Published in final edited form as:

J Immigr Minor Health. 2017 April ; 19(2): 246–253. doi:10.1007/s10903-016-0451-x.

Correlates of Physical Activity Differ by Sex and Country of Birth among Mexican-Heritage Youth

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Abstract

Barriers to physical activity (PA) may be experienced differently by sex and country of birth. We examine psychosocial correlates of PA in four groups based on sex (boy/girl) and country of birth (Mexico/United States (U.S.)). 1,154 Mexican heritage adolescents residing in Houston, Texas provided psychosocial data in 2008–09 and PA (number of days per week active for at least 60 minutes) in 2010–11 ($N=1,001$). Poisson regression models were fitted for each group. Among boys, English language preference ($p_{US-born}=0.045$, $p_{Mexico-born}=0.008$) and higher subjective social status ($p_{US-born}=0.002$, $p_{Mexico-born}=0.031$) were associated with increased PA. Body image dissatisfaction was associated with decreased PA in Mexico-born girls ($p=0.007$). Sensation-seeking tendencies were associated with increased PA among all groups; anxiety was associated with decreased PA among all but U.S.-born boys. Tailoring PA interventions to key sex-specific psychosocial correlates rather than country of birth may enhance efficacy of interventions to increase PA levels among Mexican heritage adolescents.

Keywords

Physical activity; Acculturation; Childhood obesity; Immigrant

Introduction

Adolescent obesity is a global problem that can lead to significant adverse health problems including diabetes and cardiovascular disease [1]. In the United States (U.S.) 18% of adolescents aged 12–19 years are overweight or obese [2]. Obesity is disproportionately represented among ethnic groups, especially Hispanics aged 2–19 years [3]. In particular Hispanics of this age group have experienced increasing prevalence rates of overweight and obesity from 1999–2000 through 2011–2012; with demonstrably higher rates in females than males for overweight (females: 31.7 to 38.3; males: 36.6 to 41.3) and for obesity (females: 15.7 to 20.4; males: 5.3 to 7.9) [3]. These data are in striking contrast to the sex specific rates in non-Hispanic whites, with 30.1% and 27.5% overweight in females and males respectively, and 4.8% and 3.3 % obese in females and males respectively [3]. A missing component to the picture is whether country of birth of the Hispanic children influences these rates.

Meeting physical activity (PA) guidelines and establishing life-long PA habits likely play a key role in achieving and maintaining a healthy body weight from youth to adulthood and serve to reduce the risk of obesity [4]. The Center for Disease Control and Prevention (CDC) recommends 60 minutes (1 hour) or more of moderate to vigorous physical activity (MVPA) per day for children and adolescents [5,6]. However this guideline is rarely met and less than 3 in 10 high school students in the U.S. reported meeting PA guidelines [6]. Many factors such as low self-efficacy, low goal orientation, and low parental education [7] are likely to contribute to these low levels of PA for the adolescent population, specific factors and potentially informative interactions between them are not well-characterized in minority youth.

Barriers to PA are often disproportionately apparent among minorities of low-income status as opposed to other socioeconomic (SES) groups and races/ethnicities [8] and may be distributed differently based on individual and household factors such as sex, education, income, and acculturation. Acculturation is a process of cultural change through which immigrants adopt various cultural values and behavioral patterns of their host country [9], including behaviors that influence health outcomes [10], such as physical activity. The concept is measured using scales that assess attitudinal and behavioral changes, as well as using proxies, such as language use and place of birth. Proxies are quick and easy to use, and language use can be a particularly useful proxy among non-English speaking immigrant youth, as understanding and speaking English facilitates the process of acquiring the norms and values of the host culture [11]. In other words, English acquisition makes acculturation possible [11].

When examining rates of leisure time PA in Hispanic adolescents, Liu et al. [12] reported a direct association between higher levels of acculturation and PA. Hispanic youth whose primary language in the home was English, and youth whose family resided in the U.S. for at least two generations, were more likely to meet recommended PA levels than youth residing in Spanish speaking and/or first-generation immigrant households [12]. However, among participants in our cohort of Mexican heritage youth, we observed a moderate inverse association between linguistic acculturation and participation in community sports [13].

Consistent with this finding, although not significantly different, a higher proportion of youth born in Mexico participated in at least 60 minutes of PA on five days out of seven compared to youth born in the U.S [14]. In addition, we observed clear sex-specific effects among youth who are not highly acculturated, as more boys than girls were more likely to meet PA standards [15].

