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Alcohol Use In Mexican-Americans By Nativity: The Role Of Ethnic Identity, Acculturation, And Acculturative Stress

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ALCOHOL USE IN MEXICAN-AMERICANS BY NATIVITY: THE ROLE OF
ETHNIC IDENTITY, ACCULTURATION,
AND ACCULTURATIVE STRESS

by

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ABSTRACT
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The present study examined alcohol use disorder symptoms among Mexican-Americans. Participants consisted of a community-based sample of 237 Mexican-American adults living in the Midwest United States. The role of nativity status and cultural variables in alcohol use disorder symptoms was explored. Specifically, ethnic identity, acculturation, and acculturative stress were used to predict membership into high and low alcohol use disorder symptom groups among U.S.-and foreign-born Mexican-Americans. Additionally, gender, ethnic identity, and acculturative stress were tested as moderators in the relationship between acculturation and alcohol use disorder symptoms. Among U.S.-born participants, only ethnic identity was found to be predictive of alcohol use disorder symptoms, such that higher ethnic identity was related to fewer alcohol use disorder symptoms. Among foreign-born participants, ethnic identity was also predictive of few alcohol use disorder symptoms. Additionally, increased pressure against acculturation was predictive of higher alcohol use disorder symptoms for foreign-born participants. Among the sample as a whole, those with low Latino Orientation and high pressure against acculturation reported more alcohol use disorder symptoms. These results highlight the protective effect of ethnic identity and the need for further research that examines nativity status, acculturation, and specific acculturative stressors in regard to alcohol use disorder symptoms among Mexican-Americans.

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Alcohol use in Mexican-Americans by Nativity: The Role of Ethnic Identity, Acculturation, and Acculturative Stress

Latinos are the largest ethnic minority group in the United States, accounting for 16.3% of the total population (U.S. Census, 2011). Although the term Latino encompasses a group of people that are in fact bound together by language, and to some extent similar historical backgrounds, subgroups of Latinos represent an array of nationalities that carry with them unique cultural characteristics. Furthermore, differences between U.S.-born Latinos and those born outside of the U.S. add another component of potential cultural variability. Therefore, to the extent possible, it is imperative that clinical researchers examine the cultural variables that contribute to the broad category of Latino mental health. Furthermore, they also should take into account the wide-range of differences in the traditions, values, and customs of the many cultural groups that exist under the Latino umbrella, which may in turn result in varying patterns of mental health predictors and outcomes among these subgroups.

Individuals of Mexican-descent are the most prevalent U.S. Latino cultural group, constituting 63% of all U.S. Latinos (U.S. Census, 2011). For the purposes of the present study, these individuals will be referred to as Mexican-Americans. Because of their significant presence in the U.S., research specific to Mexican-Americans is necessary to help inform interventions and treatments that are culturally appropriate for these individuals. The proximity of Mexico to the U.S., their prevalence, adaptation processes, and minority status create a unique psychosocial environment for Mexican-Americans. Researchers have stipulated that cultural variables, including acculturation, acculturative stress, and ethnic identity, play a crucial role in the psychological well-being of Latinos

(Berry, 2003). A specific mental health outcome in which the unique psychosocial characteristics of Mexican-Americans may have a significant impact is in the development of alcohol use disorders. Alcohol use disorders include both alcohol abuse and dependence, with dependence being the more severe of the disorders. Symptoms of alcohol dependence include craving alcohol, loss of control, physical symptoms of dependence, and tolerance for alcohol. Alcohol abuse is diagnosed when there is significant impairment without the physical dependent symptoms (NIAAA, n.d.). Substance use, including alcohol, may be used as a means of reducing the stress that results from the acculturation process (Vasquez, 2009). Also, adapting to the mainstream U.S. culture may be related to the acceptance of or changes in drinking norms (Vasquez, 2009). Additionally, Latinos have been found to be more likely to cite the influence of family and friends as reasons for abstaining from substance use (Farabee, Wallisch, & Maxwell 1995).

Risk Factors for Alcohol use among Mexican-Americans

A variety of factors have been found to be associated with alcohol use disorders, regardless of ethnic background. These include genetics, prenatal substance abuse exposure, parental substance abuse, neuroticism/negative emotionality, impulsivity/disinhibition, and extraversion (Sher, Grekin, & Williams; 2005). Schuckit (2009) describes environmental influences that increase the likelihood of having an alcohol use disorder. These include the availability of alcohol, attitudes towards drinking and drunkenness, peer pressures, levels of stress and related coping strategies, models of drinking, and laws and regulatory frameworks. When compared to the general population, Latinos as a whole have been found to report fewer drinking-related problems

than their non-Latino counterparts; however, within that group, Mexican-Americans report more problems than other Latino subgroups (Caetano, 1997; Caetano, 1998; Vaeth, Caetano, Ramisetty-Mikler, & Rodriguez, 2009). Males tend to report more alcohol use problems than females both in the U.S. and Mexico (Vaeth et. al.,2009; Villatoro-Velazquez et. al., 1996), although these gender differences have been found to be greater among Mexicans living in Mexico as compared to Mexicans living in the U.S. (Cherpitel et.al., 2007). Caetano and colleagues (1998) assert that traditionally these findings may have been attributed to the Latino cultural value of *machismo,* or an exaggerated sense of masculinity in which drinking high volumes of alcohol displays one's masculinity; however, the limited empirical evidence to support this notion, as well evidence that suggests machismo is in fact related to alcohol consumption among men in other ethnic groups as well, suggests that this single factor likely does not account for the greater disparities in alcohol use between Latino men and women.

In addition to gender, nativity status is a second demographic variable that that has been found to serve as a factor in alcohol use among Mexican-Americans with multiple studies supporting higher rates of alcohol use and dependence among U.S.-born Mexican-Americans, as compared to their foreign-born counterparts. Vega and colleagues (1998) were the first to report these findings reporting rates of alcohol abuse and dependence at 17.1% for U.S.-born individuals and 6.3% for immigrant Mexican-Americans. Since then, multiple researchers have found similar results (Ortega, Rosenheck, Alegría, & Desai, 2000; Grant et.al., 2004). Notably however, within the first 5 years of residence in the U.S., Mexican-Americans' drinking increases and becomes more reflective of the patterns of the mainstream U.S. population (Vaeth, et. al., 2009).

It has been suggested that psychosocial factors, including cultural variables, contribute substantially to alcohol use (Vasquez, 2009); therefore, cultural variables may provide unique insight into the development of problematic alcohol use among Mexican-Americans. Currently, there is a lack of existing literature related to the development of alcohol use disorders among Mexican-American adults (Vasquez, 2009). Given the potential rich information that cultural variables can provide on the topic; the proposed study sought to examine the role of *acculturation, acculturative stress,* and *ethnic identity* in predicting alcohol use disorder symptoms among both U.S.-and foreign- born Mexican-Americans.

Cultural variables

Acculturation and acculturative stress. Acculturation has been defined as a process of change that occurs within one or more cultural groups as the result of persistent contact between diverse cultural groups (Redfield, Linton, & Herskovits, 1936). Although often considered as having a single linear dimension (Cuellar, Arnold, & Maldonado, 1995), acculturation is a bidimensional construct that, among Latinos, consists of Anglo and Latino orientations. *Anglo orientation* (AOS) refers to being more likely to participate in the mainstream U.S. cultural norms while *Latino orientation* (LOS) refers to adhering to one's culture of origin (Berry, 2006). Given the unique characteristics of each of these dimensions, it is essential for researchers to consider both AOS and LOS when studying acculturation. Some previous research has found that among U.S. Latinos, those who are more acculturated are more likely to have a variety of mental health problems, including substance abuse, which may be due to an increased acceptance of mainstream cultural norms (Finch, 2001; Strait, 1999; Vasquez, 2009).

