

The Relationship between Biculturalism and Mental Health Outcomes among College-bound Latino Adolescents

Janice Dilgert
Arizona State University

ABSTRACT. Cultural beliefs and behaviors can serve as both risk and protective processes for Latino adolescents, with some recent empirical work suggesting the important protective role of bicultural values (e.g., endorsing high levels of both mainstream culture and culture of origin). We expanded on past research to explore whether bicultural values were associated with internalizing (depressive, anxiety, stress) symptoms and externalizing (alcohol use) symptoms among a sample of Latino adolescents preparing to begin college. We hypothesized biculturalism to protect against all negative outcomes. Our sample consisted of 209 college-bound Latino adolescents (65% female; 85.1% Mexican descent; 10.6% 1st generation, 62% 2nd generation) who were enrolled in university for the coming fall. All multivariate models included sex, ethnicity, parent education, and immigrant generation status as covariates. Correlations and multivariate analyses revealed that higher bicultural values were associated with lower depressive symptoms, lower anxiety symptoms, lower stress, and greater alcohol use. Gender was shown to moderate the relationship between biculturalism and alcohol use. Overall, findings suggested that greater bicultural values were associated with lower endorsement of internalizing symptoms for all participants, but higher endorsement of alcohol use over the last year for the highly bicultural females. Biculturalism may be particularly protective for Latino adolescents who are preparing to attend college given the need for them to transition into an environment with high acculturative demands. However, our results also highlight that these bicultural females may be at greater risk for alcohol use and related problems.

According to the Pew Research Center, the Latino population constitutes about 18% of the total United States population and is the second fastest growing ethnic group (Flores, 2017). This has led to a dramatic increase in research on cultural factors affecting the mental health of this population. Psychological research is shifting to explore links between cultural adaptation and mental health outcomes (Gonzales, Jenson, Montano, & Wynne, 2015). Latino adolescents are of particular interest, because adolescence is already a developmental period characterized by drastic changes, newfound independence, and consequential mental health impacts. During adolescence, and especially during the transition to college, individuals are exploring their identity development and are beginning to make their own decisions about health behaviors (World Health Organization, 2005).

Some studies have shown that Latino adolescents are at increased risk for negative mental health outcomes. Latino adolescents, compared to their non-Latino peers, were at higher risk for developing a mood disorder (including depression and anxiety; Anderson & Mayes, 2010; Glover, Pumariega, Holzer, Wise, & Rodriguez, 1999; Siegel, Aneshensel, Taub, Cantwell, & Driscoll, 1998). Some studies have also shown that Latino youth were also more likely to report higher rates of alcohol and drug use than their White peers (Cheref, Lane, Polanco-Roman, Gadol, & Miranda, 2014; Johnston, O'Malley, Bachman, & Schulenberg, 2010; Swendsen et al., 2012; Venegas, Cooper, Naylor, Hanson, & Blow, 2012). However, other studies have found Latino adolescents to demonstrate lower rates of negative mental health outcomes compared with other racial groups (Alegria, Vallas, & Pumariega, 2010; Blum, Beuhring, Shew, Bearinger, Sieving, & Resnick, 2000).

Understanding the sociocultural context and cultural values may be particularly important when examining Latino adolescent development. In order to understand Latino adolescents' sociocultural context, we need to understand whether there are components of their environment that serve as protective factors or risk factors for mental health outcomes. These cultural factors may help explain developmental

processes and outcomes for Latino youth, and ethnic minority youth more broadly (Garcia Coll, Akerman, & Cicchetti, 2000).