Given the limited and inconsistent results from previous studies, we examined correlates of PA among participants in a prospective cohort of Mexican heritage youth in Houston, Texas. Considering the previously observed associations by sex and acculturation status, we stratified the population by sex and country of birth (Mexico or U.S.) and explored psychosocial correlates of PA with the goal of identifying factors unique to each particular group. Our overall goal is to inform and facilitate the development of tailored and targeted programs to encourage PA among low-income youth of Mexican heritage, a vulnerable group at high-risk of obesity and long-term co-morbidity.

Methods

Study Design

The Mexican American Tobacco Use in Children (MATCh) is a prospective cohort study of Mexican American adolescents aged 11 to 13 years followed from 2005 to 2011 to examine genetic and non-genetic factors associated with smoking initiation and other health risk behaviors [16]. The MATCh sample was drawn from the offspring of an ongoing adult cohort, herein referred to as the “parent” study. Briefly, the parent Mexican American Cohort Study includes first and second generation adult immigrants of Mexican origin residing in the greater Houston, Texas area and was established in 2001 as the first representative, population/census-based cohort of Mexican Americans [17]. Participants in the parent study were recruited from predominantly (at least 80% according to 2000 census) Mexican-American neighborhoods in Houston through random-digit telephone dialing, block-walking, intercepts (such as at health fairs), and networking with enrolled participants. All participants self-identified as Mexican-Americans or Mexicans of any age and sex.

A total of 3,000 households with potential age-eligible participants were identified from the parent cohort study database. Of these, 1,425 potential participants’ parents or legal guardians were contacted via telephone to evaluate interest in study participation; 1,328 potential participants (roughly 90%) agreed. In households with two or more age-eligible children, the child with the most recent birthday was invited to participate in the study. Home interviews were then scheduled with parents/legal guardians who consented to participate. Two bilingual interviewers visited the home, explained the goals and scope of the study, and obtained written informed consent from the child’s parent/legal guardian and informed assent from the child prior to enrolling the youth in the MATCh study. The Institutional Review Board (IRB) at The University of Texas M.D. Anderson Cancer Center and The University of Texas Health Science Center approved all aspects of this study. A detailed description of the recruitment and data collection procedures have been published [16].

Data Collection

Data were collected in the home on three separate occasions (in 2005–06, 2008–09 and 2010–11) using identical procedures. After height and weight measurements were taken following a standard protocol (see Table 1), the participant was given a hand-held personal digital assistant (PDA) on which to complete a preloaded survey instrument (in either Spanish or English), to ensure privacy. Participants received a \$25 gift card incentive for each interview.

In 2008–09 the scope of the study was expanded to include PA as an outcome. Of the original 1,328 baseline participants, 1,154 (87% of baseline) and 1,001 (75% of baseline) completed the follow-ups in 2008–09 and in 2010–11, respectively. Participant attrition was unrelated to either sex or country of birth. Thus, given the focus of the current analysis on PA, the exposure data were drawn from the 2008–09 follow-up, while the outcome data were drawn from the 2010–11 follow-up. Of those who completed both PA follow-ups (N=998), a total of 24 were missing relevant data including 13 missing body mass index (BMI) data, 7 missing data on parental education, and 4 missing data on the body image figures. After removal of the participants with missing data, a total of 974 participants were included in the current analysis: 372 U.S.-born girls, 126 Mexico-born girls, 351 U.S.-born boys, and 125 Mexico-born boys.

Measures

The main outcome was PA, which was assessed from participants' responses to the following question in the Youth Risk Behavior Survey (YRBS): "During the past 7 days, on how many days were you physically active for a total of 60 minutes per day? (Add up all the time you spent in any kind of physical activity that increased your heart rate and made you breathe hard some of the time)" [18]. This variable was analyzed as counts in all analyses. The independent variables include psychosocial constructs associated with PA, acculturation, anthropometric measurements, and demographic factors. These are described in detail in Table 1.

Data Analysis

The study population was stratified by sex and birth country into: girls, U.S.-born; girls, Mexico-born; boys, U.S.-born; and boys, Mexico-born. Within each group descriptive statistics were calculated, frequencies and percentages are presented for categorical variables, and means and standard deviations for continuous variables (Table 2). Within each group, Poisson regression analyses were run to examine the associations between the categorical variables, the continuous independent variables, and PA count (data not shown). Finally, to examine relationships between PA and demographic, acculturation, and psychosocial variables we computed four Poisson regression analyses (Table 3). For these analyses, variables that demonstrated an association with PA with p-values of < 0.20 were considered for inclusion in the final model. Based on previous literature, to control for confounding, age and parental educational attainment were forced into each model. All analyses were completed using SPSS (Version 18).

