Bicultural Stress, Identity Formation, and Alcohol Expectancies and Misuse in Hispanic Adolescents: A Developmental Approach

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Abstract

Hispanic immigrant youth engage in increased health risk behaviors, such as alcohol misuse, due in part to being confronted with acculturative stress in addition to facing major normative developmental challenges, such as identity consolidation (Berry et al. in Appl Psychol 55:303–332, 2006). Using a developmental psychopathology framework, in the present study we examined the effect of bicultural stress on alcohol misuse among immigrated Hispanic adolescents, indirectly through trajectories of identity formation and alcohol expectancies. Our sample consisted of 302 recently immigrated Hispanic adolescents (53 % male; M_{age} = 14.5 at baseline) who were interviewed every 6 months for 3 years. Bivariate growth curve modeling was used to examine the influence of initial early bicultural stress on later alcohol misuse via change in identity development (i.e., coherence and confusion) and subsequent growth in cognitive alcohol expectancies. Findings revealed that initial levels and growth of identity coherence were not significantly associated with either bicultural stress or tension reduction (TR) alcohol expectancies. Multiple mediation analyses indicated that the effect of bicultural stress at time 1 on the frequency of being drunk at time 6 was mediated via high initial levels of identity confusion, followed by growth in risky TR expectancies (T4–T6). A developmental approach to the genesis of alcohol use problems in immigrant youth is discussed.

Keywords

Bicultural stress; Identity development; Hispanic immigrant adolescents; Alcohol use

Introduction

Immigration is a growing worldwide phenomenon. As of 2013, more than 232 million people resided in a country other than the one where they were born (United Nations Population Division 2013). The majority of immigrants are moving from developing countries to developed Western countries in expectations of obtaining enhanced wellbeing including personal safety and greater vocational opportunities (Steiner 2009). Recent immigration reports by the US Census Bureau show that the United States hosts more than 40 million immigrants (both documented and undocumented), representing approximately 13 % of the total US population (Grieco et al. 2012). The largest number of US immigrants are Hispanic—indeed, one of every two people added to the US population between 2000 and 2010 was Hispanic (Ennis et al. 2011)—and more than 3 million Hispanic immigrants entered the United States between 2005 and 2010 (Walters and Trevelyan 2011).

Immigrant youth often experience bicultural stress originating from efforts to balance demands and expectations from their family members and other heritage-culture individuals with those from the country where they have settled (Berry et al. 2006). Bicultural stress can result in compromised identity development, as well as in increased alcohol use and other risky behaviors among Hispanic adolescents (Romero et al. 2007). However, less is known about the developmental mechanisms through which bicultural stress leads to risk behaviors

in Hispanic youth. In the present study, we adopt a developmental approach in delineating the developmental mechanisms linking bicultural stress to alcohol misuse among Hispanic immigrant youth (cf. Masten et al. 2008; Windle et al. 2008).

A key developmental task during adolescence includes the consolidation of self-concepts, including identity (Harter 2012). In addition to the rapid physiological growth and social role changes, identity formation is a central stage-salient task in adolescence (Côté and Levine 2014). Interference with the resolution of such developmental tasks during adolescence can increase vulnerability to participation in deviant behaviors, including alcohol misuse (Masten et al. 2008; Spear 2000). Specifically, stress-related interferences with the completion of developmental tasks may contribute to the development of cognitive vulnerabilities to risky behavior. Such cognitive vulnerabilities include alcohol expectancies —the anticipatory expectations of affective or behavioral outcomes that occur after consuming alcohol (Goldman et al. 1999; Posner and Kinyon 1993; Zamboanga 2005). The psychosocial difficulties associated with identity development in adolescence, along with stress linked with adapting to a life in a new country, may lead some adolescents to expect that alcohol will reduce this stress (Caetano et al. 2012). In turn, expectations that alcohol helps alleviate experiences of stress can develop and intensify cognitive susceptibility to alcohol use among immigrant adolescents (Fromme et al. 1997). Because each of these various associations have been largely established in different sets of cross-sectional studies, there remains a need to examine these links together, over time. Accordingly, in the present study, we aim to evaluate a longitudinal model that examines how bicultural stress interferes with healthy identity development and places some Hispanic immigrant adolescents onto a risky developmental pathway that eventuates in alcohol misuse during adolescence.

Hispanic Immigrant Adolescents

Hispanics represent the largest and fastest growing US minority group. Recent census statistics reported that Hispanics represent 16 % of US residents and accounted for 56 % of overall US population growth between 2000 and 2010 (Ennis et al. 2011). Hispanics are also a young population, with 40 % younger than 20 years of age. Immigration is a major driver of Hispanic population growth: between 2005 and 2010, nearly 3 million Hispanics entered the United States legally (Walters and Trevelyan 2011).

Although Hispanics are a large and growing population, Hispanic adolescents are vulnerable to problems associated with early alcohol initiation (Caetano et al. 2012). Moreover, considerable health disparities associated with alcohol use characterize Hispanics relative to non-Hispanic whites. For example, Hispanic 8th and 10th graders are significantly more likely than their non-Hispanic White peers to have ever tried alcohol (44 and 66 % for Hispanics versus 34 and 58 % for non-Hispanic Whites; Johnston et al. 2011). Further, Hispanic adolescents who initiate drinking prior to age 15 are highly likely to continue consuming alcohol at age 19 (Malone et al. 2011). Finally, compared to non-Hispanic Whites, Hispanic adolescents are also more likely to experience negative drinking consequences, such as legal problems, injuries, and absences from work or school (Chartier and Caetano 2010).

Bicultural Stress

Immigration is a major life transition, in that an individual departs from his or her home country to settle in a foreign country (Steiner 2009; Unger et al. 2004). In most cases, immigrants are confronted with the challenge of learning a new language and being exposed to unfamiliar customs and beliefs. The process of acculturation—cultural change following settlement into a new society and/or as a result of growing up in an immigrant-headed home (Sam and Berry 2010)—can be stressful for certain individuals. In particular, discrimination and feeling "caught between two cultures" (i.e., bicultural stress) can be distressing (Benet-Martínez and Haritatos 2005; Rudmin 2003). The construct of bicultural stress, defined as pressure to balance the majority (e.g., American) and the minority (e.g., Hispanic) cultures (Romero and Roberts 2003), is particularly relevant to evaluating and conceptualizing tensions related to immigration and acculturation—especially for children, adolescents, and young adults. More specifically, bicultural stress refers to feeling pressure to conform to both one's heritage cultural stream and the new homeland in which one has settled (Berry et al. 2006). Among immigrant adolescents, experiencing bicultural stress has been linked with poorer psychological, behavioral, and health outcomes (Berry et al. 2006; Romero et al. 2007). However, there remains a need to understand the underlying developmental mechanisms through which bicultural stress can lead to alcohol misuse in adolescence.

Identity Development Among Hispanic Immigrant Adolescents

Identity formation is among the major developmental tasks of adolescence (Côté and Levine 2014; Erikson 1968). A coherent sense of identity is attained via self-reflection and through the emergence of a set of goals, values, and beliefs that fit well together (Dunkel 2005). From a cognitive development perspective, addressing the question "Who am I?" becomes developmentally salient with the advent of formal operational thought (Krettenauer 2005). Adolescents engage in a number of activities geared toward exploring who they are and wish to become. For immigrant adolescents, the task of identity development becomes more difficult given that the person must develop a sense of self in both personal and cultural domains (Schwartz et al. 2013). Experiencing bicultural stress, then, can interfere with identity development for immigrant adolescents (Coté 2006; Erikson 1968) and can increase the difficulty of developing a sense of identity that will facilitate positive interactions with both one's heritage and receiving cultures (Romero et al. 2007).

