

Nativity and Occupational Determinants of Physical Activity Participation Among Latinos



Sandra E. Echeverría, PhD,¹ Anna Divney, DrPH,² Fatima Rodriguez, MD, MPH,³ Madeline Sterling, MD, MPH,⁴ Elizabeth Vasquez, DrPH,⁵ Rosenda Murillo, PhD,⁶ Lenny Lopez, MD, MPH^{7,8}

Introduction: Latinos in the U.S. bear a disproportionate burden of cardiovascular risk factors, including physical inactivity. Previous research among Latinos has focused on leisure-time physical activity, limiting understanding of the different ways in which populations, particularly working-class groups, achieve recommended levels of physical activity. This study examined associations of race/ethnicity; nativity; and leisure-time, transportation, and occupation-related physical activity among Latino and non-Latino white adults.

Methods: Participants sampled in the 2007–2012 waves of the National Health and Nutrition Examination Survey self-reported domain-specific physical activity. Data were analyzed in 2016–2017 using multivariable log binomial regression models to examine differences in meeting guidelines for each physical activity domain separately and as total physical activity among Latinos ($n=4,692$) and non-Latino whites ($n=7,788$). Models were adjusted for sociodemographic characteristics and health status and tested interactions between nativity and occupational categories.

Results: In adjusted models, foreign-born Latinos (prevalence ratio=0.70, 95% CI=0.63, 0.77) and U.S.-born Latinos (prevalence ratio=0.85, 95% CI=0.76, 0.95) were least likely to meet physical activity guidelines through occupation-related and leisure time physical activity, when compared with non-Latino whites. By contrast, foreign-born Latinos were more likely to meet physical activity guidelines through transportation physical activity than non-Latino whites (prevalence ratio=1.26, 95% CI=1.01, 1.56) and were proportionately more likely to participate in vigorous modes of physical activity. Interaction results indicated that foreign-born Latinos were the least likely to meet physical activity guidelines compared with U.S.-born Latinos and non-Latino whites if they worked in non-manual occupational categories. All racial/ethnic groups working in manual occupations saw the largest increase (40%–50%) in meeting physical activity guidelines when occupation-related physical activity was combined with leisure-time and transportation physical activity.

Conclusions: These findings suggest variability in the relationship between nativity and the physical activity domain Latinos engage in compared with non-Latino whites, with occupation contributing substantially to meeting physical activity recommendations for all population groups.

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From the ¹Department of Public Health Education, School of Health and Human Sciences, University of North Carolina at Greensboro, Greensboro, North Carolina; ²Department of Community Health and Social Sciences, CUNY Graduate School of Public Health and Health Policy, New York, New York; ³Division of Cardiovascular Medicine and Cardiovascular Institute, Stanford University, Stanford, California; ⁴Department of Medicine, Weill Cornell Medical College, New York, New York; ⁵Department of Epidemiology and Biostatistics, School of Public Health, University at Albany, State University of New York, Rensselaer, New York; ⁶Department of Psychological, Health, and Learning Sciences, University

of Houston, Houston, Texas; ⁷Department of Medicine, Division of Hospital Medicine, University of California San Francisco, San Francisco, California; and ⁸San Francisco VA Medical Center, San Francisco, California

Address correspondence to: Sandra E. Echeverria, PhD, Department of Public Health Education, School of Health and Human Sciences, University of North Carolina at Greensboro, 1408 Walker Avenue, Coleman Bldg-437, Greensboro NC 27402. E-mail: seecheve@uncg.edu.
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INTRODUCTION

Healthy People 2020 aims to increase the proportion of adults meeting recommended levels of physical activity (PA) and reduce observed inequalities in active living.¹ PA inequalities are particularly striking for Latinos living in the U.S. Latinos represent 16% of the U.S. population² and are less likely than non-Latino whites to meet national PA guidelines of engaging in 150 minutes per week of moderate-intensity aerobic activity or 75 minutes of vigorous PA. Latinos also report some of the highest levels of sedentary behaviors.³

