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## Associations of Acculturation and Gender with Obesity and Physical Activity among Latinos

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### Abstract

**Objective:** Latinos disproportionately experience overweight/obesity (OWOB) and insufficient physical activity (PA), which are risk factors for numerous health conditions. Whereas numerous studies investigate acculturation as a determinant of OWOB and PA, few have examined acculturation multidimensionally, and none has examined its interaction with gender.

**Methods:** Participants were 140 Latino adults. Primary outcomes were status as OWOB and endorsement of insufficient PA. Acculturation was measured with the Multidimensional Acculturation Scale II. Logistic regression analyses were used to examine the moderating effect of gender on the relationship between each acculturation scale and outcome, controlling for education, nativity, and smoking status.

**Results:** Greater Spanish proficiency was significantly associated with lower odds of insufficient PA. Greater American Cultural Identity was significantly associated with higher odds of OWOB. Women had significantly higher odds of endorsing insufficient PA compared to men. Gender did not moderate the relationship between acculturation and either OWOB or PA.

**Conclusions:** Acculturation is similarly associated with OWOB and insufficient PA for Latino men and women. Cultural identity may need to be considered to target OWOB interventions. Acculturation may be less important, and gender more important, to consider for appropriate targeting of PA interventions.

### Keywords

obesity; physical activity; acculturation; Latinos

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Human Subjects Approval Statement

The study was approved by the Institutional Review Board of The University of Texas MD Anderson Cancer Center.

Disclaimer

The contents of this manuscript are solely the responsibility of the authors and do not necessarily represent the views of the National Cancer Institute or the American Cancer Society.

Conflict of Interest Disclosure Statement

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## INTRODUCTION

Latinos in the United States (US) have disproportionately higher rates of overweight and obesity (OWOB) and insufficient physical activity (PA).<sup>1-7</sup> Latino men and women have the highest and second highest rates of OWOB (81.8% and 78.8%, respectively) compared to their white counterparts (75.3% and 64.4%, respectively).<sup>8</sup> Latinos are also less likely to engage in federally recommended levels of PA compared to their white counterparts.<sup>9</sup> OWOB and insufficient PA are modifiable risk factors for various health conditions disproportionately experienced by Latinos in the US, such as diabetes, heart disease, stroke, hypertension, and various cancers.<sup>2,10-13</sup> Latinos have disproportionately higher rates of diabetes and viral mediated cancers, which are associated with these risk factors.<sup>14-18</sup>

Authorities estimate that OWOB related healthcare costs will range from \$860-\$956 billion by 2030, or 15.8-17.6% of the nation's total healthcare costs.<sup>13</sup> Given that the Latino population remains the largest racial/ethnic minority group in the US<sup>19,20</sup> there is a need to improve understanding of the factors associated with OWOB and insufficient PA in this population. Such knowledge stands to contribute to the development and improvement of interventions that address these health risk behaviors. This, in turn, could lead to more effective interventions that positively impact both the public health burden of OWOB, and the disproportionate burden of its consequences among Latinos.

One factor that has received significant attention for its associations with health risk behaviors among Latinos in the US, and that has particular cultural relevance, is acculturation. Acculturation is the process by which individuals selectively retain elements of their culture of origin while also selectively adopting elements of mainstream culture with regard to behaviors, practices, values, and self-identifications.<sup>21</sup> What is known about the association of acculturation with OWOB and PA among Latinos is largely limited to differences in these risk factors as a function of language preference or proficiency, nativity, and years of US residency.<sup>1,4,21-24</sup> Findings generally support the epidemiological phenomenon known as the Hispanic Paradox,<sup>25</sup> in that greater acculturation, as indicated by these proxies, is associated with higher rates of OWOB and lower rates of PA. Although, acculturation historically has been assessed with unidimensional measures and demographic proxies, it is widely acknowledged that the psychological process of acculturation is multifaceted and these proxy measures are limited in both content and construct validity. Thus, studies using more theoretically grounded, multidimensional measures of acculturation are needed. Furthermore, despite observed gender differences in the rates of OWOB and PA, and observed gender differences in the association of acculturation with other health behaviors (eg, smoking, smoking cessation, alcohol consumption),<sup>26-32</sup> no published work has examined the potential moderating effect of gender on the relationship between acculturation and OWOB or PA.