The acculturative process is challenging because it requires balancing mainstream cultural influences with ethnic group cultural demands. The stress that results from navigating cultures has been termed *acculturative stress* (Berry, Kim, Minde, & Mok, 1987). Acculturative stress includes a variety of components. Rodriguez, Myers, Mira, Flores, & Garcia-Hernandez (2002) identified four dimensions of acculturative stress including Spanish competency pressures, English competency pressures, pressure to acculturate, and pressure against acculturation. The language components include stress related to not speaking English or Spanish well, speaking either language with an accent, or having difficulty understanding others when they speak English or Spanish. Examples of Pressure to acculturate include being bothered by others not respecting a person's Mexican values, not feeling accepted by Whites, or being looked down upon for practicing Mexican customs. On the other hand, pressure against acculturation includes things such as having conflicts with others because of having a preference for American customs as opposed to Mexican ones, being looked down upon for practicing American customs, and feeling uncomfortable when others expect you to know the Mexican way of doing things. Although there has not been a lot of research that looks specifically at these components, acculturative stress in general has been found to be related to poor mental health outcomes for Latinos, including increased depression and alcohol use (Torres, 2010; Torres, Driscoll, & Voell, 2012; Vaeth, Caetano, & Rodriguez, 2012).

In an attempt to obtain clarity about the relationship between acculturation and alcohol use, Zemore (2007) did a comprehensive review of the literature related to this topic. She concluded that higher acculturation among women was consistently related to increased alcohol use, including frequency of drinking, volume of consumption, and

alcohol abuse and dependence. The results for men were not as clear, and were described as "weak and inconsistent" (p. 1984). Some findings indicated that highly acculturated men were more likely to drink, thus putting them at greater risk for developing alcohol use disorders as compared to their less acculturated counterparts. In contrast, some findings suggested that among all men who drink, those who were more acculturated to the mainstream U.S. culture showed lighter drinking patterns. It was noted that several limitations emerged in reviewing the studies. First, the parameters for high versus medium versus low acculturation varied across studies, as did the acculturation measures and alcohol use outcomes. The majority of the studies included a range of Latino national subgroups, in which Mexican-Americans were the majority, and did not investigate subgroup differences. Furthermore, the majority of the samples were limited to those living in California and Texas.

A study by Caetano, Ramisetty-Mikler, Wallisch, McGrath, and Spence (2008) examined gender differences in the relationship between acculturation and alcohol abuse among Latinos living on the Texas-Mexico border. The sample consisted of 1,200 adults living in one of three cities on the border. Although they reported that sixty-one point five percent of the sample was born in the U.S. and 38.5% was born in Mexico, differences across nativity status were not examined. Among men, the group with the highest Anglo-orientation, or those who reported more behaviors associated with the U.S. mainstream culture, were least likely to have alcohol abuse or dependence problems. In comparison, women with high Anglo-orientation reported higher rates of heavy episodic drinking and were three times more likely than women in the high Latino orientation to meet criteria

for alcohol abuse or dependence than any other acculturative orientation group. Notably however, this finding was not statistically significant.

Raffaelli, Torres Stone, Iturbide, McGinley, and Carlo (2007) conducted a study to examine gender differences in relation to acculturation and alcohol use among Mexican-American college students. Male students reported significantly greater alcohol use than did female students, but no relationship was found between acculturative stress and alcohol use. For the female students on the other hand, increased acculturation was associated with alcohol use in the past year and binge drinking. The researchers attributed this finding to women who were more acculturated interacting more with non-Latino peers who use alcohol and thus, more frequently finding themselves in situations where alcohol was being consumed.

Borges and colleagues (2006) examined alcohol use among Mexicans living in Mexico, Mexican-born Mexicans living in the U.S., and U.S.-born Mexican-Americans. Higher acculturation scores for all men were related to lower risks of alcohol dependence. For women, those with higher acculturation scores were more likely to have alcohol use disorders. Using data from the 2005 National Alcohol Survey, Karriker-Jaffe and Zemore (2008) investigated the relationship between acculturation and alcohol consumption among Latino men living in the U.S. The majority of participants were of Mexican descent, followed by Puerto Rican and Cuban, and most were foreign-born. No subgroup analyses were reported in this study. The findings indicated that high levels of acculturation were associated with increased alcohol use, but only for men with above-average incomes. Those with below-average incomes were less likely to be drinkers. Among those who were heavy drinkers, medium acculturation was a protective factor for

frequency of drinking, volume of alcohol consumed, drinking to intoxication, and symptoms of dependence.

The ability of acculturative stress and self-esteem to mediate the relationship between acculturation and substance use was investigated among 347 Latino early adolescents in Western Michigan (Zamboanga, Schwartz, Hernandez Jarvis, & Van Tyne, 2009). Specific cultural group differences were not examined. The results indicated that self-esteem and acculturative stress partially mediated the relationship between Anglo orientation and alcohol use, as well as Latino orientation and alcohol use. Anglo orientation was related to less alcohol use, while Latino orientation was related to more alcohol use. Among those who did drink, those with higher levels of acculturative stress were more likely to limit their consumption of alcohol; however, increased acculturative stress was also related to lower self-esteem, which predicted more alcohol use (Zamboanga, Schwartz, Herndanez Jarvis, & Van Tyne, 2009).

Gil, Wagner, and Vega (2000) conducted a study that examined acculturation, the cultural value of familism, and alcohol use among a group of 1,051 foreign-born and 958 U.S.-born Latino adolescent males. Number of years lived in the U.S. was positively associated with alcohol use. For the U.S.-born group, low acculturation was related to increases in acculturative stress. In turn, increased acculturative stress led to decreased familism and parental respect, which ultimately resulted in alcohol involvement.

In general, the role of acculturation and acculturative stress, as they relate to alcohol use disorders among Mexican-Americans and other Latinos remains imprecise. Gender appears to be an important factor to consider in that the effects of acculturation on drinking appear to be more robust for women, where higher acculturation in terms of

AOS, is related to increases in drinking behaviors and alcohol related problems, although these findings are not always supported (Caetano et. al., 2008, Zemore, 2007). For men, there is research to support that idea that both high and low acculturation to the mainstream culture is related to increased drinking behaviors and alcohol use problems (Borges et. al., 2006; Caetano et. al., 2008; Zemore; 2007). Similarly, although research supports the relationship between acculturative stress and poor mental health outcomes in general, there is not clear evidence to support whether or not acculturative stress has an impact on drinking behaviors among Latinos, or what the direction of that relationship might be. Some findings indicate that there is no relationship between acculturative stress and alcohol use (Raffaelli, et. al., 2007), while other research suggests that although acculturative stress may be protective among those already engaging in drinking, it has negative effects on self-esteem, which can in turn result in increased drinking behaviors (Zamboanga, et al., 2009). These inconsistencies are perhaps due to a lack of consideration for variables such as nativity status, time spent in the U.S., and generation level. Furthermore, most often researchers do not take into account the bidimensional aspect of acculturation, which leads to poor agreement as to what the construct of acculturation is actually measuring. Additionally, the individual components of acculturative stress: English competency pressures, Spanish competency pressures, pressure to acculturate, and pressure against acculturation, are not taken into account. Therefore, the current acculturative stress findings are not only inconsistent, but given that acculturative stress does not represent a single stressor, but rather a variety of stressors that can impact alcohol use in unique ways, it is absolutely essential that the individual components of acculturative stress be considered. Overall, the current state of

the acculturation/acculturative stress research on alcohol use highlights the need for additional research that examines the multiple domains of acculturation and acculturative stress in relation to drinking among Latinos.