PA research has consistently shown that Latinos are less likely to engage in leisure-time PA (LTPA) than their non-Latino white peers.^{4–6} However, other domains of PA may be particularly important to investigate given the social disadvantages Latinos face that could lead to increased work or transportation PA (TPA). For example, select studies have shown that Latinos participate in non-leisure time walking,⁷ higher occupational PA (OPA) compared with LTPA,⁸ and adherence to PA guidelines increases when accounting for non-leisure time walking or bicycling in addition to LTPA.⁹ Moreover, studies using accelerometer data have shown that Latinos have the highest objectively measured PA across race/ethnicity,^{10,11} but these data do not provide insights on domains of PA that contribute to higher overall PA.

Most other research on PA among Latinos has focused on acculturation proxies such as nativity, English-language use, and duration in the U.S. indicating higher LTPA levels with increased acculturation.^{7,12–15} Given that Latinos and specifically the foreign born are more likely to be employed in physically demanding occupations,¹⁶ social determinants, such as occupational status, may be an important driver of PA in this population. One study has shown that increased acculturation is associated with less OPA and TPA in a national sample of Latinos,¹⁷ whereas the study by Marquez et al.¹⁸ showed that occupation did not explain lower levels of LTPA.

The present study examined the association between race/ethnicity and nativity with meeting recommended levels of LTPA, TPA, and OPA in a national sample of Latinos and non-Latino whites. Two key hypotheses guided this study: (1) foreign-born Latinos will have a higher probability of TPA and OPA relative to U.S.-born Latinos and non-Latino whites, and (2) occupational status will modify observed associations, such that those in more physically demanding occupations will be the most likely to meet PA guidelines. Identifying variability in PA adoption by race/ethnicity, nativity, and

occupation provides a richer understanding of potential factors shaping PA disparities in diverse populations,¹⁹ while also advancing research on social determinants of PA and Latino health.^{20–23}

METHODS

Study Sample

The study population included adults age ≥ 18 years surveyed in the 2007–2012 waves of the National Health and Nutrition Examination Survey (NHANES). These survey years represent the most recent data with detailed occupational categories. NHANES employs a complex, multistage stratified probability cluster design, to assess health and nutrition in a nationally representative sample of the non-institutionalized U.S. civilian population.²⁴

Measures

Study participants self-reported PA based on the Global Physical Activity Questionnaire previously validated across various settings and populations.²⁵ Participants were classified into three groups: TPA based on bicycling or walking; OPA, including moderate (e.g., brisk walking or carrying light loads, household chores) or vigorous (e.g., lifting heavy loads, digging or construction work) activities; and LTPA based on moderate or vigorous activities (e.g., sports, fitness, or recreational activities). For example, questions asked, *In a typical week, on how many days do you do moderate-intensity activities as part of your work?* and *How much time do you spend doing moderate-intensity activities at work on a typical day?* PA levels for each domain of activity were estimated by a product of the frequency of activity (number of days in a typical week), and the time spent during such activities (minutes per day in a typical day). For LTPA and OPA, moderate and vigorous modes were asked separately. Because vigorous activity is assigned a MET score that is approximately double that of moderate physical activity,²⁶ minutes of vigorous activity were multiplied by two when summing the values. Transportation is typically classified as a moderate mode of PA, and thus was not multiplied by two. Based on the 2008 U.S. PA guidelines,²⁷ respondents were classified on whether they met the recommended ≥ 150 minutes of moderate to vigorous PA in a typical week. All minutes of PA reported were also summed to determine the relative contribution of each domain of PA across race/ethnicity and nativity. Specifically, among those who engaged in at least one domain of PA, the minutes spent in the past week in each PA domain was divided by the sum score and multiplied by 100 to obtain the proportion of the total combined PA attributable to each domain. Two measures of combined PA were created: (1) the sum of LTPA and TPA, and (2) the sum of LTPA, TPA, and OPA. These two different combined PA measures illustrate the contribution of OPA on PA levels among Latinos—a relatively understudied area of PA research in Latino populations.