### Acculturation Indicators and OWOB

Twelve published studies have examined the relationship between language use, preference, or proficiency and OWOB among Latinos. Seven studies found a positive relationship between English language preference or proficiency and OWOB.<sup>1,33-38</sup> Five studies found no relationship between a multi-item scale of language use and OWOB.<sup>33,39-41</sup> Ahluwalia et

al.<sup>33</sup> further examined associations separately for men and women and found no significant association between language use and OWOB for either group.

Nine published studies examined the relationship between nativity and OWOB among Latino adults, all of which found that those born in the US are more likely to be OWOB compared to those born outside the US. Furthermore, among non-US born Latinos, more years of residency is consistently associated with increased odds of OWOB.<sup>1,11,34,40,42-45</sup>

### Acculturation Indicators and PA

Twenty-seven published studies have examined the relationship between language preference or proficiency and PA among Latinos. Twenty of these studies found that Latinos who preferred to speak English or were English proficient were less likely to report engaging in insufficient PA compared to those who preferred to speak Spanish or were Spanish proficient.<sup>4,34,36,41,45-60</sup> In contrast, three studies observed English proficiency or preference to be associated with greater likelihood of engaging in insufficient PA.<sup>61-63</sup> Four studies that used a multi-item measure of language use or preference found no associations with PA.<sup>37,39,42,64</sup>

Thirteen published studies have examined the relationship between nativity or residency and PA. Eight found that US born Latinos and foreign-born Latinos with more years of US residency were less likely to engage in insufficient PA compared to non-US born persons and persons who are recent immigrants, respectively.<sup>45,46,51,54,59,65-67</sup> One study<sup>68</sup> found the opposite association and 2 studies found no associations.<sup>11,52</sup> Corral and Landrine<sup>69</sup> found that being US-born was significantly associated with greater likelihood of engaging in any PA in the last 30 days among both men and women. Martinez et al.<sup>62</sup> found that foreign-born persons with less than 12 years in the US had a greater probability of engaging in recommended levels of non-leisure time PA. However, this association was only statistically significant for women.<sup>62</sup>

### Summary

The extant research suggests that nativity and length of US residency are consistently positively associated with OWOB, whereas findings regarding English preference/proficiency and OWOB are mixed. Also, the research generally suggests that nativity, length of US residency, and English preference/proficiency are negatively associated with endorsement of insufficient PA although several exceptions are noted.

Across all the studies reviewed herein, one major limitation is the lack of a theory-informed, multidimensional and bidirectional measure of acculturation. Thus, despite the abundance of published research in this area, our current understanding of acculturation influences on OWOB and PA remains extremely narrow. A second limitation is that the few studies reviewed herein that considered gender examined the relationship between acculturation indicators and OWOB or PA separately for men and women but did not explicitly examine the interaction effect of gender. Thus, although these studies speak to the relationships observed in each gender, they cannot speak to whether or not those relations differ between genders.

As such, the purpose of our study was to examine the associations of acculturation with status as OWOB and insufficient PA among Latino adults using a multidimensional measure of acculturation that assesses orientation toward both American and Latino cultures as well as directly examine gender as a moderator of these associations. Extrapolating from the associations observed in the published research, we hypothesized that: (1) greater endorsement of American cultural domains (English proficiency, American cultural identity) would be positively associated with OWOB and negatively associated with insufficient PA; and (2) greater endorsement of Latino cultural domains (Spanish proficiency, Latino cultural identity) would be negatively associated with OWOB and positively associated with insufficient PA. Due to the limited work examining gender differences in these associations, we refrained from stating a priori hypotheses and approached this aim as exploratory.

