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Multidimensional Acculturation, Acculturative Stress and Alcohol or Drug Use of Adult Latinx Immigrants

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ABSTRACT

Few studies have used a multidimensional acculturation framework, i.e., cultural practices, identity, and values, to investigate links with alcohol or drug use of Latinx immigrants to the U.S. This cross-sectional study tested links between measures of acculturation (language-based Hispanicism and Americanism, cultural identity, familism), acculturative stress, and alcohol or drug use, controlling for age and gender. 391 adult (18–44 years old) Latinx immigrants (69% women) completed measures on past 6-month behavior in Spanish or English. Results showed that Americanism was related to alcohol use severity, heavy episodic drinking, drug use severity, and any drug use. Acculturative stress was related to alcohol use severity, drug use severity, and any drug use, but not heavy episodic drinking. Familism was inversely related to drug use severity and any drug use, but not alcohol use severity or heavy episodic drinking. Cultural identity and Hispanicism were not related to alcohol or drug use. Consistent with previous research, a language-based measure of acculturation to the U.S. (Americanism) and acculturative stress were related to alcohol and drug use. Incremental validity of a multidimensional acculturation approach was limited. Intervention adaptations for Latinx immigrants should address stress reduction and mitigating adoption of receiving cultural practices.

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Latinx/hispanic; immigrants; alcohol; drugs; acculturation; acculturative stress

Latinx people, a heterogeneous group from many cultures, histories, and national origins, grew 23% since 2010, and is now the largest (~62 million, 18.5%) U.S. ethnic minority (U.S. Census Bureau 2021). Most (79%) Latinx people are U.S. citizens, and about a third (33%) immigrants; the majority (78%) of immigrants lived in the U.S. for 10+ years (Noe-Bustamante 2019). Research is needed to inform health care and improve the health of this growing yet underserved group, in particular alcohol and drug causes serious health consequences, including death. Recent estimates (SAMHSA 2020) show 31% of Latinx young adults (18–25 years old) reported past-month heavy episodic drinking (5+ drinks for men/4+ for women) compared to 40% of non-Latinx white counterparts, but Latinx adults (26+ years old) had similar rates (26% to 25%) to non-Latinx whites. Past-year alcohol use disorder rates were similar for young adults (9% Latinx, 11% non-Latinx white) and adults (4% Latinx, 5% non-Latinx white). Past-month illicit drug use rates were lower for Latinx young adults (22% Latinx, 26% non-Latinx white) and adults (9% Latinx, 12% non-Latinx white), but past-year drug use

disorder rates were similar for young adults (4% Latinx, 5% non-Latinx white) and adults (1% Latinx, 2% non-Latinx white).

Although Latinx adults do not drink or use drugs at higher rates than non-Latinx whites, they have greater related consequences and health problems, including intimate partner violence (Caetano and Galvan 2001; Morales-Aleman and Sutton 2014), liver cirrhosis mortality (Flores et al. 2008), criminal justice involvement (Iguchi et al., 2002), treatment barriers (Guerrero 2013), injuries and arrests from intoxicated driving (e.g., Valdez et al. 2018; Vaeth et al., 2012). Although U.S. Latinx immigrants are heterogeneous, understanding shared culturally-based factors, e.g., acculturation and acculturative stress, may lead to effective programming to modify sociocultural determinants of alcohol or drug use and prevent disparate consequences.