Results

Table 2 presents the descriptive characteristics of study participants for all study variables by sex and place of origin. Mexico-born boys reported, on average, the highest number of days for PA (4.84 ± 2.47), followed by U.S.-born boys (4.64 ± 2.38) and U.S.-born girls (4.05 ± 2.25); Mexico-born girls reported, on average, the lowest number of days physically active (4.01 ± 2.18). Overall, roughly 18% of the participants reported having a parent who had completed more than a high school education. More surveys were administered in English than Spanish, and most participants reported speaking only English or both English and Spanish with their friends rather than only Spanish. For within-group analyses of the relationship between PA and each variable of interest, neither age nor parental education was associated with PA for any study group (data not shown). However, all remaining variables met the criteria for inclusion in the Poisson models (i.e. demonstrated a relationship ($p < 0.20$) with PA for at least one of the four study groups (data not shown). Variables that demonstrated a relationship ($p < 0.20$) with PA within any of the groups were included in the multivariable model for that group.

Table 3 presents the results from the four Poisson regression analyses. For U.S.-born girls, the best fitting model included two psychosocial correlates, anxiety, and thrill and adventure seeking. Lower levels of anxiety ($RR=0.96$; 95% CI: 0.94 – 0.99) and higher levels of thrill and adventure seeking ($RR=1.08$; 95% CI: 1.00 – 1.15) were associated with more days active. Among Mexico-born girls, the model included language spoken with friends, anxiety, thrill and adventure seeking, BMI percentile rank, and the body image figures. Speaking English with friends ($RR=2.26$; 95% CI: 1.09 – 4.69), lower levels of anxiety ($RR=0.96$; 95% CI: 0.93 – 0.99), higher levels of thrill and adventure seeking ($RR=1.20$; 95% CI: 1.07 – 1.34), higher BMI percentile rank ($RR=1.03$; 95% CI: 1.09 – 4.69) but less concern for body image ($RR=0.53$; 95% CI: 0.93 – 0.99) were associated with more days active. For U.S.-born boys, completing the survey in English ($RR=2.14$; 95% CI: 1.02 – 4.50), higher levels of thrill and adventure seeking ($RR=1.09$; 95% CI: 1.01 – 1.19), higher levels of subjective social status (1.29; 95% CI: 1.10 – 1.52), and lower BMI ($RR=0.96$; 95% CI: 0.93 – 0.99) were significantly associated with more days active. For Mexico-born boys, completing the survey in English ($RR=3.21$; 95% CI: 1.35 – 7.59), lower levels of anxiety ($RR=0.95$; 95% CI: 0.91 – 0.99), higher levels of thrill and adventure seeking ($RR=1.22$; 95% CI: 1.05 – 1.40), and higher levels of subjective social status ($RR=1.35$; 95% CI: 1.03 – 1.76) were associated with more days active.

Discussion

In the current analysis based on a prospective cohort study we created four groups based on sex (boy or girl) and country of birth (Mexico or U.S.) to examine psychosocial and anthropometric correlates of PA with the goal of identifying factors specific to each group. We report higher levels of subjective social status associated with more days active among boys, but not girls, whereas higher levels of body image concerns were associated with more days active among girls born in Mexico, but not among boys. Higher levels of thrill and adventure seeking tendencies were associated with increased number of days active across

all groups, while anxiety was inversely associated with days active among boys born in Mexico and girls born in either country, but not boys born in the U.S.

Completing the survey in English, as opposed to Spanish, was significantly associated with increased PA for the boys in our study, regardless of their country of birth. These findings are consistent with previous observations in which higher levels of acculturation and a preference for English language were associated with increased PA in boys [12,19]. Among girls born in Mexico, we found that a preference for speaking English, or both English and Spanish, rather than only Spanish was associated with more days active. Spanish is the primary language spoken in the majority of the homes among the participants in our study [17]. Thus it is possible that a preference for English over Spanish, or use of English more than Spanish, not only directly increases opportunities to engage in PA where the dominant language is likely English, but also is an indicator of social acceptance and therefore affords increased opportunities to participate in a variety of community and/or school opportunities for PA, including sports team participation and intramural activities.

