

Racial-Ethnic Variation in Park Use and Physical Activity in the City of Los Angeles

Kathryn Pitkin Derose, Bing Han, Stephanie Williamson,
and Deborah A. Cohen, RAND Corporation

ABSTRACT *Racial-ethnic disparities in physical activity present important challenges to population health. Public parks provide access to free or low-cost physical activity opportunities, but it is unclear to what extent parks are utilized by various race-ethnic groups in diverse urban settings. Here, we examine racial ethnic differences in park use and physical activity among adult residents (n=7506) living within 1 mi of 50 parks in the city of Los Angeles. In multivariate analyses, we find few differences among race-ethnic groups in terms of their frequency of having visited the park in the past 7 days; however, we find numerous differences in how the groups used the park and in their levels of physical activity: Blacks and English-speaking Latinos were less likely than whites to report being physically active, exercising in the park, and exercising outside the park; Spanish-speaking Latinos were equally likely as whites to report exercising in park but less likely to report exercising outside the park and more likely to report using the parks for social interactions; Asians/Pacific Islanders (PI)/others were more likely than whites to report visiting the park in the past 7 days and using the parks for social interactions. Urban parks appear to be an important resource for physical activity and socialization, in particular among Spanish-speaking Latino and Asians/PI groups. Additional efforts may be needed for other racial-ethnic minorities to experience the same benefits.*

KEYWORDS *Park use, Physical activity, Race-ethnicity, Immigrants*

INTRODUCTION

There are many health benefits to regular physical activity. However, a substantial portion of the US population—58 % of children, 92 % of adolescents, and 95 % of adults—does not meet the current physical activity recommendations when measured objectively through accelerometers.¹ Further, there are substantial disparities in reported physical activity by race-ethnicity, with 61 and 53 % of African-Americans and Latinos, respectively, reporting low levels of physical activity, compared to 45 % of whites ($p<.001$).² Finding effective ways to increase physical activity among US populations in general and in particular among racial and ethnic minorities are important for population health.

Public parks comprise local infrastructure that could be leveraged to increase community physical activity. An estimated 70 % of persons in the US live within walking distance to a park.³ Parks appear to play a critical role in facilitating

Derose, Han, Williamson, and Cohen are with the RAND Corporation, 1776 Main St, PO Box 2138, Santa Monica, CA 90407-2138, USA.

Correspondence: Kathryn Pitkin Derose, RAND Corporation, 1776 Main St, PO Box 2138, Santa Monica, CA 90407-2138, USA. (E-mail: derose@rand.org)

physical activity in minority communities.^{4–6} Some research, however, suggests that parks in minority communities can be locations of crime, conflict, and discrimination, and have poorly maintained facilities⁷ and are therefore often less attractive and appealing for physical activity.⁸ Overall, limited research has been conducted with diverse, population-based samples to examine racial-ethnic variation in use of parks for physical activity.

Previous research has examined racial-ethnic variation in reported use of parks and, among those who use parks, racial-ethnic variation in levels of park-based physical activity, but overall results have been mixed. A national, population-based study found no statistically significant differences among whites, blacks, Hispanics, and “others” in *perceived access to parks* and *reported use in the previous year*, even though racial-ethnic minorities were more likely to report safety concerns and poor quality of facilities; however, the likelihood of an “active” park visit (participation in walking, hiking, swimming, biking, running/jogging, or playing sports) was lower among blacks than whites (with no difference between whites and Hispanics).⁹ In contrast, a regional population-based study in two South Carolina counties found that African-Americans reported significantly more days of park use for physical activity (in a typical month) than whites.¹⁰ Other local and regional studies comparing white, African-American, and Hispanic neighborhoods have found that walking (moderate physical activity) was highest in Hispanic neighborhood parks in Tampa, but walking and vigorous physical activity were highest in African-American neighborhood parks in Chicago.¹¹ However, much of this previous research has focused only on park users and not on community members more generally.