## METHODS

### Participants

Participants were 140 bilingual Latino residents of a major metropolitan area of the southcentral US. Inclusion criteria for the study were: (1) self-identification as a Latino/a; (2) ages 18 to 65 years old; (3) a valid home address and telephone number; and (4) marginal to adequate health literacy in English and Spanish, defined as scores of at least 45 on the Rapid Estimate of Adult Literacy in Medicine<sup>70</sup> and 38 on the Short Assessment of Health Literacy for Spanish Adults.<sup>71</sup> Exclusion criteria were: (1) another household member enrolled in the study; (2) use of an illicit substance in the past 30 days; (3) use of other tobacco products besides cigarettes; (4) participation in a smoking cessation program in the last 90 days; (5) pregnant or breastfeeding; or (6) current use of nicotine replacement products.

### Procedures

We utilize data from a longitudinal cohort study of determinants of multiple health risk behaviors among Latino adults. We recruited participants via local newspaper and radio advertisements and in-person outreach. Participants completed traditional paper-and-pencil self-reported questionnaires, and 7 days of ecological momentary assessment surveys. For this study, we used only paper-and-pencil questionnaire data. Additional details on procedures for the larger study are available in Reid et al.<sup>72</sup>

### Measures

**Demographics.**—Sociodemographic characteristics we examined in the current study were gender (male or female), educational attainment (high school diploma/GED or less vs more than a high school education), employment status (employed full- or part-time vs not employed), nativity (US born vs not US born), and smoking status (current smoker vs current non-smoker).

**Acculturation.**—Acculturation domains were assessed with the Multidimensional Acculturation Scale- II.<sup>73</sup> The MAS-II is a 22-item self-report measure of involvement and identification with Latino heritage culture and mainstream American culture. The MAS-II contains 4 subscales: *English Proficiency*, *Spanish Proficiency*, *American Cultural*

*Identification*, and *Latino Cultural Identification*. Language proficiency items are rated on a scale from 1 to 6, with mean scores ranging from 1.1 to 5.2. Cultural identity is rated on a scale from 1 to 5, with mean scores ranging from 1 to 5. Higher mean scores are interpreted as higher levels of acculturation toward the respective culture. Previous studies demonstrate the validity and reliability of the MAS-II.<sup>73,74</sup> In the current study, composite reliability ( $\omega$ ) for each of the subscales was as follows: Spanish Proficiency=0.89, English Proficiency=0.87, Latino Cultural Identification=0.83, and American Cultural Identification=0.77.

**Overweight and obesity (OWOB).**—Status as overweight or obese (OWOB) was defined as a BMI of 25 or higher, and a BMI lower than 25 was defined as ‘not overweight or obese’.<sup>46,75</sup> Body mass index (BMI) was calculated by dividing each participant’s weight in pounds by their height in inches squared and multiplying the resulting value by a factor of 703. Height and weight measurements were taken consistent with<sup>76</sup> and involved taking 2 consecutive measurements rounded to the nearest tenth, which are then averaged to produce a final measurement.

**Physical activity (PA).**—PA was assessed using the PA questions of the Behavioral Risk Factor Surveillance System.<sup>77</sup> Participants were asked to report whether or not they engaged in more than 10 minutes of moderate or vigorous PA per week outside of their employment. If participants responded “yes,” they were asked to specify the number of days per week and minutes per day they engaged in moderate and vigorous PA. Insufficient PA was defined as less than 150 minutes of moderate and less than 75 minutes of vigorous PA. Sufficient PA was defined as 150 (or more) minutes of moderate and 75 (or more) minutes of vigorous PA. These cut-offs are consistent with federal physical activity recommendations for adults.<sup>78</sup>

