Annals of Epidemiology 25 (2015) 656–660

Contents lists available at ScienceDirect

Annals of Epidemiology

journal homepage: www.annalsofepidemiology.org

Original article

Disparities in meeting physical activity guidelines for Asian-Americans in two metropolitan areas in the United States

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ARTICLE INFO

Article history:
Received 28 January 2015
Accepted 5 May 2015
Available online 14 May 2015

Keywords:
Exercise
Asian-Americans
Health status disparities
Population surveillance
Urban health

ABSTRACT

Purpose: Physical activity (PA) levels in Asian-American adults may be lower than other racial or ethnic groups. This analysis tested the hypothesis that Asian-Americans are less likely to meet PA guidelines than other racial or ethnic groups regardless of location of residence.

Methods: The New York City (NYC) Community Health Survey (2010, 2012) and Los Angeles County (LAC) Health Survey (2011) are cross-sectional surveys conducted with similar sampling strategies (NYC: $n = 17{,}462$; LAC: $n = 8036$). Meeting PA guidelines was calculated using self-reported moderate or vigorous minutes per week; multivariable regression models adjusted for demographics, insurance, nativity and language spoken at home. Data were weighted to be representative of their respective geographies.

Results: In both areas, Asian-Americans had a low prevalence of meeting PA guidelines (NYC: 42.7 [39.2–46.3]; LAC: 55.8 [51.2–60.2]). Other racial or ethnic groups were more likely to meet PA guidelines versus Asian-Americans after adjustment for covariates in NYC (white odds ratio [OR]: 1.35 [1.09–1.68]; black OR: 1.61 [1.28–2.02]; Hispanic OR: 2.14 [1.74–2.62]) and in LAC (white OR: 1.45 [1.13–1.86]; Hispanic OR: 1.71 [1.32–2.22]).

Conclusions: Asian-Americans were less likely to meet PA guidelines compared with other racial or ethnic groups in NYC and LAC. Description of cultural and neighborhood-level factors and of types of PA in specific Asian subgroups is needed.

Introduction

Physical activity (PA) is a beneficial health behavior, associated with reduced risk of chronic disease. To meet aerobic requirements as recommended by the 2008 Physical Activity Guidelines for Americans, adults should engage in 150 min/wk of moderate-intensity, or 75 min/wk of vigorous-intensity PA, or an equivalent combination of moderate- and vigorous-intensity PA [1]. According to recent data from a national sample of adults, only 36.1% were aware of the 2008 Physical Activity Guidelines for Americans [2]. In addition, meeting PA guidelines is suboptimal in the adult U.S. population; according to 2011 data, only 51.6% of adults met the aerobic guidelines [3].

Asian-Americans have been documented to have lower levels of leisure-time PA (LTPA) than other racial or ethnic groups, but the data are sparse. Although Asian-Americans have a lower prevalence of obesity (10.8 vs. 32.6–47.8 in other racial or ethnic groups) [4], they are more likely to develop hypertension and diabetes at lower body mass index values than other racial or ethnic groups [5]. This may be because Asian-Americans tend to have higher percent body fat for the same body mass index compared to their white counterparts [6]. Any mitigating impact of PA on obesity or related outcomes is of interest for Asian-American populations.

The general awareness of the PA disparity among Asian-Americans is low. To the author's knowledge, only a few peer-reviewed studies have documented this PA disparity in Asian-Americans compared with other racial or ethnic groups; [7–10] some have described PA patterns within Asian subgroups [11,12]. All prior studies used the California Health Interview Survey (CHIS). The Asian-American population includes individuals from vastly different cultural backgrounds (e.g., Chinese, Asian Indians,

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http://dx.doi.org/10.1016/j.annepidem.2015.05.002
1047-2797/

Filipinos), and furthermore, Asian-Americans from these subgroups are differentially distributed across the United States. New York City (NYC) and Los Angeles County (LAC) each contain large Asian-American populations with different Asian subgroup compositions compared to the overall state of California [13]. In addition, both NYC and LAC conduct regional health surveys, with population sampling performed in such a way that estimates may be weighted to be representative of the entire respective area, providing a unique opportunity to examine health behaviors such as PA.

The purpose of this analysis was to examine the prevalence of meeting PA guidelines in adults by race or ethnicity in NYC and in LAC, two areas with differing opportunities to be physically active. The specific hypothesis we were testing was that Asian-Americans would have lower levels of PA than all other racial or ethnic groups regardless of their area of residence.

Material and methods

Data from two municipal surveys were used, one conducted among noninstitutionalized adults in NYC and the other in LAC. Both surveys are random-digit-dial, cross-sectional telephone surveys that incorporate both a landline and cell phone sample. The NYC survey has been conducted since 2002, whereas the LAC survey has been conducted since1997. Both surveys may also be weighted to be representative of their respective populations.