In addition, physical activity may not be the primary reason why people use parks, and there has been some variation among racial-ethnic minorities in this regard. Floyd et al.¹² note that the literature on recreation and leisure has found variations by race and ethnicity in terms of park-use patterns, recreation setting preferences, and constraints to park use. For example, studies have found that Latinos often perceive environmental, social, psychological, and cultural benefits of parks, in addition to being venues for physical activity and sports.^{7,13} Understanding how different groups tend to use parks can help inform programming that aims to encourage park use and physical activity in diverse urban settings.

Here, we examine the correlates of park use and physical activity among a diverse, urban sample in the city of Los Angeles. Our analytic approach is guided by the social ecological model, which conceptualizes multiple levels of influences on physical activity, including intrapersonal, interpersonal/cultural, organizational, physical environment, and policy.¹⁴ Our primary research question is the following: Among a sample with approximately equal access to parks, are there racial-ethnic differences in park use and physical activity after controlling for other factors (individual, park, neighborhood)?

METHODS

Data Sources

The primary data used for these analyses come from a study of park use and physical activity across 50 neighborhood parks in the city of Los Angeles,^{15,16} where parks were selected purposefully to ensure equal representation of neighborhoods that were predominantly African-American, Asian, Latino, white, and mixed

neighborhoods. Three data sources are used: interviews of randomly selected households within 1 mi of the study parks ($n=7506$), systematic observations of park use for each study park ($n=50$), and neighborhood characteristics from the 2010 US Census. For the interviews, households were randomly selected within 1 mi of each park, stratified by distances of 0–1/4, 1/4–1/2, and 1/2–1 mi to interview approximately 25 individuals in each stratum, for a total of 75 resident interviews per park at baseline and follow-up (average refusal rate across the two waves was 11 %). Trained, bilingual community health promoters (*promotoras*) conducted structured interviews with neighborhood residents about their use of the subject park (residents were also asked limited questions about other parks they used) and frequency of exercise. The System for Observing Play and Recreation in Communities (SOPARC),¹⁷ a validated method using momentary time sampling to assess the characteristics of parks and their users, including their physical activity levels, was used to assess park and user characteristics and physical activity behavior in each park for 7 days, four times/day in each park. Finally, we integrated select neighborhood characteristics from the 2010 US Census (population density, neighborhood poverty, racial-ethnic diversity, and percent of the population that prefers to speak Spanish).

Measures

Dependent Variables Park use was defined as the number of times residents stated visiting their neighborhood park in the previous 7 days (0–7), which has been validated with global positioning system monitoring in a racially and ethnically diverse sample.¹⁸

Physical activity was defined as *inactive* (<50 min of physical activity per week), *somewhat active* (50–149 min of physical activity per week), and *active* (>150 min of physical activity per week). These classifications were developed based on national guidelines for adults¹⁹ and were computed for each resident based on their responses to questions on how many times per week they usually exercise and how long on average each exercise sessions lasts. Together, these two measures constitute an “exercise vital sign,” which is being assessed in routine doctor visits and has demonstrated face and discriminant validity among a racially and ethnically diverse sample of health plan members in Southern California.²⁰

Use of parks for exercise was determined by classifying residents into one of the following three groups: (1) does not exercise, (2) exercises but not in park, and (3) exercises in park. These classifications were based on questions individuals answered regarding how many times they exercise per week (none vs. any) and, if they exercise, where (in park vs. elsewhere). We also asked people who indicated that they visit the park at least a few times a year *how they usually get to the park* (walk, bike, car, bus or other public transport, or others) to account for physical activity that may occur getting to park (regardless of whether individuals are sedentary once there).¹⁸

Use of parks for social interactions was determined by classifying residents into one of the following four groups: (1) does not go to park, (2) goes to park alone, (3) goes to park alone but sees or meets others there, or (4) goes to park accompanied. These classifications were based on questions residents answered about how often they go to parks and, if they go to parks, whether they go alone, accompanied, or meet/see others there.

