



# HHS Public Access

Author manuscript

*Urban Stud.* Author manuscript; available in PMC 2021 September 21.

Published in final edited form as:

*Urban Stud.* 2016 September ; 53(12): 2624–2636. doi:10.1177/0042098015592822.

## How important is perception of safety to park use? A four-city survey

**Sandra C. Lapham, MD, MPH, FASAM,**

Pacific Institute for Research and Evaluation, 612 Encino Place NE, Albuquerque, NM 87102,

**Deborah A. Cohen, MD, MPH,**

RAND Corporation, 1776 Main Street, Santa Monica, CA 90407

**Stephanie Williamson, BA,**

RAND Corporation, 1776 Main Street, Santa Monica, CA 90407

**Bing Han, PhD,**

RAND Corporation, 1776 Main Street, Santa Monica, CA 90407

**Kelly R. Evenson, PhD,**

University of North Carolina - Chapel Hill, Gillings School of Global Public Health, Department of Epidemiology, 137 East Franklin Street, Suite 306, Chapel Hill, NC 27514

**Thomas L. McKenzie, PhD,**

San Diego State University, School of Exercise and Nutritional Sciences, 5127 Walsh Way, San Diego, CA 92115

**Amy Hillier, PhD,**

University of Pennsylvania, School of Design, 210 South 34th Street, Philadelphia PA 19104

**Phillip Ward, PhD**

Ohio State University, School of Physical Activity and Educational Services, 305 W. 17th Ave, Columbus, OH 43210

### Structured Abstract

**Purpose:** To determine individual- and park-related characteristics associated with adults visiting their closest neighborhood park and involvement in sports, walking, and sedentary activities.

**Design:** Cross-sectional study.

**Setting:** Neighborhoods surrounding 24 parks in four United States metropolitan areas.

**Subjects:** Adults (N = 3,815) (25% African American, 12% Hispanic, and 56% Non-Hispanic White) living within .5 mile of one of 24 public parks.

**Measures:** Anonymous surveys and park observations.

**Analysis:** Chi-square statistics and logistic regression including individual and park characteristics.

**Results:** Thirty-seven percent reported never having visited their park; 16% reported using it for regular exercise. Respondents who perceived the parks as safe or very safe had 4.6 times the odds of visiting the parks. Active sports participation was associated with being male, ages 18 to 24, and of African American heritage. Walking was associated with being female, age 47+, and reporting fair or poor health. Females, Hispanics, and those reporting fair/poor health were more likely to report sedentary activities. Park characteristics associated with park use included fewer physical incivilities, closer proximity to homes, more facilities, and organized activities.

**Conclusions:** Perceptions of park safety were strongly associated with ever having visited a respective park, while park characteristics appeared to influence the types of activities performed. Increasing the number of organized activities and offering a variety of different facilities may encourage park use.

### Keywords

Physical Activity; Observation; Public Facilities; Recreation; Parks

### Indexing Key Words

Manuscript format: multicenter study; Research purpose: observation; Study design: cross-sectional; Outcome measure: behavioral; local community; fitness/physical activity; built environment; all ages; geographic location

---

### Purpose

Public parks are costly to build and maintain; yet they provide an important venue for exercise and leisure activities.<sup>1</sup> A number of studies have collected observational data using the System for Observing Play and Recreation (SOPARC)<sup>2</sup>, a validated assessment of physical activity (PA) within parks, to evaluate how the use of public parks varies by park user characteristics. However, most studies have been limited to a single locality or state. Some evidence suggests that PA levels in local parks are influenced by park features, including facilities and amenities, and neighborhood factors such as racial/ethnic and income composition.<sup>3,4</sup> Shores and West<sup>5</sup> used SOPARC to document community park visitation patterns according to user demographics and park facilities. They found that people using parks with playgrounds, sport courts, and paths were significantly more active than people in parks without these features. Cohen and colleagues<sup>6</sup> observed eight neighborhood parks in Los Angeles, four times daily for 1 week. They found that about two-thirds of park-goers were engaged in sedentary activities, such as eating, visiting friends, and supervising children; males were about twice as likely to engage in vigorous PA as females.<sup>2,3</sup>

Proximity to parks is associated both with the frequency of park visits and its use for vigorous PA<sup>6</sup>; therefore, understanding factors that would lead individuals living near parks to use them is important for promoting PA at the population level. This report examines data collected from a survey of individuals in four United States (U.S.) cities who resided within relatively easy walking distance (< .5 mile) from one of 24 neighborhood parks. This study is unique in that it was conducted simultaneously in several states and because it surveyed a random sample of adults living close to parks in diverse neighborhoods. Our purpose was to

determine what individual- and park-related characteristics were associated with ever having visited the closest neighborhood park, and what characteristics were associated with being involved in active sports, walking, and using parks for sedentary pursuits.

