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Alcohol Initiation among Recently Immigrated Hispanic Adolescents: Roles of Acculturation and Sociocultural Stress

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Abstract

There is a growing recognition for the need for research to explore the unique and interactive effects of acculturation and sociocultural stress on alcohol initiation. Building on this research agenda, the current study sought to explore the independent and interactive effects of acculturation (i.e., heritage and U.S. cultural practices and identification) and sociocultural stress (i.e., perceived discrimination, perceived context of reception, and bicultural stress) on alcohol initiation among recently immigrated Hispanic adolescents. Data were taken from a six-wave longitudinal study with 302 recently immigrated Hispanic adolescents (53% boys; *M*age=14.51 years at baseline; range 14–17 years) adolescents and their families. Discrete-time survival models indicated that none of the acculturation indicators directly predicted alcohol initiation. Sociocultural stress, and specifically bicultural stress, predicted alcohol initiation. There were significant interactions between acculturation and sociocultural stress in predicting alcohol initiation. Further research considering multiple components of acculturation and sociocultural stressors is needed to broaden our understanding of the potential role of sociocultural processes in alcohol initiation among Hispanic youth.

Keywords

acculturation; sociocultural stressors; alcohol use; adolescent; Hispanic

Underage alcohol use among middle adolescence is not only associated with negative health and social consequences including neurological impairments, health risk behaviors, injuries (Miller, Naimi, Brewer, & Jones, 2007; Zeigler et al., 2005) but also places individuals at greater risk for heavy alcohol use and alcohol-related problems later in life (Guttmannova et al., 2011). Compared to other U.S. ethnic groups however, Hispanic youth report the highest prevalence of underage drinking (CDC, 2014). For this reason, it is important to develop a more comprehensive understanding of the sociocultural mechanisms that underlie underage alcohol initiation among Hispanic youth. Research focusing on sociocultural processes, such as acculturation, has contributed to the scientific understanding of this ethnic disparity in underage drinking.

Acculturation refers to the extent to which an individual retains their cultural heritage and/or adopts the receiving society's culture (Berry, 1997). Although studies have found acculturation to be associated with alcohol use among Hispanic youth, recent meta-analyses have indicated that the relationship between acculturation on alcohol use is small (Alvarez, Fritze, Ramos, Field, & Zárate, 2017; Lui & Zamboanga, 2018).¹ Addressing these small effect sizes, Lui and Zamboanga (2018) hypothesized that the sociocultural stress associated with the acculturation process, in addition to acculturation per se, represents a risk for underage alcohol initiation. Sociocultural stress encompasses a variety of stressful experiences associated with the process of navigating multiple cultural contexts and belonging to an ethnic minority and stigmatized group (Tran, 2014). Experiencing sociocultural stress while acquiring a U.S. cultural orientation can be overwhelming (Meca, Reinke, & Scheier, 2017), but heritage retention may confer certain benefits to youth, including coping strategies that protect against alcohol initiation (Mossakowski, 2003). For this reason, there is a growing recognition for the need for research to explore the unique effects of acculturation and sociocultural stress on alcohol initiation and examine how these sociocultural processes function in conjuncture to predict alcohol initiation.

To address this gap, in the current study we sought to explore the independent and interactive effects of acculturation and sociocultural stress on alcohol initiation among recent immigrant Hispanic adolescents. Our rationale for focusing on recent Hispanic immigrants is twofold. First, recently immigrated Hispanic adolescents are faced with decisions and tasks related to acquiring the receiving society's culture and/or retaining some or all aspects of their heritage culture (Schwartz, Unger, Zamboanga, & Szapocznik, 2010a). Second, research has shown that Hispanics who immigrate to the United States as adolescents report more sociocultural stressors compared to those who immigrated as young children (Padilla, 2006), suggesting that studies are needed to investigate effects of sociocultural stressors on health outcomes among recently immigrated Hispanic adolescents (Cano et al., 2015).

¹Although Alvarez et al.'s (2017) meta-analysis explored the effects of acculturation using a unidimensional conceptualization of acculturation, Lui and Zamboanga's meta-analysis (2017) indicated that adoption of the receiving society's culture and cultural heritage retention positively and negatively predicted alcohol use. That being said, these effects were still quite small.

Contemporary Models of Acculturation

Contemporary views of acculturation have drawn on Berry's (1997) bidimensional conceptualization of acculturation, which posits that acquisition of the receiving society's culture and retention of the heritage culture can occur independently. Not only does heritage and receiving society cultural adoption function independent and have unique effects on psychosocial functioning, but acculturation can manifest itself across domains, including cultural practices and identity (Schwartz et al., 2010a).² *Cultural practices* refer to behaviors such as language use, choice of friends, and cultural customs and traditions. The majority of studies in the acculturation and alcohol-use literature have focused on cultural practices, particularly language use (Zamboanga, Tomaso, & Lui, 2017). *Cultural identity* refers to how individuals define themselves in relation to the cultural groups to which they belong (see Rivas-Drake et al., 2014 for review).

In essence, acculturative processes allow youth to navigate their sociocultural environment by adopting different behavioral repertoires and identities. As such, acculturation has largely been conceptualized as a process of changing one's behaviors and sense of self (Berry, 1997). However, navigating the acculturation process may also involve the adherence to mainstream U.S. and/or ethnocultural drinking norms that may encourage underage drinking (Epstein, Doyle, & Botvin, 2003). Empirical studies evaluating the relations between acculturation and alcohol use have produced highly inconsistent findings (Zamboanga et al., 2017), and recent meta-analyses have indicated that the effect of acculturation on alcohol use has been quite small (Alvarez et al., 2017; Lui & Zamboanga, 2018). As a result, it is possible that other factors, such as sociocultural stress, may better predict alcohol use (Cano et al., 2015).