Independent Variables Our primary independent variable of interest was *racial-ethnic group* as self-reported by participants (African-American, Asian/Pacific Islander, Latino, white, or other). We pooled Asian/Pacific Islander and others due to relatively small numbers. We also categorized Latinos as Spanish-speaking if the interview was conducted in Spanish (as per respondent preference). We included as covariates other individual characteristics that have been associated with park use and physical activity in previous studies:^{10,21} *gender* (male or female), *age*, *having a child*, *proximity to park* (within 1/4, 1/2, and 1 mi), *health status* (good to excellent vs. fair/poor), *body mass index categories* based on self-reported height and weight (overweight or obese vs. normal/underweight), *perceptions of park safety* (safe or very safe vs. not very safe or not at all safe), and *time spent watching television, using computers, and other screen-time*.

In addition, we included park-level covariates that have also been found to be independently associated with park use,²¹ including *park size* (acres), *park location in commercial* (had a 4-lane commercial street and/or bordered on at least one retail establishment) vs. *residential area*, *total population within 1 mi radius*, *proportion of households in poverty*, *number of observed organized activities*, and *number of observed supervised activities*.

Finally, because we were also interested in exploring whether neighborhood racial-ethnic diversity would be positively associated with residents' park use and other park-based outcomes, we included two measures calculated from 2010 US Census data. The proportion of people in the Census tract that prefer to speak Spanish was used as a proxy for a *Latino immigrant enclave*, which has been found to be associated with lower levels of physical activity.²² The interaction (Simpson Index), which is the probability that two randomly selected people from the Census tract would be of different races-ethnicities,²³ was used as a proxy for *neighborhood racial-ethnic diversity*. Residential racial segregation has been found to be associated with decreased physical activity²⁴, whereas neighborhood racial diversity has been associated with higher physical activity.²⁵

Data Analyses We calculated descriptive statistics of all variables by race/ethnicity groups. Next, we fitted a set of regression models to estimate relationships between race/ethnicity and the park use and physical activity outcomes, controlling for other individual covariates (gender, age, having children, distance from residence to parks, self-reported health status, overweight or obese status, and screen time at home) as well as park characteristics (acreage, type of land use, numbers of organized and supervised activities, local population density, poverty level, proportion of Spanish speakers for Latino immigrant enclave, and the Simpson Index for neighborhood racial-ethnic interaction). Self-reported park use in the past 7 days was assumed to have a binomial(7,p) distribution and modeled by a logistic regression. Self-reported physical activity was an ordinal outcome (inactive, somewhat active, active) and modeled by a cumulative logit regression. To further examine the role of parks to support exercise activities, we conducted two subset analyses using logistic regressions. The first subset compared non-exercisers and exercisers who mainly use parks for exercise, and the second subset compared non-exercisers and exercisers who mainly use other places for exercise. Social interaction was also an ordinal outcome (does not go to park, goes to park alone, goes to park and meets others, goes to park accompanied) and modeled by cumulative logit model. In all models, we further used fixed effects to account for seasonal variation and survey waves. The generalized estimation equation technique was applied to

adjust for intra-class correlations among respondents sharing the same neighborhood park. A *p* value of less than 0.05 was considered statistically significant for all analyses.

RESULTS

Park Characteristics

Table 1 provides an overview of the 50 parks in the study. Parks varied on a number of dimensions, including neighborhood characteristics, park characteristics, and observations of park users and park areas and activities.

Bivariate Analyses

Table 2 shows the associations between individual race-ethnicity and all study variables, including predictors (participant socio-demographics) and the four outcomes: frequency of park use, level of physical activity, use of parks for exercise, and use of park for social interactions. Statistically significant differences among racial-ethnic subgroups were found for every study variable, except “percent that biked” to park among those who reported visiting the park. Of note, Spanish-speaking Latinos were much more likely to report walking to the park than other race-ethnic groups (50.7 vs. <37.5 % for all other groups), and between 43 % (Asian/PI/other) and 58 % (English-speaking Latinos) of residents said that they do not visit the park at all.