Erikson (1968) proposed identity as a dynamic interplay between synthesis (i.e., coherence) and confusion, where greater synthesis is assumed to be related to positive adaptation, and greater confusion is assumed to be related to maladjustment such as increased distress and risk-taking behaviors (Schwartz et al. 2011). Synthesis and confusion are opposing, but not completely incompatible, poles of the identity task. For example, some degree of confusion may help to "leave room" for further identity development. Accordingly, although scales assessing Erikson's model of identity have generally conceptualized identity as a unifactorial construct with coherence on one end and confusion on the other (e.g., Rosenthal et al. 1981), recent studies have found that identity synthesis and confusion represent separate but intercorrelated dimensions (e.g., Schwartz et al. 2009b). Assessing coherence and confusion as separate constructs allows the testing of the unique role of each of these two constructs.

A coherent sense of identity, along with low levels of identity confusion, has been shown to protect against risky behaviors (e.g., alcohol use; Hardy et al. 2013) and to predict adaptive psychosocial functioning among youth (Schwartz et al. 2009a). Conversely, identity confusion may give rise to impulsive and risky decision making (Coté 2006). Thus, a coherent sense of identity is particularly valuable in terms of its predictive utility vis-à-vis healthy adaptation in adolescence and young adulthood (Adams and Marshall 1996), whereas elevated levels of identity confusion may serve as an early developmental precursor to maladaptive mental health outcomes and chronic engagement in risk behaviors.

Identity Development and Immigration

Although many studies have examined identity development over time (see Meeus 2011, for a review), few studies have been conducted with Hispanic immigrant samples, and even fewer with Hispanic immigrant adolescent samples. The development and achievement of a coherent sense of identity has been purported to be associated with adaptive functioning in adolescence, paving the way to subsequent successful transition to adulthood. Hence, it may be tenable that a coherent sense of personal identity would help to guide and protect Hispanic immigrants during the process of acculturation and cultural adaptation (Schwartz et al. 2006; Syed et al. 2013).

For many immigrants, a sense of personal identity can be derived from synthesizing aspects of one's heritage-cultural and receiving-cultural streams (Schwartz et al. 2013). That is, a positive sense of self may emerge from the ability to integrate the norms and value systems of one's heritage and receiving cultural streams into a coherent sense of goals, values, beliefs, and standards (Benet-Martínez and Haritatos 2005; Umaña-Taylor et al. 2002). From a bicultural perspective, successful adaptation is rooted in the immigrant's ability to preserve her/his ethnic identity and traditional values while selectively adjusting to the customs and expectations of the receiving culture. This is especially true for children and adolescents, who must attend formal schooling in the society of settlement while remaining faithful to the language and cultural values of their country of origin in the family home. Thus, it is conceivable that difficulties in negotiating the demands from the two cultures can lead to lack of identity coherence and increased identity confusion and distress (Syed et al. 2013). Indeed, identity confusion has been strongly associated with emotional distress (i.e., depressive symptoms) and with an increased likelihood of initiating alcohol use in early to mid-adolescence among Hispanic immigrant youth (Donovan et al. 2012; Schwartz et al. 2008).

Although identity confusion has been studied primarily in reference to personal identity, difficulties with biculturalism may represent a form of *cultural* identity confusion. Indeed, acculturation can embody an identity transformation, in that the person's behaviors, values, and sense of self can change as a result of exposure to a new cultural stream (Schwartz et al. 2006, 2013). As such, it is conceivable that, as one's cultural sense of self changes, one's personal sense of identity likely adapts and transforms as well.

A Developmental Psychopathology Perspective

A developmental psychopathology theoretical framework for the study of adolescent risk behaviors (Cicchetti and Rogosch 2002; Sroufe and Rutter 1984) suggests that development unfolds via effective resolution of successive developmental tasks. Accordingly, a chronological chain of developmental task resolutions is key for adaptive development, whereas disruption of this sequence poses threats to normative development and places one at risk for psychopathology. Stress associated with cultural adaption, for example, can exert significant and potentially deleterious effects on adolescent development (Prado et al. 2010). Specifically, bicultural stress may interrupt normative successive developmental processes, such as the development of personal identity, that are key in promotion of effective adaptation to new environments and challenges (Roisman et al. 2004). When stress is chronic over time during adolescence, it can disrupt the successful negotiation of normative developmental tasks and may increase the probability of cognitive vulnerability to health risk behaviors (Cicchetti and Valentino 2006; Romero et al. 2007).

Alcohol expectancy theory suggests that positive expectancies are a manifestation of a cognitive vulnerability that evolves through contact with social networks (Goldman et al. 1991; Smith and Goldman 1994). Accordingly, alcohol expectancies are cognitive representations (Goldman et al. 1999) of the expected consequences associated with drinking behavior. The integration of expectancy theory and the tension reduction hypothesis (drinking alcohol to cope with stress; Cooper et al. 1995) is in line with the hypothesis that minority youth experiencing high levels of bicultural stress may drink because they believe that this stress can be reduced through alcohol use. Thus, young people who experience difficulty balancing their heritage and receiving cultural streams are hypothesized to be more vulnerable as a result of experiencing difficulty forming their personal identity. Facing cultural stresses during this vulnerable developmental stage in which identity development comes to ascendance can eventuate, over time, into risky cognitive expectations of alcohol use. Specifically, alcohol use is expected to function as a form of self-medication to reduce tension related to personal and cultural identity integration efforts (similar to smoking as stress management; cf. Croghan et al. 2006).

The Present Study

In the present study, we aimed to examine the effect of bicultural stress on the development of cognitive and behavioral risks for problem drinking through disrupted identity development (decreased coherence and increased confusion) in adolescence among a sample of recent Hispanic immigrants from Miami and Los Angeles. Studying recently immigrated adolescents (5 years or less in the United States at baseline) is particularly relevant to the current study because the experiences of acculturation and bicultural stress would likely be strongest during the first few years following arrival in the United States (Fuligni 2001). In the present study, adolescents were assessed at baseline, 6, 12, 18, 24, and 30-months post-baseline to examine the impact of early experiences of bicultural stress on the development of personal identity (coherence and confusion), tension reduction alcohol expectancies, as well as alcohol misuse. Bicultural stress was hypothesized to predict negative growth in identity coherence, and to predict a positive growth trajectory

in identity confusion, over time (see Fig. 1 for a conceptual model). Identity change (decrease in cohesion and increase in confusion) was then hypothesized to predict significant growth in tension-reduction alcohol expectancies. We hypothesized that decreases in identity coherence and increases in identity confusion would mediate the link between greater bicultural stress and increased tension-reduction alcohol expectancies, which would then be related to an increased frequency of being drunk.

Method

Participants

The sample for the present study consisted of 302 recent-immigrant Hispanic adolescents (53 % boys; mean age 14.51 years at baseline; SD = 0.88 years). To be eligible to participate, adolescents must have been in the 9th grade and have lived in the US for no more than 5 years at the time of the baseline assessment. Adolescents were recruited from high schools in Miami and Los Angeles whose student bodies were at least 75 % Hispanic (see Schwartz et al. 2014, for further details regarding school selection).

The Miami sample was primarily Cuban (61 %), whereas the Los Angeles sample was primarily Mexican (70 %). Participants in Miami also came from the Dominican Republic (8 %), Nicaragua (7 %), Honduras (6 %), Colombia (6 %), and other Hispanic countries (12 %); and participants in Los Angeles also came from El Salvador (9 %), Guatemala (6 %), and other Hispanic countries (15 %). Participants from Los Angeles had lived in the United States for a longer period of time (Mdn = 3 years) than had participants from Miami (Mdn = 1 year). Nearly 53 % of parents of adolescents from Los Angeles were employed in the past year, compared to 39 % of parents of adolescents from Miami. Additional differences between sites are reported by Schwartz et al. (2014). The mean annual household income, as reported by parents, was $30,854 ($SD$ = $10,824).

Procedures

Each adolescent participated in the study with one of their parents or primary caregivers. Participants were assessed every 6 months, with the baseline data collection starting in the summer of 2010. Participants were recruited from randomly selected public schools in heavily Hispanic areas in Miami-Dade and Los Angeles counties. The study was approved by the Institutional Review Boards at the University of Miami and the University of Southern California, as well as by the Research Review Boards at the participating schools. Parents of adolescents who met inclusion criteria (i.e., had lived in the US for 5 years or less at the time of baseline data collection and in the 9th grade) were invited to schedule evening or weekend assessment appointments at a convenient location. Informed consent from parents and informed assent from adolescents were sought separately to preserve privacy and confidentiality. Only adolescent data were gathered on the variables used in the present analyses.