Thrill and adventure seeking was the only covariate shared by all four groups. In our previous work in this cohort, adolescents who met PA standards reported higher levels of thrill and adventure seeking than their peers who did not meet PA standards [15], before and after adjustment for genetic variance associated with sensation-seeking [14]. In the current analysis, the association between thrill and adventure seeking and PA was stronger for youth born in Mexico compared to youth born in the U.S. The more acculturated youth in our cohort also report higher levels of thrill and adventure seeking [15], underscoring the possibility that the stronger influence of thrill and adventure seeking on PA observed among youth born in Mexico is related to the acculturation process and might mediate the influence of acculturation on PA.

Anxiety levels were inversely associated with PA in girls, regardless of country of birth, and boys born in Mexico, but not U.S.-born boys. Our results are consistent with previous studies of an inverse association between levels of anxiety and PA [20]. Similarly in our stratified analysis, Mexican-born boys reported the lowest mean level of anxiety and the most number of days active.

In the current analysis, subjective social status was significantly associated with PA for boys, not girls. This is in contrast to prior work where, in non-stratified analyses subjective social status was related to PA levels in both boys and girls [10]. Consistent with our current results, Sweeting et al. reported that boys placed more importance on athletic performance when determining subjective social status than do girls [21]. Similarly, Jago et al. reported playing sports was directly related to higher levels of subjective social status among primary school-aged boys, while the relationship was not as strong for girls [22]. These results underscore the potential importance of sex-specific influences on subjective social status in school-based programs designed to increase PA among boys.

BMI was positively associated with PA in the models for Mexico-born girls, but negatively associated with PA among U.S.-born boys. Consistent with previous research, lower BMI was associated with higher PA for boys, whereas for girls, higher BMI was associated with

higher PA [23]. Also consistent with previous research [24], we found girls reported greater dissatisfaction with body image than boys; and increasing body image concerns were associated with decreasing PA levels for girls born in Mexico, but not boys. These results suggest that among girls, engagement in PA might ameliorate negative feelings toward body image, potentially through an increase of self-confidence.

Our prospective cohort study of Mexican-American youth has some limitations. Of note, fewer Mexico-born than U.S.-born participants might have diminished the power to detect associations, although post-hoc power calculations indicate adequate power. Although the measures used in the current study have been validated for use in Hispanic populations, most were originally developed for English speaking populations. As such, it is possible that the measures were not entirely transferable to the culture and/or language (Spanish) of our participants, which may have influenced our results. Also, PA levels were not objectively measured with an accelerometer, but rather by administering a self-reported survey question; therefore, derived estimates are subject to potential recall bias [14]. Finally, because all participants reside in Houston, Texas the generalizability of our results to other Hispanic groups in the U.S. may be limited.

Our study had several strengths. It is important to note that the participants represent an understudied and underserved vulnerable population in the U.S. and as such the results can be used to inform targeted interventions. Other strengths include the prospective cohort study design to examine the relationship between risk factors and correlates of PA reported in 2008–09 and PA reported in 2010–11. We used validated measures, and data were collected in the participants' homes using PDAs, which enabled the participants to read and answer the questions without their parents hearing or viewing their responses, thereby ensuring their privacy. A final strength of our study is the high retention rate – 87% of the participants who provided data in 2008–09 were followed-up in 2010–11.

Our findings suggest that tailoring interventions designed to increase levels of PA among Mexican heritage youth would be well-served to consider the sex of the participant and to a lesser extent, country of birth. For example, using PA to address body image concerns among girls and concerns related to social status among boys may separately motivate both groups to increase levels of PA. Emphasizing sex-based differences between salient psychosocial correlates of PA makes sense given the dramatic differences in pubertal development during adolescence. Such an approach to develop materials and curriculum designed to increase the efficacy of intervention might address more relevant issues to each sex and thereby improve the effectiveness of the intervention.

New Contribution to the Literature

When designing PA interventions for immigrant youth of Mexican heritage, tailoring based on sex-specific psychosocial correlates of PA, rather than differences related to country of origin. For example, interventions for males could focus on elevating subjective social status through teaching leadership skills [25] in a school setting for an enhanced perception of respect to increase physical activity, while efforts to increase physical activity in females could promote a positive body image by targeting media awareness [26] to discern the

promulgation of stereotypes and/or negative body ideals. These sex-specific focused efforts may help establish lifelong PA habits, and thereby potentially lower obesity and future chronic disease rates in Mexican heritage youth.

Acknowledgments

We thank the field staff for their on-going work with participant recruitment and follow-up. Most importantly, we thank our study participants and their parents for their cooperation and participation, without which this research would not be possible.

