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Acculturation, physical activity and television viewing in Hispanic women: findings from the 2005 California Women's Health Survey

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Abstract

Objective—To assess the relationship of acculturation with physical activity and sedentary behaviours among Hispanic women in California.

Design—Data from the 2005 California Women's Health Survey (CWHS) – a cross-sectional telephonic survey of health indicators and health-related behaviours and attitudes – were used.

Setting—Using a random-digit dialling process, data were collected monthly from January to December 2005.

Subjects—A total of 1298 women aged 18 years in California who self-identified as Hispanic.

Results—Of the participants included in the analysis, 49% were adherent to physical activity recommendations (with 150 min of weekly activity signifying adherence). There was no significant association between language acculturation and moderate or vigorous physical activity after controlling for potential confounders such as smoking, age and employment status. There was also no association between duration of residence in the USA and moderate or vigorous physical activity. Language acculturation was positively associated with television (TV) viewing, with highly acculturated women reporting more hours of TV viewing compared with women with an intermediate acculturation score (P=0.0001), and those with an intermediate score reporting more hours of TV viewing compared with those with a low score (P=0.003). This relationship persisted after inclusion of smoking, employment status, age and education in the model.

Conclusions—Higher levels of language acculturation may be associated with increased sedentary behaviours because of the influence of US culture on those women who have assimilated to the culture. Acculturation is an important factor to be taken into account when designing health education interventions for the Hispanic female population.

Keywords

Acculturation; Hispanic; Physical activity; Survey; Latina; Television

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Latinos comprise approximately 36 % of the population in California, with 77 % from Mexico or having Mexican roots(1). Although Latinos comprise the largest minority group in the USA as of 2010, this population continues to be understudied(2). On account of the higher rates of hypertension, obesity, diabetes and metabolic syndrome in Latina women, this group is at higher risk for CVD compared with non-Latino whites(3). Poverty worsens the situation, with a higher rate of overweight among those living below the poverty line compared with those living above(4). Compared with non-Hispanic whites, Latinos experience considerably higher poverty rates, are more likely to be unemployed and earn less than non-Hispanic whites(1).

Physical activity is an important factor in the prevention of overweight and associated chronic disease risk and is touted as an important modifiable component of healthy living(5). Numerous studies have shown a decreased risk of health conditions such as CHD(6), diabetes(7) and osteoporosis(8) with adequate physical activity. Although the importance of physical activity has been well established, many Americans fail to achieve the recommendations, with a high prevalence of minority women reporting being physically inactive during their leisure time(5). Given that Hispanic women appear to be at higher risk for chronic diseases that may be prevented through physical activity(9), this finding has adverse implications for public health. Of note, however, the 2003–2004 National Health and Nutritional Examination Survey (NHANES), which included accelerometers as an objective measure of physical activity, revealed that Hispanic men and women perform higher amounts of total physical activity compared with their white and black counterparts. These accelerometer-driven estimates of physical activity reflect activity across all domains, such as leisure-time, occupational and domestic care activities, as well as activity during active transportation, which may account for the discordant findings among studies on physical activity levels in Hispanic women. The NHANES data also revealed that Hispanic women spent significantly more time in light-intensity physical activity compared with their white and black counterparts(10).

Acculturation, an important consideration in the exploration of health behaviours, may be defined as social, psychological and behavioural changes subsequent to immigration(11). In the Latino population, a higher degree of acculturation has been associated with several behaviours that increase the risk of chronic disease, such as low intakes of fruit and vegetables and higher consumption of fats and artificial drinks containing high levels of refined sugar, as well as high levels of alcohol consumption(12). The relationship between health behaviours and other measures of migration history, such as the duration of residence (in years) in the USA, has also been explored, with similar results in some cases. Studies in the Latino population have indicated an increase in intakes of refined sugar(13), cholesterol(14) and sweetened beverages such as soda and fruit drinks(15) and a decrease in complex carbohydrate(13) intake with an increase in the duration of residence in the USA.