## Methods

### Design

The study population consisted of adults who lived within .5 mile of 24 public neighborhood parks and completed an anonymous survey regarding their use of the local park. We surveyed individuals in four U.S. cities: Albuquerque, NM, Chapel Hill/Durham, NC (hereafter referred to as Chapel Hill), Columbus, OH, and Philadelphia, PA.<sup>7</sup> In each city we selected six parks based upon neighborhood socio-economic status, park size, and park facilities in neighborhoods that had an average higher percentage of households in poverty than the typical neighborhood in their respective city.<sup>8</sup> Interviews followed an IRB-approved protocol and were conducted at housing units selected at random. In some locations where sufficient numbers of households were not available or accessible (e.g., locked entries in apartment buildings, locked gates and guard dogs, no one home), intercept surveys of those living within a .5-mile radius of the park were conducted at busy locations, such as nearby storefronts and bus stops. After providing verbal informed consent, adult (age 18+) respondents were asked questions on age, gender, race/ethnicity (ethnicity), height, weight, perceived health status, perceptions of park safety, and typical activities they engaged in while in the park. These characteristics were later grouped as follows: age (18 to 24, 25 to 46, and 47+); ethnicity (non-Hispanic white [NHW], Hispanic, African American, other); body mass index (BMI) (overweight/obese no, yes with overweight/obese defined as a BMI of  $> 25 \text{ kg/m}^2$ )<sup>9</sup>; general health (excellent, very good, good, fair, poor); residence distance from park (  $< 0.25 \text{ mi}$ ,  $> 0.25$  to  $0.50 \text{ mile}$ ); perceived park safety (very safe/safe, not very safe/not safe at all).

### Sample

Park characteristics were summarized by the number of outdoor facility types provided (two to four, five to seven); indoor recreation facility (no, yes); provision of organized activities (no, yes), and presence of physical incivilities, as described below. The number of different outdoor facility types provided was determined by first assigning one point to each of the following: outdoor basketball courts, dog parks, multipurpose fields, picnic areas, playgrounds, pools/waterparks, and tennis courts. Multiple facilities of the same type (e.g., two tennis courts) were recorded as one facility type (i.e., one point). To determine the frequency of organized activities occurring in the parks, we conducted four observations per day in each of the 24 parks, observed the parks for 4 days in each of three seasons (excluding winter; a total of 48 observations per park), and tabulated the total number of observed organized activities. There were 7824 total scans across the three seasons. Of the 7824 total scans, there were 126 observed activities.

This reliable sampling scheme best represented park usage.<sup>7</sup> A park was coded as providing organized PA if any activity area hosted a scheduled exercise class, sport practice, or competition led by park staff or adjunct personnel.

## Measures

We measured physical incivilities (defined as physical disorder associated with increased crime) along road segments that surrounded each park, rating the overall condition of surrounding buildings, resident-kept grounds, and public spaces on a scale of one (excellent or good condition) to three (poor, deteriorated), and whether or not any buildings were burned or boarded-up. We used a modified version of the PIN3 neighborhood audit instrument, designed to capture characteristics hypothesized to be associated with adult PA.<sup>10</sup> The selected items focused on replicating *a priori* constructs developed by two different research groups, including physical incivilities using a tool by Caughy and colleagues.<sup>11</sup> We scored the amount of litter or graffiti on a scale of 0 = none, 1 = a little, and 2 = a moderate or considerable amount. We calculated an incivility score for each park, equal to a weighted sum of all incivility scores, with a higher score indicating more incivilities. The weights were determined by the first principal component in a principal component analysis for the correlation matrix of individual incivility scores. The incivility scores ranged from 1.0 to 7.0.

## Statistical Analysis

We first examined response frequencies overall and by site using Chi-square statistics to determine differences. Using logistic regression we then examined the association between the characteristics of parks and those of local residents who had or had not visited the park. The first question examined was, “How often do you come to this park?” For residents who had ever visited the park, we developed a second logistic regression model that examined factors associated with the odds of using the park for regular exercise as determined by responses to the question, “Where do you usually exercise?” This second model included only those who reported both visiting the park and usually exercising there. The dependent variable was whether they usually exercised in the park vs. another venue (e.g., home, private health club or fitness center, streets and sidewalks, other).

