretically relevant risk and protective factors, in an attempt to better isolate *how* assimilation may influence behavior for U.S.-born and Mexican immigrant youth.

If assimilation does in fact contribute to substance use, a positive relationship between at least one of its dimensions—structural assimilation, straight-line assimilation, spatial assimilation, acculturation—and alcohol use would be expected. However, among U.S.-born Mexican youth (second generation), none of the assimilation or acculturation measures predicted alcohol use. If assimilation were associated with subsequent alcohol use, having non-Hispanic friends should be positively predictive of use, but for first generation youth, having non-Hispanic friends afforded a protective influence. No other assimilation measures were associated with alcohol use for immigrant youth. In the current analysis it appears that assimilation may *lower* the likelihood of alcohol use, because, at least in this sample, alcohol use was lower among U.S.-born youth but higher among those who were less assimilated (e.g., immigrants, and those with fewer non-Hispanic friends).

Although previous research portrays the Hispanic family as protective against substance use (Schwartz et al. 2005), we found no lasting significant effect of family support among immigrant or U.S.-born youth. Consistent with previous research, however, was the finding that perceived peer alcohol use was positively associated with respondents’ own risk of alcohol use. This may suggest that peers exert more influence on the likelihood of alcohol use than family, a finding confirmed by other studies (Beal, Ausiello, and Perrin 2001; Iannotti and Bush 1992; Windle 2000). However, it may also be possible that youth begin using alcohol for reasons independent of their peers, and then select peers who themselves are already engaging in that behavior. While it is often difficult to disentangle peer selection from peer causation effects, we attempted to minimize confusion by limiting our sample to youths who had not used alcohol and measuring perceived peer alcohol use temporally prior to respondents’ own alcohol use.

There are several strengths of this study which enhance its contribution to the current literature on substance use by Hispanic youth, such as the longitudinal design, the sample of an

understudied minority population, within-ethnic group comparisons, and the multidimensional conceptualization of assimilation. However, several limitations are worth noting. First, this sample of youth comes from select schools in a single community, and is comprised entirely of Mexican and Mexican-American youth; thus, findings cannot be generalized to other Hispanic groups or communities. Second, the baseline response rate was rather low; however, the cooperation rate was high, and the conditional response rates at subsequent waves were also quite high. Nonresponse bias is a potential limitation of the current study, but a basic nonresponse bias analysis indicated that the respondents differed only slightly from the sampling frame. Respondents tended to be slightly younger. Given that age was positively associated with alcohol use, it is possible that alcohol use is lower among this sample than in the population of youth in Cicero.

Notwithstanding these limitations, the current study provides insight into other ways of thinking about assimilation. Our findings are consistent with those of Greenman and Xie (2008), in that the effect of assimilation is variable. Its measurement and the sample and outcome under study are important. However, our results differ in that we do not find assimilation to be a risk factor alcohol use. Assimilation is frequently cited as a reason for high substance use among U.S.-born Hispanics, although the extant literature does not necessarily help us understand the circumstances in which alcohol use is higher among immigrants. In the present study, the immigrant, unassimilated youth had a higher risk of alcohol than U.S.-born youth. Understanding why the *absence* of assimilation might lead to alcohol use may require revisiting and expanding upon the measures of assimilation that were tested in this study.

Much research, including, to an extent, the framework tested here, has adhered to somewhat linear and unidimensional models of assimilation which suggest that adoption of the majority culture occurs only with the loss of country of origin culture. However, other scholars (Abraido-Lanza, Armbrister, Florez, and Aguirre 2006; De La Rosa 2002) have argued that these need not be competing processes, but rather information on both processes should be used conjunctively, noting the need for a more multidimensional model that captures individual, familial, peer, and community concepts. Our assimilation measures, although correlated with each other, were not so strongly associated as to preclude their simultaneous inclusion in the multivariate analyses (as one might expect). This may be because assimilation, as a process, is greater than the sum of these parts, as is suggested by multidimensional models.

One example of a multidimensional model is Berry's (1980) framework of four acculturation strategies: *biculturalism* (also referred to as *integration*), where individuals are actively involved in both host culture and culture of origin practices; *assimilation*, when individuals seek out strong connections with the host culture and do not maintain culture of origin practices; *separation/withdrawal*, where individuals hold strongly to the preservation of culture of origin practices and avoid the host culture; and *marginalization/alienation*, when individuals reject both the culture of origin and the receiving culture (Coatsworth, Maldonado-Molina, Pantin, and Szapocznik 2005; Sullivan, Schwartz, Prado et al. 2007; Szapocznik and Coatsworth 1999). Research utilizing this multidimensional framework has yielded interesting results, expanding upon previous findings of the detrimental effects of assimilation for immigrants. Bicultural or integrated youth have been found to be better adapted and have more positive outcomes than withdrawn and marginalized youths (Coatsworth et al. 2005; Fosados, McClain, Ritt-Olson et al. 2007). Other studies have found that marginalized and separated youth have higher rates of lifetime and current alcohol use, assimilated youth have lower rates of current alcohol use (Fosados et al. 2007), and initiation and continued use is higher among less assimilated youth compared to bicultural or integrated youth (Sommers, Fagan, and Baskin 1993). Separated youth may engage in substance use as a coping mechanism, particularly if they are perceived negatively by the receiving culture in a highly segregated community (as may be the case in Cicero).