TABLE 1 Characteristics of study parks across diverse neighborhoods in Los Angeles (*N*=50)

	Mean	Range
Park neighborhood characteristics ^a		
Percent of households in poverty	23.6	2.8–42.5
Population within 1 mi of park	39,370	5075–125,201
Percent of households that prefer to speak Spanish	40.2	11.1–66.2
Interaction (Diversity) Index (0–100)	46.0	7.3–69.6
Park characteristics		
Acres	13.0	0.8–64
Number of part-time staff	13.3	3–50
Number of unique programs per year	9.9	0–14
Percent in residential areas	54.0	NA
Park observations (7 days, four observation periods per day)		
Number of park users observed	2082	145–4635
Number of observed park users per acre	263.4	39.6–919.6
Percent male park users	62.0	41.9–75.2
Percent Latino park users	57.5	5.3–99.7
Percent White park users	20.7	0.1–90.8
Percent Black park users	14.8	0.0–74.4
Percent Asian/PI/other park users	7.0	0.0–84.5
Number of observed organized activity sessions	15.0	1.0–54.6
Number of observed supervised activity sessions	23.9	5.0–87.6
Percentage of park areas that were observed accessible	89.7	71.8–99.2
Percentage of park common areas that were observed empty ^b	60.7	41.7–88.4

^aDerived from 2010 Census, based on a 1-mi radius from the park recreation center address

^bCommon areas include sports fields, playgrounds, gym, basketball courts, and sport-specific areas

TABLE 2 Bivariate associations between individual race/ethnicity and study variables (*n* = 7506)

	Black (<i>n</i> = 807)	Latino-English (<i>n</i> = 858)	Latino-Spanish (<i>n</i> = 3735)	White (<i>n</i> = 1594)	Asian/PI/other (<i>n</i> = 512)	<i>p</i> value
Participant Socio-demographics						
Percent female	46.2	62.8	68.5	59.6	55.6	<.0001
Median age	42	36	45	44	44	<.0001
Percent that have child under the age of 18	23.1	20.0	28.1	18.6	18.2	<.0001
Median distance from park (in miles)	0.8	0.7	0.7	0.8	0.7	0.0104
Percent reporting good to excellent health	76.7	86.9	76.2	87.9	87.1	<.0001
Percent overweight or obese	47.6	50	66.9	33.4	24.6	<.0001
Percent that consider park safe	92.6	88.4	80.0	96.4	94.0	<.0001
Estimated mean time watching screen (hours)	3.1	3.1	2.9	2.6	2.6	<.0001
Frequency of park use						
Mean number of park visits in past 7 days (range: 0–7)	0.9	0.8	1.0	1.0	1.0	<.0001
Among those who visit park... (<i>n</i> = 3861)	(<i>n</i> = 388)	(<i>n</i> = 363)	(<i>n</i> = 1977)	(<i>n</i> = 842)	(<i>n</i> = 291)	
Percent that walk	28.4	37.5	50.7	30.4	34.4	<.0001
Percent that bike	5.9	3.9	3.6	3.6	1.7	.0680
Percent that take bus or public transport/other	1.0	0.3	1.0	0.1	2.1	.0118
Percent that come in car	64.2	58.4	44.6	65.9	61.9	<.0001
Level of physical activity						
Percent active (>150 min/week)	33.5	28.3	31.0	48.5	41.2	<.0001
Percent somewhat active (50–149 min/week)	16.7	17.8	26.9	21.7	21.7	<.0001
Percent inactive (<50 min/week)	49.9	53.9	42.1	29.8	37.1	<.0001
Uses park for exercise						
Percent that uses park for exercise	14.4	16.3	21.2	20.0	26.4	<.0001
Percent that exercises elsewhere	33.6	28.7	32.9	48.9	39.8	<.0001
Percent that does not exercise at all	52.0	55.0	45.9	31.1	33.8	<.0001
Uses park for social interactions						
Percent that visits park accompanied	39.9	33.2	48.9	40.6	45.1	<.0001
Percent that visits park and meets others there	4.6	2.7	2.3	5.6	4.7	<.0001
Percent that visits park alone	3.5	6.2	1.8	6.6	6.9	<.0001
Percent that does not visit park at all	52.0	57.9	47.0	47.2	43.3	<.0001

Multivariate Analyses

Table 3 provides multivariate associations between predictors and outcomes. All estimates are in the odds ratio scale, denoted as Ω below.