We then fit three logistic regression models to examine the relationship between park characteristics and the types of activities respondents usually performed there. The study population for these models included those who had ever visited the park and reported their park activities. Independent variables included gender, age, ethnicity, BMI, perceived health status, distance from park to residence, perceived park safety, city, types of facilities, indoor recreation area, and number of observed organized activities. The dependent variables for these models were self-reported engagement in active sports, walking, or sedentary activities determined by responses to the following question, “What do you usually do while at this park?” We classified residents as engaging in active sports if they reported their usual activities to include one or more of the following: baseball, basketball, soccer, tennis, volleyball, Frisbee, handball, skating, aerobics, gym activity or using gym equipment, swimming, and running/jogging. We classified them as walkers if they reported “walking” or “walking with a dog,” but not active sports. We classified them as engaging in sedentary activities if they reported their activity as caring for children (babysitting, playing with kids, playground use, and write-in responses that indicated they take children to the park), spectating, eating, relaxing, meeting friends, or watching the dog, but not walking or active sports. In these analyses the city-level indicator was added to the logistic regression models

to account for the inherent between-city differences in the mean outcome that are not explained by all covariates in the analysis.

Responses to the physical incivilities and park safety questions were highly correlated, and the constructs underlying these variables were related. Therefore, we conducted a mediation analysis on all five models to examine “perceived safety” as a potential mediator for the effect of physical incivilities on the models using the classic mediation analyses from Baron and Kenny.<sup>12</sup>

## Results

### Individual and Park Characteristics

Of the 3,815 respondents, 80% were recruited from randomly selected households and 23.1% from street intercept interviews. About half were between ages 25 and 46 (mean age = 42 years; median = 39 years), and the majority were women (51%) and NHW (56%), followed by African American (25%), Hispanic (12%), and other ethnicities (7%; Table 1). Gender, age, and ethnicity distributions were significantly different across the cities. Chapel Hill respondents were older than those from other cities, and Philadelphia respondents were the youngest. The Columbus and Philadelphia parks had the highest proportion of African Americans, while Albuquerque had the highest proportion of Hispanic respondents.

The sampled parks in the four cities had a similar number of park facilities (range 4.0 to 5.5; median 4 to 6), but the facility types differed. For example, five Philadelphia parks had swimming pools, but parks in Albuquerque and Columbus had none. As well, indoor activity facilities were found in all six Philadelphia parks, three in Columbus, but only one each in Albuquerque and Chapel Hill. Organized activities were observed using SOPARC at all six parks in Chapel Hill and Philadelphia, in four in Albuquerque, and in three in Columbus.

### Reported Park Activities

The most frequent types of park activities from resident reports doing at the parks for both genders were sitting/relaxing, eating, walking, and caring for children. Other common activities were playing outdoor basketball and meeting friends. In Philadelphia, 12.5% reported playing baseball, more than the other three cities combined. Chapel Hill had more running and “other activities” that were mostly reported as spectating and bicycling. A greater proportion of Philadelphia park users reported playing indoor and outdoor basketball. During data collection, the parks in Chapel Hill had the most observed organized activities ( $n = 126$ ), with Albuquerque parks having only 13.

### Physical Incivilities and Perceived Park Safety

Chapel Hill parks had the lowest physical incivilities score (2.8), followed by Albuquerque (3.5), Columbus (4.2), and Philadelphia (4.2). The differences were not statistically significant. Respondents’ ratings of perceived safety in the 24 parks in the four cities varied considerably. Over 93% of Chapel Hill and Albuquerque residents viewed their parks as safe, compared to 89% of Philadelphia and 71% of Columbus residents ( $p < 0.0001$ ). Whether or not the parks were perceived as safe differed by gender, with 86% of women and

90% of men reporting the parks were safe or very safe ( $p = 0.0005$ ). Hispanics were most likely to view the park as safe (93%), compared to African Americans (86%), NHWs (88%), and others (90%).

### Ever Visited the Park

Of the 3,815 respondents, 2,374 (62%) reported they had visited their neighborhood park at least once, with similar proportions for women (61%) and men (63%). Respondents were more likely to report having visited the park if they perceived it as safe or lived closer to it. Respondents in the youngest and oldest age groups were less likely than those ages 25 to 46 years to have ever visited the park. A higher proportion (46%) of park users ages 47+ reported never having visited the park compared to 39% of 18 to 24 and 32% of 25 to 46 year-olds ( $p < 0.0001$ ). High BMI was negatively associated with park visitation.