Ethnic identity. A concept similar to, but independent of acculturation is ethnic identity. While acculturation focuses on the behaviors and practices an individual practices in regards to the mainstream versus culture of origin, ethnic identity is a multidimensional concept referring to one's sense of belonging to a particular ethnic group while maintaining positive feelings about the group (commitment) and actively seeking out information about the group (exploration). The sense of belonging and knowledge of the cultural group is incorporated into the individual's self-concept, thus becoming part of his or her identity (Phinney and Ong, 2007). Some research has suggested that a particularly strong sense of ethnic identity may result in increased vulnerability to distress due to being more sensitive to and identifying more with threats made to their group, such as in discriminatory situations. In general however, ethnic identity has been found to be related to increased well-being and adjustment among multiple ethnic groups (Smith and Silva, 2010).

A study by Pugh and Bry (2007) examined the relationship between ethnic identity and alcohol and marijuana use among Black college students. The results indicated that higher levels of ethnic identity were related to lower alcohol use, even after controlling for year in school, sex, and friends' substance abuse. In a study of 1,796 Filipino American immigrants Gong, Takechi, Agbayani-Siewert, & Tacata (2003) examined the role of ethnic identity and religiosity on psychological distress and alcohol

use. After accounting for demographic variables and even acculturation, ethnic identity predicted lower psychological distress and alcohol use.

Another study of 4,364 multiethnic adolescents revealed that ethnic identity was related to stronger antidrug norms and less substance use overall (Marsiglia, Kulis, Hecht, & Sills, 2004). However, for Mexican-Americans, strong ethnic identity was predictive of more drug use and higher lifetime prevalence of alcohol use among Mexicans of mixed heritage. In the previously mentioned study by Zamboanga and colleagues (2009), ethnic identity was associated with increased risk for substance use among Latino early adolescents. It is noteworthy that both studies that examined ethnic identity and substance use among Latinos used an adolescent sample. In contrast, the research among adults from other ethnic minority groups has found a negative relationship between substance use and ethnic identity. Because adolescence is a time of identity development in many aspects, including ethnic identity, it is perhaps the research on ethnic identity among adults, despite being based on other ethnic groups, that is more reflective of the adult Mexican-American population. Therefore, these findings suggest that strong ethnic identity may in fact predict fewer alcohol use disorder symptoms among Mexican-American adults.

Theoretical Framework

The theory of normative social behavior (TNSB) is a model developed to help explain the influence that an individual's beliefs about the prevalence of a behavior has on his or her own behaviors, specifically in respect to the consumption of alcohol (Rimal & Real, 2005). The theory is based on the general principle that norms influence behavior, an idea that has been studied for decades. Rimal and Real (2005) suggest that

there are in fact two components to this idea that have been studied as one, resulting in a lack of clarity. TNSB adopts the terms *descriptive norms* and *injunctive norms,* first coined by Cialdini, Reno, & Kallgren (1990). Descriptive norms are the beliefs held by an individual about the frequency of the occurrence of a behavior among a specific group, while injunctive norms refer to the pressure to conform. The theory also asserts that group identity and outcome expectations influence behaviors as well. Group identity refers to how closely an individual feels tied to the members of the reference group (Tajfel, 1982) and outcome expectations refer to the belief that positive outcomes will result from engaging in a behavior (Bandura, 1986). Because injunctive norms, group identity, and outcome expectations refer to the process by which descriptive norms lead to alcohol use, they can collectively be termed *normative mechanisms.* Therefore, as demonstrated in Figure 1, TNSB recognizes that an individual's beliefs about the prevalence of drinking behavior among a specific group (descriptive norms) determines the individual's own drinking behaviors, but extends this notion to include that the perceived social pressure (injunctive norms), group identity, and outcome expectations moderate the relationship. Support for the theory has been found among college samples. For example, in sample of 1,352 incoming freshman; group identity, outcome expectations, and injunctive norms accounted for 67% of the variance in variables predicting intention to consume alcohol (Rimal & Real, 2005).

In the context of Mexican-Americans and alcohol use, TNSB can be applied to conceptualize the influence of cultural variables on alcohol use. Acculturation can serve as a descriptive norm given that it is an indicator of an individual's adaption to mainstream values. By adopting these mainstream values an individual's perceptions of

Figure 1. Theory of Normative Social Behaviors Model (adapted from Rimal & Real, 2005).
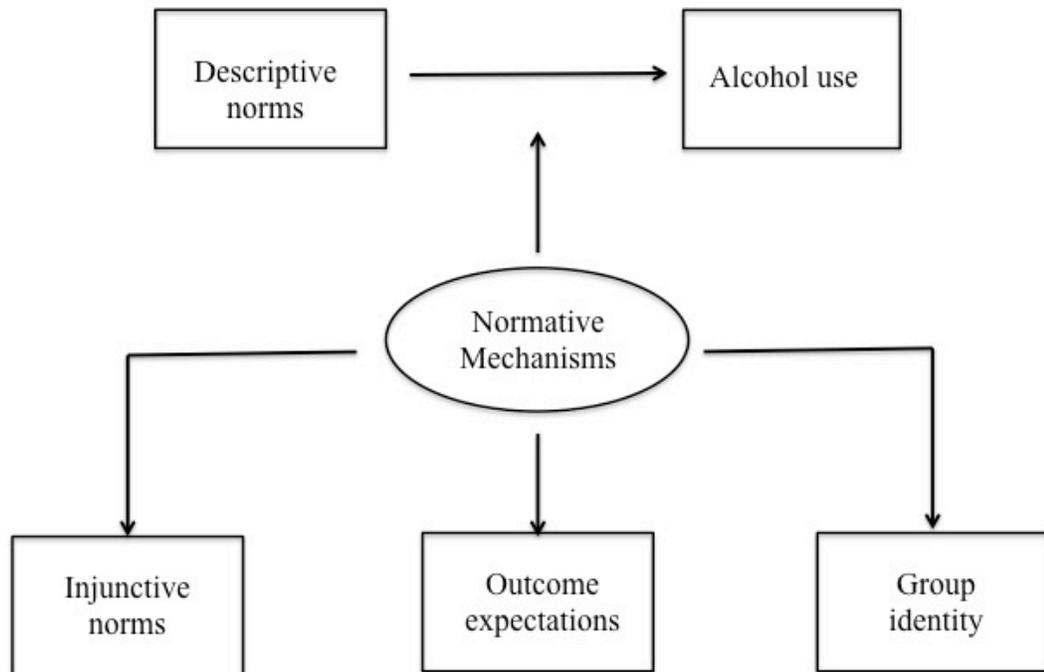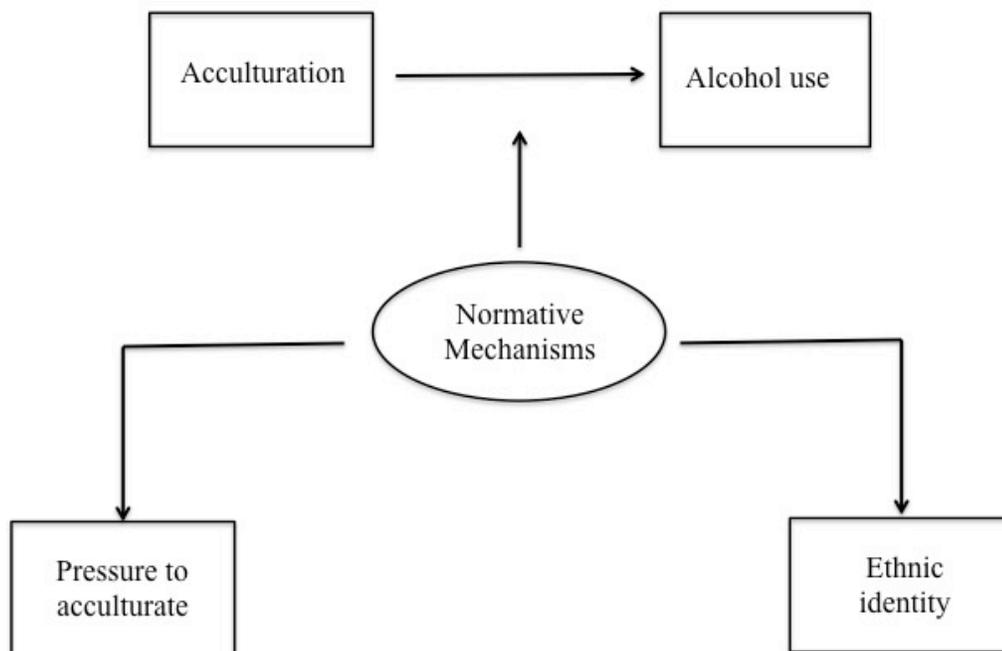
Figure 2. Cultural Modification of the Theory of Normative Social Behaviors Model