Acculturation refers to changes from contact with a culturally dissimilar society, often for those living apart from where they were born (Berry 2006). Acculturation was originally conceptualized on a single dimension, i.e.,

immigrants acquired the values, practices, and beliefs of the receiving culture, and discarded their heritage cultural values, practices, and beliefs. Biculturalism, with independent dimensions of acquiring the receiving-culture (acculturation or Americanism in this study) and retaining the heritage culture (enculturation or Hispanicism), supplanted the unidimensional concept (Berry 2003; Berry, 1988). Potentially low or high scores on either dimension led to four descriptive categories: assimilation (adopting the receiving culture while discarding the heritage culture), separation (rejecting the receiving culture and retaining the heritage culture), integration (adopting the receiving culture and retaining the heritage culture), and marginalization (rejecting both heritage and receiving cultures). A multidimensional acculturation framework suggested a person may be stable or changing along multiple dimensions: cultural practices including language or media preferences; cultural values such as familism; and cultural identifications with an ethnicity (Phinney 1996; Schwartz et al. 2010; Shore 2002; Triandis 1995).

Acculturative stress is a distinct, but related construct, referring to culturally based stressors including discrimination, context of reception, and bicultural stress (Cervantes et al. 2012; Salas-Wright and Schwartz 2019). *Discrimination* is being excluded, attacked, and/or viewed suspiciously due to ethnicity (e.g., Greene, Pahl, and Way 2006). *Context of reception* refers to the opportunity structure that immigrants encounter (e.g., Portes and Rumbaut 2014). *Bicultural stress* is the conflict between expectations and demands imposed by two cultures (e.g., Romero and Roberts 2003). Acculturative stressors likely co-occur in U.S. Latinx immigrants; the accumulation of multiple stressors is likely more hurtful than any single stressor (Córdova and Cervantes 2010; Ennis, Ríos-Vargas, and Albert 2011; Salas-Wright and Schwartz 2019).

Acculturation and acculturative stress have theoretical links to alcohol or drug use. Acculturation may lead to adopting permissive attitudes or normative beliefs about drinking or drug use; retaining heritage practices and cultural identity may have the opposite effect (e.g., Caetano 1987). In a meta-analysis of 88 samples of 68,282 Latinx adults (Lui and Zamboanga 2018), acculturation was not linked to drinking frequency or volume ($r_s = .01, .02$), but was positively related to drinking intensity ($r = .09$), heavy episodic drinking ($r = .05$), and hazardous drinking ($r = .06$). Acculturative stress may lead to maladaptive coping with alcohol or drug use to emotionally disengage when stress appears insurmountable (e.g., Carver, 1989; Crockett et al. 2007). Further, acculturative stress may disrupt protective aspects of family functioning. *Familism* refers to the

importance of one's family or placing family needs above individual needs. Familism creates a sense of obligation of family care and consideration when making decisions, and is believed to protect against unhealthy behaviors, including alcohol or drug use (De La Rosa et al. 2005). Acculturative stress in Latinx adults has been linked to substance use disorders (Ehlers et al. 2009), drinking problems (Lee et al. 2013), hazardous drinking (Jankowski et al. 2020), and alcohol use (Sanchez et al. 2015); and to alcohol and polysubstance use in Latinx adolescents (Berger Cardoso et al. 2016; Goldbach et al. 2016), although acculturative stress failed to differentiate drinking patterns of Latinx clients in treatment in one study (Arciniega et al. 1996).

Although acculturation and acculturative stress separately relate to alcohol or drug use of U.S. Latinx immigrants, few studies used a multidimensional approach to acculturation or examined combined effects of both constructs. Investigating multiple dimensions can provide nuanced understanding of constructs that may change in different ways or at different rates, build on successfully moving from a unidimensional to a bidimensional approach, and integrate generally separate literatures on cultural practices, values, and identity (Schwartz et al. 2010; Yoon et al. 2020). Greater understanding of acculturation and acculturative stress may inform novel or adapted interventions to reduce or prevent alcohol and drug use and related harms for U.S. Latinx immigrants. This study will expand on past work by testing links between four acculturation measures [cultural practices (Hispanicism and Americanism), identity, and values] and acculturative stress with alcohol and drug use in adult Latinx immigrants, controlling for age and gender. Controls were selected due to consistent findings for adults, i.e., age is inversely related to alcohol and drug use, and women use alcohol and drugs less than men. We hypothesized that acculturative stress and Americanism (acculturation) will be positively related to alcohol and drug use, but Hispanicism (enculturation), familism, and cultural identity will be inversely related to alcohol and drug use.

