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## Acculturation and perceived discrimination: Predictors of substance use trajectories from adolescence to emerging adulthood among Hispanics

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### Abstract

**Purpose**—Previous studies have documented associations between cultural factors and substance use among Hispanic adolescents. Negative cultural experiences such as discrimination have been associated with an increased risk of substance use among Hispanic adolescents, whereas positive cultural resources, such as maintenance of Hispanic cultural orientations, have shown protective effects. However, few studies have examined the continuing influence of cultural factors on substance use from adolescence to emerging adulthood.

**Methods**—We surveyed a cohort of Hispanic adolescents in Southern California in 9<sup>th</sup>, 10<sup>th</sup>, and 11<sup>th</sup> grades, and 3–4 years after high school. Growth curve analyses were conducted to examine the effects of U.S. acculturation, Hispanic acculturation, ethnic identity, and perceived discrimination on change in tobacco, alcohol, and marijuana use over time.

**Results**—Higher perceived discrimination at baseline was significantly associated with a higher intercept (initial level) of tobacco, alcohol, and marijuana use. Higher initial level of Hispanic acculturation was significantly associated with a lower slope of tobacco, alcohol, and marijuana use.

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The authors report no conflicts of interest.

#### Contributors

Jennifer Unger conceptualized the study, conducted the analysis, and wrote the first draft. Seth Schwartz advised on the analysis and wrote parts of the introduction and discussion. Jimi Huh guided the data analysis and interpretation. Daniel Soto contributed to conceptualization, survey development, data collection, and writing. Lourdes Baezconde-Garbanati contributed to conceptualization of the study and interpretation of results. All authors have approved the final manuscript.

#### Conflict of Interest

All authors declare that they have no conflict of interest.

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**Conclusions**—Cultural phenomena such as acculturation and perceived discrimination can continue to affect substance use through the transition to emerging adulthood. Health education interventions are needed to help Hispanics navigate this developmental transition without engaging in substance use.

### Keywords

acculturation; Hispanic; adolescence; emerging adulthood; cigarette smoking; tobacco; alcohol; marijuana

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Hispanic Americans experience cultural challenges including acculturative stress (Romero et al., 2007), discrimination (Pérez et al., 2008), and family acculturation discrepancies (Schwartz et al., 2010; 2012; Unger et al., 2009). Most Hispanics learn to navigate these challenges and become well-adjusted, productive members of society. Unfortunately, some turn to maladaptive behaviors such as substance use. It is important to understand the risk and protective factors for substance use among this vulnerable population, especially those factors that are unique to immigrant and/or minority groups (Szapocznik et al., 2007).

## Culture-related risk factors for substance use

### Acculturation to the United States

Adoption of a new culture and retention of the heritage culture represent separate processes (Berry, 1980). Immigrants and their families can identify with the culture of settlement (i.e., U.S. orientation or assimilation), with the culture of origin (i.e., Hispanic orientation or separation), with both cultures (i.e., biculturalism), or with neither culture (i.e., marginalization). Biculturalism may be especially protective against substance use (Carvajal et al., 2002; Nguyen and Benet-Martínez, 2013). Hispanic adolescents who identify primarily with the U.S. culture but not with their heritage cultures may be at increased risk for substance use (De La Rosa, 2002; McQueen et al., 2003; Schwartz et al., 2011).

*Discrimination* is differential treatment based on membership in a minority or lower-status group. It includes overt harassment and subtle micro-aggressions such as implying that a person is unintelligent or untrustworthy (Sue et al., 2007; Williams et al., 2008). Perceived discrimination has been associated with substance use among Hispanics (Kam et al., 2010; Lorenzo-Blanco et al., 2011; Tran et al., 2010).

### Culturally-related protective factors

*Ethnic identity* includes knowledge about one's ethnic group, emotional significance of group membership, and commitment to the ethnic group (Phinney and Ong, 2007). Studies have found that a strong ethnic identity is protective against substance use (Brook et al., 2010; Love et al., 2006; Marsiglia et al., 2004). However, other studies have found opposite (Zamboanga et al., 2009) or inconsistent (Kulis et al., 2012) associations.