Acculturation also plays a role in influencing the physical activity level(12). An analysis of the relationship between acculturation and level of physical activity among Latina women has been reported in eight stu-dies(16–23). Among these eight studies, four studies did not distinguish between different components of activity, such as occupational *v.* leisure

time(17,20,21,23). Each of these studies found an increase in physical activity with increasing acculturation, with the exception of one, which found no difference in physical activity across acculturation groups(23). The remaining four studies measured different domains of activity and also revealed differing relationships with acculturation on the basis of the type of activity. Two of these studies found a negative relationship between acculturation and occupational activity(19,22); one revealed no relationship between acculturation and walking(16) and a fourth indicated a positive relationship between acculturation and leisure-time activity(18). These studies generally reveal a shift from work-related endeavours to leisure-type activities with increasing acculturation and suggest that acculturation plays a role both in physical activity volume and in specific types and domains of physical activity in which individuals participate, with an increase in activity as a result of acculturation, particularly of the leisure type. Although all except one of the studies identified found a positive relationship between acculturation and some aspect of physical activity, the way in which physical activity was measured varied considerably and often did not include different domains of activity. More research is needed to explore the effects of factors related to social class, such as acculturation, in designing interventions to increase physical activity in low-income Spanish-speaking female populations(24). Although numerous researchers have explored the relationship between acculturation and diet, as well as the use of health services and substance abuse, relatively few have focused on acculturation and physical activity(25). In addition, although several studies have focused on the relationship between acculturation and physical inactivity in adults(25,26), no studies to our knowledge have specifically explored the association between acculturation and television (TV) viewing, an important component of sedentary time.

It is important to explore other measures of migration history as well, such as the duration of residence (in years) in the USA, in relation to physical activity, as measures of acculturation are often based on language use without factoring in the duration of US residence. These two indicators of acculturation may be used together to obtain a more cohesive view of the influence of acculturation on health behaviours. Use of several indicators accounts for the fact that having learnt the language spoken in a host country may not reflect the adoption of core values of the host country, and that some Latinos who have lived in the USA for a number of years may do so without significant interaction with the host culture(27).

The purpose of the present study was to explore the relationship between acculturation (measured by an English language scale and duration of residence in the USA) and physical activity, as well as sedentary behaviours, among self-identified Hispanics who participated in the California Women's Health Survey (CWHS) in 2005. We hypothesized that Hispanic women with greater acculturation to US culture would perform greater levels of physical activity. Increasing physical activity is a primary focus of federal education programmes for low-income individuals, such as the Supplemental Nutrition Assistance Program-Education (SNAP-Ed, formerly known as Food Stamp Nutrition Education), the Expanded Food and Nutrition Education Program, Head Start and the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)(28–30), in which Hispanics participate to a great extent. In 2008, 14.8 % of participants in SNAP-Ed and 41.2% of those enrolled in WIC in the USA were Hispanic, representing the largest racial or ethnic group in the latter(31). Characterizing the relationship between level of acculturation and physical activity, as well

as sedentary behaviour, will further provide a basis for educational interventions designed to increase activity in the population. Interventions should be tailored to reflect participants' level of acculturation and the corresponding level of physical activity.

Methods

Study design

The present study analysed data from the 2005 CWHS, a cross-sectional telephonic study conducted by the California Department of Health Services, in collaboration with Mental Health, Alcohol and Drug Programs and Social Services and with private partners such as the California Medical Review Inc. and the Public Health Institute(32). The primary goals of the CWHS were to inform policy-makers and health professionals about women's health and promote innovative solutions for health issues facing women and girls in California. Owing to the fact that language acculturation, a primary focus of the present paper, was not measured before 2005, we have not included data gathered in previous years. This secondary data analysis received an exemption approval from the Institutional Review Board of the University of California (Davis, CA, USA).

Population

The CWHS used a screened random-digit dial sample. Once a household was contacted, all women aged 18 years in the household were eligible for participation. If more than one person was eligible, a computer-generated random selection algorithm chose an individual to become the respondent. If that person was not available, an appointment was made for an interview at a later time. Interviewers reported the language to be used in the interview as English or Spanish. Participants were asked to report whether they self-identified as Hispanic/Latina, which included Mexican American, Latin American, Puerto Rican and Cuban. This question was used to classify respondents as either Hispanic or non-Hispanic.