Methods

Participants

Participants were 391 adult Latinx immigrants in North Carolina completing the baseline assessment of a community-based study of acculturation and health [SER (*Salud, Estrés, y Resiliencia*)] between May 2018 and December 2019. Power analysis in Mplus (Muthén and Muthén 2002) showed this N resulted in >80% power to find medium-size (.5) relationships between latent

Table 1. Participant characteristics (N = 391).

Characteristic	M	SD
Age, years	33.86	6.94
Years in US	13.49	7.04
Age of immigration	19.94	8.50
Education	11.45	4.00
Acculturative Stress	23.32	14.13
Hispanicism	3.42	0.35
Americanism	2.54	0.85
Cultural Identity	3.03	0.59
Familism	3.49	0.46
Alcohol Use Severity	3.81	5.05
Drug Use Severity	0.18	0.87
	<i>n</i>	%
Women	269	69%
Employed	289	74%
Married/Has Partner	280	72%
Spanish Preferred	324	83%
Heavy Episodic Drinking	143	37%
Any Drug Use	28	7%

Note. Hispanicism = enculturation; Americanism = acculturation.

slopes over time for primary analyses. 701 participants were screened using eligibility criteria: (a) identify as Hispanic or Latino/Latina/Latinx; (b) emigrate from a Spanish-speaking country in Latin America or the Caribbean; (c) living in the U.S. for at least 1 year; and (d) 18 to 44 years old. The Duke University Institutional Review Board approved all activities. Participants received \$50 for the assessment. Table 1 shows participant characteristics.

Measures

All measures were in English and Spanish and administered by bilingual (Spanish and English) and bicultural staff.

Control variables

were age (years) and gender, coded as woman = 1 (vs man = 0).

Acculturative stress

The Hispanic Stress Inventory-2 Immigrant Version (Cervantes et al. 2016) has 90 items to measure 10 facets of acculturative stress: Parental, Occupation and Economic, Marital, Discrimination, Immigration-Related, Marital Acculturation Gap, Health, Language-Related, Pre-Migration, and Family-Related. Participants first endorse whether an event happened in the past six months (*frequency*), then if an event happened the participant rates how worried or tense (*appraisal*) on a 5-point Likert scale (1 *not at all* to 5 *extremely*). We used the total frequency scale to count

stressful events, resulting in a potential range of 0–90 with higher scores meaning more acculturative stress; internal consistency was strong, Cronbach's $\alpha = .93$.

Acculturation

We assessed four acculturation dimensions: cultural practices (Hispanicism and Americanism), cultural identity, and cultural values (familism).

Hispanicism and americanism. The Bidimensional Acculturation Scale (Marin and Gamba 1996) has 24 items on two dimensions, affinity with culture of origin practices (*Hispanicism/enculturation*) and affinity with U.S. cultural practices (*Americanism/acculturation*). The 12 items in each cultural domain are based on language preference in conversation, entertainment, etc. Items have a 4-point Likert scale, 1 *almost never* to 4 *almost always*. Both scales were averaged, resulting in a potential range of 1 to 4 with the mid-point of 2.5 as a cutoff for high values. Hispanicism and Americanism subscales had acceptable internal consistency, $\alpha = .70$ and $.96$, respectively.

Cultural identity. The Multigroup Ethnic Identification Measure (Phinney, 1996) has 12 items on a 5-point Likert scale from 1 = *strongly disagree* to 5 = *strongly agree*. This measure assesses heritage culture identification, i.e., how much one (a) has considered the subjective meaning of one's race/ethnicity and, (b) feels positively about one's racial/ethnic group. Example items are, "I have a clear sense of my ethnic background and what it means for me," and "I participate in cultural practices of my own group, such as special food, music, and customs." Items were averaged into a single cultural identity measure, with a possible range from 1 to 5; higher scores meant greater identification with Latinx/Hispanic culture. Participants responded regarding Latinx/Hispanic ethnic identity, although they may have multiple ethnic/racial identities. The scale had strong internal consistency, $\alpha = .90$. Although this measure can be scored with two subscales, exploration and affirmation, Phinney and Ong (2007) recommended a single factor.