We found a mediator effect for the incivilities variable in one of the four models. For the outcome of “ever visit the park,” when we excluded the mediator, the physical incivility score had a significant negative relationship with perceived safety (odds ratio = 0.93; Table 2). In the model including the mediator, the physical incivility score was no longer significant, but the mediator (perceived safety) was significant ( $p < .001$ ). Respondents who perceived the parks as safe or very safe had 4.6 times greater odds of visiting the parks. The association between the physical incivility score and the mediator was also significant (odds ratio = .55,  $p < .001$ ). In combining these results, the perception of safety largely mediated the effect of incivilities on the odds of people ever visiting parks.

Both models with and without “perceived safety” revealed that respondents between ages 18 and 24, and over age 46 had lower odds of having visited the park, compared with those ages 25 to 45 (Table 2). African Americans, compared with the reference group, had greater odds of having visited the park compared with NHWs. Other significant variables associated with a lower odds of ever visiting the park included high BMI, less proximity to the park, having three or fewer facility types, and having an indoor recreational facility. In the models examining use of the parks for regular exercise, and engaging in active sports, walking, and sedentary activities, we found no indirect effect of the physical incivility score through the mediator. As the physical incivility and perceived safety variables were highly correlated, we excluded the physical incivility score from these models.

### Park Use for Usual Exercise

Of respondents who visited the park ( $n = 2,360$ ), 16% reported getting their usual exercise in the park, while 24% exercised primarily at a private club/fitness center, 18% streets/sidewalks or another location, and 22% at home. Sixteen percent reported not engaging in regular exercise, with women more likely than men to report they do not usually exercise (20% vs. 12%,  $p = < .0001$ ).

There was no gender or age difference in the odds of exercising in the park, but African American residents had higher odds of exercising in the park compared with NHWs (Table 3). Those reporting their perceived health as excellent were more likely than those reporting “very good” to use the park for usual exercise, and those living from .26 to .50 miles from the park were less likely to use it for usual exercise than those living within .25 miles.

More residents who perceived the park as safe or very safe reported exercising in the park compared to those who did not. Respondents from Chapel Hill had lower odds of getting their usual exercise in the park, compared with respondents from Philadelphia, the reference city.

### Types of Park Activities

Men not only visited the parks more often than women, but also more reported engaging in active sports (46% vs. 29%,  $p < 0.0001$ ). Sixty percent of those participating in active sports were men, but a similar proportion of men and women reported engaging in individual sports and activities (skating, aerobics, gym activity, swimming, running/jogging). The activities most commonly reported by women were walking, playing with children, using the playground, sitting, and celebrating, while those most commonly reported by men were walking, basketball, playing with children, using the playground, and sitting. Almost three-quarters (71%) of women not engaged in more active sports were walkers, compared to 54% of men. Among walkers, 57% were women. Childcare was reported by 69% of women and 51% of men.

Logistic regression analysis confirmed that women were less likely than men to engage in active sports and were more likely to walk or engage in sedentary activities (Table 4). Compared with the reference groups, females, those over age 46, and those reporting to be in poor health were less likely to engage in active sports; meanwhile respondents ages 18 to 24, those reporting excellent health, and African Americans were more likely to engage in active sports. Respondents from Chapel Hill had lower odds of exercising in the park compared with Philadelphia respondents. Compared with parks having five or more facilities, those having three or fewer facilities were associated with lower odds of residents reporting participation in active sports.

The analysis focusing on walking (Table 4) found that compared with the reference groups females, being in the oldest age group, and reporting fair or poor health were associated with a higher odds of walking. Those in the youngest age group, African American, and those reporting excellent health had lower odds of walking compared with the reference groups. The only park characteristic that reached statistical significance was observed organized activities, which was associated with slightly lower odds of walking compared with no observed organized activities.

The model examining sedentary activities (Table 4) found that being female, Hispanic, and reporting fair/poor health were associated with higher odds of being sedentary. Those in the youngest and oldest age groups and residents of Chapel Hill had lower odds of sedentary activities. None of the park characteristics was statistically significant in this model.

## Discussion

This large survey is unique because it sampled adults living within .5 mile of 24 neighborhood parks in four diverse metropolitan areas of the U.S. Our finding suggests that residents' views regarding park safety, a variable partially mediated by the presence of



physical incivilities on surrounding streets, is the factor most strongly associated with ever having visited the park closest to their home.