Measures

Demographic survey—Questionnaire data included measures of food security, participation in food assistance programmes, vitamin consumption, breast-feeding, dietary intake and knowledge of dietary intake recommendations. Demographic variables included in our analysis were: (i) age; (ii) country of birth (Mexico, USA, El Salvador and Guatemala); (iii) annual household income ($US 0–9999, $US 10 000–24 999, $US 25 000–49 999, $US 50 000–99 999 and $$US 100 000); (iv) education (eighth grade or less, some amount of high-school education or high-school graduate, some amount of technical school/college education or a college graduate, post graduate or professional); (v) duration of residence (in years) in the USA for those foreign-born (<5, 5–9, 10–19 and 20 years); (vi) employment status (employed or not employed); and (vii) physical activity benefits provided by participants' employers such as exercise classes, gym membership or release time for physical activity. We selected these demographic variables for analysis on the basis of a hypothesized relationship between the variables and level of acculturation.

Participants self-reported weight and height as part of the questionnaire, and these variables were used to calculate a corresponding self-reported BMI using the following formula:

weight in kilograms divided by the square of height in metres (kg/m^2). These data must be interpreted with caution. Previous research has shown a tendency for Hispanics to underestimate their weight and overestimate their height, with BMI being underestimated to a greater degree compared with non-Hispanic whites(33).

Language acculturation measure—Language acculturation was assessed using a series of five questions on the use of English and Spanish in reading and speaking, both at home and with friends, the primary language used as a child and the language in which participants usually thought(34). This scale was validated in a Hispanic population consisting of 44% Mexican Americans, 47% 'other Hispanics', 6% Cuban Americans and 2% Puerto Ricans using respondents' generation, duration of residence in the USA, age at arrival, ethnic self-identification and an acculturation index as the validation criteria. The validation sample comprised both men and women and had a mean age of 31.2 years. Thus, our population differed to a small extent in terms of the percentage of participants from Mexico (53%) and from other countries, as well as in terms of gender and age. As the validation study used several validation criteria and the scale showed acceptable levels of reliability and validity compared with other studies, we deem the present study as a satisfactory demonstration of the scale's performance.

Participants responded to these questions by answering whether they used only Spanish, more Spanish than English, both languages equally, more English than Spanish or only English. Values ranged from 1 to 5 (1 = only Spanish; 5 = only English) for a total maximum score of 25. On the basis of the procedure used by Slattery *et al.*(19), responses to the five questions were summed and participants with a score of 10 were given a 'low language acculturation' label. Those with a score between 10 and 20 were given an 'intermediate' label and those with a score of 20 were given a 'high language acculturation' label. Thus, participants who generally responded 'only Spanish' or 'Spanish better than English' were assigned low language acculturation. Language acculturation served as an indicator of acculturation in our analysis.

Physical activity measure—The frequency and duration of moderate and vigorous physical activity were ascertained using two items. The first item assessed the frequency of these activities as follows: 'In a usual week, how many days do you do moderate or vigorous activities for at least 10 min at a time, such as brisk walking, bicycling, vacuuming, gardening or anything else that causes some increase in breathing or heart rate?' The second assessed the duration of these activities: 'On days when you do moderate or vigorous activities for at least 10 min at a time, how much total time do you spend doing these activities?' These items were modified from four items that were used for surveillance by the Behavioural Risk Factor Surveillance System (BRFSS) and were combined into two items for the CWHS. The four items used by the BRFSS were validated using a daily physical activity log for 1 week, as well as an accelerometer and a pedometer(35). Summary estimates were derived for physical activity by computing min/week spent in moderate and vigorous physical activity based on responses to the two items. To assess adherence to physical activity recommendations, we used the current guidelines from the US Department of Health and Human Services(36). These guidelines suggest moderate-intensity aerobic

activity for a minimum of 2 h and 30 min/week or 75 min of vigorous-intensity physical activity or an equivalent combination of moderate- and vigorous-intensity physical activity; thus, we defined adherence as a total of 150 min/week.

Television-viewing measure—Time spent watching TV was also assessed using one question: 'How much time did you spend watching TV yesterday?' Summary estimates were derived for TV viewing as min/d on the basis of this item. Of note, this question did not ascertain time spent watching videos or using a computer.