Participants self-reported their race/ethnicity. Nativity status for Latinos was based on whether participants reported having been born in U.S. The race/ethnicity and nativity variables were combined to derive one variable with three groups: (1) U.S.-born

non-Latino whites; (2) U.S.-born Latinos; and (3) foreign-born Latinos. Occupational status for participants was based on those who worked in the past week using occupation codes established by the U.S. Census Bureau's year 2002 version of the Occupation and Industry Coding System.²¹ Occupations were collapsed into five categories (professional/executive, other manual, repair/production/transportation, service/sales, and office/admin) as defined in prior research.^{4,28} A separate category was also created for those not working in the past week, including retirees. Other variables included in models were based on theoretical considerations and prior empirical evidence of potential confounders. These variables included BMI based on measured weight (in kilograms) divided by height squared (in meters), and then categorized as normal (<25), overweight (25–29.99), or obese (≥ 30); report of walking difficulty (yes/no); and sociodemographic variables including age, sex, marital status, education (less than high school, high school, some college, college or more), and total annual household income (0–\$24,999, \$25,000–\$74,999, $\geq 75,000$).

Statistical Analysis

The data were downloaded, merged, and analyzed in 2016–2017 after identifying all relevant variables. Percentages and SEs of study variables are presented for non-Latino whites and Latinos by nativity status for the combined 6-year survey period. Percentage distributions of study variables are weighted using NHANES sample weights, which are designed to represent the U.S. population and account for sample selection. Separate multivariable log binomial models were fit to estimate prevalence ratios (PRs) examining associations between race/ethnicity and nativity and meeting PA guidelines through LTPA, TPA, and OPA, and adjusting for theoretically and empirically informed covariates. Model 1 presents the unadjusted (crude) association between race/ethnicity/nativity and LTPA, TPA, and OPA. Model 2 adjusts for age, sex, and marital status. Model 3 additionally adjusts for occupation. Model 4 includes all variables from Model 3, plus health status. Model 5 additionally adjusts for education and income. Among adults aged 18–64 years, two-way interactions between race/ethnicity and nativity with occupational status was examined for each PA domain. The analytic sample in the study includes adults who identified as Latino (U.S.-born $n=1,668$ and foreign-born $n=3,024$) and non-Latino white ($n=7,788$). Nativity status was missing for ten Latino participants, and < 1% of participants were missing data on the PA and occupation variables. Participants were missing data on education ($n=578$); income ($n=540$); marital status ($n=565$); BMI ($n=186$); and health status ($n=564$). All statistical tests were two-sided at the 5% significance level. Analyses were performed using SAS, version 9.4, and SAS-callable-SUDAAN, version 11.0.1, to account for the complex sampling design of NHANES. The IRB of the CUNY Graduate School of Public Health and Health Policy deemed the study as exempt from review.

RESULTS

Table 1 displays the sociodemographic characteristics of the study population by race/ethnicity and nativity group. Approximately 20% of non-Latino whites were aged ≥ 65 years compared with 7.6% and 8.8% of U.S.-born and foreign-born Latinos, respectively. Nearly

32% non-Latino whites were college educated, compared with 8.8% of foreign-born Latinos. Non-Latino whites reported the highest prevalence of meeting national PA recommendations through LTPA (39.3%), followed by U.S.-born Latinos (38.7%) and foreign-born Latinos (25.5%). Latinos were more likely to meet PA guidelines through TPA than non-Latino whites (11.6%). Prevalence of meeting guidelines via OPA was similar across race/ethnicity and nativity.

Figure 1A–C present total combined PA minutes attributable to each domain by race/ethnicity and nativity. Foreign-born Latinos spent more time in vigorous OPA (19.5%) than U.S.-born Latinos (13.0%, $p=0.02$) and non-Latino whites (15.0%, $p=0.01$). They also spent more time in TPA (24.2%) compared with U.S.-born Latinos (19.3%, $p < 0.001$) and non-Latino whites (11.8%, $p < 0.001$). Conversely, LTPA made up a significantly lower proportion of the total combined PA among foreign-born Latinos (28.6%) compared with U.S.-born Latinos (41.2%, $p < 0.001$) and non-Latino whites (44.0%, $p < 0.001$).

