



# Acculturation in relation to substance use in young adult Hispanics: A latent class analysis

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**Abstract**

The Acculturative Stress perspective suggests that stress associated with the acculturation process will promote substance use (SU) as a coping mechanism (Johnson, VanGeest, & Cho, 2002). Increased acculturation has been associated with both an increase (Epstein, Botvin, & Diaz, 2001) and a decrease in SU rates (Caetano, Ramisetty-Mikler, Wallisch, McGrath, & Spence, 2008). The present study examined the influence of acculturation on SU in a U.S.-Mexico border sample.

Hispanic participants ( $n = 422$ ) completed the Short Acculturation Scale for Hispanics ([SASH] Marin, Sabogal, VanOss, Otero-Sabogal, & Pérez-Stable, 1987) and reported their past 30-day use of cigarettes, alcohol, and marijuana. Fifty-nine percent of participants were female ( $M_{age} = 20.14$  years,  $SD = 3.97$ ). Latent class analysis (LCA) was employed to examine the possibility that the relationship between acculturation level and SU could be explained by multiple unobserved classes of individuals. A two class solution was of best fit to the data: class 1 (29% of the sample) was at a substantially higher risk of reported SU than class 2. However, acculturation uniformly predicted SU across the 2 classes. Higher acculturation was associated with a lower likelihood of smoking ( $OR = .59$ ), a higher likelihood of marijuana use ( $OR = 1.65$ ), and was unassociated with alcohol use across both classes.

These findings broadly suggest that while individual substance choice may vary as a function of acculturation level, there is a latent class of Hispanic young adults who are at greater risk for SU in general. However, the acculturation status of individuals in this class does not explain this increased likelihood of use. Additional factors not captured in this study (e.g., stressful life events) as suggested by others (Torres Stone & Meyler, 2007) may further explain differences between the groups of individuals considered "at higher risk" compared to those at "lower risk" for SU. As such, future research should assess additional variables that relate to acculturation, cultural identity, and SU.

**Introduction**

Acculturation can be broadly defined as the extent to which ethnic group members participate in the cultural traditions, values, and practices of the dominant society (Snowden & Hines, 1998). Others have conceptualized acculturation as a multidimensional process that includes language use, time living in the U.S., and ethnic pride (Lessenger, 1997; Miranda & Matheny, 2000). The Acculturative Stress perspective suggests that stress associated with the acculturation process will promote substance use as a coping mechanism (Johnson, VanGeest, & Cho, 2002). Multiple studies have examined the relationship between acculturation level and substance use; however, mixed findings have been reported.

For example, increased acculturation has been associated with an increase in substance use rates across ethnicities (Epstein, Botvin, & Diaz, 2001; Wells, Klap, Koile, & Sherbourne, 2001). However, higher acculturation has been associated with lower rates of alcohol use as well (Caetano, Ramisetty-Mikler, Wallisch, McGrath, & Spence, 2008). Johnson, VanGeest, & Cho (2002) observed that immigrants living in the U.S. for 15 years or more reported substance use rates similar to those of native born participants. Myers and colleagues (2009) observed a positive association between acculturation and substance use, and suggested that peer social influences mediate the relationship between acculturation and substance use (e.g., wider social networks, more English speakers). Epstein, Botvin, & Diaz (2001) found that speaking English at home was associated with more frequent marijuana and polydrug use (compared to Spanish speakers at home). On the other hand, one study found an unstable relationship between acculturation and substance use, and found that substance use rates were the lowest only in the highly Anglicized group (three acculturation categories were created: low/medium/high; Caetano et al., 2008).

Studies have examined substance use rates across specific Hispanic groups and have found that the rates of alcohol abuse and dependence are the highest among Mexican Americans, and Puerto Ricans (Caetano, Ramisetty-Mikler, & Rodriguez, 2007). Additionally one study observed that Hispanics reported higher unmet need for alcoholism, drug abuse, and mental health treatment, and more delays in care than non-Hispanic Whites (Wells, Klap, Koike, & Sherbourne, 2001). As suggested above, the relationship between acculturation and substance use is not clear, and Hispanics (e.g., Mexican Americans) have reported non-trivial substance use rates that warrant attention and further exploration. As such, the relationship between acculturation and the use of cigarettes, alcohol, and marijuana will be examined in this study in a young adult Hispanic sample.