drinking behaviors and the reference group they use is likely to change. Through

exposure and adherence to mainstream culture, their beliefs about drinking norms will be

more similar to that of the mainstream culture, and heavier drinking among the

mainstream culture would be indicative of higher perceived norms. For example, if a

Mexican immigrant reports high Anglo orientation he or she is more likely to be aware of

the drinking norms among those from the mainstream culture of the United States, which

is greater than that in Mexico (World Health Organization, 2004). Therefore, through

acculturation the mainstream group may become the reference group for comparison

when determining or engaging in his or her own drinking behavior. Furthermore,

acculturative stress corresponds to the injunctive norms described in TNSB in that it

encompasses the pressures an individuals feels to conform to the mainstream group or

stay in line with the ethnic group (injunctive norms). Ethnic identity can inform the

extent to which one feels an attachment to or is part the Mexican culture, mirroring group

identity. This culturally modified version of TNSB is demonstrated in Figure 2. The

theory therefore delineates the process by which an individual's behaviors are influenced

by descriptive norms. In the current study; acculturation was used as a proxy variable for

descriptive norms predicting drinking behaviors. Acculturative stress, specifically

pressure to acculturate and pressure against acculturation, and ethnic identity represented

injunctive norms and group identity, respectively, and were expected to moderate the

relationship between acculturation and drinking behaviors.

Study Objectives

The goal of the current study was first to provide information related to the

prevalence of alcohol use among a Midwestern Mexican-American sample. Secondly, the

study sought to determine the extent to which cultural variables can predict membership into different alcohol use categories for both U.S. and foreign-born Mexican-Americans. Additionally, the study aimed to apply a culturally modified version of TNSB to explore alcohol use among the sample. In accordance with these aims and the available prior literature the following hypotheses were made:

1. Foreign-born individuals would endorse fewer alcohol use disorder symptoms (AUDS) than U.S.- born individuals.

2. Cultural variables would predict membership into alcohol use categories such that participants in the high AUDS group would show higher orientation to the mainstream U.S. culture (Anglo orientation), lower acculturation to the traditional Latino culture (Latino orientation), higher acculturative stress (both pressure to acculturate and against acculturation), and lower ethnic identity when compared to a low AUDS group.

3. The relationship between acculturation and alcohol use would be moderated by gender, such that higher AOS and being female would be related to more AUDS.

4. Ethnic identity would moderate the relationship between AOS and AUDS and LOS and AUDS.

5. The acculturative stressors pressure to acculturate and pressure against acculturation would moderate the relationship between AOS and AUDS and LOS and AUDS.

METHOD

Participants and Procedure

The present study consisted of secondary data analysis among a subset of Latino participants who were recruited as part of two lager investigations that took place in a moderately sized city in the Midwest. The first study included 244 participants who were recruited at a local cultural festival or via social networking sites and Latino based listservs. The second study was conducted at the central location of a local community organization directed toward providing services to Latinos and consisted of 33 participants. Participants were invited to complete a survey that asked questions related to their experiences as Latinos living in the United States. English/Spanish bilingual research assistants were available to provide information and answer questions in the participants' preferred language. Consent was obtained from each participant and they were given the opportunity to ask questions before starting the questionnaire, as well as during and after completion of the surveys. All participants received a $10 gift card or e-gift card for their participation. Data for the present study were included only from individuals who self-identified as Mexican, Mexican-American, or Chicana/o; resulting in a sample size of 237 participants. This included 77 male and 153 female participants (7 did not provide this information). The mean participant age was 41.33 (SD =15.02). Forty-six point eight percent (n = 111) of the sample was born outside of the U.S. and 53.2% (n = 126) was born in the U.S. Among foreign-born participants the mean time spent in the U.S. was 22.46 years (SD=12.79). All materials were available in English and Spanish and participants completed the surveys in the language they preferred. Sixty-five point eight percent (n = 156) of participants opted to complete surveys in English and 34.2% (n = 81) did so in Spanish.

Materials

Acculturation. The Acculturation Rating Scale for Mexican Americans-II (ARSMA-II; Cuellar, Arnold, & Maldonado, 1995) is a 30-item self-report measure. The present study used a shortened 12-item version of the original measure. Using a 5-point Likert scale ranging from 1 (*not at all)* to 5 (*extremely often or almost always*), individuals indicated the extent to which they agreed with statements regarding their language preference and usage, social interactions, and cognitive processes. Both Latino (LOS) and Anglo orientation scores (AOS) were derived from the measure by computing the mean score of the items pertaining to each subscale. Internal consistency coefficients for the LOS have been reported at .88, and those for the AOS have been .83 for the original version (Cuellar et al., 1995). For the brief version used in the current study, alphas have been reported at .73 and .91 for the AOS and LOS, respectively (Bauman, 2005). For the present study, calculated Cronbach's alphas were .88 for the LOS and .82 for the AOS.

Acculturative stress. The Multidimensional Acculturative Stress Inventory (MASI; Rodriguez et al., 2002) is a 36-item measure that was developed to assess stress among individuals of Mexican origin living in the United States. Items on the MASI include not only pressures to adhere to mainstream cultural modalities, but pressures to adhere to the Latino cultural traditions as well. English and Spanish competency pressures are also included. Four subscale scores can be derived from the MASI items by calculating the means of the items pertaining to each of the following subscales: English competency pressures (e.g., "I don't speak English or don't speak it well"), Spanish competency pressures (e.g., "I feel pressure to learn Spanish"), pressure to acculturate (e.g., "It bothers me when people pressure me to assimilate to the American ways of doing

things"), and pressure against acculturation (e.g., "People look down upon me if I practice American customs"). If participants have experienced an event during the past three months they indicate on a 5-point Likert scale the extent to which they found the event stressful ranging from 1 (*not at all stressful*) to 5 (*extremely stressful*). If the specified event has not occurred the item is scored as 0. Higher scores on the MASI reflect greater acculturative stress. Cronbach's alphas for the MASI subscales have been reported at .91, .93, .84, and .77 for English competency pressures, Spanish competency pressures, pressure to acculturate, and pressure against acculturation, respectively (Rodriguez et al., 2002). For the proposed study, the coefficients were .90, .90, .80, and .77 for English competency pressures, Spanish competency pressures, pressure to acculturate, and pressure against acculturation, respectively.