Familism. The 15-item Familism Scale (Sabogal et al. 1987) has items on a 5-point Likert scale from 1 *strongly disagree* to 5 *strongly agree*. This measure assesses familial obligations, e.g., "One should make great sacrifices in order to guarantee a good education for his/her children;" family support, e.g., "One can count on help from his/her relatives to solve most problems;" and family as referents, e.g., "Much of what a son or daughter does

should be done to please the parents.” Items were averaged into unidimensional familism, with a potential range of 1 to 5 such that higher scores meant greater familism, which had acceptable internal consistency, $\alpha = .76$.

Alcohol use

The US-AUDIT, a revised version of the widely used alcohol screening measure, the Alcohol Use Disorders Identification Test (AUDIT; Babor, Higgins-Biddle, and Robaina 2017; Centers for Disease Control and Prevention 2014) assessed alcohol use. This version changed the wording of some items for the U.S., e.g., using five drinks (men) and four (women) to correspond with heavy episodic drinking using U.S. standard drinks. Participants saw a standard drink chart (*tabla de bebidas estandar*) with 12oz. beer can, a 5oz. wine glass, and a 1.5oz shot glass. This measure has 10 items about alcohol use, alcohol use disorder symptoms, and alcohol-related problems in the past six months. The first three item responses are scaled from 0– 6, and the last seven from 0– 4, resulting in a possible range from 0– 46 for the total score. For alcohol use severity, the cutoff for excess drinking is 7 (women)/ 8 (men). For analysis, we used a continuous score to represent *alcohol use severity*, and a dichotomous *heavy episodic drinking* variable, created from the response to one question “How often do you have X (5 men/4 women) or more drinks on one occasion?” Possible responses ranged from 0 *never*, 1 *less than monthly* to 6 *daily*; heavy episodic drinking was coded as 0 = *never* vs. 1 = *any other response*. Internal consistency reliability of the total score was acceptable, Cronbach’s $\alpha = .82$.

Drug use

To assess drug use, we used a 10-item screening measure, the Drug Abuse Screening Test (DAST-10; Skinner 1982). Participants responded about non-medical use of drugs, not alcohol, using either *yes* or *no* for the previous six months. Example drugs were cannabis (marijuana, hashish), solvents (e.g., paint thinner), tranquilizers (e.g., Valium), barbiturates, cocaine, stimulants (e.g., speed), hallucinogens (e.g., LSD) or narcotics (e.g., heroin), and could include prescribed or over-the-counter drugs. For analysis, we used a continuous total score to represent *drug use severity*, and a dichotomous *any drug use* variable, created from the response to one question, “Have you used drugs other than those required for medical reasons?” For drug use severity, the cutoff for moderate misuse is three. Internal consistency of the total score was acceptable, $\alpha = .84$.

Analysis plan

Path analysis in Mplus 8.3 (Muthén and Muthén 2017) tested hypotheses, which produced standardized coefficients (β) to compare strength of association across predictors and outcomes with different ranges (see Figure 1). Maximum likelihood estimation allowed inclusion of all cases regardless of missing outcomes, although missing data was <3% and unlikely to bias estimates (Graham 2009). All analyses controlled for gender and age. We defined alcohol and drug use in two ways as a partial check on robustness of findings. Negative binomial analyses were used for alcohol and drug use severity because both were skewed, and logistic analysis for dichotomous heavy episodic drinking and drug use.