**Study Aims**

The present study analyzed the relationship between acculturation and substance use during the past 30 days in a young adult Hispanic sample.

**Hypothesis**

Latent classes of young adult Hispanic substance users will be identified that vary as a function of acculturation.

**Method**

*Participants*  
Four hundred twenty-two Introduction to Psychology Hispanic students at the University of Texas El Paso were recruited through Experimatrix and given credit for participation.

*Measures*  
Typical sociodemographic information including ethnicity, education level, and income were gathered.

*An Alcohol, Tobacco, and Drug Use Frequency questionnaire*, used in recent studies both at UTEP and in the community, asked participants to report past 30-day use of cigarettes, alcohol, and marijuana.

*The Short Acculturation Scale for Hispanics (SASH)* assessed level of acculturation to U.S. culture (Marin, Sabogal, VanOss, Otero-Sabogal, & Pérez-Stable, 1987). This instrument has been found to have high internal reliability ( $\alpha = .92$ ; Marin et al., 1987). Mean item scores are used for purposes of analyses and can range from one (indicating less acculturation) to five (indicating greater acculturation).

*Approach to Analysis*  
Latent Class Analysis (LCA) was utilized to examine whether there are unobserved classes of Hispanic substance users that vary as a function of acculturation status.

- Past 30 day smoking, alcohol use, and marijuana use were dichotomous outcomes of interest.
- SASH acculturation level was included as a covariate predictor of each substance use behavior in the model.

Model constraints were imposed to examine best fitting LCA after best fitting latent class structure was determined.

**Results**

*Descriptive Characteristics*  
Overall, 59% of participants were female, and the mean age was 20.14 ( $SD = 3.97$ ). Concerning substance use during the past 30 days: 27% of the sample reported smoking, 70% reported consumption of alcohol, and 11% reported smoking marijuana.

*Latent Class Analysis*  
A two class solution was of best fit to the data; increasing classes worsened the fit of the models or were otherwise unidentified models. SASH acculturation uniformly predicted substance use across the 2 classes (see Table 1, "SASH Covariate Slopes"):

- Higher levels of acculturation were associated with a lower likelihood of smoking ( $OR = .59, p < .05$ ), such that each unit increase in acculturation was associated with a 70% (via e-|B|) decrease in the odds of past 30 day smoking.
- Higher likelihood of marijuana use ( $OR = 1.65, p = .05$ ), such that each unit increase in acculturation was associated with a 65% increase in the odds of past 30 day marijuana use.

SASH was unassociated with alcohol use across both latent classes (threshold constraints were imposed on the thresholds of the drug use variables across classes; the best fitting model allowed all thresholds to be unconstrained).

Class 1 (29% of the sample) indicated a higher probability of past 30 day use of each substance (see Table 1, "Thresholds") with the model predicting

- a 39% probability of past 30 day smoking
- a 100% probability of past 30 day alcohol use
- a 7% probability of past 30 day marijuana use