Alcohol use. The Alcohol Use Disorders Identification Test (AUDIT; Babor, de la Fuente, Saunders, & Grant, 1989); is a 10-item self-report measure developed by the World Health Organization (WHO) intended for use as quick screener of excessive drinking and related problems. The measure is designed to screen for hazardous alcohol use, dependence symptoms, and harmful alcohol use. Participants provide information related to frequency of use and negative consequences of use. Responses can be given a score ranging from 0-4. Question 1 asks about the frequency with which alcohol was consumed with responses as follows: 0=*never*, 1=*monthly or less*, 2=*2-4 times a month*, 3=*2-3 times a week*, and 4= *4 or more times a week*. Question 2 relates to the quantity of alcohol consumed on a typical day when drinking and the responses are 0 = *1 or 2*, 1 =*3 or 4*, 2 = *5 or 6*, 3 = *7 to 9*, and 4 = *10 or more*. For questions 3-8 the responses are as follows: 0 = *never*, 1 = *less than monthly*, 2 = *monthly*, 3 = *weekly*, and 4 = *daily or*

almost daily. For questions 9 and 10 the response options are as follows: 1 = *No*, 3 = *Yes, but not in the last year*, and 5 = *Yes, during the last year*. The total sum of scores is used to classify individuals as potentially needing alcohol education, advice, brief counseling, or a treatment intervention. Scores ranging from 8-15 reflect moderate levels of alcohol use problems, while scores 16 and above represent high levels of alcohol use problems. Reliability of the AUDIT in terms of Chronbach's alpha has been reported at .86 (Babor et. al., 2001). The Chronbach's alpha for the current study was .90.

    Ethnic identity. The Multigroup Ethnic Identity Measure-Revised (MEIM-R; Phinney, 1992) is a 6-item modified version of the original 14-item MEIM (Phinney, 1992). It was created with the purpose of being able to measure ethnic identity across ethnic groups (Phinney, 1992; Phinney & Ong, 2007). Respondents indicate the degree to which they agree with an item using a 5-point Likert scale ranging from 1 (*strongly disagree)* to 5 (*strongly agree).* Examples from the measure include *I have a strong sense of belonging to my own ethnic group* and *I have often done things that will help me understand my ethnic background better.* The total score is the calculated mean of responses to the 6 items. Chronbach's alpha for the MEIM-R was reported at .81 (Phinney & Ong, 2007). The reliability of the measure in the current study is reported at .91.

RESULTS

    Data were first screened to test for any violations of multivariate assumptions including normality, multicollinearity, and homoscedasticity. It was found that most of the study variables were significantly skewed. As a result, these variables were transformed using logarithmic and square root transformations, as recommended by

Tabachnik and Fidell (2007). These variables included AOS (skewness= -3.40), AUDS total score (skewness=10.40), ethnic identity (skewness=-3.53), pressure to acculturate (skewness=6.37), and pressure against acculturation (skewness=7.94). Except for the logistic regression analyses, which do not assume normality, all main analyses were conducted using the transformed variables. Missing data was not found to be a problem, with all variables having less than 5% of cases missing. Correlational analyses were conducted on all variables of interest. The results are presented in Table 1 for U.S.-born participants and Table 2 for foreign-born participants. Means and standard deviations of main study variables across nativity status and gender are presented in Table 3. Consistent with prior research, both foreign-born and U.S.-born Mexican-American males reported higher AUDS than females.

To test hypothesis 1, that foreign-born individuals would be less likely to endorse alcohol use disorder symptoms than U.S. born individuals, an independent samples t-test was conducted. The results indicated that there were no significant differences in alcohol use disorder symptoms between U.S.-born ($M = 4.89$, $SD = 5.62$) and foreign-born individuals ($M = 4.90$, $SD = 7.05$); $t(213) = .008$, $p = .99$ (two-tailed).

To test hypothesis 2, that acculturation, acculturative stress, and ethnic identity would predict membership into high and low alcohol use groups, a series of logistic regressions analyses were conducted; one for foreign-born and one for U.S.-born participants. High and low AUDS groups were based on the total scores from the AUDIT. Individuals with scores between 0 and 7 were put in the low AUDS group and those with scores of 8 or higher were put in the high AUDS groups. Eight is the recommended clinical cutoff score for moderate alcohol use disorder problems (Babor

Table 1

Correlations among Main Study Variables for U.S.-born Participants (n = 126)

Variable	1	2	3	4	5	6	7	8	9
1. ARSMA-II AOS	-	.14	-.03	-.16	-.14	.23*	-.14	.10	.17
2. ARSMA-II LOS		-	.02	-.06	.03	.12	-.17	-.12	.05
3. AUDIT			-	.21*	.18*	-.24**	-.19*	.01	.02
4. MASI Pressure against acculturation				-	.77**	-.13	-.17	-.12	.15
5. MASI Pressure to acculturate					-	.06	-.19*	-.06	.13
6. MEIM						-	-.08	.06	.11
7. Age							-	.06	.00
8. Annual Income								-	.33**
9. Education									-

Note. ARSMA-II= Acculturation Rating Scale for Mexican Americans; AOS = Anglo orientation Scale; LOS = Latino Orientation Scale; AUDIT = Alcohol Use Disorders Identification Test; MEIM = Multigroup Ethnic Identity Measure; MASI = Multidimensional Acculturative Stress Inventory
* *p* <.05, ** *p* <.01

Table 2

Correlations among Main Study Variables for Foreign-born Participants (n = 111)

Variable	1	2	3	4	5	6	7	8	9	10
1. ARSMA-II AOS	-	.13	.00	-.31**	-.25**	.08	.08	.14	.21	.33**
2. ARSMA-II LOS		-	.01	-.08	.00	.10	-.05	.03	.13	-.16
3. AUDIT			-	.11	.03	-.38**	-.04	.19	.16	-.01
4. MASI Pressure against acculturation				-	.77**	.02	-.09	-.24*	-.20*	-.18
5. MASI Pressure to acculturate					-	.05	-.13	-.17	-.22*	-.22*
6. MEIM						-	.12	.07	-.12	.00
7. Age							-	.14	-.07	.67**
8. Annual Income								-	.36**	-0.2
9. Education									-	.04
10. Years lived										-

Note. ARSMA-II= Acculturation Rating Scale for Mexican Americans; AOS = Anglo orientation Scale; LOS = Latino Orientation Scale; AUDIT = Alcohol Use Disorders Identification Test; MEIM = Multigroup Ethnic Identity Measure; MASI = Multidimensional Acculturative Stress Inventory
* $p < .05$, ** $p < .01$

Table 3

Means and (Standard deviations) of Main Study Variables by Nativity Status and Gender (n=237)

	Nativity Status		Gender	
Variable	U.S. Born	Foreign-born	Male	Female
ARSMA-II AOS	4.11 (0.74)	3.28 (1.01)[***]	3.67 (0.98)	3.78 (0.95)
ARSMA-II LOS	3.13 (1.11)	4.00 (0.86)[***]	3.55 (1.05)	3.52 (1.13)
AUDIT	4.68 (5.54)	4.74 (7.10)	7.34 (7.59)	3.51 (5.24)[***]
MASI Pressure against acculturation	0.99 (0.99)	0.95 (1.00)	0.89 (0.93)	1.01 (1.02)
MASI Pressure to acculturate	1.09 (0.87)	1.27 (1.02)	1.15 (0.98)	1.17 (0.94)
MEIM	2.73 (1.03)	2.64 (1.11)	2.64 (1.09)	2.72 (1.06)
Age	41.42 (17.19)	41.24 (12.28)	41.95(15.33)	41.42(15.06)

Note. ARSMA-II= Acculturation Rating Scale for Mexican Americans; AOS = Anglo orientation Scale; LOS = Latino Orientation Scale; AUDIT = Alcohol Use Disorders Identification Test; MEIM = Multigroup Ethnic Identity Measure; MASI = Multidimensional Acculturative Stress Inventory

*** $p <.001$- Independent Samples T-Test

et.al., 2001). Each logistic regression analysis included age, gender, annual household income, and education in step one and AOS, LOS, ethnic identity, pressure to acculturate, and pressure against acculturation at step two.