Assessments were completed using an audio computer-assisted interviewing (A-CASI) system (Turner et al. 1998) on laptop computers. The A-CASI reduces completion time, eliminates the need for data entry and for storage of hard-copy data, and has been

demonstrated to increase honest reporting regarding sensitive topics (Cooley et al. 2001). Each participant completed the assessment battery in English or Spanish, according to her/his preference. Although all measurements were assessed at each time point, each construct was included in our study model only at specific time points so as to test the longitudinal mediational model presented in Fig. 1. In the descriptions of the measures below, we indicate which time points were included in the analyses.

Measures

Bicultural Stress—Bicultural stress was assessed using the Bicultural Stress Scale (Romero and Roberts 2003). Because mediation requires temporal order among independent, mediating, and outcome variables (Cole and Maxwell 2003), bicultural stress (i.e., the independent variable) was used only at the first assessment (T1). This measure consists of 20 items that are widely applicable to all US ethnic groups and assesses stress experienced from intergenerational conflict, discrimination, and monolingualism (i.e., "I have been treated badly because of my accent," "I have to translate/interpret for my parents"). The scale has been previously validated with Hispanic adolescents (Romero and Roberts 2003; Romero et al. 2007). For each item, the response scale ranged from 0 (*has never happened to me*) to 4 (*was very stressful*). A total bicultural stress score was created by average the responses across the 20 items at time 1. Internal consistency was acceptable ($\alpha = .89$).

Identity Coherence and Confusion—Identity coherence and confusion were measured using the 12-item identity subscale from the Erikson Psychosocial Stage Inventory (EPSI; Rosenthal et al. 1981). This subscale assesses the extent to which participants have a clear sense of who they are and what they believe in. Six items are worded in a "positive" direction (toward identity coherence), and 6 items are worded in a "negative" direction (toward identity confusion). Sample items from this measure include "I know what kind of person I am" (identity cohesion) and "I feel mixed up" (identity confusion). Items are responded to using a scale from 1 (*strongly disagree*) to 5 (*strongly agree*). Both identity subscales showed good internal consistency at baseline ($\alpha = .81$ for coherence; $\alpha = .73$ for confusion). At each of the first three time points (T1–T3), the 6 identity coherence items were averaged to create an identity cohesion score at each time point, and the 6 identity confusion items were averaged to create an identity confusion score Identity coherence and confusion were only modestly negatively correlated ($r = -.28$, $p < .01$) at baseline.

Alcohol Expectancies—Alcohol expectancies were included in analysis at Times 4–6 using the Brief Comprehensive Effects of Alcohol Scale (B-CEOA). Each item asks participants about the likelihood of specific consequences that could potentially occur under the influence of alcohol. Although the B-CEOA includes several types of alcohol expectancies, given our focus on bicultural stress, we used only the tension reduction subscale in our analyses (i.e., to ascertain the extent to which alcohol was used to cope with bicultural stress). The tension reduction subscale has been shown to be psychometrically sound (Ham et al. 2005). This subscale consists of two items (i.e., "I would feel calm"; "I would feel peaceful"). This subscale provided good internal consistency ($\alpha = .74$ at baseline).

Alcohol Use—Alcohol use was assessed using a modified version of the Monitoring the Future Survey (Johnston et al. 2011). Data from times 1 and 6 were used in analysis. Respondents were asked about the frequency within the past 90 days of overall alcohol use at time 1 and of having been drunk or very high from drinking alcoholic beverages at time 6. The 2 items were not significantly correlated ($r = -.01$, $p = .87$). Frequency of alcohol use at time 1 was included so that baseline levels of drinking could be controlled in analyses with frequency of drunkenness as an outcome at time 6. Nearly 94 % of all respondents reported never being drunk or high from drinking alcohol in the past 90 days.

Covariates—Site (Miami vs. Los Angeles), adolescent gender, adolescent age (in years), and years lived in the United States at baseline were included as covariates in all analyses.

Data Analytic Strategy

Univariate and bivariate parallel growth curve modeling was performed using Mplus Version 7.11 (Muthén and Muthén 2008). A two-step procedure (Duncan et al. 2006) was used for the growth modeling. First, we evaluated the fit, unconditional functional form, and significance of the growth parameters. All intercept loadings were fixed to 1, and the slope loadings for each subsequent time point was fixed to correspond to the number of waves since baseline. Growth parameters indicate the mean sample level of change in the construct of interest (e.g., identity coherence). Second, we examined bicultural stress as a predictor of growth in trajectories of identity confusion and coherence. The following statistical fit criteria were used to evaluate model fit (Hu and Bentler 1999): Root Mean Square Error of Approximation (RMSEA) <.08, Comparative Fit Index (CFI) >.90, Tucker-Lewis Index (TLI) >.90, and standardized root mean square residual (SRMR) <.07. In the final model including frequency of drunkenness at time 6, Zero Inflated Poisson regression was employed to account for the preponderance of zeroes (i.e., adolescents reporting no episodes of drunkenness) in the frequency of being drunk at time 6.

The rate of missing data on the study variables reached a maximum of 16.8 % at waves 4 and 5 for all study variables. Attrition was unrelated to any of the variables included in the study model. There was a significant difference between sites in missing data rates, with the Los Angeles site characterized by significantly higher rates of missing data at waves 2–5 (likely because of the greater representation of undocumented immigrants in Los Angeles compared to Miami). However, we found no evidence that missingness was related to the modeled variables themselves [Little's MCAR χ^2 (196) = 202.03, $p = .37$], thereby supporting the assumption that data were missing at random (MAR; Little and Rubin 2002). Missing data were analyzed using Full Information Maximum Likelihood estimation. Thus, for the unconditional models, all 302 cases were used. For the conditional analyses, missing data on the covariates were handled listwise, leading to the exclusion of three to seven cases in total from those analyses. Descriptive statistics indicated that several of the indicators were skewed and kurtotic. To address this non-normality, a robust maximum likelihood (MLR) estimator, based on a Huber-White algorithm, was used. To account for the nesting of students within schools, we used the sandwich covariance estimator (Kauermann and Carroll 2001; implemented using the TYPE = COMPLEX syntax in Mplus).[1]

Results

Table 1 presents bivariate correlations between the modeled variables, along with descriptive statistics for each study variable.

Identity Coherence as an Intervening Variable

Following Duncan and Duncan's (Duncan et al. 2006) two-step analysis for latent growth curves, an unconditional bivariate latent growth curve model (LGCM) including identity coherence and tension reduction (TR) alcohol expectancies was analyzed first. Within this model, identity coherence (T1–T3) and tension reduction alcohol expectancies (T4–T6) were modeled using chronologically distinct sets of time points as a foundation for subsequent mediation analyses that require temporal order to consider predictive effects. The unconditional bivariate LGCM of identity coherence and alcohol expectancies fit the data well (Table 2): χ^2 (7) = 6.08, p = .53; CFI = .1.00; TLI = 1.01; RMSEA = .00; SRMR = .02. Trajectories of tension reduction alcohol expectancies were characterized by significant initial levels with nonsignificant mean linear growth ($\hat{\alpha} = -.08$, $p = .74$). Trajectories of identity coherence were characterized by significant initial levels with a significant mean linear decline ($\hat{\alpha} = -.52$, $p < .01$). However, neither the intercepts nor the slopes of identity coherence and tension reduction alcohol expectancies were significantly associated with one another.