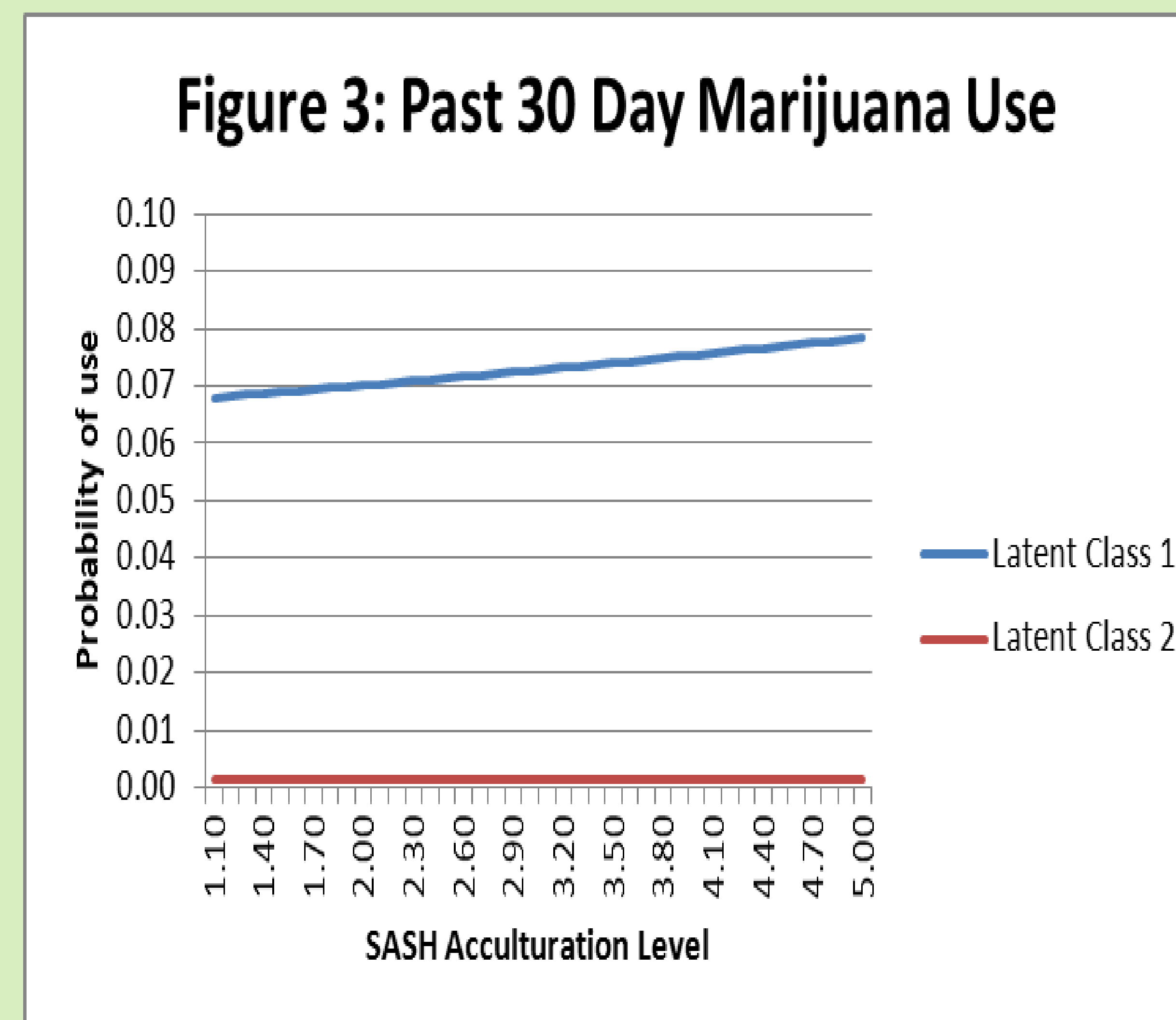
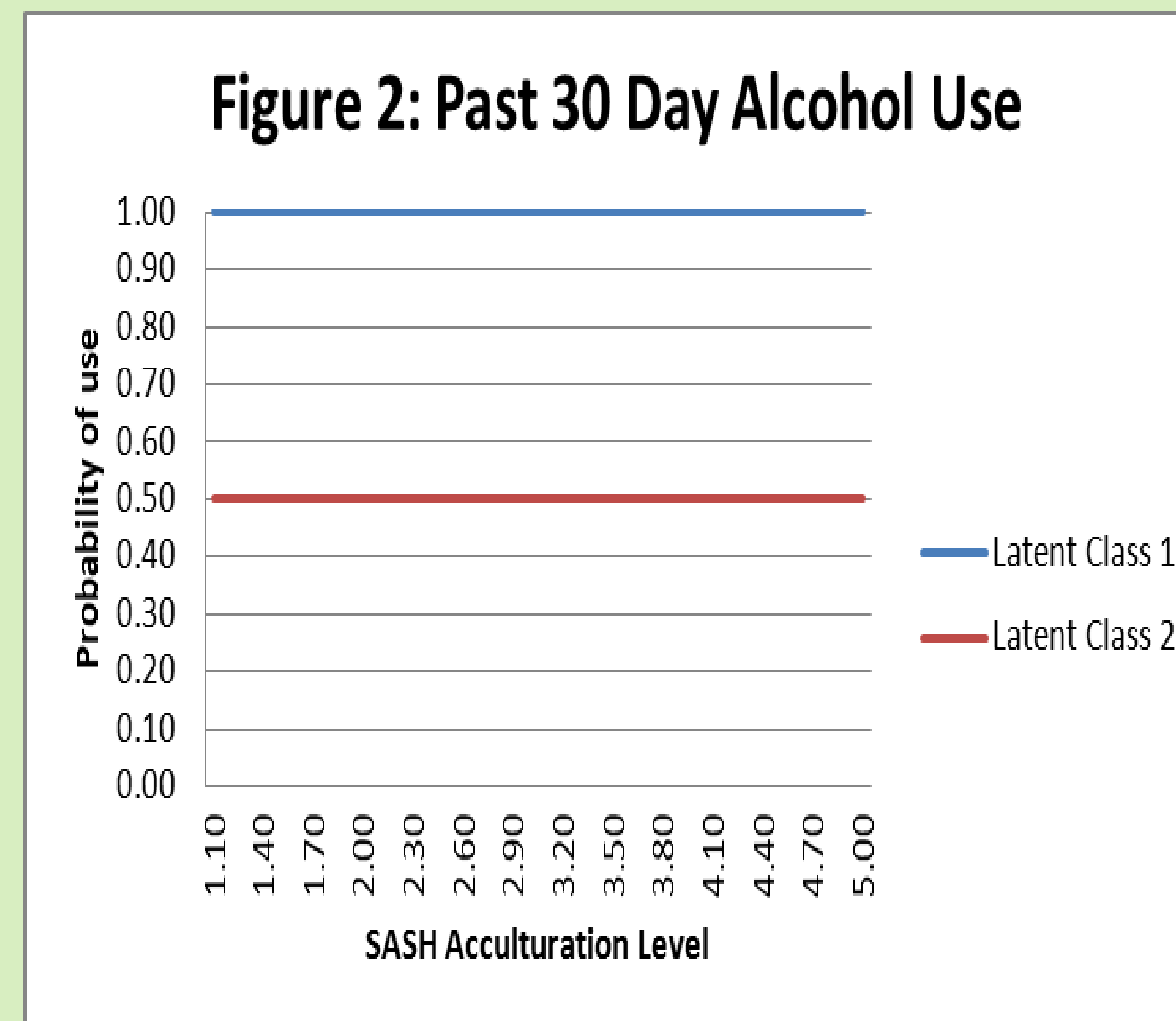