Table 2 shows the results of multivariable regression models. In crude models (Models 1), foreign-born Latinos were 35% (PR=0.65, 95% CI=0.58, 0.72) and 10% (PR=0.90, 95% CI=0.81, 1.00) less likely to meet PA guidelines through LTPA and OPA, respectively, compared with non-Latino whites. Although the addition of income and education in Model 5 did not fully explain these associations, estimates were substantially reduced for LTPA. Conversely, foreign-born and U.S.-born Latinos were 51% and 29% more likely to meet guidelines through TPA compared with non-Latino whites in crude models (PR=1.51, 95% CI=1.25, 1.82; and PR=1.29, 95% CI=1.03, 1.63, respectively) and was slightly attenuated in fully adjusted models for foreign-born Latinos (PR=1.26, 95% CI=1.01, 1.56).

Figure 2 examines if observed associations between race/ethnicity and nativity differed by occupation among respondents aged 18–64 years ($p_{\text{interaction}}=0.02$). Non-Latino whites were more likely to meet PA guidelines through LTPA and TPA than U.S.-born and foreign-born Latinos across most occupational categories. Additionally, the proportion of respondents meeting PA guidelines was the lowest in more physically demanding occupations, such as repair/production/transportation and other manual occupations, among non-Latino whites and U.S.-born Latinos, but not among foreign-born Latinos. After incorporating OPA, the proportion of the population that met recommended levels of PA in these categories increased by a difference of as much as 40%–50% across all race/ethnicity and nativity categories.

Table 1. Demographic Characteristics and Physical Activity for U.S. Latinos and Non-Latino Whites Aged ≥ 18 Years: NHANES, 2007–2012

Variable	Non-Hispanic whites, % (SE) ^a (n=7,788)	U.S.-born Latinos, % (SE) ^a (n=1,668)	Foreign-born Latinos, % (SE) ^a (n=3,024)
Age, years			
18–29	18.8 (0.97)	42.3 (1.60)	23.5 (0.97)
30–39	15.5 (0.60)	21.7 (1.17)	25.9 (1.48)
40–49	18.8 (0.66)	14.5 (1.14)	23.0 (0.78)
50–64	27.1 (0.78)	13.9 (0.75)	18.8 (1.08)
≥ 65	19.8 (0.61)	7.6 (0.77)	8.8 (0.96)
Gender			
Male	48.5 (0.50)	49.2 (1.17)	51.8 (0.81)
Marital status			
Married	59.2 (1.00)	43.7 (2.11)	53.3 (1.40)
Education			
Less than high school	12.8 (1.21)	25.1 (1.47)	56.4 (2.11)
High school	23.3 (0.98)	26.5 (1.89)	18.5 (0.97)
Some college	31.9 (0.76)	33.5 (1.94)	16.3 (1.19)
College graduate or more	31.9 (1.71)	15.0 (1.20)	8.8 (1.05)
Income			
0–\$24,999	18.0 (1.14)	29.2 (1.79)	38.4 (1.73)
\$25,000–\$74,999	42.8 (1.30)	47.4 (1.55)	50.9 (1.48)
\geq \$75,000	39.2 (1.87)	23.4 (2.03)	10.7 (1.20)
Occupation categories			
No work past week	37.9 (1.02)	36.6 (1.69)	34.0 (1.36)
Office/administrative	7.2 (0.38)	10.2 (1.18)	4.0 (0.33)
Service/sales	14.5 (0.59)	17.2 (1.03)	26.0 (1.34)
Repair/production/transportation	8.7 (0.66)	10.2 (1.14)	15.9 (1.40)
Other manual ^b	4.0 (0.30)	4.4 (0.69)	11.1 (1.06)
Professional/executive	27.7 (1.11)	21.4 (1.87)	9.0 (0.55)
BMI			
Underweight or normal	33.0 (0.92)	25.8 (1.48)	23.8 (1.10)
Overweight	34.1 (0.78)	31.6 (1.16)	40.4 (1.18)
Obese	32.9 (0.98)	42.7 (1.80)	35.8 (1.20)
Difficulty walking ^c			
Yes	6.8 (0.37)	6.6 (0.98)	5.2 (0.49)
Met PA guidelines via LTPA			
Yes	39.3 (1.61)	38.7 (1.63)	25.5 (1.08)
Met PA guidelines via occupational PA			
Yes	37.5 (0.99)	34.7 (1.80)	33.8 (1.50)
Met PA guidelines via transport PA			
Yes	13.5 (0.82)	17.5 (1.73)	20.4 (1.80)
Met PA guidelines through any combination of LTPA, transport, or occupational PA ^d			
Yes	66.2 (1.04)	63.6 (2.10)	58.1 (1.64)