Results

Sample characteristics

The majority (69%) were women (Table 1). Most were employed (74%) and preferred Spanish (83%). The average years of education, $M = 11.45$, was almost equivalent to a high school. On average, participants had been in the U.S. for just over a decade, $M = 13.49$, and arrived in early adulthood, $M = 19.00$ years. Overall, based on the

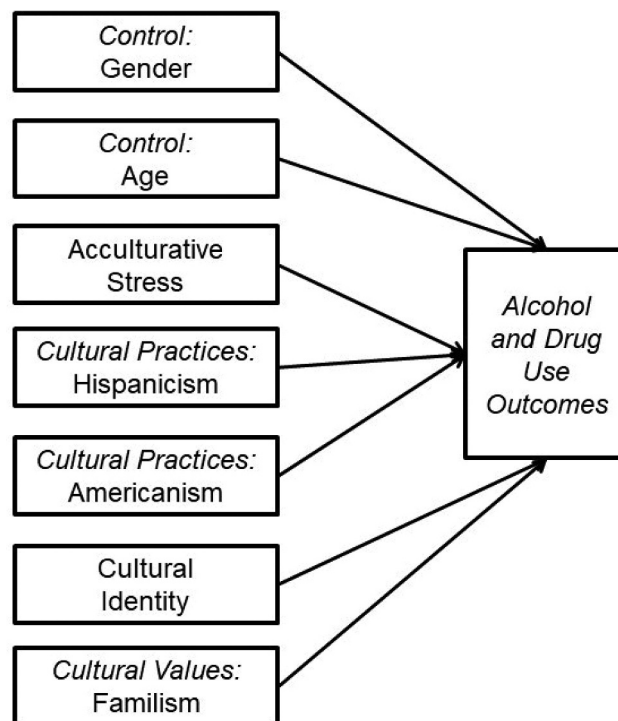


Figure 1. Hypothesized conceptual model for each path analysis. Alcohol use outcomes were alcohol use severity and heavy episodic drinking; drug use outcomes were drug use severity and any drug use.

Table 2. Relationships of multidimensional acculturation and acculturation stress with alcohol use.

Predictor	Alcohol Use Severity					Heavy Episodic Drinking						
	<i>b</i>	<i>SE</i>	β	95% <i>CI</i>		<i>p</i>	<i>b</i>	<i>SE</i>	β	95% <i>CI</i>		<i>p</i>
Woman	-0.02	0.01	-.30	-0.04	0.00	.041	-0.04	0.02	-.15	-0.07	-0.01	.015
Age, years	-0.61	0.15	-.54	-0.90	-0.32	<.001	-0.49	0.24	-.12	-0.96	-0.02	.042
Acculturative Stress	0.02	0.01	.51	0.01	0.03	<.001	0.02	0.01	.12	0.00	0.03	.052
Hispanicism	0.04	0.21	.03	-0.36	0.45	.836	0.18	0.35	.03	-0.51	0.86	.617
Americanism	0.37	0.10	.60	0.17	0.57	<.001	0.66	0.16	.29	0.35	0.97	<.001
Cultural Identity	0.04	0.13	.05	-0.22	0.30	.764	-0.08	0.20	-.02	-0.47	0.31	.694
Familism	0.07	0.15	.06	-0.23	0.36	.654	-0.02	0.25	.00	-0.52	0.48	.941

Note. Significant relationships are in **bold**. Hispanicism = enculturation; Americanism = acculturation.

possible scale ranges, participants had high Hispanicism, *M* = 3.42, Latinx/Hispanic cultural identity, *M* = 3.03, and familism, *M* = 3.49, mid-range Americanism, *M* = 2.54, and low acculturative stress, *M* = 23.32. About 2/3 (65%) had elevations on at least one acculturative stress facet, and the mean total appraisal T-score was 55.44, just above average based on developer norms (Cervantes et al. 2016). On average, alcohol use severity, *M* = 3.81, and drug use severity, *M* = 0.18, scores were low (Babor et al., 2017; Skinner 1982), although over a third (37%) reported heavy episodic drinking and under a tenth (7%) had used illicit drugs.