Conceptualizing Sociocultural Stress

Sociocultural stress comprises a variety of experiences, including bicultural stress (Romero & Roberts, 2003), perceived discrimination (Sawyer, Major, Casad, Townsend, & Mendes, 2012), and negative context of reception (Schwartz et al., 2014c). *Bicultural stress* refers to pressures to adopt the receiving society's culture while also maintaining the heritage culture and from balancing differing cultural values and the stress associated with balancing differing cultural values and American and Hispanic ways of behaving. Recent studies have indicated a positive relation between bicultural stress and frequency of alcohol use (Oshri et al., 2014; Romero, Martinez, & Carvajal, 2007). In essence, whereas bicultural stress represents the stress associated with conflicts between one's heritage and receiving society's cultures (Romero & Roberts, 2003), perceived discrimination and negative context of reception refer to experiences or feelings of rejection, largely from the receiving society (Cano et al., 2015).

Perceived discrimination refers to self-reported perceptions of unfair treatment based on one's ethnic or racial group membership (Gilbert & Zemore, 2016; Pascoe & Smart, 2009).

²Although Schwartz et al. (2010) identified cultural values as a third domain, a recent meta-analysis with Hispanic adolescents and adults (Alvarez just focused on adults) indicated that values was not a significant predictor of alcohol use (co-author & co-author, 2018, revise-re-submit).

An extensive body of research has explored the effects of perceived discrimination on various indicators of youth adaptation, including alcohol use (Kulis, Marsiglia, & Nieri, 2009; Tran, Lee, & Burgess, 2010). A *negative context of reception* refers to the degree to which youth feel welcomed (or not) into the destination society or perceive that they are afforded the same opportunities compared to non-immigrants or to individuals from other immigrant groups in their receiving society, regardless of whether specific discriminatory events have occurred (Schwartz et al., 2014c). In essence, context of reception differs from perceived discrimination in that it assesses general perceptions of an ethnic group's status in the receiving society (e.g., subjective feeling of not having the same opportunities as others, feeling that one would be treated better if one were from a different country) as opposed to specific negative events and social interactions (e.g., being treated unfairly or negatively by teachers because of one's ethnicity).

Sociocultural Stress, Acculturation, and Alcohol Use

Scholars have argued that immigrant youth may engage in alcohol consumption as a means of coping with sociocultural stress associated with the acculturation processes. Sociocultural stress may also strain an individual's capacity to cope effectively (Lazarus, 1997), as well as deplete an individual's self-control resources, resulting in less energy or resources for making healthy behavior choices (Gilbert & Zemore, 2016). Consistently, research has found that indicators of sociocultural stress are linked to increased risks for alcohol use (e.g., Kam, Cleveland, & Hecht, 2010; Tran, Lee, & Burgess, 2010). The ways in which perceived discrimination, perceived negative context of reception, and bicultural stress separately are associated with alcohol initiation (Pascoe & Smart Richman, 2009) is not well understood. A nuanced understanding of how these distinct forms of sociocultural stress might exacerbate Hispanic adolescents' risk for alcohol initiation can help inform prevention programming efforts with this population.

To date, only a handful of studies have sought to explore the unique effects of indices of acculturation and sociocultural stress on alcohol initiation (e.g., Zamboanga, Schwartz, Jarvis, & Van Tyne, 2009). It is therefore difficult to ascertain whether one's risk for alcohol initiation stems from adopting the cultural norms of the receiving society, relinquishing one's cultural roots, drinking to cope with various sociocultural stressors, or some combination of these factors. Studies that have attempted to disentangle these relations have found that behavioral measures of acculturation are associated with sociocultural stressors, which in turn are related to impaired psychosocial functioning (e.g., Juang & Cookston, 2009) and an increased risk for alcohol use (Cano et al., 2015; Zamboanga et al., 2009). Although these studies provide preliminary support for the role of sociocultural stress as a mediator, sociocultural stress may also function as a moderator of the relations between acculturative processes and alcohol initiation. For youth attempting to acquire a U.S. cultural orientation, the stress associated with balancing two cultural streams and/or rejection from the receiving society may be more difficult, thereby increasing adolescents' risk for alcohol use (Meca, Reinke, & Scheier, 2017). At the same time, in the presence of sociocultural stressors, heritage retention may confer certain benefits to youth, including coping strategies that protect them against alcohol initiation (Mossakowski, 2003). However, no study to date has empirically explored whether sociocultural stressors would moderate the relation

between acculturative processes and alcohol initiation. An understanding of how sociocultural stressors affect the relationship between acculturative processes and alcohol initiation may not only shed light on the inconsistent findings within the literature but may also provide important directions for theory development on the study of acculturation and alcohol use, and alcohol prevention/intervention programming with this population (Zamboanga, Tomaso, & Lui, 2017).

Current Study

Utilizing data from a longitudinal study of acculturation among recently immigrated Hispanic families, we examine how sociocultural stressors affect the relationship between acculturative processes and alcohol initiation. Towards this end, the study was guided by three primary aims:

Aim 1 – Direct Associations.

First, we sought to determine the unique effects of acculturation (i.e., heritage, U.S. cultural practices and identity) and sociocultural stress on alcohol initiation. We expected that, with sociocultural stressors taken into account, cultural practices and identity would be uniquely predictive of alcohol initiation. Consistent with recent meta-analyses, we anticipated that these unique effects of acculturation would be small. Given the extensive literature indicating that sociocultural stress contributes to a wide range of health risk behaviors including alcohol use, we hypothesized that sociocultural stress would be uniquely predictive of alcohol initiation, beyond the effects of cultural practices and identity.

Aim 2 – Moderated Effects.

Second, we sought to establish whether sociocultural stress moderated the relations between cultural practices and identity on alcohol initiation. We anticipated that, as youth experience more severe sociocultural stressors, the process of adapting to the culture of the receiving society while retaining one's cultural heritage may be more difficult, resulting in greater risk for alcohol initiation. Conversely, in the absence of sociocultural stressors, the process of adapting to the culture of the receiving society while retaining one's cultural heritage is expected to be protective against alcohol initiation.