Data sets

NYC data were from two waves (2010 and 2012) of the NYC Community Health Survey (NYC CHS), a health survey conducted annually by the NYC Health Department in English, Spanish, Russian, and Chinese (i.e., surveys were translated into Mandarin, interviewers spoke Cantonese and Mandarin). The NYC CHS includes self-reported health data on approximately 9000 participants each year. Data from the 2010 and 2012 survey years were combined ($n = 17{,}462$). Participants missing the primary outcome of meeting PA guidelines were excluded from the analysis ($n = 1166$), resulting in an unweighted sample size of $n = 16{,}296$ (Asian-Americans: $n = 1328$). For logistic regression analyses, the final sample size was 14,178.

LAC data were from the 2011 LAC Health Survey (LACHS; $n = 8036$), the sixth iteration. The LACHS is a health survey conducted periodically by the LAC Department of Public Health. The 2011 LACHS was administered in English, Spanish, Cantonese, Mandarin, Vietnamese, and Korean. The survey collects information on demographics, health conditions, health-related behaviors, health insurance coverage, and access to care among county residents. Details regarding the survey design and weighting methodology are reported elsewhere [14]. Participants who were missing the primary outcome of meeting PA guidelines were not included in the analysis ($n = 171$), resulting in an unweighted sample size of 7865 (Asian-Americans: $n = 766$). For logistic regression analyses, the final sample size was 7117.

PA and covariate definitions

In both the NYC CHS and the LACHS, meeting PA guidelines were assessed using a series of questions on moderate and vigorous physical activities. The questions across the two surveys differed slightly but were comparable (Supplemental Table S1). More broadly, the NYC questions use the phrase "leisure-time PA" in wording, whereas the LAC questions do not and are inclusive of activity at work. The LAC questions include "walking" as a part of question wording for assessing moderate activity, whereas the NYC questions do not. Continuous values of self-reported PA minutes were used to calculate a composite variable of meeting PA guidelines or performing 150 minutes of moderate or 75 minutes of vigorous exercise per week; participants were categorized as being sufficiently active, insufficiently active, or inactive.

Race or ethnicity was assessed using questions on Hispanic origin and race group and was categorized as non-Hispanic Asian-American, non-Hispanic white, non-Hispanic black, Hispanic, or non-Hispanic other (hereafter referred to as "Asian-American", "white", "black", or "other"). All other covariates (age, sex, poverty group, education, and insurance type) were self-reported. Household poverty was grouped according to the federal poverty guidelines (<200%, 200%–399%, ≥400% of the federal poverty level). Insurance type was defined as private, public, uninsured, or other. Nativity was defined as being born in the Unites States or elsewhere. Puerto Ricans and those born in U.S. territories were defined as being foreign born. The length of time spent in the Unites States was assessed in foreign-born adults (<10, ≥10 years). A diverse array of languages spoken at home was ascertained in both surveys, but due to sample size and a general lack of heterogeneity across languages, this variable was collapsed as English or non-English.

Statistical analyses

Results were weighted to be representative of the NYC and LAC adult, noninstitutionalized populations. The prevalence of meeting PA guidelines (sufficiently active) was assessed in each data set and stratified by covariates. Multivariable logistic regression models were used to assess the association of race or ethnicity with the odds of meeting PA guidelines adjusted for age, sex, poverty, education, insurance type, nativity, and language spoken at home. To assess which sociodemographic covariates were independently associated with meeting PA guidelines within Asian-Americans, analyses were restricted to Asian-Americans. Specific Asian ethnicity (i.e., Chinese, Korean, Filipino, South Asian, Vietnamese, Japanese) was not assessed in U.S.-born Asians in the 2010 NYC CHS. Thus Asian-American–specific analyses were conducted in NYC CHS 2012 and in LACHS data only. To compare PA levels across NYC and LAC, prevalence estimates were run areawide (city or county) and stratified by race or ethnicity. Statistical comparisons between NYC and LAC were made by examination of 95% confidence intervals; nonoverlapping confidence intervals were noted. SUDAAN (version 11.0; Research Triangle Institute, Research Triangle Park, NC) was used for all analysis.

Results

The characteristics of the NYC CHS and the LACHS participants are displayed in Table 1. The racial or ethnic breakdown between the two areas was similar for Asian-Americans and for whites, but differed for blacks and Hispanics. In NYC, the population was 21.6% black and 27.2% Hispanic, whereas in LAC the population was 8.6% black and 43.7% Hispanic. All other covariates were similar across NYC and LAC.

The crude prevalence of meeting PA guidelines was similar, but slightly lower in NYC (57.9 [56.8–59.1]) than in LAC (61.8 [60.3–63.2]; Table 2). In NYC, less than half of Asian-Americans (42.7%) met PA guidelines, a prevalence that was lower than all other racial or ethnic groups. In LAC, 55.8% of Asian-Americans met PA guidelines, which was significantly lower than the prevalence in whites (61.3, $P < .001$) and Hispanics (60.2, $P < .001$). In NYC and LAC, the prevalence of meeting PA guidelines was lower in older age groups, women, and those at higher poverty and lower education levels or who had public insurance. Nativity was significantly associated with the prevalence of meeting PA guidelines; U.S.- versus foreign-born adults were more likely to meet guidelines in