Adopting U.S. culture while actively maintaining culture of origin may be protective, in that it reduces the likelihood of discrimination and related acculturative stress, two scenarios found to contribute to substance use among immigrants. This may be particularly salient in areas where the Hispanic community is less well established, as opposed to areas with higher concentrations of Hispanics (e.g., Miami, the Southwestern U.S.) (Schwartz 2007). Thus, the effects of assimilation on certain outcomes may vary by place. Further, youth in ethnic enclaves may be separated not as much by choice, but by the lack of opportunity to engage in the host culture; potentially frustrated by opportunities to engage in prosocial activities and succeed in the host culture, these youth may turn to substance use to cope (Fosados et al. 2007). Just as detachment from parents (McQueen, Getz, and Bray 2003) and isolation from peers (Tani, Chavez, and Deffenbacher 2001) are risk factors for substance use, perhaps separation from the host culture may also be a risk factor.

Most of the immigrants in Fosados et al.'s (2007) study were classified as *separated*. Although we are unable in the current study to classify youth in the CYD sample according to this four-category typology, based on the distribution of their responses to questions about preferred language use, television viewing, and friendship and neighborhood ethnic composition, we may be able to consider them more separated than their U.S.-born counterparts. This is not to imply that all immigrant youth are separated, or even that immigrant youth are generally more likely than U.S.-born youth to be separated, but rather that the immigrant youth in this particular sample may be separated. For instance, there was very little variation in the assimilation measures among the immigrant youth in this sample (e.g., only 4% of first generation youth reported speaking any English with their parents). Also, Fosados et al. (2007) note that immigrant youth in ethnic enclaves may experience separation, and given the demographic characteristics of Cicero as predominately Hispanic, one may consider it very similar to an ethnic enclave. Although immigrant youth tend to have more positive outcomes than their U.S.-born counterparts, if the immigrants in the CYD sample are in fact separated, this may help us understand their higher likelihood of alcohol use, compared to U.S.-born youth.

Previous research on this sample has illustrated that immigrant youth perceive substance use as a riskier behavior than their U.S.-born counterparts (Warner et al. 2008); however, this perception does not appear to translate into a lower rates of actual alcohol use. Although Escobar and Vega (2000) have argued that simple assimilation measures such as language use, nativity, and length of residence are consistent and robust predictors of substance use, the current study suggests that multidimensional measures should be considered and expanded. Future research should consider using multidimensional measures such as Berry's (1980) four-category acculturation typology in conjunction with measures of spatial, structural, and straight-line assimilation to better gauge the potentially variable effect of assimilation on numerous youth outcomes.

Community characteristics are also important, as previous research on assimilation processes has focused on immigrant samples in communities where the receiving culture is the majority. As noted by Schwartz and colleagues (2006), little to no research has analyzed if and how assimilation processes may differ in ethnic enclaves (communities where the culture of origin represent the majority). As a predominately Hispanic community, Cicero represents an area where the culture of origin is the majority. This is further evidenced in the sampled schools, where over 90% of the student body is Hispanic. Schwartz et al. (2006) propose that ethnic enclaves may buffer the acceptance of receiving culture attitudes and behaviors. This may explain why the assimilation measures had little effect on alcohol use; however, it does not explain the protective effect of having non-Hispanic friends for immigrants. While assimilation is generally understood as minority group adoption of majority group cultural patterns and the development of affiliations between members of minority and majority groups (Park 1950; Gordon 1964), the process becomes more complex when the receiving community is comprised

primarily of members of the culture of origin, as is the case in Cicero. In these situations, one may wonder with whom immigrants would be assimilating. Past research often clearly identifies the *minority* group of interest; however, identification of the *majority* group is sometimes less clear, although it is quite possible that the process of assimilation is influenced not only by differences in the assimilating groups, but also by differences in receiving groups. Additional research on assimilation processes and how they relate to substance use within ethnic enclaves and across other types of communities is clearly warranted.

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Table 1

U.S.-born Mexican and Mexican immigrant youth sample characteristics: Percentages, means and standard deviations

	First Generation (24.19%)	Second Generation (65.12%)	Third Generation (10.70%)
	%/Mean (SD)	%/Mean (SD)	%/Mean (SD)
Independent Variables^a			
<i>Demographics</i>			
Male	46.92	46.00	51.30
Female	53.08	54.00	48.70
Age (at baseline)	11.13 (0.77)	11.03 (0.74)	11.10 (0.68)
<i>Assimilation</i>			
Language spoken with parents			
Spanish	96.15	78.86	20.00
English/English and Spanish	3.85	21.14	80.00
Language conflict between child and parent	60.77	82.71	41.74
Proportion of non-Hispanic friends			
Few or none	60.38	55.00	49.57
Less than half	30.38	32.71	33.91
Half or more	9.23	12.29	16.52
Proportion of non-Hispanic neighbors			
Few or none	54.23	43.00	47.83
Less than half	34.62	41.00	45.22
Half or more	11.15	16.00	6.96
Length of time lived in U.S. (immigrant only)			
Less than 5 years	46.54	-	-
More than 5 years, less than 10 years	40.77	-	-
At least 10 years	12.69	-	-
<i>Family and communication</i>			
Family support index (range 0-6)	4.84 (1.31)	4.70 (1.35)	5.15 (1.07)
<i>Perception of peer substance use</i>			
At least a few peers use alcohol	42.69	34.00	36.52
Dependent Variable			
<i>Alcohol use (overall)^b</i>	20.77	16.57	11.30
Alcohol use by wave 2	10.00	5.29	2.61
Alcohol use by wave 3	24.22	21.90	12.28
Alcohol use by wave 4	32.81	24.86	23.33