## Data Analysis

The proportion of missing data for each variable was calculated and descriptive statistics were estimated separately for men and women. Multiple logistic regression analysis was the primary data analytic approach in the current study. Analyses were conducted in Version 8 Mplus<sup>79</sup> using full information maximum likelihood estimation to account for missing data. Primary outcomes were status as OWOB (overweight/obese=1, not overweight/obese=0) and endorsement of insufficient PA (insufficient PA=1, sufficient PA=0). The focal predictors of interest were English Proficiency Spanish Proficiency American Cultural Identity and Latino Cultural Identity. One logistic regression analysis was conducted examining the association of each MAS-II subscale with each of the outcomes of interest, for a total of 8 analyses. To examine the moderating effect of gender on the relationship between acculturation domains and status as OWOB or insufficient PA, 4 multiple logistic regression analyses were conducted with each outcome of interest, for a total of 8 additional analyses. Each analysis included gender, one of the 4 acculturation subscales, the interaction term of gender and the acculturation subscale being examined, and the specified covariates. Gender (female=1, male=0) was designated as the moderator in all moderation analyses. Educational attainment (more than a high school education=1, high school diploma/GED or less=0), employment status (employed full-/part-time=1, not employed=0), nativity (US-born=1, not US-born=0)

and smoking status (current smoker=1, non-smoker=0) were used as covariates. In analyses not testing moderation, gender was used as an additional covariate.

## RESULTS

### Missing Data

Of the 12 variables used in the analyses, 5 had no missing data (age, educational attainment, employment status, gender, and smoking status). For the remaining 7 variables, missing data ranged from 0.7% (nativity) to 12.6% (OWOB).

### Participant Characteristics

Table 1 summarizes participant characteristics. The sample was comprised of slightly more women than men (78 women [55.7%] vs 62 men [44.3%]). There were statistically significant differences between men and women on smoking and PA status. More women reported insufficient PA (43.9%; 95% CI=32.5-56.0) compared with men (25.0%; 95% CI=15.4-37.9). More men endorsed current smoking (59.7%; 95% CI=47.1-71.1) compared with women (32.1%; 95% CI=27.7-43.1). In addition, women scored higher on the Spanish proficiency subscale of the Multidimensional Acculturation Scale (4.4; 95% CI=4.2-4.5) compared to men (4.0; 95% CI=3.8-4.2).

Table 2 summarizes the bivariate correlations among all variables. Regarding the key predictors and outcomes of interest, bivariate correlations indicate that those with more than a high school education and those born in the US had higher mean English proficiency scores than those with a high school education or less ( $r=.28$ ), and those not born in the US ( $r=.36$ ), respectively. Women, non-smokers, those not born in the US, and those with more than a high school education had higher mean Spanish proficiency scores compared to men ( $r=.22$ ), current smokers ( $r=-.21$ ), those born in the US ( $r=-.48$ ) and those with a high school education or less ( $r=.29$ ), respectively. Those who were OWOB were less likely to be employed ( $r=-.17$ ) and had higher mean American Cultural Identity scores ( $r=.20$ ) than those who were not OWOB. Those who engaged in insufficient PA were more likely to be women ( $r=.21$ ). Thus, in bivariate analyses, the only significant association among the key predictors and outcomes of interest was that of American Cultural Identity with insufficient PA.

### Multivariate Associations of Acculturation Domains with OWOB and Insufficient PA

Table 3 summarizes adjusted analyses of the associations between acculturation domains and OWOB and insufficient PA. American Cultural Identity was significantly associated with OWOB such that a one-point increase in American Cultural Identity score was associated with an 89% increase in odds of being OWOB (adjusted odds ratio [AOR]=1.89; 95% confidence interval [CI]=1.08-3.31). Spanish Proficiency was significantly associated with insufficient PA such that a one-point increase in Spanish Proficiency score was associated with a 50% decrease in odds of reporting insufficient PA (AOR=0.5, 95% CI=0.28-0.88). In all models examining insufficient PA, women had 2.3 to 2.8 times the odds of endorsing insufficient PA compared to men. In none of the 8 moderation analyses was the interaction effect of gender and acculturation domain significant (all  $p$ s



>.05). Additional models were conducted that examined gender interactions with each acculturation subscale, while controlling for its counterpart subscale (eg, gender interaction with Spanish Proficiency while controlling for English Proficiency). These additional analyses did not provide any different results (results not shown).