Statistical analyses

All variables used in regression models and ANOVA requiring normality were assessed for normality. Residuals from ANOVA and ANCOVA were also assessed for normality. Univariate analyses were conducted on measured parameters, stratified by three levels of acculturation (low, intermediate and high). Normally distributed variables were reported as mean and SD and non-normal as median and 25th and 75th percentiles; furthermore, proportions were noted for categorical variables. To assess the effects of language acculturation on activity and obesity, we compared Hispanic women across differing degrees of language acculturation. Numbers, proportions and differences in BMI were summarized for women at different levels of language acculturation. We used ANOVA and ANCOVA to compare means between groups and the χ^2 test to compare proportions between groups. We adjusted for key variables showing evidence of a strong influence on physical activity. Three of the variables, 'smoking,' 'educational level' and 'employment status', were included on the basis of a significant bivariate association with acculturation. The variable 'age' was also included, given that it is a known confounder, based on the literature. Owing to the presence of collinearity with language acculturation, annual household income was not included in the model. Because physical activity data were highly skewed, we performed analyses using a logarithmic transformation of this variable. Time spent watching TV the previous day was also highly skewed, with a non-negligible proportion reporting zero time; thus, it was analysed as a categorical variable with categories of <60 min, 60–120 min, 120–240 min and 240 min. Proportional odds regression was used. The SAS statistical software package version 9.1 (SAS Institute, Cary, NC, USA) was used to analyse data. Significance level was set at P 0.05.

Results

In 2005, 73% of the contacted eligible households completed the interview. However, when a correction factor was included accounting for households in the sample that were not contacted but that may have been eligible, the rate of participating eligible households was observed as 42%. Of the 4623 surveyed women, 1298 self-identified as Hispanic. The mean age of the Hispanic women was 38 (sd 15) years (Table 1). Approximately 33 % of women reported reading and speaking only Spanish and another 20 % reported reading and speaking Spanish better than English. In all, 39 % of women reported speaking only Spanish at home and another 17 % reported speaking more Spanish than English at home. Over half of the women completed the interview in Spanish (57 %). The language acculturation score

yielded a mean of 12.70 (sd 7.29) out of a possible 25 points. Approximately 55 % were classified as having low language acculturation, 23 % as intermediate and 22 % as high.

In most cases, there were significant differences in the characteristics of participants by acculturation level. Selected responses are reported in Table 1. Education was significantly associated with language acculturation ($P<0.001$), with more acculturated women reporting higher levels of education. More acculturated women also reported a higher annual household income ($P<0.001$), with 44 % of highly acculturated women reporting an annual household income of >$US 50 000 and only 5 % of women with low acculturation reporting earnings at this level (Table 1). Place of birth differed significantly between the groups of differing levels of language acculturation ($P<0.001$). Highly acculturated women reported their birthplace as the USA (91 %), whereas only 8 % of women with low acculturation did so. The majority of those with low acculturation reported their place of birth as Mexico (80 %), whereas only 4 % of those highly acculturated reported Mexico as their birthplace (Table 1).

Participants had a BMI of 27.6 (sd 5.9) kg/m^2. Over 50 % of the sample was classified as overweight or obese. Although there was no association between BMI and language acculturation ($P=0.92$; Table 1), there was a significant association between BMI and duration of residence in the USA ($P<0.0001$), with those classified as overweight or obese having spent more time in the USA. Although the association between BMI and total weekly physical activity was significant ($P=0.018$), the model fit was very poor; thus, BMI explained little about activity level.

Participation in physical activity and sedentary behaviours

Women (50 %) reported performing moderate or vigorous activity 5 d/week for at least 10 min at a time. On days when women performed an activity, they reported a mean duration of 84 (sd 109) min with a median of 45 min. Women also reported a mean time of 114 (sd 94) min spent watching TV on the previous day, with a median of 90 min. According to our definition of adherence and non-adherence to physical activity recommendations (with 150 min of weekly activity signifying adherence), 49 % of women were adherent and 51 % were non-adherent.

Differences in performance of physical activity and sedentary behaviours by acculturation level

There was no significant difference among language acculturation groups with regard to the total amount of moderate or vigorous activity performed weekly ($P=0.14$). There was also no association between level of language acculturation and physical activity benefits provided by participants' employers, such as exercise classes, gym membership or release time for physical activity ($P=0.53$). There was, however, a significant difference between the groups in the amount of time spent watching TV on the previous day, with women with a high acculturation score reporting more TV viewing compared with women with an intermediate score ($P=0.0001$) and those with an intermediate score reporting more TV viewing compared with those with a low score ($P=0.003$).

Multivariate analyses: correlates of physical activity and sedentary behaviours

The major focus of our analysis involves the association between physical activity and degree of language acculturation. Since physical activity data were highly skewed, analyses were performed on the log transformation of this variable. As in the univariate analysis, results of the ANOVA examining the relationship between language acculturation and total weekly physical activity after controlling for other variables revealed no relationship between acculturation and physical activity (Table 2). Of note, an examination of the relationship between duration of residence in the USA and total physical activity also did not reveal any significant association after controlling for smoking, age, education and employment status.