Park Use There were few statistically significant differences among race-ethnic groups in the frequency of having visited the park in the past 7 days—compared to whites, only Asian/PI/others had visited the park more frequently in the past 7 days ($\Omega=1.52$, $p<.001$). Age was negatively associated with the likelihood of visiting the park ($\Omega=0.99$, $p<.001$), while having a child ($\Omega=1.15$, $p<.01$), living in closer proximity to the park ($\Omega=2.13$, $p<.001$ for 1/4 mi resident and $\Omega=1.54$, $p<.001$ for 1/2 mi resident compared to 1 mi resident), having good to excellent health ($\Omega=1.67$, $p<.001$ compared to fair or poor health), being overweight or obese ($\Omega=1.41$, $p<.001$), and considering the park safe ($\Omega=2.29$, $p<.001$) were all positively associated. Park size and the number of supervised activities were also positively associated with park use ($\Omega=1.02$, $p<.001$ and $\Omega=1.40$, $p<.05$, respectively).

Physical Activity Blacks and English-speaking Latinos were less likely than whites to report being physically active in general ($\Omega=0.59$, $p<.001$ and $\Omega=0.46$, $p<.001$, respectively). Other significant negative predictors of being physically active included female gender ($\Omega=0.61$, $p<.001$), age ($\Omega=0.98$, $p<.001$), having a child ($\Omega=0.78$, $p<.001$), and screen time ($\Omega=0.80$, $p<.001$). Significant positive predictors of being physically active were reporting good to excellent health ($\Omega=1.67$, $p<.001$), being overweight or obese ($\Omega=1.17$, $p<.05$), considering the park safe ($\Omega=1.25$, $p<.05$), and park size ($\Omega=1.01$, $p<.001$).

Park Use for Exercise Blacks and English-speaking Latinos were less likely than whites to report exercising in the park ($\Omega=0.59$, $p<.05$ and $\Omega=0.46$, $p<.001$, respectively). Other significant negative predictors included female gender ($\Omega=0.68$, $p<.001$), age ($\Omega=0.98$, $p<.001$), having a child ($\Omega=0.77$, $p<.01$), and screen time ($\Omega=0.86$, $p<.001$). Significant positive predictors include closer proximity to park ($\Omega=1.97$, $p<.001$ for 1/4 mi residents, $\Omega=1.50$, $p<.001$ for 1/2 mi residents compared to 1 mi residents), reporting good to excellent health ($\Omega=3.61$, $p<.001$), being overweight or obese ($\Omega=1.42$, $p<.01$), considering park safe ($\Omega=2.09$, $p<.001$), and park size ($\Omega=1.02$, $p<.001$).

Blacks and English- and Spanish-speaking Latinos were less likely than whites to report exercising outside the park ($\Omega=0.61$, $p<.001$, $\Omega=0.41$, $p<.05$, respectively). Other significant negative predictors included female gender ($\Omega=0.80$, $p<.001$), age ($\Omega=0.99$, $p<.05$), and screen time ($\Omega=0.79$, $p<.001$). The sole significant positive predictor was reporting good to excellent health ($\Omega=2.59$, $p<.001$).

Park Use for Social Interactions Spanish-speaking Latinos and Asian/PI/others were more likely than whites to use the park for social interactions—i.e., meet people in park or go the park accompanied ($\Omega=1.53$, $p<.05$, $\Omega=1.41$, $p<.05$, respectively). Other significant positive predictors of using the park for social interactions were having a child ($\Omega=2.03$, $p<.001$), living in closer proximity to park ($\Omega=2.46$, $p<.001$ for 1/4 mile residents, $\Omega=1.60$, $p<.001$ for 1/2 mi residents compared to 1 mi residents), reporting good to excellent health ($\Omega=1.48$, $p<.001$), being overweight or obese ($\Omega=1.58$, $p<.001$), considering the park safe ($\Omega=2.97$, $p<.001$), and park size ($\Omega=1.02$, $p<.001$).