Much past research has focused on the role of acculturation and enculturation in the development and well-being of Latino youth. Acculturation includes the learning of U.S. values, norms, and culture, while enculturation involves the retention of traits from the original culture (Berry, 2003). Some studies have linked processes of acculturation with poor mental health outcomes in Latino populations, and particularly for Latino adolescents. Acculturation has been linked to depressive and anxiety symptoms, specifically within Latino college students (French & Chavez, 2010; Huynh, Devos, & Dunbar, 2012; Hwang & Goto, 2008; Lorenzo-Blanco, Unger, Baezconde-Garbanati, Ritt-Olson, & Soto, 2012). Studies have also linked higher rates of acculturation to higher rates of substance use (Brook, Whiteman, Balka, Win, & Gursen, 1998; Felix-Ortiz & Newcomb, 1995; Gil, 2000; Perez & Padilla, 1980; Vega, Gil, & Zimmerman, 1993). This link between acculturation and substance use was demonstrated with Puerto Rican, Cuban American, and Mexican American adolescents (Brook et al., 1998; Perez & Padilla, 1980; Vega et al., 1993). The two factors were positively related from early through late adolescence (Brook et al., 1998; Vega et al., 1993). The correlation between acculturation and substance use included more frequent alcohol and drug use, use of greater quantities, higher rates of lifetime use, and use of more serious substances (Felix-Ortiz & Newcomb, 1995; Vega et al., 1993).

However, research findings have not always been consistent. For example, low levels of integration with mainstream culture have also been associated with poor mental health. Vega et al. (1995) found lower levels of acculturation in U.S. born Latino adolescents was associated with the highest levels of substance use. This could be due to additional stress caused by lack of integration with U.S. culture. Other researchers have found no association between acculturation and well-being in adolescents. As for internalizing symptoms, Masten and colleagues (2004) found no relationship between

acculturation and depressive symptoms in samples of Mexican American women and European American women, similar to the results found by other researchers in samples of Mexican American adolescents (Konerua, Weisman de Mamania, Flynn, & Betancourt, 2007; Lopez, 2011). The inconsistencies in acculturation research could reflect the complex processes that encapsulate acculturation, suggesting that different aspects of acculturation could have differing effects on mental health outcomes.

A different body of research has focused on enculturation, the process of retaining one's original culture, and has documented positive associations with mental health. Enculturative values such as family, respect, and religiosity have been linked with fewer negative internalizing symptoms in Latina adolescent females (McDonald, McCabe, Yeh, Lau, Garland, & Hough, 2005). Family was associated with lower rates of depressive symptoms and suicide among a Latino population (Valdivieso-Mora, Peet, Garnier-Villarreal, Salazar-Villanea, & Johnson, 2016). Familismo and respeto have further been found to correlate with lower rates of substance use (Lin, 2007).

Historically, enculturation and acculturation were often explored as opposites on a spectrum. An individual was either enculturated to their host culture, or acculturated to the new culture. LaFromboise and colleagues (1993) suggested that both constructs could be evaluated as coexisting simultaneously. Researchers began investigating enculturation as protective against the negative outcomes that have often been associated with acculturation. It was seen as a moderator of acculturation (Corona, Rodríguez, McDonald, Velazquez, Rodríguez, & Fuentes, 2017; German et al., 2009; Gil et al., 1994; Neblett, Rivas-Drake, & Umaña-Taylor, 2012; Umaña-Taylor, Updegraff, & Gonzales-Backen, 2011). However, this theory has not been fully substantiated in the research; some studies do not support the idea that enculturation protects against the risks posed by acculturative processes (Berkel et al., 2010; Marsiglia, Kulis, Hecht, & Sills, 2004; Stein, Gonzalez, Cupito,

Kiang, & Supple, 2015; Zamboanga, Schwartz, Jarvis, & Van Tyne, 2009).