## DISCUSSION

Our study is among the first to examine multiple domains of acculturation and their associations with OWOB and PA, as well as the first to examine the potential moderating effect of gender on these associations. Controlling for smoking status, gender, and other sociodemographic variables, greater Spanish proficiency was associated with lower odds of endorsing insufficient levels of PA, and greater endorsement of American Cultural Identity was associated with higher odds of being OWOB. Gender was consistently associated with PA status, such that women demonstrated higher odds of endorsing insufficient PA compared to men in each analysis, over and above smoking status, sociodemographic variables, and any given acculturation domain. Neither English proficiency nor Latino Cultural Identity were associated with either OWOB or PA status. In addition, we did not find a gender-differentiated effect of acculturation domains on OWOB or PA status.

In the studies reviewed here, Spanish and English proficiency were largely treated as opposite ends of a single continuum. Thus, a novel aspect of our study was the use of a multidimensional scale that allowed for independent measurement of English and Spanish proficiency. This approach may allow for more specific insights into the nature of the relationship between language proficiency and the outcomes examined here. For example, previous work has demonstrated that endorsement of English versus Spanish use or proficiency is negatively associated with insufficient PA.<sup>50-52,69</sup> Our findings may suggest this previously observed association may be primarily a function of decreasing Spanish competency rather than increasing English competency.

Additionally, controlling for relevant sociodemographic variables may help clarify what accounts for the association between language proficiency and insufficient PA, as our results suggest a suppression effect<sup>80</sup> of the covariates on the relationship between Spanish proficiency and insufficient PA. Specifically, bivariate correlations demonstrate that insufficient PA bears a non-significant negative correlation with Spanish proficiency ( $r = -.13$ ; equivalent to an odds ratio of .70) and a non-significant positive correlation with educational attainment ( $r = .10$ ; equivalent to an odds ratio of 1.4). These relationships become larger in adjusted analyses (AOR=.50 and AOR=2.10, respectively) and the effect of Spanish proficiency becomes statistically significant. In addition, the bivariate correlation between educational attainment and Spanish proficiency is positive and statistically significant ( $r = .29$ ). This suggests that greater Spanish proficiency may be indicative of higher educational attainment in this sample. Together, these data suggest that the negative relationship between Spanish proficiency and insufficient PA may be spurious and accounted for by educational attainment, which itself is a known protective factor against insufficient PA.<sup>81-83</sup>

Our finding that women had higher odds of reporting insufficient PA compared with men is also consistent with existing studies.<sup>46,55,58,61</sup> Gender roles and expectations have been influenced by cultural attributes, such as familism, marianismo, and machismo, which have been found to be barriers for Latinas to engage in physical activity.<sup>39,51,84,85</sup> Familism characterizes a strong identification and attachment to family, which can define familial obligations that Latinos prioritize.<sup>86,87</sup> Marianismo further emphasizes the role of women being centered around the family and to model self-sacrifice, nurturing, and spiritual qualities, among others, for their family.<sup>88,89</sup> Latinas have reported prioritizing their familial responsibilities, such as cooking and caring for children, spouses, and parents, and in doing so, do not have time and energy to spend on exercise.<sup>90-93</sup> The counterpart to marianismo, machismo, also has influenced barriers for Latinas to exercise. Machismo refers to men demonstrating characteristics, such as honor, dominance, sexism, and encourages women to stay in traditional roles.<sup>88,89</sup> Latinas have reported not participating in exercise outside the home because their partners discouraged exercising with men<sup>94-96</sup> or worried about attracting attention with their apparel.<sup>97</sup> Additionally, foreign-born women have reported that vigorous physical activity (ie, sports) are “unfeminine” and this attitude discourages them from participating in these types of physical activity, especially when one considers that they will have less support from family and friends.<sup>98</sup>