### Maintenance of Hispanic cultural orientation

Maintenance of Hispanic cultural orientation may facilitate better relationships between adolescents and their parents, protect adolescents from peer influences, and promote

protective cultural values such as collectivism and respect for authority (Schwartz et al., 2012). Maintenance of Hispanic cultural orientation has been associated with reduced risks for substance use (Love et al., 2006; Unger et al., 2009; Szapocznik et al., 2007).

Although numerous studies have identified cultural risk and protective factors for unhealthy behaviors among Hispanic adolescents, it is unclear whether those risk and protective factors continue to influence behavior in emerging adulthood (EA). EA is a transitional period for exploring options in love, work, and education before making firm commitments to specific roles and responsibilities (Arnett, 2004; Schwartz et al., 2013). EA also can be a high-risk period for substance use because it is a time of increased autonomy and exploration but few commitments (Arnett, 2004).

Most research on EA has focused on (non-Hispanic-White) college students, who are not representative of the Hispanic emerging adult population overall (Gomez et al., 2011; Hernández et al., 2010; Huynh and Fuligni, 2012; Schwartz et al., 2011). The experience of EA may differ for those Hispanics who cannot postpone taking on adult responsibilities such as contributing to household income and caring for family members (Phinney et al., 2006; Schwartz et al., 2013). Because Hispanic emerging adults—especially those from families that emphasize familism and other collectivistic, interdependent cultural values—face these added responsibilities, their experience of EA may differ from that of Whites. It is not known whether the cultural phenomena that influence Hispanic substance use during adolescence continue to influence substance use in EA.

This article examines longitudinal associations between cultural phenomena and substance use among a cohort of Hispanic adolescents in Southern California who completed surveys in 9<sup>th</sup>–11<sup>th</sup> grade and 3–4 years later, in EA. We hypothesized that Hispanic orientation and ethnic identity would be protective against increases in substance use over time, and that U.S. orientation and perceived discrimination would represent risk factors for increases in substance use over time.

## Method

Project RED (Reteniendo y Entendiendo Diversidad para Salud; Unger et al., 2009) is a longitudinal study of acculturation patterns and substance use among Hispanic adolescents in Southern California. Students attending seven predominantly Hispanic high schools in the Los Angeles area completed surveys in 9<sup>th</sup>, 10<sup>th</sup>, and 11<sup>th</sup> grade, and again 3–4 years after high school.

### Student recruitment

The 9<sup>th</sup>, 10<sup>th</sup>, and 11<sup>th</sup> grade surveys were conducted in 2005, 2006, and 2007, respectively. In 2005, all 9<sup>th</sup>-grade students in the 7 schools (N=3218) were invited to participate. Of those, 2,420 (75%) provided parental consent and student assent. Of those students providing consent and assent, 2,222 (92%) completed the survey in 9<sup>th</sup> grade. Between the 9<sup>th</sup> and 10<sup>th</sup> grade surveys, a school district transferred some of the participants to a new school, so we added that school's 10<sup>th</sup> grade class to the sample, resulting in an additional 704 participants in 10<sup>th</sup> grade. An additional 43 students also moved into the schools and

joined the sample in 11<sup>th</sup> grade. Therefore, a total of 2,969 students had provided data at one or more timepoints during high school. Of those 2,969 students, 2,722 (92%) self-identified as Hispanic/Latino and were included in the present analyses.

### EA survey

In 2011–2012, we attempted to re-contact the 2722 Hispanic/Latino participants who had participated in any wave(s) of the high school survey for an EA follow-up survey. Valid contact information was located for 2151 participants, and 1303 completed the EA survey. Overall, there were a total 7,799 observations provided by 2,722 Hispanic participants, of whom 274 provided data at 1 timepoint, 576 provided data at 2 timepoints, 1,116 provided data at 3 timepoints, and 756 provided data at all 4 timepoints.