For U.S.-born participants the logistic regression as a whole was significant, χ^2 (9, $N = 112$) $= 26.12$, $p = .00$, explaining between 21% (Cox and Snell R square) and 31% (Nagelkerke R squared) of the variance in AUDS and correctly classifying 84.8% of cases. This logistic regression is represented in Table 4. Age, gender, and ethnic identity were each unique predictors of AUDS. For every one-unit increase in age, participants were .96 times as likely to be in the high AUDS group. The odds ratio for gender was .15, indicating that being female was related to a .15 likelihood of being in the high AUDS group. Finally, for every one-unit increase in ethnic identity, participants were .40 times as likely to be in the high AUDS groups. That is, being older, female and having a higher ethnic identity were predictive of lower AUDS.

The logistic regression for foreign-born individuals was also significant $\chi2$, (9, $N = 92$) $= 40.63$, $p = .00$. As a whole the model explained between 36% (Cox and Snell R square) and 54% (Nagelkerke R squared) of the variance, correctly classifying 83.7% of cases. This logistic regression is presented in Table 5. Ethnic identity and pressure against acculturation were significant predictors of AUDS group membership. For ethnic identity the odds ratio of .24, indicated that with every one-unit increase in ethnic identity these individuals were .24 times as likely to report AUDS. For pressure against acculturation the 4.73 odds ratio indicated that for every one-unit increase in pressure to acculturate, participants were 4.73 times more likely to report high AUDS. In other

Table 4

Summary of Logistic Regression Analysis for Cultural Variables Predicting AUDS Group Membership among U.S.-born Participants (n=126)

Predictor	*B*	Wald Chi-Square	Odds Ratio	95% Confidence Interval for Odds Ratio	
				Lower	*Upper*
Age	-.04*	5.38	.96	.93	.99
Gender					
Male	1.87*	9.92	.15	.05	.49
Female	-	-	-	-	-
Annual Household Income	.12	.39	1.13	.77	1.67
Education	.17	.37	1.19	.68	2.06
AOS	.07	.03	1.07	.52	2.20
LOS	-.09	.13	.92	.57	1.47
Ethnic Identity	-.91*	9.79	.40	.23	.71
Pressure to Acculturate	.12	.07	1.13	.47	2.72
Pressure Against Acculturation	.15	.14	1.16	.53	2.54
(Constant)	2.56	1.65	-	-	-

Note. ARSMA-II= Acculturation Rating Scale for Mexican Americans; AOS = Anglo orientation Scale; LOS = Latino Orientation Scale; AUDIT = Alcohol Use Disorders Identification Test; MEIM = Multigroup Ethnic Identity Measure; MASI = Multidimensional Acculturative Stress Inventory
*$p < .05$, **$p < .01$, ***$p < .001$

Table 5

Summary of Logistic Regression Analysis for Cultural Variables Predicting AUDS Group Membership among Foreign-born Participants (n=111)

Predictor	*B*	Wald Chi-Square	Odds Ratio	95% Confidence Interval for Odds Ratio	
				Lower	*Upper*
Age	.22	.56	1.02	.97	1.08
Gender					
Male	-1.43	3.70	.24	.06	1.03
Female	-	-	-	-	-
Annual Household Income	.34	1.32	1.41	.78	2.54
Education	.15	.38	1.17	.72	1.90
AOS	-.04	.02	.96	.50	1.85
LOS	.60	2.33	1.83	.84	3.95
Ethnic Identity	-1.42***	14.44	.24	.12	.50
Pressure to Acculturate	-.61	.89	.54	.15	1.94
Pressure Against Acculturation	1.55*	5.44	4.73	1.28	17.45
(Constant)	2.56	1.65	-	-	-

*p < .05, **p < .01, ***p< .001

words, higher pressure against acculturation and lower ethnic identity were predictive of increased AUDS.

Hypothesis 3, which stated that gender would moderate the relationship between acculturation and AUDS, was tested using a series of multiple regressions. The acculturation subscales, AOS and LOS, were examined in separate regressions. All variables were centered to avoid violating assumptions of multicollinearity. In the first regression AOS and gender were entered simultaneously in the first step, accounting for 7.7% of the variance in AUDS, F (2, 223) = 10.34, p =.00. At step two, the interaction between AOS and gender was entered, explaining 7.7% of the variance in AUDS, F (3, 223) = 7.18, p =. 01; however the interaction was not significant, R squared change=.00, F change (1,220) = 1.13, p =.35. To test for gender moderating the relationship between LOS and AUDS, LOS and gender were entered simultaneously in the first step of a regression, accounting for 8.3% of the variance in AUDS , F (2, 223) = 9.98, p =. 00. At step two, the interaction between LOS and gender was entered, accounting for 8.6% of the variance in AUDS; F (3, 223) = 6.88, p =. 00; however, the interaction was not significant, R squared change=.00, F change (1,220) = .71, p =.40.

To test hypothesis 4, which stated that ethnic identity would moderate the relationship between acculturation and AUDS, a series of multiple regression analyses were conducted. All variables were centered to avoid violating assumptions of multicollinearity. Separate regressions were conducted for AOS and LOS. In the first step regression AOS and ethnic identity were entered simultaneously at step one: F (2, 230) = .14, p =. 00, accounting for 5.1% of the variance in AUDS. At step two, the interaction between AOS and ethnic identity was entered, accounting for 5.2% of the variance in

AUDS, $F(3, 230) = 4.17$, $p =. 01$; however, the interaction was not significant, R squared change=.00, F change $(1,227) = .27$, $p = .61$.

To test for ethnic identity moderating the relationship between LOS and AUDS, LOS and ethnic identity were entered simultaneously in the first step of a regression, accounting for 4.4% of the variance in AUDS, $F(2, 230) = 5.25$, $p =. 01$. At step two, the interaction between LOS and ethnic identity was entered, accounting for 4.9% of the variance in AUDS, $F(3, 230) = 3.92$, $p = .01$,; however, the interaction was not significant, R squared change=.01, F change $(1,227) = 1.26$, $p = .26$.

To test hypothesis 5, which stated that acculturative stressors would moderate the relationship between acculturation and AUDS, a series of multiple regression analyses were conducted. All variables were centered to avoid violating assumptions of multicollinearity. First, pressure to acculturate was tested as a moderator for AOS and AUDS In the first step of the regression model, AOS and pressure to acculturate were entered simultaneously, accounting for 0.8% of the variance in AUDS $F(2, 229) = .88$, $p =. 41$. At step two, the interaction between AOS and pressure to acculturate was entered: $F(3, 229) = .66$, $p = 0. 58$, indicating that the model was not significant.

To test for pressure to acculturate moderating the relationship between LOS and AUDS, LOS and pressure to acculturate were entered simultaneously in the first step of a regression, accounting for 0.03% of the variance in AUDS, $F(2, 229) = 0.32$, $p =. 73$. At step two, the interaction between LOS and pressure to acculturate was entered: $F(3, 229) = 2.30$, $p = .08$, indicating that the regression was not significant.