Aim 3 – Specific Sociocultural Stressors.

Finally, because much of the literature on sociocultural stress has focused on how sociocultural stressors either independently or jointly (as a latent variable) predict alcohol use, we sought to explore the unique effects of each sociocultural stressor on alcohol initiation, as well as potential moderating effects of each of these types of sociocultural stressors on alcohol initiation. Because no study has explored the individual effects of these sociocultural stressors, we did not advance specific a priori hypotheses.

Method

Sample

Data came from a six-wave longitudinal study on acculturation, identity, family functioning, and health among recent Hispanic immigrant families (Schwartz et al., 2013). The sample included 302 recent-immigrant Hispanic adolescents (53% boys; $M_{age} = 14.51$ years at baseline; $SD = .88$ years, range 14–17 years). Eighty-five percent of the sample was retained across the six waves. The Miami sample ($n=152$) was primarily from Cuba (61%), and the Los Angeles sample ($n = 150$) was primarily from Mexico (70%).

Procedures

Baseline data were gathered during the summer and fall of 2010, and subsequent time points occurred every six months thereafter. Participants were recruited from randomly selected public high schools whose student bodies were at least 75% Hispanic. The study was approved by the Institutional Review Boards at both participating universities (University of Miami, 20081162, “The Role of Culture in Thriving and Risk Behaviors among Hispanic Adolescents”) and by the Research Review Committees for the participating school districts. Each participant completed the assessment in English or Spanish, depending on her/his preference. Although 84% of adolescents completed their baseline assessments in Spanish, this percentage decreased to 66% by Time 6.

Measures

Unless otherwise specified, 5-point Likert scales were used for all study measures, with response options ranging from 0 (*Strongly Disagree*) to 4 (*Strongly Agree*). Alpha coefficients presented are from the current sample at baseline.³

Cultural practices.—U.S. and Heritage cultural practices were measured using the Bicultural Involvement Questionnaire-Short Version (BIQ-S; Guo, Suarez-Morales, Schwartz, & Szapocznik, 2009). The BIQ-S consists of 11 items assessing U.S. practices ($\alpha=.88$; Sample item: “I enjoy American music”) and 11 items assessing Heritage practices ($\alpha=.88$; Sample item: “I am comfortable speaking Spanish at home”).

Cultural identification.—Ethnic identity was assessed by using the ethnic belonging subscale ($\alpha=.91$; Sample item: “I feel good about my cultural or ethnic background”) from the Multi-Group Ethnic Identity Measure (MEIM; Roberts et al., 1999). U.S. identity was assessed using matching items ($\alpha = .88$; Sample item: “I am happy that I am an American”) from the American Identity Measure (AIM; Schwartz et al., 2012a). The AIM was adapted from the MEIM, with “the United States” inserted in place of “my ethnic group”. Our focus on ethnic and U.S. identity belonging is driven by the notion that “belonging” refers to a clear and positive understanding of the meaning of one’s ethnicity and U.S. membership,

³All measures were developed using a two-step translation process (Sireci, Wang, Harter, & Ehrlich, 2006) whereby measures were translated by one translator from English to Spanish, back-translated by a second translator (Spanish to English), and then evaluated by both translators to resolve discrepancies before the final English version was translated into Spanish.

respectively, and thereby is most likely to relate to behavioral and emotional outcomes (e.g., Phinney et al., 1997).

Perceived discrimination.—Perceived discrimination was assessed using seven items (Phinney, Madden, & Santos, 1998) referring to being called names, followed around stores, and generally being viewed with suspicion due to one's ethnicity ($\alpha=.89$; Sample item: "How often do teachers treat you unfairly or negatively because of your ethnic background?"). Response choices were on a 5-point Likert scale ranging from 0 (*Not at all*) to 4 (*Almost always*).

Perceived negative context of reception.—Perceived negative context of reception was measured using a 6-item scale (Schwartz et al., 2014c). Items assess the perception to which the opportunity structure (e.g., employment or grades) does not favor one's ethnic group ($\alpha=.74$; Sample item: "People from my country are not welcome here.").

Bicultural stress.—Bicultural stress ($\alpha=.89$; Sample item: "I have worried about family members or friends having problems with immigration.") was assessed using the 20-item Bicultural Stress Scale (BSS; Romero & Roberts, 2003). Response choices were on a 5-point Likert scale ranging from 0 (*Never happened to me*) to 4 (*Very stressful*).

Alcohol initiation.—Alcohol use was assessed using a modified version of the Monitoring the Future survey (Johnston, O'Malley, Bachman, & Schulenberg, 2016). Adolescents were asked about frequency of alcohol use 90 days prior to each assessment point.

Statistical Analyses

Analyses were conducted in Mplus v7.2 (Muthén & Muthén, 1998–2012) using discrete-time survival modeling (DTSM; see Henry, Thornberry, & Huizinga, 2009) and a sandwich covariance estimator (Kauermann & Carroll, 2001) to adjust the standard errors and account for nesting of participants within schools. DTSM offers many advantages in research predicting alcohol initiation and age of onset, especially where timing of both predictor and outcome variables are available, and thus, temporal precedence can be established (Singer & Willett, 2003). Missing data were handled using full-information maximum likelihood estimation.

The analytic process proceeded in three steps.⁴ First, we reported a life table to examine the sample distribution of event occurrence (i.e., alcohol initiation) and plotted a survival curve to visually represent the development of alcohol initiation over time (Singer & Willett, 2003). Second, acculturation (i.e., ethnic and U.S. cultural practices and identifications), sociocultural stress, and the interaction between sociocultural stress and acculturation were allowed to predict the survival function or alcohol initiation.⁵ Third, after establishing an

⁴Descriptive statistics including means, standard deviations, and correlations for all predictors are provided in Table 1 of the supplemental materials.