TABLE 3 Multivariate associations between individual, park, and neighborhood characteristics and park use and physical activity (n=7506)

	Self-reported park use in the past 7 days (0–7, binomial)	Self-reported physical activity (inactive, somewhat active, active, ordered logit)	Exercises in parks (vs. no exercise, logit)	Exercises but not in park (vs. no exercise, logit)	Social interactions in parks (does not go to park, goes to park alone, goes to park and meets, goes to park accompanied, ordered logit)
Individual characteristics					
White (ref)	–	–	–	–	–
Black	0.97	0.59***	0.59*	0.61**	1.16
Latino-Spanish speaking	1.24	0.83	1.05	0.70*	1.53*
Latino-English speaking	0.82	0.46***	0.53***	0.41***	0.76
Asian/PI/other	1.52***	0.83	1.41	0.79	1.41*
Female (vs. male)	0.99	0.61***	0.68***	0.80***	1.16
Age	0.99***	0.98***	0.98***	0.99*	0.98***
Has child	1.15**	0.78***	0.77**	0.95	2.03***
Lives within 1/4 mi of park	2.13***	1.15	1.97***	0.90	2.46***
Lives within 1/4–1/2 mi of park	1.54***	1.02	1.50***	0.95	1.60***
Lives within 1/2–1 mi of park	–	–	–	–	–
Reports good to excellent health	1.67***	2.51***	3.61***	2.59***	1.48***
Overweight or obese	1.41***	1.17*	1.42**	0.98	1.58***
Considers park safe	2.29***	1.25*	2.09***	1.05	2.97***
Time watching screen	1.02	0.80***	0.86***	0.79***	0.96
Park characteristics					
Size (acres)	1.02***	1.01**	1.02***	1.00	1.02***
Residential area (vs. commercial)	1.16	0.99	1.33	0.97	1.11
No. of organized activities	0.67	1.04	0.87	1.27	0.96
No. of supervised activities	1.40*	0.99	1.37	0.86	1.29
Neighborhood characteristics					
Total population within 1 mi radius (10,000)	1.06	1.06	1.09	1.03	1.07
Proportion of households in poverty	1.18	0.63	1.01	0.51	0.56
Proportion of people prefer Spanish	0.93	0.60	0.75	0.63	1.40
Interaction (Simpson) Index	1.14	0.85	1.09	0.66	1.25

All estimates are in the odds ratio scale
p*<.05; *p*<.01; ****p*<.001

DISCUSSION

In this racially-ethnically diverse, population-based sample of residents within 1 mi of 50 parks in Los Angeles, we found few statistically significant differences in frequency of self-reported park use, with only Asians/PI/others reporting more frequent park use than whites, controlling for individual-level and park-level covariates. In a national study, Carlson et al.,⁹ found that among people with similar access to a community park, use did not differ by race-ethnicity; however, this study adjusted only for sex, age, and household income, whereas we included a much wider set of individual, park, and neighborhood controls, including individual perceptions of safety.

Despite the similarities that we found among race-ethnic groups in the *frequency* of park use, several differences emerged in terms of *how* residents of various race-ethnic groups tended to use the park. In terms of physical activity, African-American and English-speaking Latino residents were significantly *less* likely than whites to use parks for exercise and to exercise outside the park or at all. On the other hand, Spanish-speaking Latino residents were equally as likely as whites to exercise in the park but significantly less likely to exercise outside the park. In addition, among those who reporting visiting the park, over half of Spanish-speaking Latinos reported walking to get there compared to around a third of other groups. Parks appear to be important ways for Spanish-speaking Latinos in Los Angeles to be physically active.

Another difference by race-ethnicity had to do with the extent to which park use was a social experience. Spanish-speaking Latinos and Asian/PI/others were more likely than whites to use park for social interactions (e.g., seeing people they know in the park and/or going to the park with others). Similarly, a study in Atlanta and Philadelphia found that African-American, Hispanic, and Korean respondents were more likely to visit the parks in groups of three or more people than whites or Chinese respondents,²⁶ and a study in Chicago reported that African-Americans, Hispanics, and Asians usually visited parks with families and an average group size of 3.7, 4.4, and 5.0 respectively, compared to whites' average group size of 1.6.²⁷ Group exercise activities in parks (e.g., walking clubs, adult sport leagues) may offer an additional way to promote physical activity among Spanish-speaking Latinos and Asians/Pis/others.