Note: All percentages are weighted to the U.S. population using NHANES assigned weights.

^aSample size for specific variables may not total the full sample size because of missing values.

^bFarming, forestry, construction, armed forces.

^cAsked only of those aged ≥ 20 years.

^dBecause a respondent could meet PA guidelines through a single mode of PA and/or a combination of modes of PA, the proportions meeting PA guidelines through the three specific domains of PA will not sum to this combined measure.

LTPA, leisure time PA; NHANES, National Health and Nutrition Examination Survey; PA, physical activity.

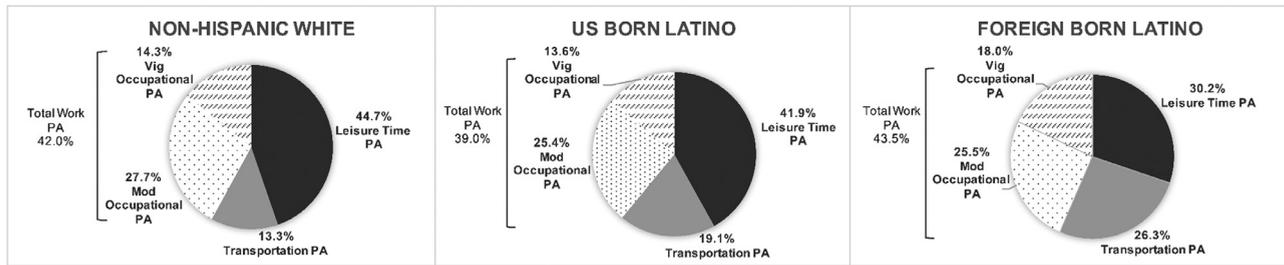


Figure 1. Proportion of time spent per week on each domain of PA by race/ethnicity and nativity.

Note: Figure represents minutes spent on each domain of PA divided by total minutes of physical activity among the population reporting at least one type of physical activity (i.e., excludes those reporting no PA).

Mod, moderate; PA, physical activity; Vig, vigorous.

DISCUSSION

This study investigated the contribution of nativity and occupation with domain of PA participation among Latinos, one of the largest immigrant-origin groups in the U.S. In fully adjusted models that accounted for physical health, Latinos were significantly more likely to meet PA guidelines through transportation than non-Latino whites. Occupation did not explain observed nativity and race/ethnic patterns on domain of PA. However, on average, vigorous OPA constituted a greater proportion of total combined PA among foreign-born Latinos compared with non-Latino whites and U.S.-born Latinos. Inclusion of OPA led to a substantial increase in the proportion of individuals meeting PA guidelines, particularly for individuals working in manual occupations.