The relationship between language acculturation and TV viewing controlling for other variables is shown in Table 3. Language acculturation was positively associated with hours spent watching TV after controlling for smoking and employment status (P=0.0003); this relationship persisted with the inclusion of age (P=0.0004) and education (P=0.0024) in the model. The most parsimonious model showing the relationship between TV viewing and acculturation was model 1, as there was a significant association between all variables and TV viewing (Table 3).

Discussion

The present study explored the relationship between acculturation and physical activity, as well as sedentary behaviours, in Hispanic women participating in the 2005 CWHS, and was the first to examine the relationship between acculturation and TV viewing in an adult population of any race or ethnicity. Findings of the present study indicate no relationship between physical activity level and language acculturation, but showed an increase in TV viewing with increasing language acculturation, corroborating the results of some, but not all, previous studies in the Latino population and reflecting the adoption of a more sedentary lifestyle. This research contributes to the understanding of the role of acculturation in influencing activity level and presents novel findings in terms of TV viewing.

A number of studies have explored the effects of TV viewing on health, with particular focus on weight status. In a study of Latino immigrants in North Carolina, for example, Kepka *et al.*(37) found that those who reported good-to-excellent health reported less TV viewing compared with those who reported fair-to-poor health. Numerous studies have shown an association between regular TV viewing and high BMI(38–40), marking it as a salient 'obesogenic' behaviour. Further, this practice is of concern in the Hispanic population; in an analysis of data from the Continuing Survey of Food Intakes by Individuals 1994–1996, Bowman(40) found that only a small percentage of Hispanics watched <1 h of TV per day. Interventions in this population may need to strive to increase physical activity while concurrently seeking to decrease time spent performing sedentary activities, particularly TV viewing. Our study focuses both on activity and inactivity and their relationships with acculturation.

The aforementioned increase in TV viewing with increasing acculturation may be due to the influence of US culture on those Latina women who have assimilated to the culture. More

acculturated individuals are more likely to have adopted the 'obesogenic' lifestyle in the USA, which includes a greater amount of sedentary behaviour. Acculturation may involve adoption of a number of unhealthy behaviours of the host society, such as increased TV viewing. Numerous studies have explored behaviours and disease occurrence among populations moving from a more traditional to a Westernized environment(27,41–43), and decreased physical activity has been touted as a contributor to increased incidence of illnesses such as type 2 diabetes(44). It is also important to note that acculturation is highly correlated with socio-economic status (SES) and educational level(27) and that the changes observed with increasing acculturation may result from adoption of behaviours of the lower middle class.

Previous studies have revealed varying relationships between overall activity and acculturation, with inconclusive results. A cross-sectional study of Latinas in Chicago, IL, USA, for example, found no association between overall physical activity and English language acculturation score, language spoken at home, country of birth and duration of residence in the USA(45). This finding may be due to the measure of physical activity used; in the present study, lifestyle activity was not differentiated from other forms of exercise. Conversely, a study of US adolescents(46) found that inactivity (characterized by TV or video viewing and computer or video game use) and low-intensity physical activity increased among Mexicans and Cubans with generation of US residence. Similarly, Wolin *et al.*(47) found that levels of occupational physical activity in low-income multiethnic population groups in Massachusetts health centres were higher among the least acculturated participants. This same study, however, found a positive association between leisure-time physical activity and acculturation, suggesting that it may be necessary to distinguish between the different types of activities in this population. Another cross-sectional study of Latinas aged 46–92 years from publicly subsidized housing projects in Los Angeles, CA, USA, showed that participants were more likely to exercise regularly as acculturation increased(21). Similarly, higher acculturation was positively associated with physical activity in a sample of Latinos in San Francisco, CA, USA(48). These studies have suggested that highly acculturated Latinos who readily adopt the English language may be exposed to a greater number of positive messages about exercise through the media and may be more likely to consider changes in lifestyle behaviour. Acculturated Latinos may also modify their views regarding what constitutes physical activity in this process and adopt exercise behaviours of US culture. The spectrum of findings regarding the relationship between acculturation and physical activity reflects the differences in the methodology and measures used to describe these constructs.