Next, we tested a conditional bivariate LGCM of identity coherence (T1–T3), tension reduction alcohol expectancies (T4–T6), and bicultural stress at time 1, while controlling for demographic covariates (i.e., age, gender, length of stay in the United States, and location of assessment). The conditional linear model provided a good fit to the data: χ^2 (21) = 21.22, p = .44; CFI = .99; TLI = .99; RMSEA = .006; SRMR = .02. The conditional model posited bicultural stress at time 1 as a predictor of trajectories of identity coherence, which in turn were modeled as predicting the slope of tension reduction alcohol expectancies. Location of assessment and gender were significantly associated with identity coherence, such that participants from Los Angeles reported a lower initial level of identity coherence ($\beta = -.22$, $p < .01$) coupled with a steeper increase in identity coherence over 1.5 years ($\beta = .24$, $p < .05$). Girls reported higher initial levels of identity coherence ($\beta = .14$, $p < .05$). Girls also reported lower initial levels of tension reduction alcohol expectancies ($\beta = -.17$, $p < .05$). Bicultural stress was not significantly predictive of identity coherence trajectories (intercept: $\beta = .001$, $p = .98$; slope: $\beta = -.03$, $p = .83$). Additionally, neither the intercept ($\beta = -.10$, $p = .46$) nor the slope of identity coherence ($\beta = -.20$, $p = .31$) was predictive of the slope of tension reduction alcohol expectancies. Thus, identity coherence was not included in further analyses.

Identity Confusion as an Intervening Variable

Next, we analyzed trajectories of identity confusion with bicultural stress and tension reduction alcohol expectancies. The unconditional bivariate LGCM of identity confusion

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[1]An Mplus warning message regarding the standard errors of the parameter estimates prompted us to reanalyze the data without the COMPLEX estimator. Results of model parameters with and without the TYPE = COMPLEX option were not significantly different (not in significant and very minor standardized parameter estimates <.01).

(T1–T3) and tension reduction alcohol expectancies (T4–T6) was also modeled including temporally distinct sets of time points, and provided an acceptable model fit (Table 2): χ^2 (7) = 5.26, p = .62; CFI = 1.00; TLI = 1.02; RMSEA = .00; SRMR = .02. Trajectories of identity confusion were characterized by significant initial levels and by a nonsignificant linear decline ($\hat{\alpha}$ = −.11, p = .47). Initial levels (i.e., intercepts) of tension reduction alcohol expectancies were not significantly associated with initial levels of identity confusion. Changes over time (i.e., slopes) of identity confusion and tension reduction alcohol expectancies were also uncorrelated. To test the hypothesis that bicultural stress would predict trajectories of identity confusion, which in turn, are predictive of alcohol expectancies, we tested a conditional bivariate LGCM across temporally distinct time points of identity confusion (T1–T3) and tension reduction alcohol expectancies (T4–T6), with bicultural stress included at time 1 and covariates controlled. The conditional linear model provided a good fit to the data: χ^2 (21) = 17.59, p = .67; CFI = 1.00; TLI = 1.03; RMSEA = .00; SRMR = .02. Girls reported lower initial levels of identity confusion (β = −.15, p < .05). Higher levels of bicultural stress were significantly associated with higher initial levels of identity confusion (β = .62, p < .01), but were not significantly associated with the slope of identity confusion (β = −.20, p < .10). In turn, higher initial levels of identity confusion were significantly predictive of more rapid increases (i.e., steeper slope) in tension reduction alcohol expectancies (β = .26, p < .03). The slope of identity confusion was not predictive of the slope of tension reduction alcohol expectancies (β = .17, p = .31).

Bicultural Stress, Identity Confusion, Tension Reduction Alcohol Expectancies, and Alcohol Use: A Conditional Mediational Model

The final step of analysis was to consider the ways in which bicultural stress, trajectories of identity confusion (T1–T3), and trajectories of tension reduction alcohol expectancies (T4–T6) are associated with later alcohol misuse (i.e., frequency of being drunk) at time 6 (Fig. 2), while controlling for demographic covariates (i.e., age, gender, length of stay in the United States, and location of assessment) and prior alcohol use at time 1. Because the final frequency count of being drunk was zero-inflated (i.e., 94 % of respondents noted never being drunk in the 3 months prior to the time 6 assessment), Poisson distribution function was assumed, and Zero Inflated Poisson regression was employed. This model provided adequate fit to the data: χ^2 (34) = 48.86, p = .06; CFI = .95; TLI = .91; RMSEA = .04; SRMR = .03. Parameter estimates for this model are shown in Table 3 and in Fig. 2. Gender emerged as the only significant demographic covariate, as girls reported higher levels of bicultural stress at time 1 (β = −.12, p < .05) and lower initial levels of identity confusion (β = −.16, p < .05). Consistent with previous analyses, bicultural stress was positively associated with initial levels of identity confusion, which in turn, were predictive of a more rapid increase (i.e., faster slope) in tension reduction alcohol expectancies. Further, a steeper slope of tension reduction alcohol expectancies was significantly associated with higher frequencies of being drunk at time 6 (β = .90, p < .01). Lower initial levels (intercepts) of tension reduction alcohol expectancies were significantly predictive of increased alcohol misuse (i.e., being drunk) at time 6 (β = −.36, p < .01), perhaps suggestive of regression to the mean.

Finally, we used the product-of-coefficients ($\alpha \times \beta$) approach (Preacher and Hayes 2008) to test for mediation. This test computes a 95 % confidence interval around the product of the unstandardized path coefficients that comprise the mediating pathway. Three mediational paths were tested. First, initial levels of identity confusion mediated the positive association between bicultural stress and increases in tension reduction alcohol expectances (95 % CI [.01, .04]). Second, increases (slopes) in tension reduction alcohol expectancies significantly mediated the influence of initial levels of identity confusion on later alcohol misuse (95 % [.10, .58]). Third, the complete multiple mediation pathway ($\alpha \times \beta \times \gamma$) from bicultural stress at time 1 to alcohol misuse at time 6 (controlling for demographic variables and any alcohol use at time 1) via initial levels of identity confusion followed by growth in tension reduction expectancies was significant (95 % CI [.01, .08]).

Discussion

In this study, we adopted a developmental perspective (Masten et al. 2008; Zucker et al. 2008) to examine the progression of cognitive risk for problem drinking among recent Hispanic immigrants. Specifically, we found that early bicultural stress experienced with cultural adaptation and balancing one's cultural heritage with US culture eventuates in cognitive vulnerabilities to risky drinking behaviors via increased identity confusion during adolescence. The majority of research on cultural stressors among minority youth has been cross-sectional. The present study adds to previous literature in demonstrating the utility of using developmental conceptualizations and methodologies to examine the development of alcohol misuse in youth (Cicchetti and Rogosch 2002; Masten et al. 2008; Schulenberg and Maggs 2002).

An important advance within the current investigation is our examination of the longitudinal impact of bicultural stress on adolescent development and alcohol use risk among a sample of recent immigrant adolescents. Although bicultural stress has been examined within a bidimensional conceptualization of acculturation where individuals must negotiate their allegiance to each cultural stream separately (see van De Vijver and Phalet 2004; Zagefka and Brown 2002), acculturation research has often been guided by unidimensional models that focus on the stress experienced by immigrants as they "acculturate" to majority cultures (Carvajal et al. 2002). Rather than viewing acculturation-related stress as difficulties that emerge while the person is transitioning from being heritage-oriented to being US-oriented, in the present study we view bicultural stress as resulting from efforts to balance one's heritage and receiving cultural streams (Benet-Martínez and Haritatos 2005; Nguyen and Benet-Martínez 2013). This is a subtle, but important, distinction to make.

Although mean levels of identity confusion appeared to be stable over time, bivariate latent growth modeling indicated significant decreases in identity coherence between ages 14 and 17. Thus, the adolescents in our sample appeared to become less certain of their identities (i.e., decreases in identity coherence) over time, perhaps reflecting a time of questioning the goals, values, and beliefs that one has internalized during childhood (see Meeus et al. 2010, for additional evidence). The differential trajectories in change of identity dimensions among this sample of immigrant youth supports previous research on the empirical distinction between identity coherence and confusion and on the utility

in studying them as distinct constructs (Schwartz et al. 2009b). In addition, our findings provide empirical evidence for changes in identity confusion and cognitive beliefs regarding alcohol use as a mediating mechanism between bicultural stress and alcohol misuse among recently immigrated Hispanic youth. These results support our conclusion that cultural identity stress (e.g., stress related to balancing one's heritage and receiving cultural streams) is uniquely associated with identity confusion and not coherence.