A new idea emerging in the research combines acculturation and enculturation into biculturalism (Gonzales, Knight, Morgan-López, Saenz, & Sirolli, 2002). Biculturalism, as defined by this study, involves scoring high on both acculturative and enculturative measures. Biculturalism has been shown to have many benefits, as the individuals have the skills from two cultures from which to benefit. With Latino youth in particular, the skillset and resources from both cultures can help the adolescents to navigate life's challenges more easily (Buriel, 2012; Padilla, 2006; Zeiders, Updegraff, Kuo, Umaña-Taylor, & McHale, 2016). Latino adolescents scoring high on bicultural scales have shown higher rates of prosocial behaviors, more positive self-evaluations, better academic outcomes, greater cognitive flexibility, and higher resilience (Buriel et al., 1998; Carlo, Basilio, & Knight, 2016; Gonzales, Germán, & Fabrett, 2012; LaFromboise et al. 1993; Landsman, Padilla, Leiderman, Clark, Ritter, & Dornbusch, 1992).

Biculturalism has also been shown to relate to better mental health, specifically among Latino adolescents. Related to substance abuse, Goldberg and colleagues (1993) found a link between biculturalism and reduced risk for substance abuse among a sample of Latino adolescents. Losoya and colleagues (2008) found a similar negative relationship between bicultural values and rates of alcohol drinking and drug use among Mexican American juvenile offenders. Similarly, in a diverse sample of adolescents, Wei and colleagues (2010) found that those scoring higher on bicultural competence also scored lower on depressive symptom inventories. Finally, Bauman and Summers (2009) found that biculturalism moderated associations between bullying and depressive symptoms in a sample of middle-school aged Mexican American youth. Studies have yet to investigate the link between biculturalism and anxiety symptoms.

The evidence linking biculturalism with improved mental health in Latino youth has not always been consistent though (Cano et al., 2015; Lorenzo-Blanco et al., 2012). For example, Cano and colleagues (2015) found no direct link

between biculturalism and alcohol use or depressive symptoms among a sample of late adolescent Latinos. However, indirect links were established when moderators of ethnic discrimination and intragroup marginalization were taken into account. Lorenzo-Blanco and colleagues (2012) found no direct link between biculturalism and substance use, but did find an indirect link through perceived discrimination.

The inconsistency of past results and lack of research examining anxiety symptoms in past studies led to the development of the current study. Generally, I hypothesized that biculturalism would promote better well-being within our sample of college-bound Latino youth. I predicted that those who scored higher on biculturalism would also report lower levels of depressive symptoms, anxiety symptoms, stress symptoms, and alcohol use.

I have several exploratory sub aims. First, given identified gender differences in internalizing and externalizing symptoms, I predicted that the association between biculturalism and both internalizing and externalizing outcomes would differ for males and females (Lorenzo-Blanco et al., 2012; Rosenfield, Phillips, & White, 2006). Specifically, it was hypothesized that biculturalism would be protective for females in the prediction of depressive symptoms, anxiety symptoms, and stress symptoms, and for males in the prediction of alcohol use. Additionally, this research study also aimed to explore whether the dimensions of biculturalism (bicultural comfort and bicultural facility) differ in the prediction of mental health outcomes.

Method

Participants

Data were collected as part of a longitudinal study being conducted at a large southwestern university in the United States. A sample of 209 Latino/a late adolescents was recruited during the spring semester of their high school senior year through phone calls, email correspondence, and orientation sessions. Participants all lived within 35 miles of the university and planned to attend in the fall. The sample consisted of 136 females and 73 males between the ages of 16-19 (35% male, $M_{age}=17.59$, $SD=.531$). All participants identified as Latino/a, and furthermore, 85.1% identified as

being of Mexican descent ($n=178$). 10.6% were first generation immigrants, and 62% second generation immigrants.

Procedure

The Institutional Review Board from the university approved all measures and procedures. Participants completed an online questionnaire that took approximately 60- 80 minutes to complete. The questionnaire assessed a wide range of behaviors and attitudes. Included in this questionnaire were the Depression, Anxiety, and Stress Scale, Alcohol use and Binge Drinking Scale, and the Mexican American Biculturalism Scale, which were used for this study. Signed consent forms were obtained from the participants, and also obtained from the parents if the participant was under the age of 18. Participants were paid \$25 for completing the questionnaire.