One of these differences is the way in which acculturation is operationalized. A review of the literature reveals that past studies have not been consistent in measurement of acculturation(49). Of the twelve aforementioned studies that have examined the relationship between acculturation and physical activity, three used language as the only proxy of acculturation(19,20,50), seven used language along with other measures(21,22,25,46,47,51,52) and two did not use language at all(53,54). However, numerous scales developed for acculturation measurement rely on language, which is one of the easiest mea-sures(27,55–59). In the present study, we evaluated differences in

performance of physical activity and sedentary behaviours by level of language acculturation and duration of residence in the USA.

As mentioned previously, another factor contributing to differences in study results is differentiation of physical activity domains. Researchers often distinguish between leisure-time and occupational activity in order to better capture change as individuals assimilate to US culture. The CWHS assessed total moderate or vigorous physical activity across different domains and did not yield estimates of physical activity in each domain, which prevented exploration of changes in various types of activities with acculturation. With this information, we anticipate that we may have observed changes in the various domains of activity, such as occupational and leisure time, similar to previous studies(19,25,52,53,60).

Yet another factor to be considered is the time period under examination. Participants were asked to report activity in a usual week instead of over a longer time frame such as a year. This estimate may only reflect recent activity, which may be more affected by life events, season or recent health.

The population under study was also limited in terms of range of income. The previously reported positive influence of high SES on physical activity(61) was not reflected in the present study because of the fact that the population did not include a large number participants having high SES. Furthermore, the Latino population in general may not include a sufficient number of individuals having high SES to capture this association. Thus, the relationship between acculturation and physical activity at a higher income level remains unknown. In the present study, high acculturation is not synonymous with high SES. To obtain a full understanding of these relationships, a sample of Latinas at all income and educational levels, including the highest bracket, is needed.

Limitations

Although numerous studies have been conducted exploring the effect of acculturation on health behaviours, results have been equivocal. Results often depend on the measures used, the Hispanic subpopulation studied and the particular behaviours examined. With this in mind, results of the present study must be examined as being specific to Hispanic women in California assessed using a five-item language acculturation scale on the basis of duration of residence in the USA and may not be generalizable to other populations. In addition, the CWHS is a cross-sectional study and causal inferences should not be drawn from the data. The study also contacted participants by telephone, which may have resulted in under-representation of some segments of the population. All variables were measured using a self-report instrument, which may have led to some biases and random error. Possible biases that may have affected the results may be recall bias, resulting from inaccurate recall of past events(62); social desirability bias, which involves portraying one's self in compliance with perceived social norms; and social approval bias, which reflects the desire to obtain a positive response in the testing situation(63).

The use of telephonic interviews serves as both a strength and limitation. As opposed to a face-to-face interview, telephonic interviews increase anonymity and thus decrease the likelihood that women will provide responses perceived to be socially acceptable. In

addition, contacting women by telephone allows for a more geographically diverse sample, as opposed to recruitment at specific clinics or health events. However, this method excludes women who cannot afford a telephone, as well as those illegal immigrants who may be fearful of disclosing personal information over the phone. Thus, the survey may have missed a segment of the Hispanic population in California.

Finally, it is important to note that the questionnaire item assessing TV viewing did not undergo any validation procedures before use. Although this question was a basic item requiring recall of the time spent watching TV on the previous day, validation of all items included in any survey is necessary and lack thereof may affect the results.

Conclusions

These findings suggest that Hispanic women with higher acculturation within the lower-income categories adopt sedentary behaviours in the form of more TV viewing; future physical activity interventions should incorporate messages on reducing TV viewing that are tailored to the level of acculturation and duration of residence in the USA.

Acknowledgments

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Table 1

Characteristics of the Latina participants in the 2005 California Women's Health Survey by level of acculturation