⁵Because DTSM requires numerical integration and often leads to model nonconvergence, we created a latent variable for sociocultural stress that included the three indicators of sociocultural stress. These latent variable factor scores were then saved in Mplus and used as observed variables in subsequent model tests.

omnibus effect of sociocultural stress on alcohol initiation, we conducted a second DTSM model to probe the unique effect of each of the sociocultural stressors, both on alcohol initiation directly, and as a moderator of the effect of acculturation on alcohol initiation. For both models, effects of predictor variables were reported as hazard ratios (*HR*), which are similar to the odds ratios obtained from logistic regression (Allison, 1995).

Data Structure

To estimate the DTSM models in a latent variable framework, the raw data were prepared following recommendations by Muthén and Masyn (2005). Given the considerable age heterogeneity at Time 1, we modeled the survival curves as a function of age rather than of measurement occasion. A total of 14 binary time-specific event indicators were constructed to reflect six-month intervals between the youngest participant (age 13) and the oldest individual at the most recent interview (age 19½). Youth received a score of 1 at the age they reported having engaged in the behavior in question and a score of 0 if initiation had not yet occurred. Once initiation had been reported, scores for the behavior at all subsequent time points were set to the system-missing value (–99) (Muthén & Muthén, 1998–2012). For example, the event history for an adolescent who started the study at 14 with alcohol initiation at the age 15 would be [0, 0, 0, 0, 1, –99, –99 ...]. Youth who had initiated alcohol use prior to their participation in the study, regardless of their age, were excluded from all models ($n = 20$, 6.62% of the sample).

Results

Step 1: Life Table

Table 1 presents the sample distribution of alcohol initiation. By the age of 19, 25.56% ($n = 69$) of participants reported having used alcohol. Within our sample, alcohol initiation rates increased fairly quickly between the ages of 14.5 and 16 (see Figure 1). Indeed, of the 69 adolescents who engaged in alcohol use throughout the duration of the study, 44 (64%) initiated between the ages of 14.5 and 16.

Step 2: Acculturation and Sociocultural Stress

As shown in Table 2, results indicated that U.S. cultural practices ($HR = 1.45$, $p = .02$) and sociocultural stress ($HR = 1.56$, $p < .001$) at Time 1 positively predicted alcohol initiation. In addition, results yielded interactions (a) between sociocultural stress and U.S. belonging and (b) between sociocultural stress and U.S. cultural practices (see Figures 1 and 2 of supplemental material). When sociocultural stress was low (–2 S.D.), U.S. identity belonging was protective against alcohol use onset ($HR = 0.51$, $p = .03$). However, when sociocultural stress was high (+2 S.D.), U.S. identity belonging did not significantly predict alcohol initiation ($HR = 1.46$, $p = .08$). On the other hand, when sociocultural stress was low (–2 S.D.), U.S. cultural practice positively predicted alcohol initiation ($HR = 2.79$, $p = .01$). However, when sociocultural stress was high (+2 S.D.), U.S. cultural practices did not significantly predict alcohol initiation ($HR = .76$, $p = .16$).

Step 3: Survival Analysis with Specific Sociocultural Stressors

Next, we sought to explore the specific effects of each sociocultural stressor, as well as the interaction between each sociocultural stressor and acculturation (i.e., U.S. and heritage cultural practices and identifications). Results indicated that bicultural stress at Time 1 positively predicted alcohol initiation ($HR = 1.65, p < .001$). Bicultural stress at Time 1 also moderated the relation of ethnic identity belonging and U.S. cultural practices at Time 1 with alcohol initiation (see Figures 3 & 4 of supplemental material). When bicultural stress was low (-2 S.D.), ethnic identity belonging ($HR = 1.67, p = .03$) and U.S. cultural practices ($HR = 4.13, p < .01$) positively predicted alcohol initiation. When bicultural stress was high ($+2$ S.D.), ethnic identity belonging ($HR = .51, p < .001$) and U.S. cultural practices ($HR = .52, p = .02$) were protective against initiation.

Discussion

In the present study we examined the unique effects of acculturation and sociocultural stress and stressors on alcohol initiation, and whether sociocultural stress moderates the effects of cultural practices and identifications on alcohol initiation. This study is innovative given the joint examination of the unique effects of acculturation and sociocultural stress, the decomposition of sociocultural stress into its component parts, and the exploration of the role of sociocultural stress as a moderator of the relationship between acculturative processes and alcohol initiation.

To begin with, the present study extends the current literature by exploring the unique and direct effects of acculturative processes and sociocultural stress on alcohol initiation. As previously noted, only a handful of studies have sought to explore the unique effects of indices of acculturation and cultural stress on alcohol initiation (e.g., Zamboanga et al., 2009). Consistent with prior studies (e.g., Cano et al., 2015), sociocultural stress, as an integrative latent construct, positively predicted alcohol initiation. At the same time, and consistent with recent meta-analytic results (Alvarez et al., 2017; Lui & Zamboanga, 2018), U.S. cultural practices also positively predicted alcohol initiation. These findings indicate that, as youth adopt U.S. cultural practices, they may be more likely to adhere to U.S. and/or heritage drinking norms that may encourage underage drinking (Epstein, Doyle, & Botvin, 2003). At the same time, we found a significant interaction between sociocultural stress and U.S. cultural practice. Specifically, U.S. cultural practices positively predicted alcohol initiation when sociocultural stress was average or low. For youth who do not perceive tension between their heritage and destination cultural backgrounds, high U.S. cultural practices may reflect a distancing from one's family and from conventional values. Such distancing may produce turmoil, prompting discord in the parent-child relationship dissention, and such conflict may prompt youth to bond with deviant peers, thereby increasing their opportunities to engage in deviant behaviors (Telzer, 2010).