The early and middle adolescent years are characterized by major role transitions in multiple life domains. A developmental perspective on substance behaviors seeks to identify developmental processes that underlie the progression in substance use behaviors during this period (Brown et al. 2008; Schulenberg and Maggs 2002). Adolescents in the current sample had recently immigrated to a new cultural environment and were also transitioning from early- to mid-adolescence. Transitions associated with early and middle adolescence include moving toward less dependent and more mature relationships with the family of origin, entering into romantic and sexual relationships, and planning for adult occupational and educational prospects. For a newly immigrated adolescent, these normative developmental changes can coincide with pressures to culturally assimilate, adapt, and become familiar with the receiving culture while still retaining selected aspects of one's culture of origin. Expectations regarding the ability of alcohol to serve as a remedy for acculturation-related tension and identity-related stress can lead to the development of health risk behaviors such alcohol use.

Erikson (1950, 1968) considered identity development and maintenance as a fundamental and normative task of adolescence and early adulthood. Multiple aspects of identity—both personal and cultural—appear to be in flux for immigrant adolescents. Specifically, it is especially important for immigrant youth to locate themselves within their receiving and heritage cultures by maintaining a sense of self-consistency while considering new possibilities (both cultural and personal). Interestingly, our model show that bicultural stress is associated with identity confusion but not with identity coherence. These findings may suggest that bicultural stress is linked to alcohol use among Hispanic youth by way of confusion regarding how to reconcile the demands of one's cultural heritage with those of US culture. Indeed, balancing contradictory expectations from two cultures can create considerable distress, even as the bicultural person appears to function well both in the receiving culture and within her or his diaspora or ethnic enclave (Hernandez et al. 2006). For example, in a study of cultural identity and perceptions of US culture among immigrant students, Schwartz et al. (2007) found that some participants reported discrimination from both receiving-culture individuals and members of their heritage culture or ethnic enclave. An analogous conflict often arises for immigrant adolescents whose families come from multiple heritage cultures. Such individuals may experience difficulty or distress in identifying exactly "who they are" in terms of who the in-group is (Mann 2004), particularly if the individual lives in an area with high ethnic heterogeneity (i.e., high proportions of a variety of ethnic groups).

Progression in normative developmental tasks, such as identity formation, can be disrupted by exposure to cultural conflicts and related stressors. In line with a developmental psychopathology conceptualization, the current findings suggest that exposure to stress

during adolescence disrupts successful identity formation, a major developmental task that holds great implications for functioning during the remainder of the life course (see Sneed et al. 2012). Specifically, among recently arrived Hispanic immigrant adolescents, increased identity confusion's link to bicultural stress channels adolescents to expect that drinking alcohol will reduce their stress and tension (Berry et al. 2006; Romero et al. 2007). In turn, such expectancies are associated with problematic alcohol use. In line with a developmental psychoapthology perspective, culturally based disruptions in identity consolidation during adolescence predispose immigrant youth to alcohol misuse. Accordingly, the current study provides longitudinal empirical evidence for the deleterious effects of bicultural stress on the identity development and subsequent increase in cognitive risks for alcohol use among immigrant youth.

The present findings should be interpreted in light of several limitations. First, we did not have a comparison sample of non-recently immigrated youth to serve as a control group. Such a control group would have allowed us to identify those patterns associated specifically with recent Hispanic immigrants versus those that may be associated with Hispanic adolescents generally. Second, youth in the sample were relatively young (range 14–17 years; $M_{age} = 14.5$) and may not have reached peak levels of alcohol use (which generally occur between late adolescence and emerging adulthood—ages 18–20; Johnston et al. 2011; Schulenberg and Maggs 2002). Longer follow-ups would have allowed us to make more conclusive statements regarding effects of bicultural stress, identity development, and tension reduction expectancies on *problematic* alcohol use (e.g., binge drinking, drunk driving). In addition, while the study uses longitudinal data, paths that overlap in time of measurement (bicultural stress and initial levels of identity confusion at time 1, and alcohol expectancies and alcohol misuse at time 6) were also modeled, further precluding the ability to infer any causal associations from the current study.

Conclusion

The present investigation contributes important knowledge regarding the link between immigration and the development of alcohol use in Hispanic immigrant youth. The recent-immigrant experience and the subsequent bicultural stress related to balancing the heritage and US cultures appear to invite identity confusion and to exert a concerning influence on cognitive risks for alcohol misuse. The current findings thereby assist in shedding light on the links between bicultural stress and alcohol misuse. These findings may also be used to develop alcohol use prevention intervention programs for Hispanic immigrant youth. The empirically documented growth in identity confusion and bicultural stress, and the effects of these increases on riskier alcohol expectancies and behaviors in middle adolescence, suggest that stressors related to acculturation and to balancing one's two cultural worlds should be addressed in relation to personal identity and to beliefs about the ability of alcohol to reduce tension. We hope that the present study will inspire more etiological and intervention work in this direction.

Acknowledgments

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References

Adams GR, & Marshall SK (1996). A developmental social psychology of identity: Understanding the person in-context. Journal of Adolescence, 19, 429–442. [PubMed: 9245296]

Benet-Martínez V, & Haritatos J (2005). Bicultural identity integration (BII): Components and psychosocial antecedents. Journal of Personality, 73, 1015–1050. [PubMed: 15958143]

Berry JW, Phinney JS, Sam DL, & Vedder P (2006). Immigrant youth: Acculturation, identity, and adaptation. Applied Psychology, 55, 303–332.

Brown SA, McGue M, Maggs J, Schulenberg J, Hingson R, Swartzwelder S, et al. (2008). A developmental perspective on alcohol and youths 16–20 years of age. Pediatrics, 121(Supplement 4), S290–S310. [PubMed: 18381495]

Caetano R, Vaeth PA, & Rodriguez LA (2012). The Hispanic Americans Baseline Alcohol Survey (HABLAS): Acculturation, birthplace and alcohol-related social problems across Hispanic national groups. Hispanic Journal of Behavioral Sciences, 34, 95–117.

Carvajal SC, Hanson CE, Romero AJ, & Coyle KK (2002). Behavioural risk factors and protective factors in adolescents: A comparison of Latinos and non-Latino whites. Ethnicity and Health, 7, 181–193. [PubMed: 12523944]

Chartier K, & Caetano R (2010). Ethnicity and health disparities in alcohol research. Alcohol Research & Health, 33, 152–160. [PubMed: 21209793]

Cicchetti D, & Rogosch FA (2002). A developmental psychopathology perspective on adolescence. Journal of Consulting and Clinical Psychology, 70, 6–20. [PubMed: 11860057]

Cicchetti D, & Valentino K (2006). An ecological transactional perspective on child maltreatment: Failure of the average expectable environment and its influence upon child development. In Cicchetti D & Cohen DJ (Eds.), Developmental psychopathology: Risk, disorder, and adaptation (2nd ed., Vol. 3, pp. 129–201). New York, NY: Wiley.

Cole DA, & Maxwell SE (2003). Testing mediational models with longitudinal data: Questions and tips in the use of structural equation modeling. Journal of Abnormal Psychology, 112, 558–577. [PubMed: 14674869]

Cooley PC, Rogers SM, Turner CF, Al-Tayyib AA, Willis G, & Ganapathi L (2001). Using touch screen audio-CASI to obtain data on sensitive topics. Computers in Human Behavior, 17, 285–293. [PubMed: 22081744]

Cooper ML, Frone MR, Russell M, & Mudar P (1995). Drinking to regulate positive and negative emotions: A motivational model of alcohol use. Journal of Personality and Social Psychology, 69, 990–1005. [PubMed: 7473043]

Coté JE (2006). Emerging adulthood as an institutionalized moratorium: Risks and benefits to identity formation. In Arnett JJ & Tanner JL (Eds.), Emerging adults in America: Coming of age in the 21st century (pp. 81–116). Washington, DC: American Psychological Association.

Côté JE, & Levine CG (2014). Identity, formation, agency, and culture: A social psychological synthesis (2nd ed.). Philadelphia: Psychology Press.