Measures

Internalizing. One of the scales completed by participants during the questionnaire was the Depression, Anxiety, and Stress Scale (DASS; Lovibond and Lovibond, 1995). This scale was used to assess internalizing symptoms, as it contains items related to depression (14 items), anxiety (14 items), and psychological stress (14 items). Sample items include "I couldn't seem to experience any positive feelings at all" and "I felt I was close to panic." Participants indicated how strongly the statements applied to their past week, with scores ranging from 0 "Did not apply to me at all" to 3 "Applied to me very much, or most of the time." A sum score for each scale was calculated. The DASS has shown good reliability and validity in a variety of settings and with samples of Latino adolescents and young adults (Corona et al., 2017; Antony et al., 1998; Brown et al., 1997). Internal consistency in this sample was good, with Cronbachs alpha of .95 for depressive symptoms, .89 for anxiety, and .93 for stress.

Alcohol Use. Alcohol use was assessed using the "Alcohol use and Binge Drinking" scale from Monitoring the Future (Johnston et al., 2015). The question for this study asked "On how many occasions (if any) have you used alcohol... during the past 30 days?" Respondents could choose a category from 0, 1-2, 3-5, 6-9,

10–19, 20–39, to 40 or more occasions of alcohol use.

Biculturalism. Biculturalism was assessed using the Mexican American Biculturalism Scale (MABS; Basilio et al., 2014). For the current study, the wording was adjusted from "Mexican American" to include all Latinos. The scale contains three subscales: bicultural comfort, bicultural facility, and bicultural advantages. The first two subscales were used for this study. For bicultural comfort, the responses ranged from 1 (e.g., "*I am only comfortable when [I need to speak in English/Spanish]*") to 5 (e.g., "*I am always comfortable in both of these situations*"). Higher scores indicated high bicultural comfort. Bicultural facility was assessed through agreement statements such as "Needing to speak Spanish sometimes, and English other times is _____," and responses ranged from 1 (*very easy*) to 5 (*very difficult*). Responses were reverse scored, and higher scores indicated higher levels of bicultural facility. Items were summed to create subscale scores. In this sample the subscales were highly correlated ($r = .87$), and therefore the mean of the two scales was used in all analyses.

Data Analysis Plan

Frequencies, means, and standard deviations were calculated for all study variables. To examine correlational associations between study variables, zero order correlations were run. Correlations between biculturalism, mental health outcomes, and potential covariates were examined. Secondly, multivariate linear regressions were performed, one for each outcome (depressive symptoms, anxiety symptoms, stress symptoms, alcohol use) to identify the relative influence of biculturalism on the mental health outcomes. Socio-demographic variables of interest were included as covariates (gender, ethnicity [Latino only or bi-ethnic/multiethnic], parent education, immigration generation). Next, moderating pathways were tested. An interaction term between gender and biculturalism was generated and entered into the multiple regression models. Simple slopes were examined to decompose significant interactions. Statistical analyses were run using SPSS. A significance level of $p < .05$ was used for all analyses.

Results

Descriptive Statistics and Correlations

Sum scores on the depressive symptoms scale were 7.32 ($SD = 8.63$), on the anxiety symptoms scale 7.93 ($SD = 7.29$), and on the stress symptoms scale 9.88 ($SD = 8.90$). These average scores fall within the mild severity categories for the symptoms, indicating relatively mild rates of internalizing symptoms in our sample. Although the overall mean scores for internalizing symptoms were low, there was high variability in responses. The mean alcohol use in our sample was about 1-2 occasions of drinking within the past 12 months, indicating that our sample did not highly endorse drinking behaviors. Bicultural comfort and bicultural facility were correlated at $r = .87$, so they were combined for an overall biculturalism score. The mean overall biculturalism score among the sample was 3.59, indicating a moderately to highly bicultural sample.