While park surveys have not typically focused on BMI as a correlate for using parks, high BMI was negatively associated with park visitation, perhaps because those with high BMI may be less physically active and therefore less likely to use park facilities. Overweight or obese individuals who did visit their park, however, were not more or less likely to report participating in active sports, walking, or sedentary activities, compared to normal or underweight adults.

Park observations using SOPARC have consistently found more males than females frequenting parks.<sup>2;3;6;13</sup> In the present study women reported similar rates of park use, were less likely to engage in vigorous PA, and were more likely to be sedentary than men. Interestingly, women were more likely than men to report walking for exercise.

Since a high proportion of women who reported only sedentary activities were watching children play, adult outdoor exercise equipment situated adjacent to children's play areas may promote exercise while watching young children.<sup>14</sup> Creating walking paths that circle children's playgrounds also may encourage walking among individuals who accompany children to the parks. Those who perceived their health as excellent were less likely, along with those who perceived their health as fair or poor, to walk in the park. Perhaps those in excellent health exercise in other venues having more opportunities for vigorous PA. Organized activities in parks were negatively associated with walking, for unclear reasons, perhaps because the organized areas promoted more vigorous PA. It is also possible that people who walk for exercise like a relatively quiet setting with fewer park-goers and activities.

Several individual- and park-related characteristics were associated with how residents used the park. Activities varied significantly by factors such as the number of different park facilities, whether there was an indoor recreation facility, and whether organized activities were offered. This may indicate that increased facility types may be among the factors that encourage park use. Younger adult park visitors were more involved in team sports; older visitors were more likely to walk for exercise. This suggests that park administrators might sponsor more team sports if they want to increase the involvement of young adults; if they want to attract older adults, they may need to try other approaches. Increasing the number of walking paths, paving them, or providing lighting, for example, could encourage walking. As well, data from a similar study showed park programming to be the most important determinant of park use, so programming specifically for older individuals is in order.

Overall, the results of both surveys and direct observations in this study suggest considerable opportunity to facilitate increased park use and PA levels among both high and low poverty area populations through increasing the number of organized activities offered in community parks.<sup>8</sup> This area deserves further study.

We intentionally included parks from a variety of diverse neighborhoods, and thus park selection was not random. Unmeasured factors may be related to the cities themselves that may have influenced how the parks were developed, used, and who used them. For example,



cultural factors that vary among the cities sampled may have influenced attitudes toward using parks or perceptions of their safety. As well, our study relied on self-report data. While most of the 3,815 surveys were selected from randomly selected addresses, 23% of the respondents were not.

## So What

Most park use surveys are conducted within parks; little is known about factors influencing park use among nearby residents. Our study found results similar to park-user surveys: parks are underutilized; women and older park users are less involved in team sports; women tend to participate in sedentary activities when visiting parks; and park programming is a major determinant of use.

Additionally, perceived park safety emerged as a major determinant of initial use. Women, older adults, and those reporting fair or poor health were also more engaged than comparison groups in walking for exercise.

These findings suggest that enhancing certain park attributes can encourage PA among specific target groups. In particular, our research suggests that park-related PA among older individuals and those in poorer health may be facilitated by increasing the perception of safety, through night lighting, improved maintenance, or organizing walking groups, and by developing walking paths and other enhancements.

## Acknowledgements

This study was funded by a grant from the National Institutes of Health, National Heart, Lung, and Blood Institute R01 HL092569). The methods, observations, and interpretations put forth in this article do not necessarily represent those of the funding agency.

## References

1. Suau LJ, Floyd MF, Spengler JO, Maddock JE, Gobster PH. Energy expenditure associated with the use of neighborhood parks in 2 cities. *Journal of Public Health Management and Practice*. 2012;18(5):440–444. [PubMed: 22836535]
2. McKenzie TL, Cohen DA, Sehgal A, Williamson S, Golinelli D. System for observing play and recreation in communities (SOPARC): reliability and feasibility measures. *J Phys Act Health*. 2006;3Suppl 1:S208–S222.
3. Floyd MF, Spengler JO, Maddock JE, Gobster PH, Suau LJ. Park-based physical activity in diverse communities of two U.S. cities. An observational study. *Am J Prevent Med*. 2008;34(4):299–305.
4. Besenyi GM, Kaczynski AT, Wilhelm Stanis SA, Vaughan KB. Demographic variations in observed energy expenditure across park activity areas. *Prev Med*. 2012; (13 Oct 2012).
5. Shores KA, West ST. The relationship between built park environments and physical activity in four park locations. *J Public Health Manag Pract*. 2008;14(3):e9–16.
6. Cohen DA, McKenzie TL, Sehgal A, Williamson S, Golinelli D, Lurie N. Contribution of public parks to physical activity. *Am J Public Health*. 2007;97(3):509–514. [PubMed: 17267728]
7. Cohen DA, Setodji C, Evenson KR et al. How much observation is enough? Refining the administration of SOPARC. *J Phys Act Health*. 2011;8(8):1117–1123. [PubMed: 22039130]
8. Cohen DA, Han B, Derose KP et al. Neighborhood poverty, park use, and park-based physical activity in a Southern California city. *Soc SciMed*. 2012;75(12):2317–2325.

