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The Potential for Pocket Parks to Increase Physical Activity

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Abstract

Purpose—To assess the use of new pocket parks in low-income neighborhoods.

Setting—Los Angeles

Subjects—Parks users and residents living within ½ mile of 3 pocket parks and 15 neighborhood parks

Intervention—The creation of pocket parks

Design—Quasi-experimental post-only comparison

Measures—We used the System of Observing Play and Recreation in Communities (SOPARC) to measure park use and park-based physical activity and surveyed park users and residents about their park use.

Analysis—We surveyed 392 and 432 household members within one-half mile of the 3 pocket parks before and after park construction, respectively, as well as 71 pocket park users and compared them to 992 neighborhood park users and 342 residents living within ½ mile of other neighborhood parks. We compared pocket park use to playground area use in the larger neighborhood parks. We used descriptive statistics and Generalized Estimating Equations for the analysis.

Results—Overall, pocket park use compared favorably in promoting moderate-to-vigorous physical activity with that of existing playground space in nearby parks and they were cost-

effective at \$0.73/MET hour gained. Pocket park visitors walked an average of 0.25 miles to get there.

Conclusions—Pocket parks, when perceived as attractive and safe destinations, may increase physical activity by encouraging families with children to walk there. Additional strategies and programs may be needed to encourage more residents to use the parks.

Keywords

Physical activity; parks; pocket parks; accessibility

Indexing Key Words

Manuscript format: research; Research purpose: intervention testing/program evaluation; Study design: quasi-experimental; Outcome measure: behavioral, financial/economic; Setting: local community; Health focus: physical activity; Strategy: built environment; Target population age: youth, adults, seniors; Target population circumstances income level, geographic location

PURPOSE

Physical inactivity is an important and malleable risk factor accounting for 10.8% of all-cause mortality, as well as 6.7% to 12.4% of mortality from heart disease, diabetes, colon and breast cancer.¹ Inactivity is associated with multiple musculoskeletal problems and a host of other chronic diseases. Fewer than five percent of adults and half of children in the U.S. meet the national guidelines of 150 minutes per week and 60 minutes per day of moderate-to-vigorous physical activity (MVPA), respectively.² Yet, adults need routine physical activity to limit the risk of chronic diseases and children need to engage in moderate and, in particular, vigorous physical activity for healthy bone and muscle development.³

Previous research indicates that children are most likely to be active when they are outdoors.⁴ Indoor environments typically support sedentary behaviors and have substantial constraints to activities like running, climbing, jumping--movements that engage large muscle groups and strengthen bones.

Inner city neighborhoods, in particular, have limited access to green space where children can be active. Lack of safety is also a widespread fear in low-income, high crime neighborhoods.^{5,6} To address this problem and facilitate more outdoor play and physical activity (PA), philanthropic organizations have made efforts to improve the conditions of parks, as well as to convert vacant lots and undesirable urban parcels into pocket parks, also called mini parks, vest-pocket parks, or parkettes. Pocket parks are often quite small (less than one acre) compared to neighborhood or community parks, and they generally serve the immediate population living within one-quarter to one-half mile. Pocket parks also usually have limited facilities, offer few or no programs, lack indoor facilities, and are not staffed. To increase safety and reduce crime the entire area is typically fenced and can be locked outside the hours of operation.

Although there is a growing literature on physical activity in parks,^{7–12} to our knowledge, this body of work has not explicitly addressed the role that pocket parks might play in physical activity promotion. The construction of three pocket parks in Los Angeles, CA represented a change in the built environment in their surrounding communities and created a natural experiment to study their effects on park use and physical activity among neighborhood residents. Building new parks can be expensive, given numerous rigorous codes that dictate the quality of playing surfaces and equipment safety features. The three pocket parks in this study were built for a total of \$3 million, or about \$1 million each.

This paper reports our findings from before and after assessments of physical activity in the new pocket park developments, and compares their use to that of playground areas in nearby, larger neighborhood parks.

METHODS

Design

Because there the pocket park spaces were not used prior to construction, we compared their use after construction to existing neighborhood parks that served similar socio-demographic populations.

Sample—The three pocket parks in this study were developed by a local non-profit group and its funders. The census tracts around the sites had high rates of household poverty (range 30–41%) and substantial minority populations (Latino range = 70–80%, African American range = 3–17%, Asian = 0–16%). The number of individuals living within one-half mile of these parks varied substantially with Marson Park at 10,726, Broadway Park at 18,644, and Beverly Park at 31,320. Table 1 describes the characteristics of the pocket parks and the local parks to which they were compared.