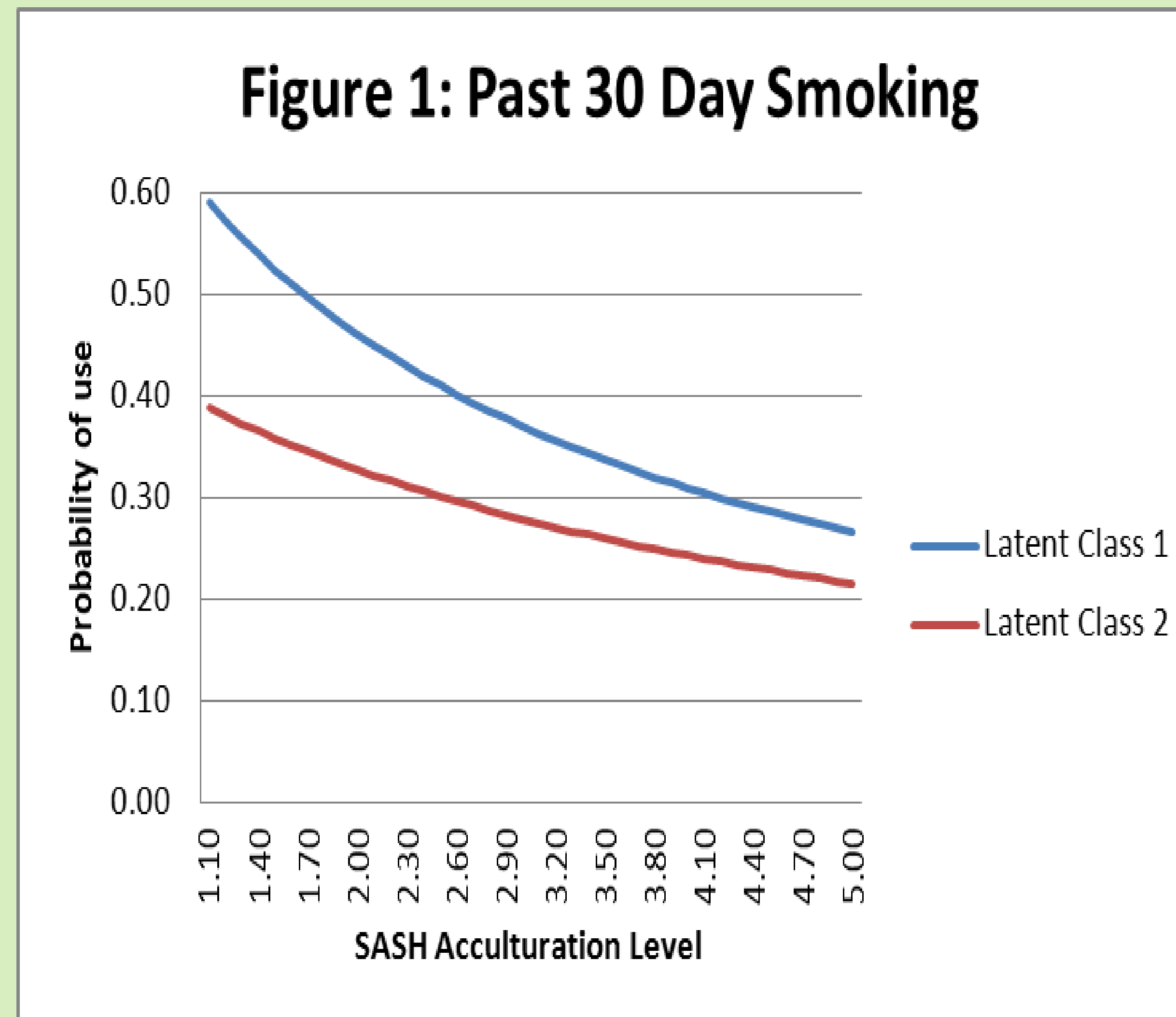
Class 2 (71% of the sample) indicated a lesser probability of past 30 day use of each substance (see Table 1, "Thresholds") with the model predicting