### Measures

*Acculturation* was assessed with a short form of the ARSMA-II (Cuéllar et al., 1995): 7 from the U.S. orientation subscale and 5 from the Hispanic orientation subscale. These 12 items were selected based on a pilot study in which these items had the highest factor loadings on their respective scales. Cronbach's  $\alpha=.77$  for U.S. Orientation,  $.88$  for Hispanic Orientation.

*Discrimination* was assessed using a 10-item measure of perceptions of personal experiences of discrimination (Guyll et al., 2001). Sample items include, "You are treated with less respect than other people." Cronbach's  $\alpha=.87$ .

*Ethnic identity development* was assessed with the 12-item Multigroup Ethnic Identity Measure (Phinney, 1992). Items include, "I have spent time trying to find out more about my ethnic group, such as its history, traditions, and customs." Cronbach's  $\alpha=.88$

**Substance use**—Past-month use of cigarettes, alcohol, and marijuana was assessed in high school and EA. Respondents were asked how many times in the past 30 days they had smoked cigarettes, had at least one drink of alcohol, and used marijuana. The variables were log-transformed because their distributions were skewed.

*Demographic characteristics* included age, gender, and socioeconomic status (SES). Age and gender were self-reported. SES was assessed with a composite scale (Unger et al., 2009).

### Data analysis

**Multiple imputation (MI)**—Only 28% of the respondents were present at all 4 timepoints and provided 4 datapoints for the main dependent variables. Restricting the analyses to the participants with complete data (listwise deletion) could produce biased parameter estimates and limited external validity (Graham, 2012). We used multiple imputation (MI) to replace each missing value with a set of plausible values that represent the uncertainty about the actual value, using the SAS MI procedure. The imputation model included all variables in the analysis and the demographic covariates that varied across participants with differing amounts of missing data. The growth curve analyses were conducted on each dataset

separately and the parameter estimates were combined with the SAS MIANALYZE procedure.

**Growth curve analysis**—SAS PROC MIXED was used to estimate the growth curve models. The model specified fixed effects for gender, U.S. acculturation, Hispanic acculturation, perceived discrimination, and ethnic identity (reported in 9<sup>th</sup> grade), a repeated effect of time (grade), and the cross-level random effect of each predictor with time on substance use.

## Results

### Demographic characteristics

Among the 2,722 participants who provided data at one or more timepoints, 52% were female, and the mean age in 9<sup>th</sup> grade was 14.0 years. Countries of origin included Mexico (84%), the United States (29%), El Salvador (9%), Guatemala (6%), and Honduras (1%) (Respondents could select more than one country). Over half (61%) were second-generation (student born in the U.S. but neither parent born in the U.S.)

### Missing data

We examined the characteristics of students with different patterns of missing data (those with data at 1, 2, 3, or all 4 timepoints). The variables that differed significantly across those groups included gender, grades in school, lifetime alcohol use, lifetime marijuana use, U.S. acculturation, ethnic identity, and perceived discrimination. These variables were included in the MI model.

### Associations between cultural variables and substance use

Growth curve analyses examined each participant's trajectory of substance use from 9<sup>th</sup> grade to EA and identified variables (in 9<sup>th</sup> grade) that predict the intercept (initial level) and linear slope of the growth trajectory. The significant effects of grade indicate that the use of all three substances increased from 9<sup>th</sup> grade to EA. There were several significant associations between cultural variables and substance use trajectories (Table 1). Perceived discrimination at baseline and male gender were positively associated with the intercept (initial level) of tobacco, alcohol, and marijuana use. In contrast, the levels of Hispanic acculturation at baseline were negatively associated with a lower slope of tobacco, alcohol, and marijuana use. U.S. acculturation and ethnic identity were not associated with either the intercept or the slope of any substance use variables.

## Discussion

Hispanic Americans are a heterogeneous group with wide variation in acculturation patterns, language use, ethnic identity development, experiences of discrimination, and numerous other characteristics. Although previous studies have demonstrated that cultural phenomena influence substance use among Hispanic adolescents, few studies have examined the long-term associations between cultural phenomena and substance use trajectories into EA.