Other socio-demographic variables were significantly associated with park use and physical activity of neighborhood residents. In terms of gender, women were similar to men in reported frequency of park use but were less likely to report being active, exercising in parks, and exercising elsewhere. Previous studies among Latinos have stressed that particular supports such as physical activity programs that provide child care may be necessary to facilitate women engaging in park-based physical activity.^{13,28} Supporting this idea is our finding that on average across our sample, having one or more child was associated with more frequent park use and a greater propensity to use the park for social interactions, but it was also associated with a lower propensity to be physically active in general and to use the park for exercise. Park programming that allows parents to drop off kids at sports or other activities, and then attend adult fitness classes that start a few minutes after and end a few minutes before children's classes end would be effective ways to address this issue.

Increased age was associated with less frequent park use, less physical activity (in general, in park, and elsewhere) and being less likely to have social interactions in

park. This is consistent with other research that has shown that parks are used more frequently by children and teens than by adults and seniors;^{29,30} however, it is concerning because the importance of physical activity for health increases with age.³¹ More research is needed to understand why older individuals use parks less, but certainly the fact that most park programming serves children and teens³² is one factor that could be addressed.

Living in closer proximity to park—even among this sample of residents within 1 mi of a park—was consistently and positively associated with park use, exercising in park, and having social interactions in park. This supports a current movement among park advocates to make a half-mile or 10-min walk to a park as a common national standard. According to the Trust for Public Land, among the 100 largest cities in the US, 70 have explicit distance goals (43 use a half-mile standard, 12 have a standard of less than a half-mile, and 15 have a standard greater than a half-mile).³³ Ensuring that these goals are met would be an effective way to promote park use and physical community.

Good to excellent health was consistently and positively associated with park use, physical activity, exercising in park and elsewhere, and social interactions in parks. Although it is plausible that park use, physical activity, and social interactions all lead to improved health, it is also possible that parks are not serving well those in fair to poor health (including those with disabilities). On the other hand, being overweight or obese was positively associated with park use, physical activity, and social interactions, suggesting that parks do not present barriers to such individuals.

Perceiving the park as safe was positively associated with park use, physical activity, and social interactions. On the other hand, screen time was negatively associated with physical activity, exercising in park and elsewhere, and social interactions in park. In the age of increasing use of personal technology devices, parks will face stiff competition for residents' leisure time.

In terms of park and neighborhood characteristics, very few were significantly associated with study outcomes, including neighborhood diversity. Park size (acreage) was positively associated with neighborhood residents' frequency of park use, levels of physical activity, propensity to use for the park for exercise, and tendency to have social interactions in parks. Similarly, in a study of Kansas City residents, Kaczynski et al.⁸ found that total park acreage and number of parks within 1 mi of residents' homes were significantly associated with residents' park use and park-based physical activity, whereas distance to the local park was not. Being in walking distance of more and larger parks may offer more diverse opportunities for park-based physical activity through more features and/or different types of parks.⁸ In addition, we found that the number of *supervised* activities in the park was positively associated with residents' reported park use, but not any of the other outcomes. Supervised activities are likely to involve classes and sports activities and larger groups of participants, potentially attracting spectators and raising visibility of the park (making residents more likely to visit). Budget cuts that make it more difficult for municipal parks to maintain larger parks and offer supervised activities could have an overall negative influence on community physical activity.

Limitations

Our data come from two cross-sectional surveys, and thus the directions of the relationships are unclear and causality cannot be inferred. In addition, most of our measures, at least the individual-level and outcome measures, are based on self-report and therefore subject to various kinds of bias including recall and social desirability.

Nevertheless, our findings are strengthened by the fact that our data are representative of neighborhood residents (as opposed to only park users) and included a more diverse range of race-ethnic groups than previous studies of park use, including being able to distinguish between Spanish-speaking and English-speaking Latinos for which we found distinct patterns. This diversity allowed us to identify that, even among residents with similar levels of access to parks, racial-ethnic disparities in park use and physical activity persist. Further, in an era of cuts to municipal parks and recreation budgets that result in reduced hours of services and programming at local parks, policymakers must recognize the potentially disproportionate effects these have on certain groups, such as Spanish-speaking Latinos and Asians/PI/others, for whom the park serves as an important resource for exercise and connecting with others.

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