This paper contributes to the literature on PA epidemiology in two unique ways. First, this analysis examined participation in domains of PA beyond LTPA. These findings are consistent with previous studies showing racial/ethnic differences in LTPA,^{4–6} and a small body of literature examining PA domains among Latinos. For example, Berrigan and colleagues⁹ showed that taking into account non-leisure time walking or bicycling reduced non-Latino white versus Latino disparities in adherence to PA guidelines. Second, the present study found varying associations for each PA domain by nativity status. Results showed that previously observed patterns of lower PA among foreign-born Latinos were only evident for LTPA. Foreign-born Latinos were more likely to meet guidelines through TPA than U.S.-born Latinos. These findings question

Table 2. Attaining Recommended PA by Domain Among Foreign-Born Latinos, Native-Born Latinos, and Non-Latino Whites, NHANES 2007–2012

Domain of PA/Nativity	Model 1, ^a PR (95% CI)	Model 2, ^b APR (95% CI)	Model 3, ^c APR (95% CI)	Model 4, ^d APR (95% CI)	Model 5, ^e APR (95% CI)
Leisure-time PA					
Foreign-born Latino	0.65 (0.58, 0.72)	0.59 (0.52, 0.65)	0.65 (0.59, 0.72)	0.67 (0.61, 0.73)	0.91 (0.83, 0.98)
U.S.-born Latino	0.99 (0.88, 1.11)	0.84 (0.74, 0.95)	0.85 (0.76, 0.96)	0.91 (0.82, 1.02)	1.04 (0.93, 1.15)
White	1.00 (ref)	1.00 (ref)	1.00 (ref)	1.00 (ref)	1.00 (ref)
Occupational PA					
Foreign-born Latino	0.90 (0.81, 1.00)	0.83 (0.75, 0.93)	0.66 (0.60, 0.73)	0.66 (0.60, 0.74)	0.70 (0.63, 0.77)
U.S.-born Latino	0.93 (0.83, 1.03)	0.86 (0.76, 0.96)	0.86 (0.76, 0.96)	0.85 (0.76, 0.96)	0.85 (0.76, 0.95)
White	1.00 (ref)	1.00 (ref)	1.00 (ref)	1.00 (ref)	1.00 (ref)
Transportation PA					
Foreign-born Latino	1.51 (1.25, 1.82)	1.40 (1.15, 1.70)	1.36 (1.11, 1.68)	1.39 (1.12, 1.73)	1.26 (1.01, 1.56)
U.S.-born Latino	1.29 (1.03, 1.63)	1.05 (0.83, 1.32)	1.03 (0.82, 1.30)	1.09 (0.86, 1.37)	1.05 (0.86, 1.56)
White	1.00 (ref)	1.00 (ref)	1.00 (ref)	1.00 (ref)	1.00 (ref)

^aModel 1 was the crude model.

^bModel 2 controlled for age, sex, and marital status.

^cModel 3 included the model 2 variables plus occupation.

^dModel 4 included the model 3 variables plus BMI category and difficulty walking.

^eModel 5 included the model 4 variables plus education and income.

APR, adjusted prevalence ratio; NHANES, National Health and Nutrition Examination Survey; PA, physical activity; PR, prevalence ratio.