Control variables

Gender was inversely related, i.e., woman lower than men, to alcohol use severity, β = -.30, heavy episodic drinking, β = -.15, drug use severity, β = -.25, and any drug use, β = -.33. Age was inversely related to alcohol use severity, β = -.54, heavy episodic drinking, β = -.12, drug use severity, β = -.49, and any drug use, β = -.24.

Alcohol use

Acculturative stress was related to alcohol use severity, β = .30, but not heavy episodic drinking, β = .12. Americanism was related to alcohol use severity, β = .60, and heavy episodic drinking, β = .29. Hispanicism, cultural identity, and familism were not related to either alcohol use severity or heavy episodic drinking. Table 2 shows results for alcohol use.

Drug use

Acculturative stress was related to drug use severity, β = .27, and any drug use, β = .20. Americanism was related to drug use severity, β = .57, and any drug use, β = .42. Familism was inversely related to drug use severity, β = -.24, and any drug use, β = -.25. Hispanicism and cultural identity were not related to either. Table 3 shows the full results for drug use.

Discussion

This study is the first, to our knowledge, to use a multi-dimensional acculturation approach to test relationships between cultural practices (Americanism and Hispanicism), cultural identity, and cultural values (familism) and alcohol and drug use of Latinx adult immigrants. Participants had low alcohol and drug use severity, although many reported heavy episodic drinking. Consistent with previous research (e.g., Ehlers et al. 2009; Jankowski et al. 2020; Lee et al. 2013; Lui and Zamboanga 2018; Sanchez et al. 2015), language-based acculturation (Americanism) and acculturative stress were related to alcohol and drug use. The incremental predictive validity of a multidimensional acculturation approach was limited. Familism was inversely related to drug use, but not alcohol. Language-based enculturation (Hispanicism) and cultural identity were not related to alcohol or drug use.

Acculturative stress was positively associated with alcohol use severity, drug use severity, and any drug use, but not with heavy episodic drinking. These results

Table 3. Relationships of multidimensional acculturation and acculturation stress with drug use.

Predictor	Drug Use Severity					Any Drug Use						
	<i>b</i>	<i>SE</i>	β	95% <i>CI</i>		<i>p</i>	<i>b</i>	<i>SE</i>	β	95% <i>CI</i>		<i>p</i>
Woman	-0.08	0.04	-.25	-0.15	-0.01	.025	-0.13	0.04	-.33	-0.20	-0.05	.001
Age, years	-2.32	0.56	-.49	-3.42	-1.23	<.001	-1.42	0.49	-.24	-2.38	-0.45	.004
Acculturative Stress	0.04	0.02	.27	0.01	0.08	.021	0.04	0.02	.20	0.01	0.07	.022
Hispanicism	-0.94	0.77	-.15	-2.45	0.56	.219	-0.48	0.66	-.06	-1.77	0.81	.466
Americanism	1.47	0.43	.57	0.63	2.30	.001	1.35	0.41	.42	0.54	2.16	.001
Cultural Identity	0.61	0.44	.17	-0.26	1.48	.172	0.52	0.43	.11	-0.32	1.36	.225
Familism	-1.16	0.58	-.24	-2.29	-0.02	.046	-1.49	0.54	-.25	-2.54	-0.44	.005

Note. Significant relationships are in **bold**. Hispanicism = enculturation; Americanism = acculturation.

are generally consistent with the notion that culturally-based stressors increase alcohol or drug use (e.g., Ehlers et al. 2009; Jankowski et al. 2020; Lee et al. 2013; Sanchez et al. 2015). Maladaptive coping (avoidance), i.e., use of mood altering substances may be a common response to acculturative stress. Future studies with tailored behavioral interventions might conceptualize alcohol or drug use as an avoidant coping strategy, or teach proactive coping to reduce or mitigate the effects of culturally-based stressors, such as a module to teach coping skills for racism or discrimination and challenging stereotypes embedded into alcohol or drug use prevention for Latinx adolescents (e.g., Burrow-Sanchez et al. 2011). Although acculturative stress has traditionally been studied as a single measure, future studies could examine differential sources of culturally-based stressors.