Descriptive statistics and correlations are presented in Table 1. Correlations revealed that higher bicultural values were associated with lower depressive symptoms ($r = -.33$, $p < .001$), lower anxiety symptoms ($r = -.23$, $p < .01$), lower stress ($r = -.33$, $p < .001$), and greater alcohol use ($r = .16$, $p < .05$; see Table 1).

Main effects

In multivariate analyses and after adjusting for covariates, similar patterns emerged (Table 2). Covariates include parental education, gender, immigration generation, and ethnicity (Latino only or bi/multi ethnic). Greater endorsement of bicultural values was associated with lower depressive symptoms ($\beta = -.28$, $p < .001$), anxiety symptoms ($\beta = -.18$, $p < .05$) and stress ($\beta = -.27$, $p < .001$). Interestingly, higher endorsement of bicultural values was associated with increased levels of alcohol use ($\beta = .21$, $p < .01$).

Moderating effects

Gender was next examined as a moderator. No significant moderating effects were found for biculturalism and depressive symptoms, anxiety symptoms, or stress symptoms. Gender did, however, significantly moderate the relationship between biculturalism and alcohol use ($\beta = -0.24$, $p < .001$; Table 3). After running a simple slopes analysis, results suggested that this relationship was significant

for females ($\beta = .34, p < .001$), but not for males ($\beta = -.13, p = .30$). Females with higher biculturalism scores were shown to report the highest occurrences of drinking (Figure 1).

Discussion

The current study found that high bicultural values were associated with lower depressive symptoms, lower anxiety symptoms, and lower stress symptoms. Surprisingly, I also found a positive correlation between bicultural values and reports of alcohol use, especially among the highly bicultural females in our study. This may suggest that biculturalism is protective in the prediction of internalizing symptoms for all Latino adolescents, and a potential risk factor for alcohol use among Latina adolescents.

Past research has suggested biculturalism to be protective against depressive symptoms (Bauman & Summers, 2009; Wei, 2010). Consistent with past research, our study further corroborated the connection between higher biculturalism and lower levels of depressive symptoms. Past research had not addressed the link between biculturalism and anxiety or stress, but the current study expanded upon foundations by investigating these relationships. The current study showed biculturalism was correlated with lower anxiety and stress symptoms, suggesting that biculturalism may be an important protective factor against the development of internalizing symptoms more generally. Past research has shown biculturalism to be associated with lower levels of substance use in Latino youth (e.g., Goldberg, 1993; Losoya et al., 2008). However, the current study found biculturalism was related to greater alcohol use, particularly among females in the sample. The inconsistency between past and current findings could be due to the population differences. Past research studied multiple ethnic groups (Wei, 2010) or Mexican-American juvenile offenders (Losoya et al., 2008). The cultural and adjustment processes for these populations might highly vary from the experiences of the current population (college-bound Latino adolescents).

While biculturalism has been found to be beneficial across a range of populations, bicultural values may be particularly beneficial to the sample studied because it may help

adolescents navigate between both cultures during times of transition or change (e.g., the transition to college). Because the transition to college involves many highly acculturative demands, high acculturation levels could benefit Latino adolescents during this life stage. By adapting or endorsing more American cultural values, adolescents can take advantage of opportunities in the higher education environment which values independent ideals and success. In addition, enculturation could also promote success for Latino adolescents through emphasis on familismo, respeto, and other Latino cultural values. By also remaining oriented to one's own Latino culture, the individuals might be provided with resources that help them adapt to new situations and contexts (Gonzales et al., 2012). Studies have shown that bicultural youth who can interact well within both contexts have the highest resiliency, which might explain the decreased risk for internalizing symptoms (Gunnestad, 2006; Sirikantraporn, 2017).