Physical environment attributes, socioeconomic, and other social attributes may also act as barriers to Latinas endorsing sufficient physical activity. Socioeconomic status tends to impact type of households and neighborhoods individuals live in and the access to support. Latinas are disproportionately low-income compared to Whites, which can limit them to living in communities that have poor physical environment attributes, such as bicycle paths, footpaths, and sidewalks. Having an environment conducive to PA and access to recreational facilities increases opportunities for people to engage in exercise outside work and home.<sup>91,99,100</sup> Latinas are part of groups that have less access to parks and recreational facilities,<sup>101,102</sup> which can be related to insufficient PA. Some of the facilities may be out of reach because of cost or geographical distance.<sup>84</sup> Latinas also may live in multigenerational households, which can limit the physical space and opportunities for Latinas to participate in PA.<sup>84</sup> Additionally, Latinas have reported not having resources for childcare<sup>61,94</sup> or not having help from family.<sup>91,103,104</sup>

The finding that greater American Cultural Identity was positively associated with odds of being OWOB is a highly novel aspect of our study. Furthermore, American identity is positively correlated with nativity and length of US residency,<sup>73,105,106</sup> and all 3 variables have been found to be positively associated with adoption of US cultural practices.<sup>105,107</sup> This includes American dietary practices, which tend to be higher in nutrients that contribute to OWOB, such as fat/saturated fat, sugars, and animal protein.<sup>108</sup> Thus, we speculate that our findings regarding American Cultural Identity and OWOB could be due to nutrition and dietary behaviors that Latino adults may adopt with increasing acculturation as indicated by American identity, nativity, or length of US residency. Foreign-born Latinas have higher fruit and vegetable intake<sup>52,69</sup> and a diet lower in saturated fat<sup>41</sup> relative to those who are US born. Creighton et al.<sup>65</sup> and Satia-Abouta et al.<sup>108</sup> additionally found that third generation immigrant Mexicans reported higher intake of sweetened drinks and fast food compared to those who are first generation immigrants.



Our results further suggest that acculturation to the mainstream culture may be more important to OWOB among Latino adults than the retention of the values, beliefs, and practices of their culture of origin. It may be that socioeconomic factors impact the acculturation process for Latino adults and take on American nutrition patterns. Adults who report food insecurity had higher odds of being obese compared to those without food insecurity.<sup>109</sup> Studies have shown that although there is availability of fresh produce in stores in Latino neighborhoods, the produce is sold at higher prices compared to stores in non-Latino communities.<sup>23,110</sup> Additionally, some neighborhoods may have more fast food restaurants and provide more affordable food choices than supermarkets and grocery stores.<sup>110</sup> Additionally, work demands in this population may make it difficult to consume home meals, which tend to have healthier nutrients than meals outside the home.<sup>111,112</sup> Further research is needed to understand how socioeconomical factors influence cultural values and beliefs with dietary acculturation. Attention to these sociocultural factors will improve nutrition interventions targeting OWOB among Latino adults and policies making healthy produce more affordable.

Sedentary behaviors is another practice that is highly associated with OWOB and is impacted by acculturation.<sup>34,113</sup> US born Latinos experience higher sedentary behaviors, which increases the risk of OWOB.<sup>68,114</sup> US born Latinos and foreign-born Latinos with many years of living in the US have higher sedentary behaviors,<sup>114</sup> which have strongly mediated the relationship between acculturation and obesity.<sup>34,68</sup> It may be that as Latinos acculturate to the mainstream culture, they take on employment that decreases manual labor.<sup>61</sup>

Our study has some limitations. The multidimensional acculturation scale allowed for different constructs of the process to be measured and tested with obesity and insufficient PA. Although the multidimensional scale we used includes more dimensions of the complex acculturation process, namely language proficiency and cultural identity, there are other aspects of acculturation that were not assessed (eg, non-language behaviors/practices, identities).