To evaluate park use, we assessed the number of people visiting the pocket park locations before and after construction. We compared the numbers of people using those parks post-construction to the numbers using a sample of playgrounds in larger, neighborhood parks that were matched to each of the pocket parks by the percentage of households in poverty (2000 US Census). Marson and Beverly each had six matched parks and Broadway had three.

Observation of Park Users—We assessed park use with the System for Observing Play and Recreation in Communities (SOPARC), which was designed to measure park use and physical activity¹³ and has high inter-observer reliability, ranging from 0.80–0.99.¹⁴ Trained *promotoras* (i.e., community health workers) observed all areas of the pocket parks and comparison playground areas four times a day during each of the seven days of the week at baseline and at follow-up. The four daily observation start times were divided into early morning, (7:30, 8:30 or 9:30), late morning-noon (10:30, 11:30, or 12:30) afternoon, (1:30, 2:30 or 3:30) and evening (4:30, 5:30 and 6:30), with different hours observed in each of the four time periods on different days to cover all the hours. We coded the gender, age group (child, teen, adult, senior), race/ethnicity (Latino, black, white, other), and activity level (sedentary, walking, vigorous) of each observed park user. For each park area we also

recorded whether or not it was accessible, usable, equipped, supervised, or dark, and if an organized activity was taking place.

Observations were not conducted on holidays, and any observations cancelled due to inclement weather were made up at the same time on the same day of the next week with clement weather. Baseline pocket park observations were conducted between mid-July and mid-August 2006, and follow-up assessments were completed during the same season in 2008. Assessments of comparison parks were done in 2008–2009. SOPARC observations were conducted at similar times of day at the pocket parks and their comparison parks, and each park was assessed on 28 occasions during a week, making the findings comparable.

Surveys: Park Users and Residents

In addition to conducting SOPARC observations, the *promotoras*, who were bilingual in English and Spanish, interviewed pocket park users and residents living within a half mile. Only residents were interviewed at baseline as the parks had not yet been constructed. The interviews were conducted in Spanish or English as preferred by the respondent. Respondents in pocket parks and the larger, neighborhood parks were systematically recruited from the most and least busy areas throughout the park by gender and activity level. A randomly selected sample of household addresses within a quarter mile of the pocket park and another between one-quarter and one-half mile of the park were selected and field staff went door-to-door to conduct the surveys. In the comparison parks, the resident sample also included those living one-half mile to one mile away. If the first survey attempt was unsuccessful, data collectors returned to a house up to four additional times (three additional times at comparison parks), attempting to survey the occupant 18 years or older with the next birthday before replacing the address with an alternate address in the same strata.

We attempted to administer surveys at the same addresses at baseline and follow-up. Many houses around the parks with the highest poverty rate were not accessible (i.e., gated or fenced), so in-home resident surveys were sometimes not possible. In these cases we replaced the in-home resident surveys with intercept surveys conducted at high pedestrian traffic areas (e.g., bus stops, store fronts) within a half mile of the park. All survey respondents were 18 years of age or older and resided within a half mile of the pocket park (or one mile of the comparison parks). If the respondent had a child under the age of 18, we also asked questions about the child's park use. The survey content and administration were similar for pocket and comparison parks. We weighted the survey sample so the distribution of respondents was similar to the underlying local population as measured in the 2000 US census.

To estimate distance travelled to the park, we asked survey respondents to provide the nearest street intersection to their house. These intersections and park addresses were geocoded using ArcGIS and Cartesian distances between the two were estimated.

Pocket Park Descriptions

Three pocket parks were developed, two in previously vacant lots and the third in a former community garden site. A local charitable organization funded the construction and a non-profit community-based organization managed the projects. All three pocket parks had playground equipment and benches installed and a walking path was developed around the perimeter of the Beverly, the largest park. All were fenced and enclosed by gates that could be locked. Other than for opening day ceremonies, substantial outdoor marketing efforts (e.g., banners, flyers, notices) were not visible in and near the pocket parks.