Interestingly, we identified a pattern of associations between biculturalism and alcohol use that differed by gender, and was inconsistent with past research and our hypothesis. Gender differences were predicted based on known female prevalence of internalizing disorders and male prevalence of externalizing disorders (Lorenzo-Blanco et al., 2012; Rosenfield et al., 2006). Past research had not studied the interaction between biculturalism and gender and its effect on alcohol use. In this study, biculturalism was associated with greater alcohol use among females, but not males in our sample. It is possible that Latina adolescents may face increased acculturative peer pressure. Perhaps higher rates of alcohol use are the method by which these bicultural individuals have adapted to the American contexts. As they are trying to navigate through this life transition to college, the bicultural females may be susceptible to peer group influences. Alcohol use among females who reported low levels of biculturalism was approximately 1-2 occasions of drinking over the last year and was 3-5 occasions of drinking in the last year for females who were high on bicultural values. While the bicultural females are still not endorsing high levels of alcohol use overall, the increase

between 1-2 occasions and 3-5 occasions is significant. The effect of biculturalism on drinking behaviors was not significant for males. Whether highly or lowly bicultural, males endorsed a fairly low level of drinking behaviors (average 1-2 occasions of drinking in the past 12 months). Perhaps the males are not as susceptible to peer group influences, or by being influenced through different pathways.

The current study had multiple strengths and limitations. A strength of this study was its large, diverse sample. The 209 participants consisted of Latinos endorsing different countries of origin, generational status, and socioeconomic level. Another strength is that the data were collected from 16-19 year old students who were transitioning to college. Data from this key life stage could be used towards developing prevention strategies against internalizing and externalizing symptoms in college. One limitation of the study was its use of self-report measures for all bicultural values and mental health symptoms. Participants could have forgotten, exaggerated, lied, or estimated on the measures used for this study. The study is also cross-sectional, so it could not delineate the trajectory of how reports of biculturalism and adjustment outcomes will change once the participants begin college. Another limitation of the current study was that the population utilized was relatively low risk. On average, participants did not endorse high levels of any outcome. In particular, alcohol use was very lowly endorsed.

Future studies should continue to investigate the link between biculturalism and internalizing and externalizing symptoms among students once they enter college. Longitudinal data could show the changes in biculturalism and adjustment outcomes upon beginning college. The data from this study could also be used to guide targeted interventions for the promotion of Latino success in college. This could implicate that preventing internalizing symptoms in Latinos involves strategies focused on increasing biculturalism. However, highly bicultural Latino females might need additional interventions targeting substance use. Programs should specifically target bicultural females as at risk for developing externalizing symptoms. Ultimately, further research needs to be conducted on the effects of biculturalism on

mental health outcomes and interventions involving biculturalism in order to promote wellbeing and adjustment among Latino adolescents.

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Table 1 Descriptive Statistics and Zero-Order Correlations

	1	2	3	4	5	6	7	8	9	10	11
1. DASS Depression Scale	-										
2. DASS Anxiety Scale	.61***	-									
3. DASS Stress Scale	.68***	.72***	-								
4. Occasions of Alcohol Use	-.01	.0	-.04	-							
5. Biculturalism Overall	-.33***	-.23**	-.33***	.16*	-						
6. Bicultural Comfort	-.27***	-.18*	-.29***	.16*	.92***	-					
7. Bicultural Facility	-.31***	-.25***	-.30***	.12	.85***	.58***	-				
8. Parent Education	-.02	-.02	.03	.11	-.11	-.10	-.10	-			
9. Immigration Generation	.05	-.07	.03	.11	-.15*	-.13†	-.14*	.44***	-		
10. Sex	-.08	-.12†	-.19**	-.02	.28***	.28***	.22**	.09	.06	-	
11. Ethnicity	.12†	.15*	.05	-.04	.05	.07	.01	-.34***	-.45***	-.11	-
Mean	7.32	7.93	9.88	1.85	3.59	3.41	3.77	3.70	2.63	.34	.83
Standard Deviation	8.63	7.23	8.90	1.26	.70	.89	.68	2.36	2.33	.48	.38
Minimum	.00	.00	.00	1.00	1.94	1.22	1.44	1.00	.00	.00	.00
Maximum	42.0	39.0	40.0	7.00	5.00	5.00	5.00	10.0	7.00	1.00	1.00
Skewness	1.58	1.45	1.24	1.74	.00	-1.00	-.45	.79	.77	.66	-1.75
Kurtosis	2.16	2.28	1.24	2.84	-.61	-.77	.29	-.42	-.88	-1.58	1.06