9. WHO Expert Committee. Physical Status: The Use and Interpretation of Anthropometry. World Health Organization Technical Report Series 854, 1–452. Geneva, World Health Organization; 1995.
10. Evenson KR, Sotres-Alvarez D, Herring AH, Messer L, Laraia BA, Rodriguez DA. Assessing urban and rural neighborhood characteristics using audit and GIS data: derivation and reliability of constructs. *Int J Behav Nutr Phys Act.* 2009;6:44. [PubMed: 19619325]
11. Caughy MO, O'Campo PJ, Patterson J. A brief observational measure for urban neighborhoods. *Health Place.* 2001;7(3):225–236. [PubMed: 11439257]
12. Baron RM, Kenny DA. The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *J Pers Soc Psychol.* 1986;51(6):1173–1182. [PubMed: 3806354]
13. Reed JA, Price AE, Grost L, Mantinan K. Demographic characteristics and physical activity behaviors in sixteen Michigan parks. *J Community Health.* 2012;37(2):507–512. [PubMed: 21922166]
14. Cohen DA, Marsh T, Williamson S, Golinelli D, McKenzie TL. Impact and cost-effectiveness of family Fitness Zones: A natural experiment in urban public parks. *Health & Place.* 2012;18(1):39–45. [PubMed: 22243905]

Table 1.

Survey respondent characteristics (n = 3,815)

	Albuquerque, NM	Chapel Hill, NC	Columbus, OH	Philadelphia, PA	Total	Chi-square p-value*
Number Interviewed	960 (25%)	909 (24%)	900 (24%)	1046 (27%)		
Gender						< .0001
Male	479 (50%)	378 (42%)	417 (46%)	601 (57%)	1875 (49%)	
Female	481 (50%)	531 (58%)	483 (54%)	445 (43%)	1940 (51%)	
Age Group						< .0001
18 to 24	173 (18%)	61 (7%)	118 (13%)	197 (19%)	549 (14%)	
25 to 46	438 (46%)	377 (42%)	433 (48%)	653 (62%)	1901 (50%)	
47+	345 (36%)	466 (51%)	344 (38%)	195 (19%)	1350 (36%)	
Ethnicity						< .0001
Non-Hispanic White	496 (52%)	663 (73%)	582 (65%)	384 (37%)	2125 (56%)	
Hispanic	336 (35%)	16 (2%)	37 (4%)	79 (8%)	468 (12%)	
African American	58 (6%)	120 (13%)	227 (25%)	557 (53%)	962 (25%)	
Other	70 (7%)	110 (12%)	54 (6%)	24 (2%)	258 (7%)	

\* p-value is an overall measure of association across categories

**Table 2.**

Logistic regression modeling characteristics associated with ever having visited the nearest community park, excluding and including perceived safety