Analysis

We tested the mean difference between the number of park users between pocket parks and comparison park playgrounds by a repeated-measure Poisson regression and using the generalized estimating equation (GEE) method. This model controlled for weekend dates, proportion of households in poverty, and total population density within one mile of the park. We also included indicators for each pocket park and its matched comparison parks, to account for the potential effects due to artificial matching.

Estimating Cost-effectiveness

We estimated cost-effectiveness by amortizing the cost of building each park over 30 years. Although playground equipment is usually warrantied for 15 years, the construction involved considerable costs to prepare the site and mitigate existing conditions (e.g., asphalt and concrete surfaces); these comprised a significant part of the construction expense. We did not include the costs of park maintenance. We also assumed that the METs expended during the week of measurement were similar to the 329 days (47 weeks) of the year when there is no precipitation in Los Angeles. We calculated the dollars spent per MET expended in the parks per year. The method interprets cost-effectiveness based upon the achieving the nationally recommended guidelines of 150 minutes of MVPA per week or 2.5 hours at 4.5 METs (11.25 METs) in light of the cost of per capita health care, and the contribution of physical inactivity to health care costs (about 2.5–5%). Given the current cost of health care, it is theoretically cost-effective to spend between \$0.50–\$1.00/MET.¹⁵

RESULTS

Park Characteristics

Table 1 describes the physical characteristics of the pocket parks and their comparison parks, as well as the socio-demographic characteristics of the population they serve in a half-mile radius for pocket parks and a mile radius for neighborhood parks. Neighborhood parks are about 15–50 times larger on average than pocket parks, but serve similar numbers of local residents. The pocket parks typically served proportionally more Hispanics than the neighborhood parks, and except for Broadway, fewer African Americans.

Park Use – Comparison of New Pocket Parks to Playground Areas in Nearby Parks

Baseline measures were taken in the summer of 2006 with the follow-up in the summer of 2008. The three pocket parks differed in size, but all were less than a half-acre: Broadway =

0.15, Marson = 0.20, Beverly = 0.32 acres. Marson and Beverly parks were more open with a neighboring building on one side only, while Broadway had buildings on three sides. At follow-up, each park had children's play equipment, landscaping, benches, and a small shaded area. Beverly and Marson each had a bulletin board available to display park and community event information, and Beverly had a short walking path around its perimeter. None had a restroom or other indoor facilities. Each pocket park was within one mile of at least one larger park that had more facilities and amenities. Beverly and Marson were open during at least 90% of the scheduled observation periods while Broadway was open during 80% of them.

Prior to construction (baseline) we observed three people at the community garden site and none at the other two sites at baseline. At follow-up, we observed a total of 446 people using the pocket parks, with substantial variation among the three (32, 147, and 267 people). In the respective matched comparison parks, we observed an average of 92, 98, and 193 playground users. However, the variation across the three comparison parks for the highest poverty area pocket park (Broadway) was large, with counts of 201, 53, and 23 park users (Table 2).

We observed more females at the pocket parks during follow-up than at comparison park playgrounds (63% vs. 56%, $p = 0.0068$). Overall, children and teens were the primary users of the pocket parks (64%), a proportion smaller than the 79% seen for the comparison playgrounds ($p < 0.0001$). Seniors, which were seen only at Beverly, accounted for only 3.6% of all pocket park users vs. 0.3% ($p < 0.0001$) of people observed at the comparison playgrounds.

Relatively more pocket park users were observed being sedentary than those in comparison playground areas (76% vs. 60%, $p < 0.0001$). Females were somewhat less active than males in the pocket parks, with 22% engaged in MVPA vs. 29% of males ($p = 0.08$). The playground section was the area most used in the pocket parks, with 54% of all park visitors being observed there. Picnic areas, available in two of the three pocket parks, was the second most used area, accounting for 23% of total visitors.

Table 2 reports the number of people seen in the parks, the number observed engaging in MVPA, and the estimated METS expended in the park during the observed time periods. The use of the pocket parks was overall higher than in the comparison parks, but the percentage engaged in MVPA was somewhat lower.