Croghan IT, Bronars C, Patten CA, Schroeder DR, Nirelli LM, Thomas JL, et al. (2006). Is smoking related to body image satisfaction, stress, and self-esteem in young adults? American Journal of Health Behavior, 30, 322–333. [PubMed: 16712446]

Donovan RA, Huynh QL, Park IJ, Kim SY, Lee RM, & Robertson E (2012). Relationships among identity, perceived discrimination, and depressive symptoms in eight ethnic-generational groups. Journal of Clinical Psychology, 69, 397–414. [PubMed: 23124607]

Duncan TE, Duncan SC, & Strycker LA (2006). An introduction to latent variable growth curve modeling: Concepts, issues, and application (2nd ed.). New York: Psychology Press.

Dunkel CS (2005). The relationship between self-continuity and measures of identity. Identity: An International Journal of Theory and Research, 5, 21–34.

Ennis SR, Ríos-Vargas M, & Albert NG (2011). The Hispanic population: 2010. Washington, DC: US Census Bureau.

Erikson EH (1950). Childhood and society. New York: Norton.

Erikson EH (1968). Identity: Youth and crisis. New York: Norton.

Fromme K, Katz E, & D'Amico E (1997). Effects of alcohol intoxication on the perceived consequences of risk taking. Experimental and Clinical Psychopharmacology, 5, 14–23. [PubMed: 9234035]

Fuligni AJ (2001). A comparative longitudinal approach to acculturation among children from immigrant families. Harvard Educational Review, 71, 566–579.

Goldman MS, Brown SA, Christiansen BA, & Smith GT (1991). Alcoholism and memory: Broadening the scopes of alcohol-expectancy research. Psychological Bulletin, 110, 137–146. [PubMed: 1891515]

Goldman MS, Del Boca FK, & Darkes J (1999). Alcohol expectancy theory: The application of cognitive neuroscience. In Leonard KE & Blane HT (Eds.), Psychological theories of drinking and alcoholism (2nd ed., pp. 203–246). New York: Guilford Press.

Grieco EM, Acosta YD, de la Cruz GP, Gambino C, Gryn T, Larsen LJ, et al. (2012). The foreign-born population in the United States: 2010. Washington, DC: US Census Bureau. Retrieved from http://www.census.gov/prod/2012pubs/acs-19.pdf.

Ham LS, Stewart SH, Norton PJ, & Hope DA (2005). Psychometric assessment of the comprehensive effects of alcohol questionnaire: Comparing a brief version to the original full scale. Journal of Psychopathology and Behavioral Assessment, 27, 141–158.

Ham LS, Wang Y, Kim SY, & Zamboanga BL (2013). Measurement equivalence of the Brief Comprehensive Effects of Alcohol scale in a multiethnic sample of college students. Journal of Clinical Psychology, 69, 341–363. [PubMed: 22833459]

Hardy SA, Francis SW, Zamboanga BL, Kim SY, Anderson SG, & Forthun LF (2013). The roles of identity formation and moral identity in college student mental health, health-risk behaviors, and psychological well-being. Journal of Clinical Psychology, 69, 364–382. [PubMed: 23044630]

Harter S (2012). The construction of the self: Developmental and sociocultural foundations. New York: Guilford.

Hernandez L, Montgomery MJ, & Kurtines WM (2006). Identity distress and adjustment problems in at-risk adolescents. Identity: An International Journal of Theory and Research, 6, 27–33.

Hu LT, & Bentler PM (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. Structural Equation Modeling, 6, 1–55.

Johnston LD, O'Malley PM, Bachman JG, & Schulenberg JE (2011). Monitoring the future: National survey results on drug use, 1975–2010: Volume 1, secondary school students. Ann Arbor: Institute for Social Research, University of Michigan.

Kauermann G, & Carroll RJ (2001). A note on the efficiency of sandwich covariance matrix estimation. Journal of the American Statistical Association, 96, 1387–1396.

Krettenauer T (2005). The role of epistemic cognition in adolescent identity formation: Further evidence. Journal of Youth and Adolescence, 34, 185–198.

Little RJA, & Rubin DB (2002). Statistical analysis with missing data. New York: Wiley.

Malone PS, Northrup TF, Masyn KE, Lamis DA, & Lamont AE (2011). Initiation and persistence of alcohol use in United States Black, Hispanic, and White male and female youth. Addictive Behaviors, 37, 299–305. [PubMed: 22136874]

Mann MA (2004). Immigrant parents and their emigrant adolescents: The tension of inner and outer worlds. The American Journal of Psychoanalysis, 64, 143–153. [PubMed: 15138384]

Masten AS, Faden VB, Zucker RA, & Spear LP (2008). Underage drinking: A developmental framework. Pediatrics, 121(Supplement 4), S235–S251. [PubMed: 18381492]

Meeus W (2011). The study of adolescent identity formation 2000–2010: A review of longitudinal research. Journal of Research on Adolescence, 21, 75–94.

Meeus W, Van De Schoot R, Keijsers L, Schwartz SJ, & Branje S (2010). On the progression and stability of adolescent identity formation: A five-wave longitudinal study in early-to-middle and middle-to-late adolescence. Child Development, 81, 1565–1581. [PubMed: 20840241]

Muthén LK, & Muthén BO (2008–2012). Mplus (Version 7.0) [Computer software]. Los Angeles, CA: Muthén and Muthén.

Nguyen AMD, & Benet-Martínez V (2013). Biculturalism and adjustment: A meta-analysis. Journal of Cross-Cultural Psychology, 44, 122–159.

Posner SF, & Kinyon JB (1993). Alcohol expectancies among Hispanics and non-Hispanic whites: Role of drinking status and acculturation. Hispanic Journal of Behavioral Sciences, 15, 373–381.

Prado G, Huang S, Maldonado-Molina M, Bandiera F, Schwartz SJ, de la Vega P, et al. (2010). An empirical test of ecodevelopmental theory in predicting HIV risk behaviors among Hispanic youth. Health Education and Behavior, 37, 97–114. [PubMed: 20130302]

Preacher KJ, & Hayes AF (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. Behavior Research Methods, 40, 879–891. [PubMed: 18697684]

Roisman GI, Masten AS, Coatsworth JD, & Tellegen A (2004). Salient and emerging developmental tasks in the transition to adulthood. Child Development, 75, 123–133. [PubMed: 15015679]

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 and 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]

Rosenthal DA, Gurney RM, & Moore SM (1981). From trust to intimacy: A new inventory for examining Erikson's stages of psychosocial development. Journal of Youth and Adolescence, 10, 525–537. [PubMed: 24310543]

Rudmin FW (2003). Critical history of the acculturation psychology of assimilation, separation, integration, and marginalization. Review of General Psychology, 7, 3–37.

Sam DL, & Berry JW (2010). Acculturation: When individuals and groups of different cultural backgrounds meet. Perspectives on Psychological Science, 5, 472–481. [PubMed: 26162193]

Schulenberg JE, & Maggs JL (2002). A developmental perspective on alcohol use and heavy drinking during adolescence and the transition to young adulthood. Journal of Studies on Alcohol and Drugs, Supplement No.14, 54–70.

Schwartz SJ, Beyers W, Luyckx K, Soenens B, Zamboanga BL, Forthun LF, et al. (2011). Examining the light and dark sides of emerging adults' identity: A study of identity status differences in positive and negative psychosocial functioning. Journal of Youth and Adolescence, 40, 839–859. [PubMed: 21088875]

Schwartz SJ, Kim SY, Whitbourne SK, Zamboanga BK, Weissbirch RS, Forthun LF, et al. (2013). Converging identities: Dimensions of acculturation and personal identity status among immigrant college students. Cultural Diversity and Ethnic Minority Psychology, 19, 155–165. [PubMed: 23148900]

Schwartz SJ, Mason CA, Pantin H, & Szapocznik J (2008). Effects of family functioning and identity confusion on substance use and sexual behavior in Hispanic immigrant early adolescents. Identity: An International Journal of Theory and Research, 8, 107–124.