We focused on leisure time PA. Thus, findings may not generalize to non-leisure time PA. Future studies may benefit from use of a PA scale that differentiates type of PA with multidimensional scales for acculturation. We used a self-report measure of PA, which may result in misreporting of various sorts due to limitations in participant recall and can contribute to overestimation of PA.<sup>115</sup> Similarly, we used BMI as an indicator of OWOB, but some research cautions against the use of BMI in isolation as an indicator of OWOB.<sup>116</sup> Thus, future studies may benefit from use of additional or alternative measures of OWOB and/or PA. Because our study was a secondary analysis of existing data, it was not specifically powered to detect the associations examined here, and lack of significant interaction effects should be considered with this in mind. Our sample over-represents Latinos who smoke; however, the effects of this are mitigated through statistical control. Despite its limitations, our study may have implications for research and intervention. Findings will help future studies identify specific values, beliefs, and norms that impact factors related to OWOB and physical activity among Latino adults. Expanding

the knowledge on cultural norms and values related to acculturation can help create more appropriate culturally-tailored interventions targeting OWOB and insufficient PA.

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**Table 1**

Participant Characteristics

	<b>Estimated Proportion (95% Confidence Interval)</b>	
	<b>Women (N=78)</b>	<b>Men (N=62)</b>
<b>Educational attainment</b>		
>High School/GED	32.1 (22.7–43.1)	40.3 (28.9–52.9)
High School/GED	67.9 (56.0-77.3)	59.7 (47.1-71.1)
<b>Nativity</b>		
US Born	57.2 (45.9-67.7)	69.4 (56.8-79.5)
Foreign Born	42.8 (32.3-54.1)	30.6 (20.5-43.1)
<b>Smoking Status</b>		
Smoker	32.1 (22.7-43.1)	59.7 (47.1-71.1)
Non-smoker	67.9 (56.9-77.3)	40.3 (28.9-52.9)
<b>Employment Status</b>		
Employed (full- or part-time)	44.1 (34.3-56.0)	50.0 (37.8-62.2)
Not Employed	55.1 (44.0-65.7)	50.0 (37.8-62.2)
<b>Overweight/Obesity Status</b>		
Non-overweight/Obese	31.1 (21.6-42.5)	25.9 (16.2-38.6)
Overweight/Obese	68.9 (57.5-78.4)	74.1 (61.4-83.8)
<b>Physical Activity Status</b>		
Sufficient Physical Activity	56.1 (44.0-67.5)	75.0 (62.1-84.6)
Insufficient Physical Activity	43.9 (32.5-56.0)	25.0 (15.4-37.9)
	<b>Estimated Mean (95% Confidence Interval)</b>	
Age	34.4 (31.9-36.8)	38.2 (34.9-41.6)
<b>MAS-II subscales</b>		
Spanish Proficiency	4.4 (4.2-4.5)	4.0 (3.8-4.2)
English Proficiency	4.6 (4.5-4.8)	4.8 (4.7-4.9)
Latino Cultural Identity	4.4 (4.2-4.5)	4.2 (4.1-4.4)
American Cultural Identity	4.3 (4.1-4.4)	4.3 (4.1-4.4)

Note: MAS-II=Multidimensional Acculturation Scale-II.

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**Table 2**  
Bivariate Correlations of Sociodemographic, Acculturation Dimensions, OWOB, and Insufficient PA

	High School/GED	Employed	Current Smoker	US Born	Female	ENG	SPAN	ACI	LCI	OWOB	Insufficient PA
High School/GED	-	0.20*	-0.33**	-0.02	0.09	0.28**	0.29**	-0.06	-0.00	-0.05	0.09
Employed	-	-	-0.18*	-0.07	-0.05	0.01	0.03	0.03	0.13	-0.17*	-0.04
Current Smoker	-	-	-	0.10	-0.28**	-0.05	-0.21*	0.03	-0.08	0.09	-0.03
US Born	-	-	-	-	-0.13	0.36**	-0.48**	0.08	-0.04	0.08	0.00
Female	-	-	-	-	-	-0.14	0.22**	0.02	0.11	-0.07	0.21*
ENG	-	-	-	-	-	-	-0.13	0.05	-0.12	-0.07	-0.09
SPAN	-	-	-	-	-	-	-	-0.15	0.20*	-0.12	-0.13
ACI	-	-	-	-	-	-	-	-	0.55**	0.20*	-0.06
LCI	-	-	-	-	-	-	-	-	-	0.06	-0.13
OWOB	-	-	-	-	-	-	-	-	-	-	0.22*
Insufficient PA	-	-	-	-	-	-	-	-	-	-	-