Survey

Table 3 compares the responses of those surveyed at home before and after the pocket parks were completed with respect to their use of parks and physical activity engagement. The percentage reporting visiting any park in the past week tripled and the percentage engaging in leisure time exercise and exercise in parks also increased. Meanwhile, the percentage of those surveyed at home who went to parks other than the pocket park also doubled. There was no change in the percentage of individuals engaging in vigorous leisure time physical activity. At baseline, 42% of pocket park neighborhood residents reported having ever visited a park in the Los Angeles area, and at follow-up this increased to 58%. Meanwhile,

at follow-up, the percentage of pocket park neighborhood residents reporting visiting parks other than the pocket park decreased approximately 5%. This suggests that an 11% overall increase in park use in these communities may be attributable to first-time park visitors going to the newly constructed pocket parks. (Data not shown.)

Table 4 compares the characteristics of survey respondents from pocket parks at follow-up to respondents recruited from and around neighborhood parks serving similar socio-demographic groups. The majority of both park users and residents participating were Latinos and female, with a greater percentage surveyed in and near the pocket parks than in the neighborhood parks, which served a more diverse population.

A small percentage of residents around the pocket parks reported visiting any park in the Los Angeles area at least once per week (Beverly = 16%, Marson = 14%, Broadway = 2%) at baseline. In contrast, 25% of residents living within a half-mile of the neighborhood parks reported visiting the local neighborhood park at least once per week. At follow up, pocket park users overwhelmingly reported using the park at least once per week (Beverly = 94%, Broadway = 80%, Marson = 97%) vs. 85% for the comparison parks. Pocket park users lived much closer to their park than users of the comparison neighborhood parks (mean = 0.3 vs. 0.7 miles). Most (90%) lived within a half mile of the park and 81% usually walked there. In contrast, only 67% of users of the comparison parks lived within a half mile and only 52% usually walked there (Table 5).

Park Safety

In aggregate, 95.7% of the pocket park users thought the parks were safe or very safe, compared to 82.8% of the comparison park users. Stratified by park, all users thought Beverly and Marson were safe or very safe compared to 71% and 82% on average for the respective comparison parks. In contrast, only 50% of Broadway neighborhood residents and 40% of park users reported it as safe or very safe, compared to 43% of residents and 83% of park users of the respective comparison parks. Crime was the primary reason that respondents thought Broadway was unsafe. (See Table 5)

Pocket Park and Neighborhood Park Playground Comparisons

The model results are summarized in Table 6 in the log scale. We found that the new pocket parks had significantly more users than comparison park playgrounds. Specifically, after adjusting for all covariates, the comparison park playground areas had approximately 70% fewer users than the pocket parks on a daily basis (95% confidence interval 49%~83%). For all parks there were about 75% more users on a weekend day than on a weekday. The local population density also had a significant relationship with park use. An additional local population of 10,000 people is associated with 43% more users.

Cost-Effectiveness

After amortizing the cost of the pocket parks we found that the use of the new pocket parks favorably rivaled the playground areas of local neighborhood parks in similar socio-demographic neighborhoods. Nevertheless, the pocket parks were still relatively underutilized and were vacant more often than occupied. The cost per MET expended was

lowest in Beverly which had the largest number of users and was \$0.43/MET, somewhat higher at Marson, \$0.72/MET, and highest at Broadway \$2.63/MET. Overall cost-effectiveness was \$0.73/MET gained. Given that we assumed the cost of each park was equal, the difference in cost-effectiveness is based upon the number of park users and their physical activity levels in each of the pocket parks.

DISCUSSION

Overall, the pocket parks were used more than comparable playground areas in neighborhood parks that served a population with similar levels of households in poverty. Pocket parks appeared to be cost-effective in generating more energy expenditure and promoting moderate-to-vigorous physical activity. As might be expected, park use was heaviest during the weekend and in parks located in more densely populated areas. Differences in use of the three pocket parks could in part be attributable to differences in population density: Broadway pocket park's location in a less dense area could partly explain its lower level of use.

While pocket parks drew more people than comparison playgrounds, comparison playground users were more likely to be walking or engaged in vigorous physical activity while in the playground area. Because pocket parks are small and lack space and facilities for vigorous sports (e.g., soccer, basketball) they may provide limited opportunities for MVPA when compared to the features of larger, neighborhood parks. Nonetheless, they do attract substantial numbers of people, so they may promote local residents to be physically active simply by being a valued community destination. An individual who walks a quarter to half mile to and from the local park several times each week could be well on the way to meeting physical activity recommendations. In addition, it is possible for moderate and vigorous physical activity to occur in open spaces without any particular facilities such as what occurs during group exercise classes and "boot camps." Pocket parks have less space, but if they are located in multiple places, can serve as catalysts for physical activity. Every park is unique, and if there are special features that make the park very aesthetically pleasing, or have novel elements, like water features, they could attract more users. The three pocket parks we studied all had playground equipment, but the park that was most used was larger and had more features, including a small walking path.