The next regression tested pressure against acculturation as a moderator in the relationship between AOS and AUDS. In the first step of the regression, AOS and

pressure against acculturate were entered simultaneously, accounting for 1.6% of the variance in AUDS, F (2, 229) = 1.88, p =. 16. At step two, the interaction between AOS and pressure against acculturation were entered, accounting for 1.6% of the variance in AUDS, F (3, 229) = 1.25, p = 0.29, indicating that the model was not significant.

To test for pressure against acculturate moderating the relationship between LOS and AUDS, LOS and pressure against acculturate were entered simultaneously in the first step of a regression, accounting for 1.1% of the variance in AUDS, F (2, 229) = 1.26, p =. 29. At step two, the interaction between LOS and pressure against acculturation was entered, accounting for 3.6% of the variance in AUDS, F (3, 229) = 2.84, p = 0.04. This indicates that the relationship between LOS and AUDS is dependent on pressure against acculturation, such that low LOS combined with high pressure against acculturation is related to increased AUDS. This is represented in Figure 3.

Discussion

The purpose of the present study was to examine the role of acculturation, acculturative stress, and ethnic identity in relation to alcohol use disorder symptoms (AUDS) in U.S.- and foreign-born Mexican-American individuals. Overall, symptoms were compared across nativity and gender, logistic regression analyses were used to determine which cultural variables predicted AUDS in U.S.- and foreign-born participants, and moderator analyses were used to determine if gender, acculturative stressors, and ethnic identity moderated the relationship between acculturation and AUDS.

Figure 3. Moderator Effect of Pressure Against Acculturation in the Relationship between LOS and AUDS
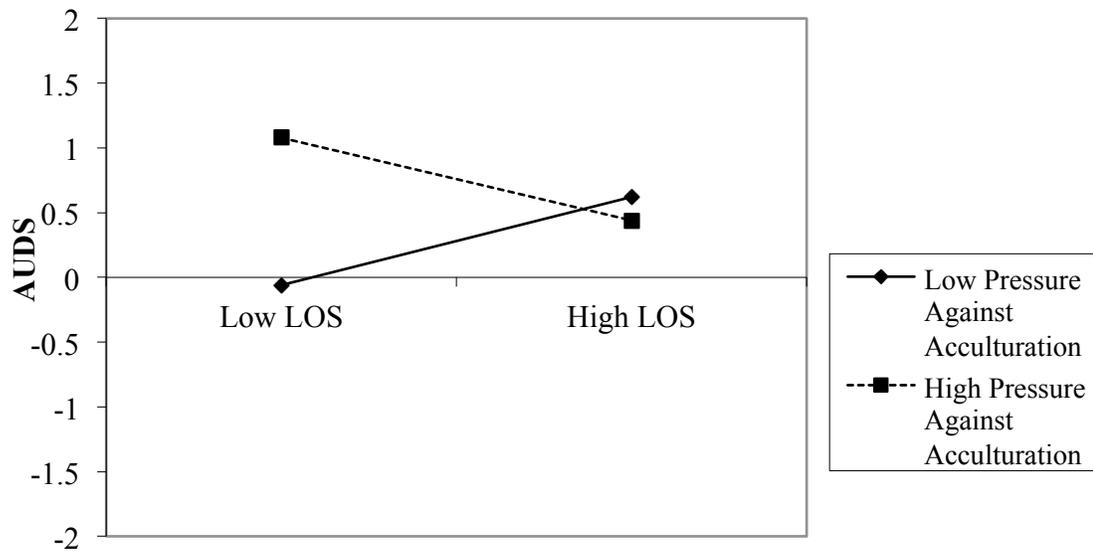
Preliminary results indicated that there was a significant difference in AUDS scores for men and women. Men reported significantly more AUDS than women scoring close to the clinical cutoff score of 8. These findings are consistent with prior research findings that suggest males generally are found to have more alcohol use problems than females Raffaelli, et. al., 2007, Vaeth, et. al., 2009) and that this difference is stronger among Latinos as compared to non-Latino groups (Finch, 2001). *Machismo* has been identified as a potential reason as to why men in general, not only among Mexican-Americans, drink more than women (Caetano et. al., 1998). Perhaps *machismo* coupled with the strong adherence of gender roles which among Latinos is enforced within the family from an early age, accounts for the gender disparity in alcohol use behaviors among these individuals (Raffaelli & Ontai, 2004).

Hypothesis 1, which stated that Mexican-born participants would be less likely to endorse AUDS than their U.S.-born counterparts, was not supported by the results. The results indicated that were no significant differences in AUDS for U.S.- versus foreign-born participants. Both groups had an average score of about 5, which would indicate that participants of the current study, scored below a commonly used cut-off indicating alcohol use problems. This finding is contrary to the literature that suggests a U.S. born Latinos typically have higher rates of alcohol abuse and dependence than their foreign-born counterparts (Alegría et. al, 2007, Grant et. al., 2004a, Vaeth et. al., 2009). The effect of nativity status in this sample may have been influenced by amount of time spent in the U.S. among foreign-born individuals, given that on average participants had spent more than 20 years living in the U.S. Therefore, in some ways, the foreign-born participants may be mores similar to their U.S.-born counterparts than to more recent

immigrants. Johnson, VanGeest, & Cho (2002) reported that lifetime prevalence of alcohol use generally increases with length of time spent in the U.S. with those having lived in the country for more than 15 years having the highest rates of both alcohol and illicit drug use. Although some foreign-born participants in current study had lived in the U.S. for as little as two years, others had lived in the U.S. for as long as 56 years. Due to limited sample sizes, analyses could not be conducted to compare participants based on length of residency in the U.S. It is likely that with a sample that had spent less time in the U.S. a significant difference in AUDS for U.S.-born as compared to foreign-born Mexican-Americans, may have emerged. It is interesting to note however that although AUDS themselves did not vary by nativity status, the relationship between AUDS and other variables of interest did vary by nativity status. Among both U.S. and foreign-born participants ethnic identity was significantly and negatively correlated with AUDS. For U.S born participants AUDS were also positively correlated with pressure to acculturate and pressure against acculturation, while there was no significant relationship among these variables with foreign-born participants. Therefore, considering taking into account cultural variables and nativity may be essential in helping to understand alcohol use disorders among Midwest Mexican-Americans.

Hypothesis 2 was partially confirmed. For the U.S.-born participants gender was a significant predictor of AUDS, such that being female was predictive of a decreased likelihood in symptoms. AOS, LOS, and acculturative stress were not significant predictors of AUDS for U.S.-born participants. Ethnic identity, however, was a significant predictor of AUDS such that increased ethnic identity was predictive of decreased AUDS. For foreign-born participants, the results indicated that AOS, LOS, and

pressure to acculturate were not significant predictors of AUDS. Pressure against acculturation and ethnic identity however, were significant predictors of AUDS, such that higher pressure against acculturation was predictive of higher AUDS scores, and higher ethnic identity was predictive of lower AUDS scores.

These findings indicate that although the sample was not found to differ in regard to symptoms of alcohol use disorders based on nativity, the role of cultural variables in predicting AUDS is in fact different for U.S.- and foreign-born Mexican-Americans. Interestingly, being female was predictive of lower AUDS scores only among U.S.-born individuals, although the value for foreign-born participants was approaching significance. The unique statistical contribution of ethnic identity was greater among foreign-born individuals than for U.S.-born participants. Perhaps ethnic identity and pressure against acculturation minimize the effect of gender among foreign-born individuals. The cultural variables may be more impactful for foreign-born individuals, regardless of gender, given that they have had to navigate through the experience of moving to a new setting with new cultural norms, while the U.S.-born individuals have likely never experienced as great of a shift in the cultural norms within their environment.