Note. Sex: Male= 1, Female= 0; Ethnicity: Latino=1, Multi-ethnic=0; Parent education: measure of socioeconomic status (mean composite of father and mother’s highest level of education). † $p < 0.10$; * $p < .05$; ** $p < .01$; *** $p < .001$

Table 2 Multiple Regression Analyses estimating Mental Health Outcomes to Biculturalism

	DASS Depression				DASS Anxiety				DASS Stress				Alcohol Use			
	Est.	SE	β	t	Est.	SE	β	t	Est.	SE	β	t	Est.	SE	β	t
Constant/ Intercept	7.20	0.57		12.73***	7.76	0.48		16.02***	9.90	0.59		16.75***	1.82	0.09		20.36***
Biculturalism Overall	-3.36	0.87	-0.28	-3.85***	-1.84	0.75	-0.18	-2.46*	-3.36	0.91	-0.27	-3.68***	0.38	0.14	0.21	2.72**
Parent Education	-0.18	0.27	-0.05	-0.67	0.09	0.23	0.03	0.37	0.06	0.29	0.02	0.19	0.06	0.04	0.12	1.47
Immigration Generation	0.47	0.29	0.13	1.61	-0.10	0.25	-0.04	-0.41	0.14	0.31	0.04	0.46	0.04	0.05	0.07	0.76
Sex	0.57	1.26	0.03	-0.48	-0.75	1.08	-0.05	-0.70	-1.88	1.31	-0.10	-1.43	-0.26	0.20	-0.10	-1.31
Ethnicity	3.78	1.72	0.17	2.20*	2.81	1.47	0.15	1.91†	1.67	1.79	0.07	0.94	0.01	0.27	0.00	0.02

R ²	.11	.07	.11	.05
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Note. N = 209 Sex: Male= 1, Female= 0; Ethnicity: Latino=1, Multi-ethnic=0; Parent education: measure of socioeconomic status (mean composite of father and mother’s highest level of education). † p<0.10; *p< .05; **p< .01; ***p<.001

Table 3 Multiple Regression Analyses estimating Mental Health Outcomes to Biculturalism with Gender as a Moderator

	DASS Depression				DASS Anxiety				DASS Stress				Alcohol Use			
	Est.	SE	β	t	Est.	SE	β	t	Est.	SE	β	t	Est.	SE	β	t
Constant/ Intercept	7.21	0.59		12.16***	7.65	0.51		15.10***	9.99	0.62		16.16***	1.90	0.09		20.97***
Biculturalism Overall	-3.37	0.88	-0.28	-3.84***	-1.81	0.75	-0.18	-2.41*	-3.38	0.92	-0.27	-3.69***	0.36	0.14	0.20	2.69**
Parent Education	-0.18	0.27	-0.05	-0.67	0.09	0.23	0.03	0.40	0.05	0.29	0.01	0.17	0.06	0.04	0.11	1.37
Immigration Generation	0.47	0.29	0.13	1.61	-0.10	0.25	-0.03	-0.39	0.14	0.31	0.04	0.44	0.03	0.05	0.06	0.73
Sex	0.57	1.29	0.03	0.44	-0.94	1.11	-0.06	-0.85	-1.72	1.35	-0.09	-1.28	-0.11	0.20	-0.04	-0.58
Ethnicity	3.78	1.72	0.17	2.20*	2.80	1.47	0.15	1.90†	1.69	1.80	0.07	0.94	0.01	0.27	0.01	0.09
Gender X Biculturalism	-0.04	1.83	0.00	-0.02	1.18	1.57	0.05	0.75	-0.99	1.91	-0.04	-0.52	-0.92	0.28	-0.24	-3.29***
R ²	.11				.07				.11				.11			