	Ever Visit Park N = 2209 Model 1 (without perceived safety) Odds Ratio (95% CI)	Ever Visit Park N = 2187 Model 2 Odds Ratio (95% CI)
Gender		
Male *		
Female	0.86 (0.74, 1.00)	0.91 (0.76, 1.10)
Age Group		
18 to 24	0.65 <sup>+++</sup> (0.53, 0.81)	0.61 <sup>+++</sup> (0.47, 0.79)
25 to 46 *		
47 <sup>+</sup>	0.53 <sup>+++</sup> (0.45, 0.63)	0.60 <sup>+++</sup> (0.49, 0.73)
Ethnicity		
Non-Hispanic White		
Hispanic	1.00 (0.78, 1.29)	0.98 (0.74, 1.30)
African American	1.92 <sup>+++</sup> (1.55, 2.37)	1.5 <sup>++</sup> (1.15, 1.95)
Other	1.07 (0.78, 1.47)	1.23 (0.83, 1.81)
BMI		
Normal or Below	1.30 <sup>++</sup> (1.11, 1.52)	1.34 <sup>++</sup> (1.11, 1.63)
Overweight/Obese *		
Perceived Health		
Excellent	0.91 (0.74, 1.11)	0.81 (0.63, 1.03)
Very Good *		
Good	1.10 (0.92, 1.32)	1.08 (0.87, 1.34)
Fair/Poor	1.00 (0.78, 1.28)	1.12 (0.85, 1.57)
Residence Distance from Park		
.25 mi *		
> .25 to .5 mi	0.60 <sup>+++</sup> (0.52, 0.70)	0.74 <sup>+++</sup> (0.62, 0.88)
Perceived Park Safety		
Very Safe/Safe		4.61 <sup>+++</sup> (3.50, 6.07)

	Ever Visit Park N = 2209 Model 1 (without perceived safety) Odds Ratio (95% CI)	Ever Visit Park N = 2187 Model 2 Odds Ratio (95% CI)
Not safe/Not Safe at All *		
Incivilities Score	0.93 <sup>+</sup> (0.87, 0.99)	0.99 (0.91, 1.08)
City		
Albuquerque, NM	3.90 <sup>+++</sup> (2.80, 5.43)	1.02 (0.68, 1.54)
Chapel Hill, NC	1.82 <sup>+++</sup> (1.36, 2.44)	0.94 (0.65, 1.36)
Columbus, OH	0.78 (0.60, 1.00)	0.55 <sup>+++</sup> (0.40, 0.76)
Philadelphia, PA *		
Facilities		
3 or fewer	0.31 <sup>+++</sup> (0.22, 0.42)	0.39 <sup>+++</sup> (0.27, 0.56)
4 or 5	0.40 <sup>+++</sup> (0.31, 0.51)	0.52 <sup>+++</sup> (0.38, 0.70)
More than 5 *		
Indoor Recreation Area	0.77 <sup>+</sup> (0.62, 0.95)	0.65 <sup>++</sup> (0.50, 0.83)
Organized Activities Observed	1.02 <sup>+++</sup> (1.01, 1.03)	1.01 <sup>+</sup> (1.00, 1.02)
Model Statistics:		
Wald chi-square	381.63	383.03
p	< .0001	< .0001
Concordance Statistic	0.70	0.70

\* Reference Group

<sup>+</sup> p < .05

<sup>++</sup> p < .01

<sup>+++</sup> p < 0.001

**Table 3.**

Logistic regression of characteristics associated with visiting the park and usually exercises, by individual and park characteristics

	Visits the park, usually exercises in the park N = 2416 Odds Ratio (95% CI)
Gender	
Male *	
Female	0.95 (0.75, 1.20)
Age Group	
18 to24	0.93 (0.67, 1.29)
25 to 46 *	
47 <sup>+</sup>	1.12 (0.86, 1.44)
Ethnicity	
Non-Hispanic White	
Hispanic	1.17 (0.82, 1.67)
African American	1.62 <sup>++</sup> (1.20, 2.20)
Other	0.94 (0.58, 1.52)
BMI	
Normal or Below	1.21 (0.95, 1.53)
Overweight/Obese *	
Perceived Health	
Excellent	1.42 <sup>+</sup> (1.06, 1.91)
Very Good *	
Good	1.03 (0.78, 1.36)
Fair/Poor	1.33 (0.88, 1.99)
Residence Distance from Park	
0.25 mi *	
0.26 to 0.50 mi	0.80 <sup>+</sup> (0.64, 1.00)
Perceived Park Safety	
Very Safe/Safe	1.82 <sup>+</sup> (1.13, 2.93)
Not Safe/Not Safe at All *	



	<b>Visits the park, usually exercises in the park</b> <b>N = 2416</b> <b>Odds Ratio</b> <b>(95% CI)</b>
City	
Albuquerque, NM	1.41 (0.88, 2.25)
Chapel Hill, NC	0.46 <sup>+++</sup> (0.30, 0.71)
Columbus, OH	0.95 (0.64, 1.41)
Philadelphia, PA *	
Facilities	
3 or fewer	0.65 (0.41, 1.03)
4 or 5	1.19 (0.83, 1.69)
More than 5 *	
Indoor recreation area	1.12 (0.84, 1.50)
Organized Activities Observed	1.01 (1.00, 1.02)
Model Statistics:	
Wald chi-square	75.25
p	< .0001
Concordance Statistic	0.64