Pressure against acculturation and not pressure to acculturate being predictive of AUDS, and only for the foreign-born participants, highlights the importance of examining the acculturative stress components individually. Pressure against acculturation might include specific stressors such as having conflicts with others due to preferring American customs over Mexican/Latino ones, being looked down upon for practicing American customs, feeling uncomfortable when others expect the individual to know Mexican/Latino ways of doings or when one's own family does not know the

Mexican/Latino way of doing things. These pressures may have more of an impact on foreign-born Mexican-Americans because they are adapting to new situations and ways of life within the U.S. culture. The U.S.-born Mexican-Americans, on the other hand, were born and raised surrounded by American customs, which makes the pressure of acclimating to the mainstream culture less salient. The prospect of losing one's culture could be made more dire as other foreign-born Mexicans or Latinos reinforce the pressure of holding on to traditional cultural elements. Engaging in alcohol consumption may be used as a coping mechanism as the pressure against acculturation rises. Prior research has taken an acculturative stress approach in the study of alcohol use among Mexican-Americans; however, the findings have been inconsistent (Vasquez, 2009). It is perhaps due to unexamined individual components of the acculturative stress that results have been inconclusive. Perhaps pressure against acculturation is more important to consider than pressure to acculturate, and perhaps more so among foreign-born Mexican-Americans.

Given that ethnic identity served a protective function against AUDS for both U.S. and foreign-born individuals, the results of the present study highlight the importance of ethnic identity for Mexican-Americans. This finding is consistent with prior research that has shown ethnic identity to be a protective factor for mental health outcomes among Latinos and other ethnic groups (Gong et. al., 2003, Perez, Fortuna, & Alegría, 2007, Pugh & Pry, 2007). Based on the findings from the current study in addition to the prior available research it appears that ethnic identity development may be crucial for both U.S.-born and Mexican-born individuals to serve as a buffer in developing AUDS. The protective effects of ethnic identity may be due to the sense of

belonging that comes from identifying with a larger group, as well as the social support that comes from that group (Smith & Silva, 2011). Smith and Silva (2011) state that ethnic identity can "provide a sense of strength, competence, and self-acceptance when negotiating complex environmental contingencies" (p. 43). Therefore, among Mexican-Americans who are dealing with the complexities of navigating between two cultures or are faced with cultural stressors such as discrimination and acculturative stress, strong ethnic identity can serve both as an internal coping resource in terms of providing a sense of competence and strength, as well as an external coping resource in terms of social support. As a result, Mexican-Americans with a high sense of ethnic identity may have a decreased likelihood of engaging in unhealthy coping behaviors, such as alcohol use.

Gender and ethnic identity were not found to moderate the relationship between acculturation (AOS and LOS) and AUDS (Hypotheses 3,4). Previous research has revealed inconsistent findings in regard to the relationship between acculturation and alcohol use with some support for acculturation playing a greater role in alcohol use for women. Due to a limited number of male participants, analyses that examined potential gender differences in acculturation and its relationship to alcohol use could not be performed with the current sample.

Hypothesis 5, which stated that acculturative stress (pressure to acculturate and pressure against acculturation) would moderate the relationship between acculturation (AOS and LOS) and AUDS was partially supported. Pressure to acculturate did not moderate the relationship between AOS and AUDS or LOS and AUDS. Pressure against acculturation did not moderate the relationship between AOS and AUDS, but was found to moderate the relationship between LOS and AUDS. Specifically, those with low LOS

and high pressure against acculturation reported more AUDS. It may be that alcohol is used as a coping mechanism for those who perhaps adhere less to the norms of the culture of origin, but continue to experience pressure from other Latinos to adhere to those norms.

Limitations

The current study includes several limitations that are important to consider. As with any self-report measure, but especially with those such as the AUDIT, that ask about sensitive and perhaps taboo information, such as alcohol use, it is possible that participants underreported their alcohol use and associated problems. Also, a single self-report measure cannot be used to diagnose an alcohol use disorder and for that reason number of symptoms of alcohol use, not actual disorders were use as outcomes in the current study. Additionally, not only was the ratio of males to females not representative of the general population, but it greatly restricted further analyses that might have explored gender differences. Furthermore, the theoretical framework for the current study is based on the idea of social norms and perceptions of alcohol use among different groups. Participants were not asked directly what their perceptions were in regard to alcohol consumption norms among the mainstream U.S. and traditional Mexican culture. Therefore, descriptive norms as described by the TNSB model were not measured directly. Directly getting this information may be important to include in future research. Also, although psychosocial variables do contribute significantly to the development of alcohol use disorders, biological components, such as hereditary factors are also an important aspect to consider (Vasquez, 2009) and were not included in the current study. Finally, due to the cross-sectional nature of the current study, it is impossible to

determine causal relationships between cultural variables and AUDS that may exist. Future studies that are able to follow participants over a period of time may be able to describe causal relationships than can help create a better understanding of AUDS in Mexican-Americans.

Implications

The results of the current study lend support to the idea that there are differences between U.S.-and foreign-born Mexican-Americans in regard to the cultural factors that influence AUDS. Although the current findings suggest that acculturation alone is generally not related to AUDS for Mexican-Americans, unexamined differences in gender and length of time in the U.S. likely impacted these findings. Future studies with a larger sample and better representation of time spent in the U.S. and gender distribution may be able to further examine the potential role of acculturation in alcohol use. The current foreign-born participants had spent more than half of their lives in the U.S., a more recently immigrated group of individuals may vary in more ways than the current sample from the U.S.-born participants. Future studies should aim to have a larger sample size that examines not just the broad foreign-born versus U.S.-born Mexican-Americans groups, but the more recently immigrated versus not and perhaps even earlier and later generations of those who were born in the U.S. A longitudinal study that would investigate individuals before coming to the United States and then at specified intervals over a sustained period of time after moving to the U.S. would perhaps be the most informative. On the other hand, the results did indicate that within the context of high pressure against acculturation, low LOS is indicative of higher AUDS among Midwest

Mexican-Americans. This highlights the importance of considering acculturative stress and not just acculturation when examining alcohol use among Mexican-Americans.

The minimal research investigating acculturative stress and AUDS has yielded inconsistent findings. The results of the current study suggest that acculturative stress may in fact be an important factor to consider in the research. Furthermore, the various components of acculturative stress and not just the overall concept should be taken into consideration. The current study focused on cultural norms and values and therefore language competency pressures were not examined. Future studies should include the language components as well as the pressures to acculturate and against acculturation. It is perhaps especially important to further examine pressure against acculturation. Future studies may want to ask about coping behaviors specifically in regard to acculturative stress and determine if those who experience significant amounts of acculturative stress use alcohol as coping strategy. Additionally, examining the source of the pressure against acculturation (e.g., family, friends, coworkers) and whether that has an impact on the significance of the stress in the life of the individual might also be important in understanding cultural variables and alcohol use among Mexican-Americans.

Finally, the protective function of ethnic identity in relation to AUDS highlights the importance of ethnic identity for Mexican-Americans regardless of nativity status. Therefore, encouraging ethnic identity development from an early age and into adulthood may significantly influence the development of alcohol use disorders among Mexican-Americans. Through qualitative means it might be possible to identify what specific factors about ethnic identity are protective for Mexican-Americans in the development of alcohol use disorders. As a result, these specific components may be the focus in

prevention programs or interventions for Mexican-Americans with alcohol use disorders. To the best of the researcher's knowledge this study is the first to examine the bidimensional construct of acculturation, specific types of acculturative stressors, and ethnic identity as they pertain to alcohol use among Mexican-Americans. The results of the current study lend support for the idea that further research into these domains is needed.

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