Schwartz SJ, Mason CA, Pantin H, Wang W, Brown CH, Campo AE, et al. (2009a). Relationships of social context and identity to problem behavior among high-risk Hispanic adolescents. Youth and Society, 40, 541–570. [PubMed: 19412356]

Schwartz SJ, Montgomery MJ, & Briones E (2006). The role of identity in acculturation among immigrant people: Theoretical propositions, empirical questions, and applied recommendations. Human Development, 49, 1–30.

Schwartz SJ, Unger JB, Lorenzo-Blanco E, Des Rosiers SE, Villamar JA, Soto DW, et al. (2014). 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, Zamboanga BL, Rodriguez L, & Wang SC (2007). The structure of cultural identity in an ethnically diverse sample of emerging adults. Basic and Applied Social Psychology, 29, 159–173.

Schwartz SJ, Zamboanga BL, Wang W, & Olthuis JV (2009b). Measuring identity from an Eriksonian perspective: Two sides of the same coin? Journal of Personality Assessment, 91, 143–154. [PubMed: 19205935]

Smith GT, & Goldman MS (1994). Alcohol expectancy theory and the identification of high-risk adolescents. Journal of Research on Adolescence, 4, 229–247.

Sneed JR, Whitbourne SK, Schwartz SJ, & Huang S (2012). The relationship between identity, intimacy, and midlife well-being: Findings from the Rochester Adult Longitudinal Study. Psychology and Aging, 27, 318–323. [PubMed: 22201333]

Spear LP (2000). The adolescent brain and age-related behavioral manifestations. Neuroscience & Biobehavioral Reviews, 24, 417–463. [PubMed: 10817843]

Sroufe LA, & Rutter M (1984). The domain of developmental psychopathology. Child Development, 55(1), 17–29. [PubMed: 6705619]

Steiner N (2009). International migration and citizenship today. New York, NY: Routledge.

Syed M, Walker LHM, Lee RM, Umaña-Taylor AJ, Zamboanga BL, Schwartz SJ, et al. (2013). A two-factor model of ethnic identity exploration: Implications for identity coherence and well-being. Cultural Diversity and Ethnic Minority Psychology, 19, 143–154. [PubMed: 23647328]

Turner CF, Ku L, Rogers SM, Lindberg LD, Pleck JH, & Sonenstein FL (1998). Adolescent sexual behavior, drug use, and violence: Increased reporting with computer survey technology. Science, 280, 867–873. [PubMed: 9572724]

Umaña-Taylor AJ, Diversi M, & Fine M (2002). Ethnic identity and self-esteem among Latino adolescents: Distinctions among the Latino populations. Journal of Adolescent Research, 17, 303–327.

Unger JB, Baezconde-Garbanati L, Shakib S, Palmer PH, Nezami E, & Mora J (2004). A cultural psychology approach to "Drug Abuse" prevention. Substance Use and Misuse, 39, 1779–1820. [PubMed: 15587951]

United Nations Population Division. (2013). International immigration report. New York: United Nations.

van De Vijver FJ, & Phalet K (2004). Assessment in multicultural groups: The role of acculturation. Applied Psychology, 53, 215–236.

Walters NP, & Trevelyan EN (2011). The newly arrived foreign-born population of the United States: 2010. Washington, DC: US Census Bureau. Retrieved from http://www.census.gov/prod/2011pubs/acsbr10-16.pdf.

Windle M, Spear LP, Fuligni AJ, Angold A, Brown JD, Pine D, et al. (2008). Transitions into underage and problem drinking: Developmental processes and mechanisms between 10 and 15 years of age. Pediatrics, 121(Supplement 4), S273–S289. [PubMed: 18381494]

Zagefka H, & Brown R (2002). The relationship between acculturation strategies, relative fit and intergroup relations: Immigrant-majority relations in Germany. European Journal of Social Psychology, 32, 171–188.

Zamboanga BL (2005). Alcohol expectancies and drinking behaviors in Mexican American college students. Addictive Behaviors, 30, 673–684. [PubMed: 15833573]

Zucker RA, Donovan JE, Masten AS, Mattson ME, & Moss HB (2008). Early developmental processes and the continuity of risk for underage drinking and problem drinking. Pediatrics, 121(Supplement 4), S252–S272. [PubMed: 18381493]
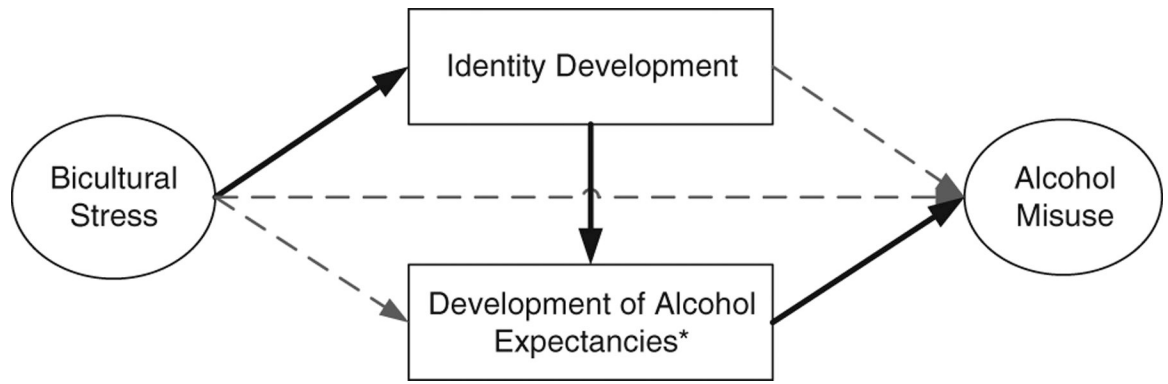
Fig. 1.
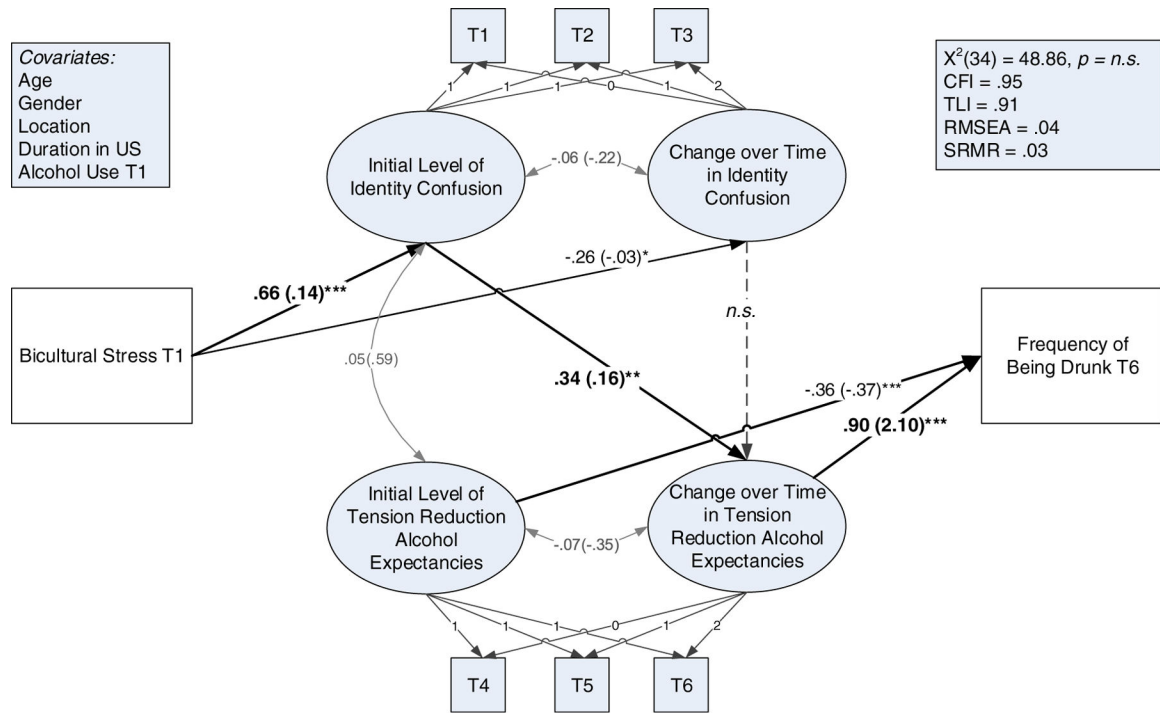Theoretical model. *Tension reduction expectancies