Respondents who reported higher initial levels of discrimination indicated higher intercepts (initial levels) of cigarette, alcohol, and marijuana use, relative to their peers who experienced less discrimination. Because the significant effects of discrimination were main effects (effects on the intercept) rather than interactions with grade (effects on the slope), it appears that the effect of discrimination occurred prior to 9<sup>th</sup> grade. Discrimination might signal to minority group members that they are not accepted by the mainstream population, which may lead them to adopt oppositional identities that include deviant behaviors (Ogbu, 1991).

Hispanic orientation was protective against the use of all three substances. These significant protective effects were on the slopes rather than the intercepts, indicating that Hispanic orientation did not protect against initial experimentation with substance use, but it was protective against escalation of substance use over time. This is consistent with previous studies of the protective effects of heritage-culture retention (Yoon et al., 2013) and suggests that programs to encourage Hispanics to learn about their heritage culture (Schwartz et al., 2010) may provide them with a wider array of coping skills and access to supportive social networks, which may reduce their likelihood of substance use. Findings from this study have implications for the delivery of culturally specific substance abuse interventions for Hispanic youth and emerging adults.

### Limitations

Although these findings are based on self-reported substance use, previous studies have found self-reports to be quite accurate under confidential survey conditions (Harrison and Hughes, 1997). Similar to many other longitudinal studies, there was a considerable amount of missing data. MI uses all existing data and generally produces unbiased parameter estimates when the data are missing at random; it is still preferable to other techniques even when the data are missing not at random (Graham, 2012).

### Implications

Cultural variables including discrimination and acculturation continue to influence substance use over the transition from adolescence to EA. It is important to develop culturally relevant interventions to help Hispanic adolescents—a significant proportion of future citizens, workers, and parents—avoid maladaptive patterns of substance use and achieve their full potential.

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### References

Arnett, J.J. *Emerging Adulthood: The Winding Road from Late Teens through the Twenties*. New York: Oxford University Press; 2004.