- a 29% probability of past 30 day smoking
- a 50% probability of past 30 day alcohol use
- less than 1% (i.e., <1%) probability of past 30 day marijuana use

Table 1: Acculturation Impact on Past 30-Day Report of 3 Substances in 2 Latent Classes

Outcome	Covariate: SASH Acculturation Level			
	B	S.E.	OR	95% CI
<b>Latent Class 1 (n = 124, 29%)</b>				
SASH Covariate Slopes				
Past 30 day report of smoking	<b>-0.53</b>	<b>0.26</b>	<b>0.59</b>	<b>0.36 - 0.98</b>
Past 30 day report of alcohol use	-0.33	0.19	0.72	0.50 - 1.04
Past 30 day report of marijuana use	<b>0.50</b>	<b>0.26</b>	<b>1.65</b>	<b>1.00 - 2.73</b>
Thresholds				
Past 30 day report of smoking	<b>-2.17</b>	<b>0.99</b>		
Past 30 day report of alcohol use	-24.65		(no non-users identified)	
Past 30 day report of marijuana use	<b>2.66</b>	<b>0.88</b>		
<b>Latent Class 2 (n = 298, 71%)</b>				
SASH Covariate Slopes				
Past 30 day report of smoking	<b>-0.53</b>	<b>0.26</b>	<b>0.59</b>	<b>0.36 - 0.98</b>
Past 30 day report of alcohol use	-0.33	0.19	0.72	0.50 - 1.04
Past 30 day report of marijuana use	<b>0.50</b>	<b>0.26</b>	<b>1.65</b>	<b>1.00 - 2.73</b>
Thresholds				
Past 30 day report of smoking	0.99	0.85		
Past 30 day report of alcohol use	-1.16	0.62		
Past 30 day report of marijuana use	<b>6.63</b>	<b>1.28</b>		

Note: **Bold** indicates statistically significant parameters ( $p < .05$ )



**Discussion**

These findings broadly suggest that while individual substance choice may vary as a function of acculturation level overall (positive association between acculturation and marijuana use; negative association between acculturation and cigarette use), there is a latent class of Hispanic young adults who are at greater risk for substance use in general. However, in the present study the acculturation status of individuals in the at-risk class does not explain their increased likelihood of use.

Consistent with the present findings marijuana use has been associated with increased acculturation (Resor & Cooper, 2010). For example, Epstein et al. (2001) indicated that adolescents who spoke English with parents reported significant more frequent marijuana use than adolescents who spoke Spanish with their parents, and this has been observed elsewhere (Vega, Alderete, Kolody, & Aguilar-Gaxiola, 1998); however, others have found the opposite trend (Ramirez et al., 2004). The present study found a negative association between smoking and acculturation across both classes of individuals. However, others have found a positive association between smoking and acculturation (Wilkinson et al., 2005). No association was found between alcohol use and acculturation level. Although it has been suggested that a linear relationship between acculturation and alcohol use exists, Caetano & Clark (2003) indicated that those in a "middle" acculturation category reported higher alcohol use rates than those in the "low" or "high" categories. In this particular young adult population it might be that alcohol use is prevalent on both sides of the U.S.-Mexico border regardless of acculturation level. Others have indicated different associations and substance use of choice, such that club drug use (e.g., ecstasy) was associated with lower acculturation, but use of other substances (e.g., marijuana) was associated with higher acculturation (Resor & Cooper, 2010).

The relationship between acculturation and substance use has been described as complex. For example, recent studies have suggested that the role of acculturation and its relation to substance use is more salient for females compared to males (e.g., Caetano et al., 2008) which might put them at an increased risk for substance use as they become more acculturated. Additionally, it should be noted that several studies have focused on Hispanic adolescents (e.g., Epstein, Botvin, & Diaz, 2001), while the present study focused on Hispanic young adults, which may in part explain different associations between acculturation and substance use, since acculturation may be a more influential factor during adolescence. Although the present study did not find an association between acculturation and alcohol use, it is important to explore other social and demographic factors like ethnic identification and attitudes about substance use. This exploration is of particular interest since Hispanics (especially Mexican Americans) have reported an increase in alcohol use rates at older ages compared to other ethnic groups (Caetano, Ramisetty-Mikler, & Rodriguez, 2007).

This study was limited in that only one socio-cultural factor was assessed in relation to Hispanic substance use behaviors (i.e., acculturation). Replication of classes when considering additional factors not captured in this study (e.g., stressful life events, family interactions) as suggested by others (Torres Stone & Meyler, 2007) might further explain differences between the groups of individuals considered "at higher risk" compared to those at "lower risk" for substance use. For instance, Martinez (2006) suggested that differential acculturation between parents and youth is associated with a greater likelihood of substance use. Additionally, Miranda & Matheny (2000) indicated that coping resources were related to lower acculturative stress followed by acculturation, and length of residence in the United States. As such, future research should assess additional variables that relate to or predict substance use and whether interactions with acculturation exist.

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