Fig. 2.
A conditional mediation model of bicultural stress, identity confusion, tension reduction alcohol expectancies, and alcohol misuse. *Note* coefficients shown as standardized (unstandardized). ***$p < .001$; **$p < .01$; *$p < .05$

Table 1

Descriptive statistics and bivariate correlations among study variables

Variables	1.	2.	3.	4.	5.	6.	7.	8.
1. Age (T1)	—							
2. Duration in US (T1)	-.05	—						
3. Bicultural stress (T1)	.05	.05	—					
4. Identity confusion (T1–T3)	.03	.08	.42**	—				
5. Identity coherence (T1–T3)	.06	-.10	-.03	-.41**	—			
6. TR alcohol expectancies (T4–T6)	-.05	.13*	.12*	.20**	-.12*	—		
7. Frequency of alcohol use (T1)[a]	.10	.03	.04	.02	.01	.01	—	
8. Frequency of being drunk (T6)[a]	-.03	.03	.02	.07	-.04	.17**	-.01	—
Mean (SD)	14.51 (.87)	2.08 (1.87)	18.48 (14.33)	9.21 (3.75)	18.49 (3.19)	4.95 (5.49)	.18 (1.06)	.61 (6.43)
Skewness (SE)	.53 (.14)	1.22 (.14)	1.30 (.14)	.18 (.14)	-.51 (.14)	1.30 (.15)	8.35 (.14)	15.02 (.15)
Kurtosis (SE)	.13 (.28)	2.18 (.28)	2.20 (.28)	.19 (.28)	.73 (.28)	1.27 (.30)	82.61 (.28)	230.13 (.31)

Measures of identity confusion, identity coherence, and tension reduction alcohol expectancies are averages across the noted time points

T time point, *TR* tension reduction

*
$p < .05$;

**
$p < .01$

[a]Alcohol use frequency of past 3 months

Table 2

Unstandardized estimates for unconditional bivariate LGCMs of identity confusion/coherence and tension reduction alcohol expectancies

Variables	Identity confusion and tension reduction alcohol expectancies				Identity coherence and tension reduction alcohol expectancies			
	Initial level (I)		Slope (L)		Initial level (I)		Slope (L)	
	B	(s²)	B	(s²)	B	(s²)	B	(s²)
Identity confusion (CF)	9.33***	9.49***	-.11	2.56*	–	–	–	–
Identity coherence (CO)	–	–	–	–	18.95***	7.52***	-.56***	1.86
Tension reduction (TR)								
Alcohol expectancies	5.00***	27.12***	-.09	5.57	4.99***	26.21***	-.08	4.75

Curve covariances	B	(SE)	[95 % CI]	B	(SE)	[95 % CI]
I-CF ↔ L-CF	-.98	-.68	[-3.80, 1.82]	–	–	–
I-TR ↔ L-TR	-6.22	-1.50	[-14.36, 1.90]	-5.25	-1.34	[-13.55, 2.50]
I-CO ↔ L-CO	–	–	–	-.79	-.85	[-2.60, 1.02]
I-CF ↔ I-TR	3.68	1.92	[-.06, 7.44]	–	–	–
L-CF ↔ L-TR	.58	.68	[-1.08, 2.24]	–	–	–
I-CF ↔ L-TR	-.24	-.20	[-2.59, 2.11]	–	–	–
I-TR ↔ L-CF	-.04	-.03	[-2.30, 2.21]	–	–	–
I-CO ↔ I-TR	–	–	–	.28	.18	[-2.70, 3.27]
L-CO ↔ L-TR	–	–	–	.26	.45	[-.87, 1.40]
I-CO ↔ L-TR	–	–	–	-.92	-.94	[-2.84, .99]
I-TR ↔ L-CO	–	–	–	-1.72	-1.78	[-3.62, .17]
χ² (df)	5.26 (7)			6.08 (7)		
CFI	1.00			1.00		
TLI	1.02			1.01		
RMSEA	.00			.00		
SRMR	.02			.02		

I initial level, L linear slope, CF identity confusion, CO identity coherence, TR tension reduction alcohol expectancies

*
p < .05;

**
p < .01;

***
p < .001

Table 3

Parameter estimates of the conditional mediational model of bicultural stress, identity confusion, tension reduction alcohol expectancies, and alcohol misuse

Direct effects		B	(SE)	β	95 % CI
Bicultural stress	→I-CO	.14	7.49	.66	[.10, .18]***
	→L-CO	-.03	-2.10	-.26	[-.05, -.002]*
I-CO	→L-TR	.16	2.97	.34	[.05, .26]**
L-CO	→L-TR	.01	.09	.01	[-.25, .28]
I-TR	→Being drunk	-.37	-5.00	-.36	[1.32, 2.88]***
L-TR	→Being drunk	2.10	5.27	.90	[-.51, -.22]***
Covariates					
Location	→Bicultural stress	3.68	1.86	.12	[-.18, 7.55]
	→I-CO	-.02	-.03	-.003	[-1.10, 1.06]
	→L-CO	-.28	-.75	-.08	[-1.00, .44]
	→I-TR	-.20	-.15	-.03	[-2.84, 2.43]
	→L-TR	.68	1.21	.23	[-.42, 1.79]
	→ Being drunk	.96	.49	.14	[-2.82, 4.74]
Age	→Bicultural stress	.45	.47	.02	[-1.44, 2.35]
	→I-CO	.27	1.04	.07	[-.24, .78]
	→L-CO	-.24	-1.29	-.12	[-.60, .12]
	→I-TR	-.94	-1.16	-.23	[-2.54, .65]
	→L-TR	.30	.79	.17	[-.44, 1.04]
	→ Being drunk	-.43	-.37	-.10	[-2.71, 1.84]
Gender	→Bicultural stress	-3.59	-1.97	-.12	[-7.15, -.02]*
	→I-CO	-1.02	-2.13	-.16	[-1.96, -.08]*
	→L-CO	.36	1.11	.11	[-.28, 1.02]
	→I-TR	-1.07	-.89	-.15	[-3.41, 1.26]
	→L-TR	-.01	-.02	-.005	[-1.02, .99]
	→ Being drunk	-.06	-.04	-.01	[-3.05, 2.93]
Duration in US	→Bicultural stress	-.28	-.56	-.03	[-1.24, .68]

Direct effects		B	(SE)	β	95 % CI
	→I-CO	.17	1.47	.10	[−.05, .40]
	→L-CO	.04	.45	.04	[−.56, .19]
	→I-TR	.58	1.38	.32	[−.24, 1.41]
	→L-TR	−.18	−.94	−.23	[−.56, .19]
	→ Being drunk	.47	.82	.26	[−.66, 1.60]
Prior alcohol use	→ Being drunk	.14	1.60	.12	[−.03, .31]
Curved covariances					
I-CO ↔ L-CO		−.22	−.15	−.06	–
I-CO ↔ I-TR		.59	.68	.05	–
I-TR ↔ L-TR		−.35	−.77	−.07	–
Mediated effects (α × β; β × γ)					
Bicultural stress → I-CO → L-TR (α × β)		.02	3.08	–	[.01, .03]**
I-CO → L-TR → being drunk (β × γ)		.34	2.77	–	[.10, .58]**
Multiple mediation effect (α × β; β × γ)					
Bicultural stress → I-CO → L-TR → being drunk		.05	2.92	–	[.01, .08]**

Model fit for this model was acceptable: χ^2 (34) = 48.86, p = .06; CFI = .95; TLI = .91; RMSEA = .04; SRMR = .03

TR tension reduction alcohol expectancies, *CO* identity confusion, *I* initial levels, *L* linear slope

*
$p < .05$;

**
$p < .01$;

***
$p < .001$