Funding Source This research is supported by the National Cancer Institute grants [CA105203 to MRS, CA126988 to AVW]. The Mexican American Cohort receives funds collected pursuant to the Comprehensive Tobacco Settlement of 1998 and appropriated by the 76th legislature to The University of Texas M. D. Anderson Cancer Center; from the Caroline W. Law Fund for Cancer Prevention, and the Dan Duncan Family Institute for Risk Assessment and Cancer Prevention. The funders did not contribute to the design and conduct of the study, the data collection, analysis, and interpretation of the data, the preparation, review, or approval of the manuscript.

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Table 1

Psychosocial, demographic and acculturation covariates examined

CONSTRUCT	MEASURE
Sex	Parent reported participant's sex as male or female.
Country of Birth	Parent reported participant's country of birth as either U.S. or Mexico.
Parental Educational Attainment	Parent self-reported educational attainment, coded as 'less than high school,' 'high school graduate' or 'more than high school.' Entered as a categorical variable in the multivariate regression analyses.
Language used for survey	Participants chose either English or Spanish. Entered as a categorical variable in the multivariate regression analyses; examined as a proxy for acculturation; English served as the reference category.
Language spoken with friends	Based on one item from a language-based measure of acculturation [27], participants chose between options (English only, Mainly English, Spanish only, Mainly Spanish, Both equally) in response to "What language do you usually speak with your friends?" Participants who indicated only or mostly English or only "Spanish" were combined into one group "Either U.S. or Mexico" and compared to participants who indicated "Both U.S. and Mexico." Entered as a categorical variable in the multivariate analyses with "Either U.S. or Mexico" serving as the reference category; examined as another proxy for acculturation.
Age in 2010–2011	Child participant self-reported age in response to "How old are you?" Entered in years as a continuous variable in the multivariate regression analyses.
Anxiety	Assessed using Spielberger's trait anxiety measure [28]. The scale is composed of 20 items that assess trait anxiety and has been validated with Spanish-speaking populations in the United States [29,30]. Responses are made on a four-point scale ranging from "not at all" to "very much so" with higher scores indicating higher trait anxiety. Based on data from the cohort, the measure demonstrates very good internal reliability (Cronbach's $\alpha = 0.90$) and was entered as a continuous variable in the multivariate regression analyses.
Thrill and adventure seeking (TAS)	TAS was assessed using Russo's Sensation Seeking Scale for children [31]. TAS is a 12-item subscale with good internal reliability based on our data (Guttman Split-Half Coefficient = 0.81). Participants select the choice closest to their own; for example "a) I'd never do anything that's dangerous" or "b) Sometimes I like to do things that are a little scary." TAS items are similar to items on the Brief Sensation Seeking Scale-4 (BSS-4; 32), a valid measure among Hispanic adolescents aged 12–17 (33). Entered as a continuous variable in the multivariate regression analyses.
Subjective social status (SSS)	The MacArthur Scale of Subjective Social Status [34] adapted for youth by Goodman et al. [35] was utilized. The measure, developed to capture the common sense of social status across the SES indicators, demonstrates high reliability (Kappa = 0.62 (0.58 – 0.64) [36]. In an easy pictorial format, it presents a "social ladder" and asks participants to place an "X" on the rung where they feel they stand. Points 1–10 are assigned based on the rung selected, where 1 indicates the lowest rung and 10 the highest. Entered as a continuous variable in the multivariate regression analyses. This measure has been examined extensively among Mexican heritage adults (not adolescents) in Texas (37). The authors report no "disjuncture" between objective and subjective measures of social status, and that SSS was inversely associated with acculturation, underscoring the utility of the measure in this population.
Body Mass Index (BMI)	Height and weight measurements were taken in duplicate using Seca scales and stadiometers following a standard protocol. The average of the two measurements was used to calculate BMI (kg/m^2) and Centers for Disease Control anthropometric reference data were used to create gender-specific BMI percentile ranks [38]. Entered as a continuous variable in the multivariate regression analyses.
Body Image Figures (BIF)	Participants viewed nine figures of increasing body size [39] and selected the image that most resembled their current and desired body shape. The figural rating tool is highly correlated with measured weight status ($r = 0.79$) and is a reliable assessment of obesity [40]. We calculated the numeric difference between current and preferred body size to examine the difference between perceived and preferred body image (BI). Entered as a continuous variable in the multivariate regression analyses.