n=1,075 observations contributed by 441 persons

^aDemographic variables (except age) are measured only at baseline; all other predictors are lagged one wave.

^b Overall alcohol use may be lower than alcohol use reported at each wave because it represents the pooled proportion of all respondents across all waves of data, whereas alcohol use at each wave represents the proportion of users only among those respondents participating in that particular wave.

Table 2

Alcohol use by U.S.-born and immigrant Mexican youth, hazard ratios (θ)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Independent Variables^a	0	0	0	0	0	0
<i>Assimilation</i>						
Second generation	0.797	0.840	0.759	0.813	0.823	0.854
Third generation	0.480*	0.385**	0.423*	0.373**	0.410*	0.403*
Proportion of non-Hispanic friends			0.872	0.910	0.911	0.913
Proportion of non-Hispanic neighbors			1.051	1.026	1.024	0.970
Speak English with parent			1.185	1.067	1.075	1.106
Parent-child language conflict			0.990	1.021	1.011	0.868
<i>Demographics</i>						
Male		1.588**		1.567**	1.558**	1.774***
Age		1.846***		1.839***	1.836***	1.544***
Income		1.013		1.011	1.013	1.034
<i>Family and Communication</i>						
Family support index					0.905*	0.956
<i>Perception of Peer Substance Use</i>						
Peer alcohol use						3.101***
Number of events	183	183	183	183	183	183
Number of observations	1075	1075	1075	1075	1075	1075
-2 Log Likelihood	2131.223	2064.925	2128.488	2063.822	2060.063	2014.974

 δ $p < 0.10$ * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$ (two-tailed)

^aDemographic variables (except age) and assimilation are measured only at baseline; all other predictors are lagged one wave.

Table 3

Alcohol use by first generation (immigrant) Mexican youth, hazard ratios (θ)

Independent Variables ^a	Model 1	Model 2	Model 3	Model 4	Model 5
<i>Assimilation</i>					
Proportion of non-Hispanic friends	0.722		0.686 [†]	0.684 [†]	0.694 [†]
Proportion of non-Hispanic neighbors	0.957		0.982	0.983	0.921
Lived in U.S. 5-10 years	1.558		1.350	1.355	1.286
Lived in U.S. 10+ years	2.273 [†]		2.097	2.107	2.707*
Parent-child language conflict	0.640		0.751	0.752	0.526 [†]
<i>Demographics</i>					
Male		2.108*	1.844*	1.849*	1.976*
Age		2.045 ^{***}	2.109 ^{***}	2.116 ^{***}	1.815 ^{***}
Income		1.042	1.036	1.036	1.087
<i>Family and Communication</i>					
Family support index				1.009	1.095
<i>Perception of Peer Substance Use</i>					
Peer alcohol use					3.389 ^{***}
Number of events	54	54	54	54	54
Number of observations	260	260	260	260	260
-2 Log Likelihood	491.373	472.224	466.009	465.999	452.363

[†] $p < 0.10$ * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$ (two-tailed)^a Demographic variables (except age) and assimilation are measured only at baseline; all other predictors are lagged one wave.

Table 4

Alcohol use by second generation (U.S.-born) Mexican youth, hazard ratios (θ)

Independent Variables ^a	Model 1	Model 2	Model 3	Model 4	Model 5
<i>Assimilation</i>					
Proportion of non-Hispanic friends	1.043		1.097	1.081	1.040
Proportion of non-Hispanic neighbors	1.073		1.027	1.031	1.004
Speak English with parents	1.147		1.135	1.126	1.165
Parent-child language conflict	1.382		1.185	1.187	1.143
<i>Demographics</i>					
Male		1.312	1.338	1.342	1.561*
Age		1.756***	1.747***	1.758***	1.458***
Income		0.988	0.983	0.987	1.007
<i>Family and Communication</i>					
Family support index				0.908	0.938
<i>Perception of Peer Substance Use</i>					
Peer alcohol use					2.993***
Number of events	116	116	116	116	116
Number of observations	700	700	700	700	700
-2 Log Likelihood	1220.904	1189.733	1188.543	1186.566	1161.569

†

p<0.10

*

p<0.05

**

p<0.01

p<0.001 (two-tailed)

^aDemographic variables (except age) and assimilation are measured only at baseline; all other predictors are lagged one wave.