The opposite pattern emerged for the interaction between U.S. identity belonging and sociocultural stress. Specifically, in the absence of sociocultural stressors, identification with the receiving culture conferred protective benefits to youth. This finding is consistent with studies suggesting that U.S. identity belonging may be protective against alcohol use (Schwartz et al., 2014b). However, in the presence of sociocultural stressors, U.S. belonging

no longer confers protective effects. As youth experience sociocultural stressors, which may undermine youths' sense of belonging to the U.S., they may experience a dissonance that eliminates the protection that U.S. identity belonging affords. At the same time, as has been contended in the literature, acculturation components can operate independently of one another, change at simultaneous or different rates, and have differential associations with mental health outcomes (Yoon et al., 2013). Whereas U.S. cultural practices refer to concrete behaviors that facilitate the capacity for youth to interact with the broader society, U.S. identity belonging reflects an affective sense of feeling accepted within the broader society (Schwartz et al., 2010a). For this reason, U.S. identity belonging is more likely to confer benefits, particularly when one's sense of being American is validated by the broader U.S. society.

A key innovation of the current study involved decomposing sociocultural stressors and explore how perceived discrimination, perceived negative context of reception, and bicultural stress independently predict alcohol initiation (Pascoe & Smart Richman, 2009). Regarding these specific effects, and consistent with prior studies (e.g., Romero, Martinez, & Carvajal, 2007), when controlling for perceived discrimination and perceived negative context of reception, bicultural stress positively predicted alcohol initiation. As a result, findings indicate that the stress associated with "straddling the fence" between two cultural worlds may place youth at risk for alcohol initiation. How and why this unfolds remains unclear and as such, future research should assess the extent to which youth are drinking to cope with the stressors associated with pressures to adopt the destination culture while also maintaining the heritage culture.

Examining each of the sociocultural stress indicators separately pointed to bicultural stress as a key moderator of the relationship between acculturation processes and alcohol initiation. Specifically, ethnic identity belonging was found to be *protective* against alcohol initiation in the presence of bicultural stress. Having a strong link to one's cultural heritage may increase one's support system and ground oneself in the cultural mores of one's family. Indeed, studies have indicated that youth with higher ethnic belonging may be more likely to maintain a stronger orientation toward reliance on family (Schwartz et al., 2010b) and to report more positive caregiver-child relationships (Schwartz et al., 2013). However, in the absence of bicultural stress, ethnic identity belonging was a risk factor for alcohol initiation, consistent with findings from previous studies (e.g., Marsiglia, Kulis, Hecht, & Sills, 2004; Zamboanga, Raffaelli, & Horton, 2006). It is possible that the degree to which individuals identify with their ethnic heritage, in the absence of bicultural stress or tension between both their heritage and destination cultural backgrounds, represents an acculturation approach in which one distances oneself from the receiving culture (Berry, 1997; Berry, Trimble, & Olmedo, 1986). As noted by Fosados et al. (2007), among adolescents, separation from the receiving culture may reflect an imposed limitation of opportunities and experiences as opposed to a conscious decision. We did not measure the extent to which a lack of opportunities to succeed within the new society is linked to increased risk for substance use thus warranting further inquiry.

It is important to contrast the findings of the general omnibus sociocultural stress model with those from the specific sociocultural stressors model. To begin with, in contrast to the

omnibus sociocultural stress model, results indicated that, in the presence of high bicultural stress, U.S. cultural practices were protective against alcohol initiation. Proficiency with U.S. cultural practices may not only facilitate recent immigrant youths' capacity to interact with people from the destination culture (Lee, 2010), thereby expanding their support system, but may also afford them the capacity to draw on coping strategies from both cultures, and thus to successfully live in two worlds (Schwartz & Zamboanga, 2008). Additionally, although the general omnibus model that indicated U.S. belonging was protective when sociocultural stress is low, there was no significant interaction between U.S. belonging and any specific sociocultural stressor. It is possible that the confluence of various sociocultural stressors moderates the effect of U.S. belonging on alcohol initiation. Future research is necessary to further explore the nature of this interaction between U.S. belonging and sociocultural stressors that can be linked to alcohol use (i.e., event-specific).

Limitations and Future Directions

The present results should be interpreted in light of several limitations. To begin with, it is unclear what U.S. culture may have meant to these adolescents as they spoke about their cultural identities and practices. Future studies should employ mixed-methods approaches to explore within-person differences in terms of how U.S. culture is defined and in responding to the measures of U.S. identity and practices. Additionally, all participants were recent immigrants residing in two major metropolitan areas. Indeed, the experiences of recent immigrants may differ from longer-term or second/later generation Hispanic families. As a result, the findings from the current study may not generalize to more established immigrants. Moreover, results of the current study may not generalize to other cities where many Hispanic immigrants are settling (e.g., Kiang, Perreira, & Fuligni, 2011). Both Miami and Los Angeles (for further information on these two cities, see Schwartz et al., 2013, 2014b) represent large and well-established Hispanic receiving communities with many ethnic enclaves that may buffer against negative contexts of reception and limit experiences of discrimination. In contrast, Hispanic immigrants in "new receiving communities," where individuals have less experience interacting with newcomers (Barrington, Messias, & Weber, 2012), may experience more sociocultural stressors – perhaps making acculturation a more difficult experience. Additionally, because we used self-report data, it is possible that participants may have over- or under-reported their cultural experiences and/or alcohol use. Moreover, the present sample consisted of recent immigrants, who often report lower rates of risk-taking behaviors compared to longer-term immigrants and later-generation individuals (Salas-Wright, Vaughn, Córdova, & Schwartz, 2016). Indeed, alcohol use rates were lower than the Monitoring the Future nationally representative sample (Johnston et al., 2016). As a result, while it was feasible to explore factors that contribute to alcohol initiation, future studies are necessary to further explore how sociocultural processes contribute to extent of use. Finally, although results are unlikely to be affected when pooling acculturation data across languages of assessment (Schwartz, Benet-Martínez, et al., 2014a), it is possible that adolescents switching from Spanish-language to English-language assessments over time may have affected the results.