Although we examined parks expressly for their role in promoting physical activity, pocket parks are also gathering places and serve as settings for social interactions. As such they potentially have other important roles to play, for example, fostering social capital and strengthening social ties. They can also serve as sites for relaxation and for sun exposure, a necessary element for the physiological manufacture of Vitamin D, which tends to be insufficient in a large percentage of Americans.

Perception of safety may deter people from using parks,¹⁶⁻¹⁸ but parks could also help to facilitate greater feelings of safety. The pocket park considered least safe was closed over 20% of the time we observed during normal operating hours and peak use hours. Parks that are open and used by the community could potentially help transform high crime communities into more attractive and ultimately safer areas. Although two of the pocket

parks were considered safe by all the users, they were still vacant during the majority of our observations. New parks and facilities alone may not necessarily encourage people to come to the park, but it's possible that enhancements like programming and special events may draw more people, which could in turn enhance feelings of safety.¹⁹ Staffing and programming require funding, but they could be a good investment, if they attract more users. Many exercise programs can be offered in outdoor settings without special exercise equipment, including aerobics, yoga, and zumba.

Limitations of our study include not assessing the comparison parks at the same time of year as the pocket parks, however, we attempted to control for this in our analyses. We assessed the comparison parks over two years, rather than during a single season. Nonetheless, among the 50 Los Angeles parks from which the comparison parks were drawn, there was no difference in the number of park users by season after accounting for differences in park programming, staffing, and facilities. Surveys were administered throughout the comparison neighborhood parks, not only in the playground areas, so some responses may reflect opinions of the entire set of park users, rather than those who frequent the playground area only.

As pocket parks compete with many other leisure time destinations and activities, new park developments should be accompanied by significant outreach efforts to promote them to the surrounding community and to organizations that might wish to utilize them. Nevertheless, pocket parks can serve as attractive destinations in the community that may encourage people to walk.

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So What?

What is already known on this topic?

- Increasing access to places to be active has been shown to be effective in promoting physical activity
- There are no published studies on the impact of pocket parks on physical activity

What does this article add?

- Our study indicates that pocket parks are used as frequently or more often than playground areas in neighborhood parks serving similarly disadvantaged urban populations
- Pocket parks are considered as safe or safer than larger neighborhood parks
- Pocket parks appear to be a cost-effective means to promote physical activity among inner city populations

What are the implications for health promotion practice or research?

- Construction of pocket parks appears to be a worthwhile investment for physical activity promotion
- Additional efforts should be undertaken to determine the best ways to optimize use of new park resources

Table 1

Neighborhood and Park Characteristics

Park name	% households in poverty	% Hispanic (ethnicity)	% African-American (based on race)	Population density (1/2 mile)	Size (Acres)
Marson	30.3%	70.2%	5.7%	10,726	0.20
Comparison Parks for Marson (n=6) – Average	30.3%	51.1%	31.3%	16,088	10.3
-Alpine	30.1%	29.8%	3.9%	11,270	1.9
-Baldwin Hills	29.6%	44.9%	45.2%	13,785	10.0
-Denker	32.1%	58.7%	35.8%	13,684	2.9
-Harvard	30.0%	45.3%	48.7%	14,443	12.0
-Rancho Cienega	28.3%	35.4%	53.7%	22,924	28.0
-Ramon Garcia	31.7%	92.3%	0.5%	20,423	7.2
Beverly	39.9%	82.1%	3.1%	31,320	0.32
Comparison Parks for Beverly (n=6) - Average	39.1%	71.2%	20.4%	19,398	8.7
-Algin Sutton	39.1%	54.0%	44.2%	16,351	16.0
-Lincoln Heights	37.6%	67.5%	1.3%	15,239	2.0
-Mt. Carmel	39.3%	59.0%	35.4%	19,967	3.4
-Ross Snyder	40.2%	80.8%	14.4%	17,670	11.0
-South	40.7%	79.6%	19.5%	28,520	18.0
-Trinity	37.5%	86.3%	7.8%	18,639	2.0
Broadway	40.2%	75.3%	23.5%	18,644	0.15
Comparison Parks for Broadway (n=3) - Average	42.0%	67.9%	17.0%	18,695	2.9
-Hoover	41.1%	65.7%	8.2%	23,035	2.9
-Toberman	42.4%	77.9%	4.3%	20,465	2.7
-109th Street	42.5%	60.2%	38.4%	12,586	3.1

Pocket park neighborhoods defined as within 1/2-mile radius. Comparison park neighborhoods within 1-mile radius, except for population density. Both based on 2000 Census Block Groups.