Table II

Characteristics of participants by sex and country of birth

	Girls		Boys	
	U.S.-born (N = 372)	Mexico-born (N = 126)	U.S.-born (N = 351)	Mexico-born (N = 126)
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Days Physically Active (days)	4.07 (2.25)	4.01 (2.18)	4.64 (2.38)	4.82 (2.49)
Range	0 – 7	0 – 7	0 – 7	0 – 7
Age in 2010–11 (years)	16.71 (1.08)	16.64 (1.24)	16.77 (1.12)	16.84 (1.18)
Range	14 – 19	14 – 19	14 – 19	14 – 19
Anxiety	39.28 (9.18)	38.68 (10.10)	37.69 (9.61)	37.01 (8.96)
Range	20 – 62	20 – 63	20 – 70	20 – 61
Thrill & Adventure Seeking	5.74 (3.24)	5.49 (3.05)	7.94 (2.98)	8.29 (2.89)
Range	0 – 2	0 – 12	0 – 12	0 – 12
Subjective Social Status	8.00 (1.40)	7.96 (1.56)	7.50 (1.51)	7.75 (1.59)
Range	4 – 10	1 – 10	1 – 10	3 – 10
Body Mass Index	25.16 (6.17)	23.54 (4.81)	25.60 (6.75)	23.85 (5.65)
Range	14.88 – 58.00	14.57 – 35.90	14.67 – 53.64	15.75 – 38.65
Body Mass Index Percentile Rank	75.08 (26.16)	70.88 (25.75)	75.59 (28.18)	69.38 (29.76)
Range	1.97 – 99.80	0.26 – 98.90	0.05 – 99.91	1.18 – 99.59
Body Image Figures	4.15 (1.24)	3.77 (1.14)	4.66 (1.31)	4.34 (1.33)
Range	1 – 8	1 – 6	1 – 8	2 – 7
N (%)	N (%)	N (%)	N (%)	N (%)

	Boys		Girls	
	U.S.-born (N = 351)	Mexico-born (N = 126)	U.S.-born (N = 372)	Mexico-born (N = 126)
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Language used with Friends				
English only or mainly	180 (51.6) *	44 (34.9)	191 (51.3)	52 (41.3)
Spanish only or mainly	36 (10.3)	12 (9.5)	18 (4.8)	9 (7.1)
Both equally	133 (38.1)	70 (55.6)	163 (43.8)	65 (51.6)
Language used for survey				
English	307 (87.5)	92 (73.6) *	322 (87.5) *	84 (67.2) *
Spanish	44 (12.5)	33 (26.4)	46 (12.5)	41 (32.8)
Parental Educational Attainment				
< High School	225 (64.1)	88 (69.8)	232 (62.4)	92 (73.0)
High school	64 (18.2)	16 (12.7)	74 (19.9)	11 (8.7)
> High School	62 (17.7)	22 (17.5)	66 (17.7)	23 (18.3)

* Total N for the variable does not sum to group N due to missing data for the variable

Table III

Relative Risks (RR)^{*} and 95% Confidence Intervals (CI) for physical activity, stratified by sex and country of birth

Variable	Girls				Boys			
	U.S.-Born (N = 372)		Mexico-born (N = 126)		U.S.-born (N = 351)		Mexico-born (N = 126)	
	RR (95% CI)	p-value	RR (95% CI)	p-value	RR (95% CI)	p-value	RR (95% CI)	p-value
Language used for Survey								
English	-	-	-	-	2.14 (1.02 – 4.50)	.045	3.21 (1.35–7.59)	.008
Language spoken with Friends								
English only or both	-	-	2.26 (1.09 – 4.69)	.028	-	-	-	-
Anxiety	0.96 (0.94 – 0.99)	.002	0.96 (0.93 – 0.99)	.029	-	-	0.95 (0.91 – 0.99)	.023
Thrill and Adventure Seeking	1.08 (1.00 – 1.15)	.042	1.20 (1.07 – 1.34)	.002	1.09 (1.01 – 1.19)	.032	1.22 (1.05 – 1.40)	.007
Subjective Social Status	-	-	-	-	1.29 (1.10 – 1.52)	.002	1.35 (1.03 – 1.76)	.031
Body Mass Index ^{**}			1.03 (1.09 – 4.69)	.007	0.96 (0.93 – 0.99)	.042	-	-
Perceived vs. Preferred Body Image			0.53 (0.93 – 0.99)	.007	-	-	-	-

^{*} All models adjusted for other covariates in the model, parental educational attainment and child's age

^{**} BMI variable used varied by model: for girls we used percentile rank and for boys we used their actual