\* Reference group

<sup>+</sup> p < .05

<sup>++</sup> p < .01

<sup>+++</sup> p < 0.001

**Table 4.**

Logistic regression of park use, by individual and park characteristics, N = 2368

	Usual park activities include sports Odds ratio (95% CI)	Usual park activities include walking; no sports Odds ratio (95% CI)	Usual park activities are sedentary; no walking or sports Odds ratio (95% CI)
Gender			
Male *			
Female	0.50 <sup>+++</sup> (0.401, 0.61)	2.01 <sup>+++</sup> (1.64, 2.47)	1.59 <sup>+++</sup> (1.31, 1.94)
Age Group			
18 to 24	1.68 <sup>+++</sup> (1.26, 2.23)	0.60 <sup>+++</sup> (0.45, 0.80)	0.63 <sup>++</sup> (0.47, 0.84)
25 to 46 *			
47 <sup>+</sup>	0.54 <sup>+++</sup> (0.43, 0.68)	1.85 <sup>+++</sup> (1.47, 2.33)	0.74 <sup>++</sup> (0.59, 0.92)
Ethnicity			
Non-Hispanic White			
Hispanic	0.84 (0.61, 1.17)	1.19 (0.85, 1.64)	1.43 <sup>+</sup> (1.06, 1.93)
African American	1.6 <sup>+++</sup> (1.23, 2.08)	0.63 <sup>+++</sup> (0.48, 0.81)	1.10 (0.85, 1.43)
Other	0.78 (0.52, 1.15)	1.29 (0.87, 1.91)	1.12 (0.77, 1.64)
BMI			
Normal or below	0.95 (0.77, 1.17)	1.06 (0.86, 1.30)	0.96 (0.79, 1.18)
Overweight/Obese *			
Perceived Health			
Excellent	1.37 <sup>+</sup> (1.05, 1.79)	0.73 <sup>+</sup> (0.56, 0.95)	0.83 (0.64, 1.10)
Very Good *			
Good	0.84 (0.67, 1.07)	1.18 (0.94, 1.50)	1.16 (0.92, 1.46)
Fair/Poor	0.49 <sup>+++</sup> (0.34, 0.71)	2.03 <sup>+++</sup> (1.40, 2.95)	1.94 <sup>+++</sup> (1.41, 2.67)
Residence Distance from Park			
0.25 mi *			
0.26 to 0.50 mi	1.20 (0.99, 1.46)	0.83 (0.69, 1.01)	1.04 (0.86, 1.26)
Perceived Park Safety			
Very Safe/Safe	1.08 (0.70, 1.67)	0.93 (0.60, 1.44)	1.0 (0.66, 1.49)
Not Safe/Not Safe at All *			

	Usual park activities include sports Odds ratio (95% CI)	Usual park activities include walking; no sports Odds ratio (95% CI)	Usual park activities are sedentary; no walking or sports Odds ratio (95% CI)
City			
ABQ, NM	1.01 (0.68, 1.51)	0.99 (0.67, 1.47)	0.71 (0.48, 1.05)
Chapel Hill, NC	0.79 (0.56, 1.11)	1.27 (0.90, 1.79)	0.52 <sup>+++</sup> (0.37, 0.74)
Columbus, OH	1.06 (0.76, 1.47)	0.95 (0.68, 1.31)	0.76 (0.55, 1.06)
Philadelphia, PA *			
Facilities			
3 or fewer	0.67 <sup>+</sup> (0.45, 0.99)	1.50 <sup>+</sup> (1.02, 2.21)	1.33 (0.91, 1.94)
4 or 5	0.76 (0.57, 1.02)	1.31 (0.98, 1.76)	1.19 (0.88, 1.60)
More than 5 *			
Indoor Recreation Area	1.08 (0.83, 1.40)	0.93 (0.71, 1.20)	0.95 (0.73, 1.24)
Organized Activities Observed	1.02 <sup>+++</sup> (1.01, 1.03)	0.98 <sup>+++</sup> (0.97, 0.99)	0.99 (0.99, 1.00)
Model Statistics:			
Wald chi-square	216.42	216.42	104.03
p	< .0001	< .0001	< .0001
Concordance Statistic	0.70	0.70	0.64

\* Reference group

<sup>+</sup> p < .05

<sup>++</sup> p < .01

<sup>+++</sup> p < 0.001