Americanism had positive associations with alcohol and drug use. This finding is consistent with past studies, including a meta-analysis by Lui and Zamboanga (2018) that assessed acculturation using language-based measures of cultural practices to show that Latinx immigrants who are exposed to American activities have greater alcohol or drug use. This relationship was evident beyond the effects of acculturative stress, implying the link is not solely due to contact with American culture leading to greater discrimination. Future research could test what features of exposure to and adoption of American cultural practices confer risk, e.g., greater Americanism may be associated with permissive attitudes toward alcohol and drugs (e.g., Borsari and Carey 2003; Ward and Guo 2020). Alternatively, immigrants may feel more conflicted emotionally when they adopt American values. Future research should test whether social norms about alcohol or drug use mediate the relationship between Americanism and alcohol or drug use, and how immigrants perceive and make decisions about adoption of receiving culture practices using qualitative research. Understanding these links may inform adapted interventions based on normative feedback interventions for college students (e.g., Saxton et al. 2021).

Familism was inversely related to drug use, but not alcohol use. Findings partially supported the multidimensional acculturation approach (e.g., Schwartz et al. 2010) as both cultural practices and cultural values had independent links to drug use. It is possible that participants holding strong values related to family were able to counter the disrupting effects of acculturative stress on family functioning, which protected against drug use. Familism may also provide protective benefits apart from mitigating stress by encouraging views against

drug use. The lack of a relationship with alcohol could suggest alcohol has less negative connotations than drugs, or that the familism measure, assessing many values of traditional family structures, may have missed broader but important social values. Future research could investigate familism measures for immigrants who may be apart from their blood kin.

Contrary to hypotheses, we found no relationships between Hispanicism or cultural identity and alcohol or drug use. These null findings did not support the theory that these protect Latinx immigrants against alcohol or drug use by slowing the adoption of permissive attitudes (e.g., Caetano 1987). This may be due to low variation and/or ceiling effects with means close to the upper limit of both scales as expected in recent Latinx immigrants. Alternatively, the lack of relationships between Hispanicism and positive cultural identity and alcohol and drug use may have been influenced by context, i.e., a recent immigrant receiving environment where enculturation and positive cultural identity may not be as protective as established communities. Larger samples with greater cultural identity or Hispanicism ranges might study these potential contextual relationships in a variety of communities.

Additional limitations should be noted. Self-report measures were susceptible to participant error or bias; calendar-based or biological measures might reduce bias. The drug use measure was limited from lacking frequency or quantity items and binary responses, and low drug use in the sample may have reduced our ability to find significant associations. We assessed four acculturation variables and acculturative stress, but other constructs, e.g., machismo, might be related to alcohol or drug use. Cross-sectional data prevented making causal inferences. Recruiting in one region without probability-sampling limited generalizability, and the numbers of Latinx heritage or nationality groups were too small to examine subgroup variation. Probability sampling of U.S. Latinx immigrants may be difficult, but future studies should replicate findings with diverse samples from multiple areas.

Despite limitations, results linked culturally important variables to alcohol and drug use in U.S. Latinx adult immigrants. Studies are needed with diverse Latinx samples (e.g., greater variation in age and nativity) and longitudinal designs with many possible mediators and moderators. However, both acculturative stress and acculturation, or adoption of American cultural practices, were related to alcohol and drug use. These cultural variables are likely useful for intervention development, specifically coping with or mitigating

stressors like discrimination and racism, countering risky beliefs linked to U.S. culture or to reduce emotional conflicts about adopting American practices or values, may increase intervention effectiveness.

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