Note: ACI = American Cultural Identity; ENG= English Proficiency; SPAN= Spanish Proficiency; LCI= Latino Cultural Identity; OWOB= Overweight/obese; PA= Physical Activity.

\* p<.05

\*\* p<.01

**Table 3**  
 Logistic Regression Models of OWOB and Insufficient PA by Acculturation Dimension

Predictor	OWOB		Insufficient PA	
	AOR	95% CI	AOR	95% CI
<b>Model 1: Spanish Proficiency</b>				
US Born (vs foreign-born)	1.09	0.45-2.61	0.66	0.26-1.69
Current smoker (vs non-smoker)	1.22	0.51-2.94	1.26	0.54-2.93
Employed full- or part-time (vs not employed)	0.46	0.20-1.06	0.86	0.39-1.93
Greater than a high school education (vs high school diploma/GED or less)	1.10	0.45-2.69	2.10	0.80-5.51
Female (vs male)	0.82	0.35-1.89	<b>2.83</b>	<b>1.23-6.49</b>
Spanish Proficiency	0.78	0.47-1.32	<b>0.50</b>	<b>0.28-0.88</b>
<b>Model 2: English Proficiency</b>				
US Born (vs foreign-born)	1.53	0.65-3.51	1.32	0.54-3.22
Current smoker (vs non-smoker)	1.26	0.53-3.03	1.29	0.57-2.90
Employed full- or part-time (vs not employed)	0.47	0.21-1.06	0.85	0.39-1.87
Greater than a high school education (vs high school diploma/GED or less)	1.20	0.49-2.94	1.72	0.69-4.29
Female (vs male)	0.74	0.31-1.75	<b>2.36</b>	<b>1.03-5.42</b>
English Proficiency	0.60	0.27-1.35	0.66	0.29-1.51
<b>Model 3: Latino Cultural Identity</b>				
US Born (vs foreign-born)	1.29	0.60-2.81	1.13	0.50-2.52
Current smoker (vs non-smoker)	1.30	0.55-3.09	1.26	0.56-2.87
Employed full- or part-time (vs not employed)	0.46	0.20-1.04	0.98	0.43-2.20
Greater than a high school education (vs high school diploma/GED or less)	1.02	0.43-2.46	1.46	0.61-3.48
Female (vs male)	0.75	0.33-1.73	<b>2.56</b>	<b>1.11-5.92</b>
Latino Cultural Identity	1.39	0.74-2.60	0.65	0.36-1.17
<b>Model 4: American Cultural Identity</b>				
US Born (vs foreign-born)	1.20	0.54-2.62	1.14	0.52-2.52
Current smoker (vs non-smoker)	1.22	0.51-2.92	1.33	0.59-3.04
Employed full- or part-time (vs not employed)	0.44	0.19-1.03	0.91	0.41-2.01
Greater than a high school education (vs high school diploma/GED or less)	1.08	0.45-2.63	1.45	0.62-3.38
Female (vs male)	0.74	0.31-1.74	<b>2.42</b>	<b>1.06-5.54</b>

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Predictor	OWOB		Insufficient PA	
	AOR	95% CI	AOR	95% CI
American Cultural Identity	1.89	1.08 - 3.31	0.87	0.50 - 1.52

Note: OWOB=Overweight/obese; PA=Physical Activity; AOR=Adjusted Odds Ratio.

CI=Confidence Interval. Reference groups for dichotomous variables are noted in parentheses.