- Bauman S. The reliability and validity of the brief acculturation rating scale for Mexican Americans-II for children and adolescents. *Hisp J Behav Sci.* 2005; 27:426–441.
- Berry, JW. Acculturation as varieties of adaptation. In: Padilla, A., editor. *Acculturation: Theory, models, and findings.* Boulder, CO: Westview; 1980. p. 9-25.
- Brook JS, Zhang C, Finch SJ, Brook DW. Adolescent pathways to adult smoking: ethnic identity, peer substance use, and antisocial behavior. *Am J Addict.* 2010; 19:178–86. [PubMed: 20163390]
- Carvajal SC, Hanson CE, Romero AJ, Coyle KK. Behavioural risk factors and protective factors in adolescents: a comparison of Latinos and non-Latino whites. *Ethn Health.* 2002; 7:181–193. [PubMed: 12523944]
- Cuéllar I, Arnold B, Maldonado R. The Acculturation Rating Scale for Mexican Americans-II: A revision of the original ARSMA scale. *Hisp J Behav Sci.* 1995; 17:275–304.
- De La Rosa M. Acculturation and Latino adolescents' substance use: a research agenda for the future. *Subst Use Misuse.* 2002; 37:429–456. [PubMed: 12064428]
- Gomez J, Miranda R, Polanco L. Acculturative stress, perceived discrimination, and vulnerability to suicide attempts among emerging adults. *J Youth Adolesc.* 2011; 40:1465–76.10.1007/s10964-011-9688-9. [PubMed: 21717234]
- Graham, JW. *Missing data: Analysis and design.* New York: Springer; 2012.
- Guyll KA, Matthews KA, Bromberger JT. Discrimination and unfair treatment: relationship to cardiovascular reactivity among African American and European American women. *Health Psychol.* 2001; 20:315–325. [PubMed: 11570645]
- Harrison, L.; Hughes, A., editors. *NIDA Research Monograph. Vol. 167.* Rockville, MD: U.S. Department of Health and Human Services; 1997. *The Validity of Self-Reported Drug Use: Improving the Accuracy of Survey Estimates.*
- Hernández B, Ramírez García JI, Flynn M. The role of familism in the relation between parent-child discord and psychological distress among emerging adults of Mexican descent. *J Fam Psychol.* 2010; 24:105–14.10.1037/a0019140. [PubMed: 20438185]
- Huynh VW, Fuligni AJ. Perceived ethnic stigma across the transition to college. *J Youth Adolesc.* 2012; 41:817–30.10.1007/s10964-011-9731-x. [PubMed: 22089633]
- Kam JA, Cleveland MJ, Hecht ML. Applying general strain theory to examine perceived discrimination's indirect relation to Mexican-heritage youth's alcohol, cigarette, and marijuana use. *Prev Sci.* 2010; 11:397–410.10.1007/s11121-010-0180-7. [PubMed: 20490921]
- Kulis SS, Marsiglia FF, Kopak AM, Olmsted ME, Crossman A. Ethnic identity and substance use among Mexican-heritage preadolescents: moderator effects of gender and time in the United States. *J Early Adolesc.* 2012; 32:165–199. [PubMed: 22790485]
- Lorenzo-Blanco EI, Unger JB, Ritt-Olson A, Soto D, Baezconde-Garbanati L. Acculturation, gender, depression, and cigarette smoking among U.S. Hispanic youth: the mediating role of perceived discrimination. *J Youth Adolesc.* 2011; 40:1519–33.10.1007/s10964-011-9633-y. [PubMed: 21293915]
- Love AS, Yin Z, Codina E, Zapata JT. Ethnic identity and risky health behaviors in school-age Mexican-American children. *Psychol Reports.* 2006; 98:735–744.
- Marsiglia FF, Kulis S, Hecht ML, Sills S. Ethnicity and ethnic identity as predictors of drug norms and drug use among preadolescents in the US Southwest. *Subst Use Misuse.* 2004; 39:1061–1094. [PubMed: 15387204]
- McQueen A, Getz JG, Bray JH. Acculturation, substance use, and deviant behavior: examining separation and family conflict as mediators. *Child Development.* 2003; 74:1737–1750. [PubMed: 14669893]
- Nguyen AMD, Benet-Martínez V. Biculturalism and adjustment: A meta-analysis. *J Cross-Cultural Psychol.* 2013; 44:122–159.
- Ogbu, J. Immigrant and involuntary minorities in comparative perspective. In: Gibson, M.; Ogbu, J., editors. *Minority status and schooling: A comparative study of immigrant and involuntary minorities.* New York: Garland; 1991. p. 184-204.
- Pérez DJ, Fortuna L, Alegría M. Prevalence and correlates of everyday discrimination among U.S. Latinos. *J Community Psychol.* 2008; 36:421–433. [PubMed: 19960098]