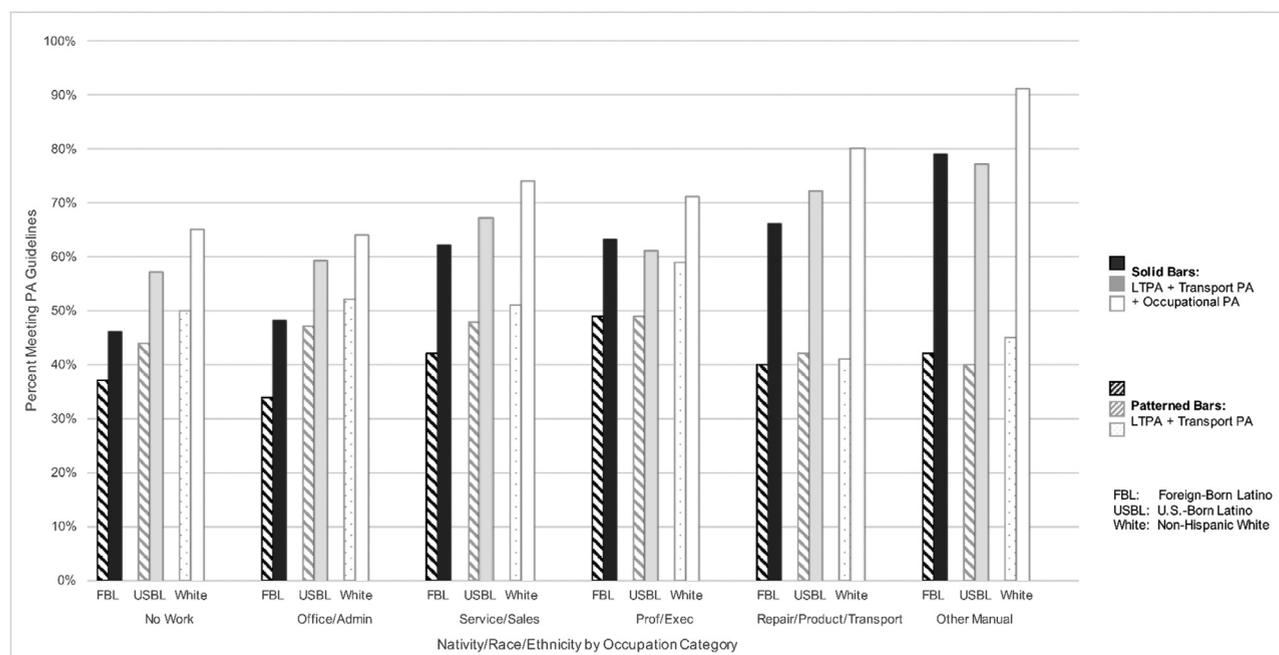


Figure 2. Proportion meeting PA guidelines with and without inclusion of OPA by race/ ethnicity and nativity.

Note: This figure presents the proportion of individuals meeting PA guidelines when LTPA and TPA are included (solid bars), plus the additional contribution of OPA (patterned bars). Percentages are age-adjusted using predicted probabilities fit in logistic regression models and restricted to individuals aged 18–64 years to capture the working age population.

FBL, foreign-born Latino; USBL, U.S.-born Latino; White, non-Hispanic white; PA, physical activity; LTPA, leisure-time physical activity; Admin, administrative; Prof/Exec, professional/executive.

prior work suggesting that Latinos, and specifically the foreign born, systematically experience better health than non-Latino whites (i.e., Latino health paradox) and suggest variability in domain-specific PA adoption.^{7,17} Taken together, this body of evidence indicates that nativity status is differentially associated with health and urges careful consideration of the population group and outcome targeted in PA promotion.

Moreover, findings suggest that distinct mechanisms may be operating in PA adoption. Eamranond et al.²⁹ found that although increased English-language use and length of time in the U.S. were associated with higher prevalence of cardiovascular risk factors, these acculturation proxies were associated with improved disease management (i.e., protective effect). The authors hypothesized that increased acculturation may lead to the adoption of unhealthful behaviors (e.g., diet) while conferring a protective effect for disease management related to English-language proficiency.²⁹ In this study, U.S.-born status may influence the adoption of LTPA given perceived societal norms of exercising and weight management. However, OPA and TPA may be influenced by the amount of physical exertion expended at work or built environment conditions shaping active living.^{30,31} Future research is needed to determine how contextual factors and culturally specific norms may independently or jointly shape active living in

diverse groups in order to reduce PA inequalities and future cardiovascular risk.^{32–34}

Lastly, this study expands the evidence base regarding occupation and PA in racially/ethnically diverse populations. The U.S. has seen a dramatic shift over the last few decades in employment sectors, moving from a goods production economy to a service industry that generally requires minimal PA expenditure in working populations,³⁵ or exertion in only select sectors, such as construction work. This shift in work-related conditions has been implicated in rising obesity trends.³⁶ Like this study, Marquez and colleagues¹⁸ also showed that Latinos had lower levels of LTPA than non-Latino whites and that adjusting for occupational status did not explain observed disparities. However, a new finding from the present study is that when summing across all domains of PA, foreign-born Latinos are proportionally more likely to engage in vigorous OPA and less LTPA than U.S.-born Latinos and non-Latino whites. The inclusion of OPA made a substantial difference in the proportion of the population (both Latino and non-Latino whites) that met recommended levels of PA, showing the highest increase for individuals working in physically demanding occupations.