Conclusion

Despite the aforementioned limitations, this study contributes to our understanding of the potential role of sociocultural processes in alcohol initiation among Hispanic immigrant youth. It is one of the first studies to examine the unique effects of two key components of acculturation and three key sociocultural stressors on alcohol initiation. Moreover, our results shed light on the interplay between acculturation and sociocultural stressors. We hope that researchers will build on our study by simultaneously considering multiple forms of acculturation and sociocultural stressors so that researchers and practitioners can gain a more nuanced understanding of how these sociocultural processes may contribute to ethnic disparities in underage alcohol initiation.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

References

- Allison DB, Paultre F, Goran M. I., Poehlman ET, & Heymsfield SB (1995). Statistical considerations regarding the use of ratios to adjust data. *International Journal of Obesity and Related Metabolic Disorders*, 19, 644–652. [PubMed: 8574275]
- Alvarez MJ, Fietze G, Ramos C Field C & Zárate MA (2017). A quantitative analysis of Latino acculturation and alcohol use: Myth versus reality. *Alcoholism, Clinical and Experimental Research*, 41, 1246–1256.
- Barrington C, Messias DKH, & Weber L (2012). Implications of racial and ethnic relations for health and well-being in new Latino communities: a case study of West Columbia, South Carolina. *Latino Studies*, 10, 155–178.
- Berry JW (1997). Immigration, acculturation, and adaptation. *Applied Psychology*, 46, 5–68.
- Berry J, Trimble J, & Olmedo E (1986). Assessment of acculturation. In Lonner W & Berry JW (Eds.), *Field methods in cross-cultural research* (pp. 291–324). Newbury Park, CA: Sage.
- Cano MA, Schwartz SJ, Castillo LG, Romero AJ, Huang S, Lorenzo-Blanco EI .. Szapocznik J (2015). Depressive symptoms and externalizing behaviors among Hispanic immigrant adolescents: Examining longitudinal effects of cultural stress. *Journal of Adolescence*, 42, 31–39. [PubMed: 25899132]
- Centers for Disease Control and Prevention. (2014). Youth risk behavior surveillance—United States, 2013. *MMWR: Morbidity and Mortality Weekly Report*, 63, 1–172. [PubMed: 24402465]
- Epstein JA, Doyle M, & Botvin GJ, (2003). A Mediation model of the relationship between linguistic acculturation and polydrug use among Hispanic adolescents. *Psychological Report*, 93, 859–866.
- Fosados R, McClain A, Ritt-Olson A, Sussman S, Soto D, Baezconde-Garbanati L & Unger J (2007). The influence of acculturation on drug and alcohol use in a sample of adolescents. *Addictive Behaviors*, 32, 2990–3004. [PubMed: 17618064]
- Gilbert PA & Zeng SE (2016). Discrimination and drinking: A systematic review of the evidence. *Social Science & Medicine*, 161, 178–194. [PubMed: 27315370]
- Guo X, Suarez-Morales L, Schwartz SJ, & Szapocznik J (2009). Some evidence for multidimensional biculturalism: Confirmatory factor analysis and measurement invariance analysis on the Bicultural Involvement Questionnaire–Short Version. *Psychological Assessment*, 21, 22–31. [PubMed: 19290763]
- Guttmannova K, Bailey JA, Hill KG, Lee JO, Hawkins JD, Woods ML, & Catalano RF (2011). Sensitive periods for adolescent alcohol use initiation: Predicting the lifetime occurrence and chronicity of alcohol problems in adulthood. *Journal of Studies on Alcohol and Drugs*, 72, 221–231. [PubMed: 21388595]

- Henry KL, Thornberry TP, & Huizinga DH (2009). A discrete-time survival analysis of the relationship between truancy and the onset of marijuana use. *Journal of Studies on Alcohol and Drugs*, 70, 5–15. [PubMed: 19118386]
- Johnston LD, O'Malley PM, Miech RA, Bachman JG, & Schulenberg JE (2016). Monitoring the future national survey results on drug use, 1975–2015: Overview, key findings on adolescent drug use. Ann Arbor, MI: Institute for Social Research, the University of Michigan
- Juang LP, & Cookston JP (2009). Acculturation, discrimination, and depressive symptoms among chinese american adolescents: A longitudinal study. *Journal of Primary Prevention*, 30, 475–496. [PubMed: 19381814]
- Kam JA, Cleveland MJ, & Hecht ML (2010). Applying general strain theory to examine perceived discrimination's indirect relation to Mexican-heritage youth's alcohol, cigarette, and marijuana use. *Prevention Science*, 11, 397–410. [PubMed: 20490921]
- Kauermann G, & Carroll RJ (2001). A note on the efficiency of sandwich covariance matrix estimation. *Journal of the American Statistical Association*, 96, 1387–1396.
- Kiang L, Perreira KM, & Fuligni AJ (2011). Ethnic label use in adolescents from traditional and non-traditional immigrant communities. *Journal of Youth and Adolescence*, 40, 719–729. [PubMed: 21049283]
- Kulis S, Marsiglia FF, & Nieri T (2009). Perceived ethnic discrimination versus acculturation stress: Influences on substance use among Latino youth in the Southwest. *Journal of Health and Social Behavior*, 50, 443–459. [PubMed: 20099450]
- Lazarus RS (1997). Hurrah for a systems approach: Commentary on the utility of systems models of stress and coping for applied research: The case of cancer adaptation, by M.R Somerfield. *Journal of Health Psychology*, 2, 158–160. [PubMed: 22012993]
- Lee YT (2010). Home versus host – Identifying with either, both, or neither? The relationship between dual cultural identities and intercultural effectiveness. *International Journal of Cross Cultural Management*, 10, 55–76.
- Lui PP, & Zamboanga BL (2018). Acculturation and alcohol use among Asian Americans: A meta-analytic review. *Psychology of Addictive Behaviors* Advance online publication.
- Marsiglia FF, Kulis S, Hecht ML, & Sills S (2004). Ethnicity and ethnic identity as predictors of drug norms and drug use among preadolescents in the U.S. Southwest. *Substance Use and Misuse*, 39, 1061–1094. [PubMed: 15387204]
- Meca A, Reinke LG, & Scheier LM (2017). Acculturation and Tobacco/Illicit Drug Use in Hispanic Youth. In Schwartz SJ & Unger J (Eds.), *Oxford Handbook of Acculturation* (pp 281–300). New York: Oxford University Press.
- Miller JW, Naimi TS, Brewer RD, & Jones SE (2007). Binge drinking and associated health risk behaviors among high school students. *Pediatrics*, 119, 76–85. [PubMed: 17200273]
- Mossakowski KN (2003). Coping with perceived discrimination: Does ethnic identity protect mental health? *Journal of Health and Social Behavior*, 44, 318–331. [PubMed: 14582311]
- Muthén BO & Masyn K (2005). Discrete-time survival mixture analysis. *Journal of Educational and Behavioral Statistics*, 30, 27–58.
- Muthén LK, & Muthén BO (1998-2012). *Mplus User's Guide*. Los Angeles, CA: Muthén & Muthén.
- Oshri A, Schwartz SJ, Unger JB, Kwon JA, Des Rosiers SE, Baezconde-Garbanati L, ... Szapocznik J (2014). Bicultural stress, identity formation, and alcohol expectancies and misuse in Hispanic adolescents: A developmental approach. *Journal of Youth and Adolescence*, 43, 2054–2068. [PubMed: 25218395]
- Padilla AM (2006). Bicultural social development. *Hispanic Journal of Behavioral Sciences*, 28, 467–497. doi: 10.1177/0739986306294255
- Pascoe EA, & Richman LS (2009). Perceived discrimination and health: A meta-analytic review. *Psychological Bulletin*, 135, 531–554. [PubMed: 19586161]
- Phinney JS, Cantu CL, & Kurtz DA (1997). Ethnic and American identity as predictors of self-esteem among African American, Latino, and White adolescents. *Journal of Youth and Adolescence*, 26, 165–185.