Note. N = 209 Sex: Male= 1, Female= 0; Ethnicity: Latino=1, Multi-ethnic=0; Parent education: measure of socioeconomic status (mean composite of father and mother’s highest level of education). † p<0.10; *p< .05; **p< .01; ***p<.001

Figure 1 *Moderating Effect of Gender on Biculturalism and Alcohol Use*

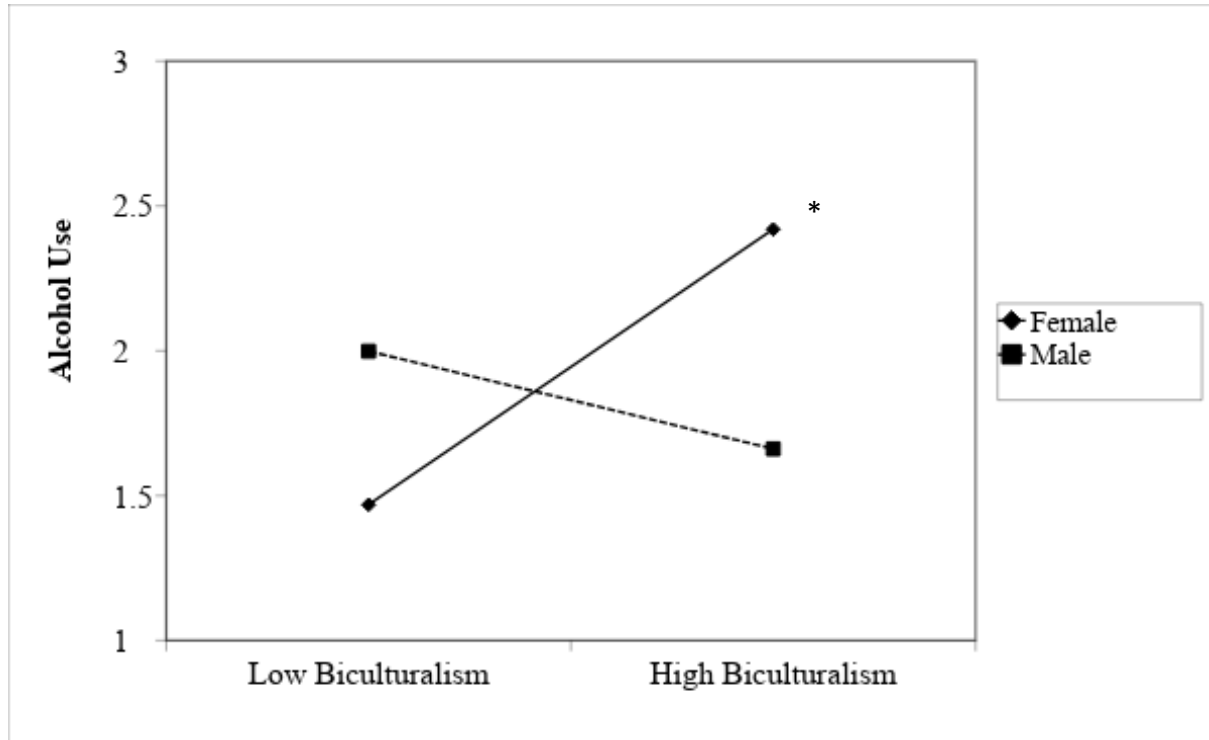


Figure 1. Figure 1 shows the interaction between biculturalism and gender and the effect on alcohol use. Covariates were ethnicity, parent education, gender, and immigration generation. * indicates the significant line ($p < .001$).