- Phinney J, Dennis JM, Osorio NT. Motivations to attend college among mong ethnically diverse college students. *Cultural Diversity Ethn Minority Psychol.* 2006; 12:347–366.
- Phinney J. The Multigroup Ethnic Identity Measure: A new scale for use with adolescents and young adults from diverse groups. *J Adolesc Res.* 1992; 7:156–176.
- Phinney JS, Ong AD. Conceptualization and measurement of ethnic identity: Current status and future directions. *J Counseling Psychol.* 2007; 54:271–281.10.1037/0022-0167.54.3.271
- Romero AJ, Martinez D, Carvajal SC. Bicultural stress and adolescent risk behaviors in a community sample of Latinos and non-Latino European Americans. *Ethn Health.* 2007; 12:443–463. [PubMed: 17978943]
- Schwartz SJ, Unger JB, Des Rosiers SE, Huang S, Baezconde-Garbanati L, Lorenzo-Blanco EI, Villamar JA, Soto DW, Pattarroyo M, Szapocznik J. Substance use and sexual behavior among recent Hispanic immigrant adolescents: effects of parent-adolescent differential acculturation and communication. *Drug Alcohol Depend.* 2012; 125(Suppl 1):S26–34.10.1016/j.drugalcdep.2012.05.020.; [PubMed: 22699094]
- Schwartz SJ, Unger JB, Zamboanga BL, Szapocznik J. Rethinking the concept of acculturation: implications for theory and research. *Am Psychol.* 2010; 65:237–51. [PubMed: 20455618]
- Schwartz SJ, Weisskirch RS, Zamboanga BL, Castillo LG, Ham LS, Huynh QL, Park IJ, Donovan R, Kim SY, Vernon M, Davis MJ, Cano MA. Dimensions of acculturation: associations with health risk behaviors among college students from immigrant families. *J Couns Psychol.* 2011; 58:27–41. [PubMed: 21171742]
- Schwartz SJ, Zamboanga BL, Luyckx K, Meca A, Ritchie RA. Identity in emerging adulthood: Reviewing the field and looking forward. *Emerging Adulthood.* 2013; 1:96–113.
- Sue DW, Capodilupo CM, Torino GC, Bucceri JM, Holder AM, Nadal KL, Esquilin M. Racial microaggressions in everyday life: implications for clinical practice. *Am Psychol.* 2007; 62:271–86. [PubMed: 17516773]
- Szapocznik J, Prado G, Burlew AK, Williams RA, Santisteban DA. Drug abuse in African American and Hispanic adolescents: culture, development, and behavior. *Ann Rev Clin Psychol.* 2007; 3:77–105. [PubMed: 17716049]
- Tran AG, Lee RM, Burgess DJ. Perceived discrimination and substance use in Hispanic/Latino, African-born Black, and Southeast Asian immigrants. *Cultur Divers Ethn Minor Psychol.* 2010; 16:226–36.10.1037/a0016344.
- Unger JB, Ritt-Olson A, Wagner KD, Soto DW, Baezconde-Garbanati L. Parent-child acculturation patterns and substance use among Hispanic adolescents: a longitudinal analysis. *J Prim Prev.* 2009; 30(3–4):293–313. [PubMed: 19384604]
- Williams DR, Neighbors HW, Jackson JS. Racial/ethnic discrimination and health: findings from community studies. *Am J Public Health.* 2008; 98:S29–37. [PubMed: 18687616]
- Yoon E, Chang CT, Kim S, Clawson A, Cleary SE, Hansen M, Bruner JP, Chan TK, Gomes AM. A meta-analysis of acculturation/enculturation and mental health. *J Couns Psychol.* 2013; 60:15–30.10.1037/a0030652. [PubMed: 23163612]
- Zamboanga BL, Schwartz SJ, Jarvis LH, Van Tyne K. Acculturation and substance use among Hispanic early adolescents: Investigating the mediating roles of acculturative stress and self-esteem. *J Primary Prevention.* 2009; 30:315–333.



**Highlights**

We surveyed Hispanic adolescents from 9<sup>th</sup> grade through emerging adulthood.

Perceived discrimination was significantly associated with substance use.

Hispanic acculturation was protective against an increase in substance use.

Cultural phenomena can affect substance use through the transition to emerging adulthood.

**Table 1**

Growth curve models predicting cigarette, alcohol, and marijuana use, Southern California Hispanic adolescents, 2005–2012

	<b>Cigarettes</b>	<b>Alcohol</b>	<b>Marijuana</b>
Intercept	-.109*	-.172*	-.056*
Grade	.111*	.140*	.101*
Female gender	-.162*	-.138*	-.229*
U.S. acculturation	.003	-.002	.004
Hispanic acculturation	.004	.020	-.012
Ethnic identity	-.021	-.016	-.006
Perceived discrimination	.064*	.117*	.108*
U.S. Acculturation × time	-.013	-.007	.004
Hispanic acculturation × time	-.031*	-.027	-.050*
Ethnic identity × time	-.006	.002	.005
Perceived discrimination × time	.012	-.018	-.012

\*  
p<.05