The science around the effect of intensity, volume, and domain of PA on health is still emerging.^{37–39} Most of the

research as of this writing suggests LTPA confers a stronger protective effect on health than OPA.^{13,40–43} However, as Church et al.³⁶ suggest, this does not mean that occupational status has no role in advancing health, especially given that LTPA constitutes a small percentage of waking hours. Occupational status and work conditions may be particularly salient to study in socially vulnerable groups employed in jobs that are either physically demanding and result in high levels of PA or, conversely, require low or minimal PA expenditure. The limited evidence on this topic in the U.S. may in part be due to the general lack of integration of occupational determinants in U.S. public health research.⁴⁴ Additionally, future research is needed to explore whether domain-specific PA varies by gender, given that men and women engage in different PA behaviors and hold different types of occupations.

Limitations

The findings in this study should be considered in light of some potential limitations. As a cross-sectional design, the study was not able to demonstrate that over time the foreign born become more or less physically active in specific domains of activity. However, reverse causality is a less likely explanation given that the outcome is PA and the exposure is country of birth, thereby supporting the temporal order of the observed associations. Foreign-born status is only a proxy measure of acculturation and does not capture changes in values, attitudes, and norms, although this measure correlates with more complex measures of acculturation.⁴⁵ Sample size limitations for some nativity, race/ethnicity, and occupational categories also limited the ability to reach more definitive conclusions about how occupation influences the domain of PA.

Future research would benefit from population-based cohorts that are diverse in terms of race/ethnicity, and include varied measures of socioeconomic position and PA domain to better elucidate independent or synergistic relationships across these factors over time. PA was measured via self-report and thus can introduce measurement error. Although some studies have shown discrepancies in self-reported versus accelerometer-based estimates of PA,⁴⁶ self-reported PA remains a standard approach to collect data on PA in large population-based samples. Novel methods are emerging in the field (e.g., ecological momentary assessment) to allow researchers to more effectively correlate movement with the contexts under which PA behaviors take place. These methods could provide a better examination of the validity of PA self-report by domain and across race/ethnicity. Lastly, although results may be generalizable to the non-institutionalized Latino and non-Latino white populations of

the U.S., NHANES does not allow exploration of differences by Latino groups. Latinos include heterogeneous ethnic groups with varying political, cultural, and socioeconomic histories that have settled and integrated into U.S. society in different ways. The discrepant results observed by nativity status, as an acculturation proxy, could be due to cultural factors shaping adoption of select PA behaviors in some Latino groups and not others. Further, this study was not able to examine if neighborhood of residence and built environment determinants that Latino groups are exposed to account for observed associations.

CONCLUSIONS

This study presents novel results on variability in the domain of PA adopted by Latinos in the U.S. and underscores how both nativity and occupation influence this health behavior. The results suggest that PA policies and programs require consideration of how nativity and cultural factors, as well as socioeconomic determinants, such as occupation, influence adoption of PA in immigrant and working-class populations in the U.S.

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Dr. Echeverría conceived of and supervised the study, including data analysis, and wrote substantial parts of the manuscript. Dr. Divney contributed substantively to the design of the study, led data analyses, and wrote substantial parts of the manuscript. Dr. Vasquez and Dr. Murillo were responsible for quality assurance of the physical activity data and interpretation of these findings. Dr. Rodriguez and Dr. Sterling contributed to integrating study findings into public health and clinical practice. Dr. Lopez assisted in re-conceptualizing key aspects of the study and interpreting main findings. All authors critically revised the article for intellectual content and approved the version to be published.

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The findings and conclusions in this article are solely the responsibility of the authors and may not represent the official view of the Centers for Disease Control and Prevention, HHS, Robert Wood Johnson Foundation, or the Agency for Healthcare Research and Quality.

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