- Phinney JS, Madden T, & Santos LJ (1998). Psychological variables as predictors of perceived ethnic discrimination among minority and immigrant adolescents. *Journal of Applied Social Psychology*, 28, 937–953.
- Rivas-Drake D, Seaton EK, Markstrom C, Quintana S, Syed M, Lee RM, ... & Ethnic and Racial Identity in the 21st Century Study Group (2014). Ethnic and racial identity in adolescence: Implications for psychosocial, academic, and health outcomes. *Child Development*, 85, 40–57. [PubMed: 24490891]
- Roberts R, Phinney J, Masse L, Chen Y, Roberts C, & Romero A (1999). The structure of ethnic identity in young adolescents from diverse ethnocultural groups. *Journal of Early Adolescence*, 19, 301–322.
- Romero AJ, Martinez D, & Carvajal SC (2007). Bicultural stress and adolescent risk behaviors in a community sample of Latinos and non-Latino European Americans. *Ethnicity & Health*, 12, 443–463. [PubMed: 17978943]
- Romero AJ, & Roberts RE (2003). Stress within a bicultural context for adolescents of Mexican descent. *Cultural Diversity and Ethnic Minority Psychology*, 9, 171–184. [PubMed: 12760328]
- Salas-Wright CP, Vaughn MG, Schwartz SJ, & Córdova D (2016). An “immigrant paradox” for adolescent externalizing behavior? Evidence from a national sample. *Social Psychiatry and Psychiatric Epidemiology*, 51, 27–37. [PubMed: 26328521]
- Sawyer PJ, Major B, Cassad BJ, Townsend SS, & Mendes WB (2012). Discrimination and the Stress Response: Psychological Consequences of Anticipating Prejudice in Interethnic Interactions. *American Journal of Public Health*, 102, 1020–1026. [PubMed: 22420818]
- Schwartz SJ, Benet-Martínez V, Knight GP, Unger JB, Zamboanga BL, Des Rosiers SE, Stephens D, Huang S, & Szapocznik J (2014a). Effects of language of assessment on the measurement of acculturation: Measurement equivalence and cultural frame switching. *Psychological Assessment*, 26, 100–114. [PubMed: 24188146]
- Schwartz SJ, Des Rosiers S, Huang S, Zamboanga BL, Unger JB, Knight GP, ... & Szapocznik J (2013). Developmental trajectories of acculturation in Hispanic adolescents: Associations with family functioning and adolescent risk behavior. *Child Development*, 84, 1355–1372. [PubMed: 23848416]
- Schwartz SJ, Park IJK, Huynh Q, Zamboanga BL, Umaña-Taylor AJ, Lee RM, ... & Agocha VB (2012a). The American identity measure: development and validation across ethnic group and immigrant generation. *Identity: An International Journal of Theory and Research*, 12, 93–128.
- Schwartz SJ, Unger JB, Zamboanga BL, & Szapocznik J (2010a). Rethinking the concept of acculturation. *American Psychologist*, 65, 237–251. [PubMed: 20455618]
- Schwartz SJ, Unger JB, Des Rosiers SE, Lorenzo-Blanco EI, Zamboanga BL, Huang S, ... Szapocznik J (2014b). Domains of acculturation and their effects on substance use and sexual behavior in recent Hispanic immigrant adolescents. *Prevention Science*, 15, 385–396 [PubMed: 23828449]
- Schwartz SJ, Unger JB, Lorenzo-Blanco EI, Des Rosiers SE, Villamar JA, Pattarroyo M, ... & Szapocznik J (2014c). Perceived context of reception among recent Hispanic immigrants: Conceptualization, instrument development, and preliminary validation. *Cultural Diversity and Ethnic Minority Psychology*, 20, 1–15. [PubMed: 24099485]
- Schwartz SJ, Weisskirch RS, Hurley EA, Zamboanga BL, Park IJK, Kim SY, ... & Greene AD (2010b). Communalism, familism, and filial piety: Are they birds of a collectivist feather? *Cultural Diversity and Ethnic Minority Psychology*, 16, 548–560. [PubMed: 21058818]
- Schwartz SJ, & Zamboanga BL (2008). Testing Berry’s model of acculturation: A confirmatory latent class approach. *Cultural Diversity and Ethnic Minority Psychology*, 14, 275–285. [PubMed: 18954163]
- Singer JD, & Willett JB (2003). *Applied longitudinal data analysis: Modeling change and event occurrence*. New York: Oxford Univ. Press
- Sireci SG, Yang Y, Harter J, & Ehrlich EJ (2006). Evaluating guidelines for test adaptations: A methodological analysis of translation quality. *Journal of Cross-Cultural Psychology*, 37, 557–567.
- Telzer EH (2010). Expanding the Acculturation Gap-Distress Model: An Integrative Review of Research. *Human Development*, 53, 313–340.