| | | | Latina participants (n 1298) | | | |
| | | | Level of acculturation | | | |
Characteristic	All %	Low (n 718) %	Intermediate (n 294) %	High (n 286) %	P value*†
Age (years)					
Mean	38.4	38.5	39.4	41.1	NS
sd	14.9	12.7	15.0	14.9	
Country of birth (%)					<0.001
Mexico	53.3	80.4	35.3	3.7	
USA	36.1	7.7	51.5	91.5	
El Salvador	3.9	60	2.7	0.0	
Guatemala	2.5	3.1	2.7	0.8	
Annual household income ($US)					<0.001
0–9999	19.1	26.4	14.3	7.3	
10 000–24 999	38.1	48.4	29.4	23.2	
25 000–49 999	23.2	20.2	27.8	25.3	
50 000–99 999	14.9	3.9	23.1	31.9	
100 000	4.8	1.1	5.5	12.3	
Receipt of food assistance					
Food Stamp Program	8.6	10.3	6.9	6.1	<0.05
Community food bank	4.2	5.0	2.3	4.3	NS
Educational level					<0.001
Eighth grade or less	25.1	42.3	6.3	1.2	
Some amount of high-school education	16.2	19.3	15.9	8.9	
High-school graduate	27.2	24.6	29.4	31.3	
Some amount of technical school education	1.3	1.4	1.3	0.8	
Technical school graduate	1.5	1.6	1.8	1.1	
Some amount of college education	17.4	5.5	25.7	39.0	

Characteristic	Latina participants (n 1298)				
	All	Level of acculturation			
		Low (n 718)	Intermediate (n 294)	High (n 286)	P value*†
	%	%	%	%	
College graduate	7.9	3.8	13.5	12.5	
Postgraduate or professional degree	3.4	1.4	6.2	5.3	
Language of survey					<0.001
Spanish	56.9	88.7	33.1	1.2	
Duration of residence in the USA (for those foreign-born; years)					<0.001
<5	13.5	15.6	60	3.3	
5–9	19.3	22.9	6.4	0.0	
10–19	34.3	34.2	38.8	13.6	
20	32.9	27.4	48.8	83.1	
Employment					<0.001
Employed	46.9	38.0	51.8	64.4	
Not employed	53.1	62.0	48.2	35.6	
Smoked at least 100 cigarettes during one's lifetime					<0.001
Yes	21.3	15.3	20.6	37.1	
No	78.7	84.7	79.4	62.9	
Frequency of smoking					<0.01
Every day	22.7	18.4	16.7	30.5	
Some days	15.4	22.7	80	12.1	
Not at all	61.9	58.9	75.2	57.5	
BMI (kg/m^2)					NS
<250	41.6	42.0	39.4	42.9	
250–29.9	30.9	31.0	31.3	30.5	
300	27.5	27.1	29.2	26.7	
Time spent daily in moderate or vigorous physical activity (min)					
Median	45	45	40	45	
IQR		30–120	30–60	30–90	
Time spent viewing television the previous day (min)					

Characteristic	Latina participants (*n* 1298)					
		Level of acculturation				
	All	Low (*n* 718)	Intermediate (*n* 294)	High (*n* 286)		*P* value *†
	%	%	%	%	%	
Median	90	60	90	120		
IQR		60–120	60–180	60–180		

IQR, interquartile range.

*
P 0.05.

†ANOVA was used to compare normally distributed variables across acculturation categories; the χ^2 test was used to compare proportions.

Table 2

Associations between physical activity of Hispanic women and predictor variables in the 2005 California Women's Health Survey

	df	*F* value	*P* value
Model 1			
Language acculturation	2	2.23	0.11
Age (years)	1	3.26	0.071
Model 2			
Language acculturation	2	2.57	0.077
Smoking	1	1.52	0.22
Age (years)	1	2.30	0.13
Model 3			
Language acculturation	2	1.39	0.25
Smoking	1	1.33	0.25
Age (years)	1	4.13	0.042
Employment status	8	1.66	0.10
Model 4			
Language acculturation	2	0.62	0.54
Smoking	1	0.77	0.38
Age (years)	1	4.48	0.035
Employment status	8	1.72	0.089
Educational level	7	1.52	0.16

Table 3

Associations between television viewing and predictor variables of Hispanic women in the 2005 California Women's Health Survey, based on a categorization of television viewing

	df	Wald χ^2	*P* value
Model 1			
Language acculturation	2	16.1	0.0003
Smoking	1	8.60	0.0034
Employment status	8	34.9	<0.0001
Model 2			
Language acculturation	2	15.7	0.0004
Smoking	1	6.44	0.011
Age (years)	1	3.22	0.073
Employment status	8	30.8	0.0002
Model 3			
Language acculturation	2	12.1	0.0024
Smoking	1	5.02	0.025
Age (years)	1	5.17	0.023
Employment status	8	29.2	0.0003
Educational level	7	6.05	0.53