- Tran AG (2014). Family contexts: Parental experiences of discrimination and child mental health. *American Journal of Community Psychology*, 53, 37–46. [PubMed: 24146093]
- Tran AGTT, Lee RM, & Burgess DJ (2010). Perceived discrimination and substance use in Hispanic/Latino, African-born Black, and Southeast Asian immigrants. *Cultural Diversity and Ethnic Minority Psychology*, 16, 226–236. [PubMed: 20438161]
- Yoon E, Chang C, Kim S, Clawson A, Cleary SE, Hansen M, Bruner JP, Chan TK Gomes AM (2013). A meta-analysis of acculturation/enculturation and mental health. *Journal of Counseling Psychology*, 60, 15–30. [PubMed: 23163612]
- Zamboanga BL, Raffaelli M, & Horton NJ (2006). Acculturation status and heavy alcohol use among Mexican American college students: Investigating the moderating role of gender. *Addictive Behaviors*, 31, 2188–2198. [PubMed: 16603321]
- Zamboanga BL, Schwartz SJ, Jarvis LH, Van Tyne K (2009). Acculturation and substance use among Hispanic early adolescents: Investigating the mediating roles of acculturative stress and self-esteem. *Journal of Primary Prevention*, 30, 315–333. [PubMed: 19408121]
- Zamboanga BL, Tomaso CC, Lui PP (2017). Acculturation and alcohol use among Hispanic and Asian American college students: What do we know and where could we go? In Schwartz SJ & Unger J (Eds.), *Oxford Handbook of Acculturation* (pp 263–300). New York: Oxford University Press.
- Zeigler DW, Wang CC, Yoast RA, Dickinson BD, McCaffree MA, Robinowitz CB (2005). The neurocognitive effects of alcohol on adolescents and college students. *Preventive Medicine: An International Journal Devoted to Practice and Theory*, 40, 23–32.

Public Policy Relevance Statement

The current study was designed to address the need for policies related to preventing alcohol initiation among Hispanic immigrants. Findings suggest that the stresses associated with navigating multiple cultural contexts and belonging to an ethnic minority and immigrant group contribute to alcohol initiation among Hispanic youth who recently moved to the United States. Results from the study highlights the need for alcohol prevention/intervention programing with this population to address sociocultural stressors and consider the nuanced effects between bicultural stress and youths' retention of their cultural heritage and adoption of the receiving society's culture.

Figure 1.
Alcohol Initiation Survival Probability by Age

Table 1
Life Table Displaying Sample Distribution of Event Occurrence by Age

Age	Number of Youth Entering Interval	Number of Drinkers	Proportion of Drinkers	Cumulative Proportion of Drinkers	Cumulative Proportion of Abstainers
13	270	0	0	0.00%	100.00%
13.5	270	0	0	0.00%	100.00%
14	270	3	1.11	1.11%	98.89%
14.5	256	12	4.69	5.56%	94.44%
15	239	13	5.44	10.37%	89.63%
15.5	218	8	3.67	13.33%	86.67%
16	193	11	5.7	17.41%	82.59%
16.5	173	8	4.62	20.37%	79.63%
17	82	5	6.1	22.22%	77.78%
17.5	75	6	8	24.44%	75.56%
18	22	1	4.55	24.81%	75.19%
18.5	21	1	4.76	25.19%	74.81%
19	3	0	0	25.19%	74.81%

Table 2
Effects of Acculturation and Sociocultural Stressors on Alcohol Initiation

Outcome	Predictor	Estimate	p-value
Omnibus Sociocultural Stress Model			
Alcohol	Ethnic Belonging	0.86	.51
Initiation	US Belonging	0.86	.14
	US Practices	1.45	.02
	Heritage Practices	0.94	.73
	Sociocultural Stress	1.56	<.001
	Sociocultural Stress*Ethnic Belonging	0.96	.82
	Sociocultural Stress*US Belonging	1.3	.03
	Sociocultural Stress*Ethnic Practices	1.11	.31
	Sociocultural Stress*US Practices	0.72	.02
Specific Sociocultural Stress Indicators			
Alcohol	Ethnic Belonging	0.92	.70
Initiation	US Belonging	0.89	.38
	US Practices	1.47	.06
	Heritage Practices	0.93	.72
	Bicultural Stress	1.65	<.001
	Perceived Discrimination	1.32	.11
	Negative Context of Reception	0.77	.06
	Bicultural Stress*Ethnic Belonging	0.74	.01
	Bicultural Stress*US Belonging	1.12	.41
	Bicultural Stress*Heritage Practices	1.11	.18
	Bicultural Stress*US Practices	0.60	<.001
	Perceived Discrimination*Ethnic Belonging	1.09	.62
	Perceived Discrimination*US Belonging	1.14	.41
	Perceived Discrimination*Heritage Practices	1.12	.46
	Perceived Discrimination*US Practices	1.16	.36
	Negative Context*Ethnic Belonging	1.3	.17
	Negative Context*US Belonging	0.96	.82
	Negative Context*Heritage Practices	1.00	.99
	Negative Context*US Practices	0.99	.94