Table 2

MVPA and METs and total people/number observed in Pocket Parks and in play areas of comparison parks.

Park name	Estimated METS during observation times	Number observed engaging in MVPA	Total Number Observed
Pocket Parks			
Marson	327	38	148
Beverly	554	55	260
Broadway	90	14	32
Average	324	36	147
Marson matched cluster			
Marson	327	38	148
Alpine	189	26	68
Baldwin Hills	150	23	51
Denker	3	0	2
Harvard	306	49	103
Rancho Cienega	483	74	152
Ramon Garcia	549	70	204
Average	280	40	97
Beverly matched cluster			
Beverly	554	55	260
Algin Sutton	944	142	295
Lincoln Heights	222	24	98
Mt. Carmel	195	28	70
Ross Snyder	374	48	147
South	1017	141	373
Trinity	404	46	173
Average	526	72	193
Broadway matched cluster			
Broadway	90	14	32
Hoover	612	106	200
Toberman	107	12	53
109 th Street	66	9	23
Average	262	42	92
Overall Average	374	48	134

Self-reported park use from household surveys conducted before and after pocket park construction

Table 3

	Pocket Parks		
	Residents Before (n=392)	Residents After (n=432)	p-value
Adult visits any park	once per week 11.1%	33.9%	<.0001
Engage in leisure time exercise	25.8%	35.7%	0.0025
Exercise in park	9.6%	14.4%	0.0395
½ of leisure time exercise is vigorous	71.7%	71.1%	0.9131
Use of other parks	once per week 10.8%	21.8%	<.0001

Table 4

Follow-up survey respondent demographics

Survey respondents	Pocket parks (baseline)		Pocket parks (FU)		Comparison parks	
	Residents only	Residents (Household survey)	Park users	Residents (Household survey)	Park users	Park users
Total		N= 432	N= 71	N= 342	N=992	
Mean age		39	35	44	37	
Female (%)		311 (71.9)	60 (84.5)	208 (60.1)	595 (60.0)	
Race/ethnicity (%)						
Latino		407 (94.2)	70 (98.6)	269 (78.7)	856 (86.3)	
Black		20 (4.6)	0	58 (17.0)	81 (8.2)	
White		3	0	5 (1.5)	6 (0.6)	
Asian		1	0	8 (2.3)	38 (3.8)	
Other		1	1	2 (0.6)	11 (1.1)	

Table 5
Comparison of pocket park and neighborhood park user survey responses at pocket park follow-up time period

	Park Users			Residents (1/2 mile radius)		
	Pocket Parks N=71	Neighborhood Parks N=992	p-value	Pocket Parks N=432	Neighborhood Parks N=342	p-value
Park is safe or very safe	95.7%	82.8%	<0.005	82.8%	69.1%	<0.0001
Park is safe or very safe for child use	100%	78.1%	<0.08	83.8%	66.2%	<0.02
Visits park 1×/week	91.6%	85.3%	0.14	21.8%	24.9%	0.32
Walks to the park	81.2%	52.2%	<.0001	82.1%	36.1	<.0001
% living within 1/2 mile of the park	90.0%	67.4%	<.0001	--	--	--
Use of other parks once per week	10.0%	11.0%	0.80	13.9%	9.1%	<0.05
Adult visits any park once per week	91.6%	90.1%	0.69	33.9%	31.3%	0.45
Child goes to park once per week	92.3%	73.7%	0.20	28.6%	39.1%	0.19
Child visits other parks once per week or more	23.1%	11.4%	0.37	38.9%	28.6%	0.46
Engage in leisure time exercise	36.6%	60.8%	<0.0001	35.7%	41.2%	0.12
Exercise in park	60.5%	65.2%	0.56	33.7%	30.8%	0.56
1/2 of leisure time exercise is vigorous	88.9%	63.2%	<0.01	74.2%	44.1%	<0.0001
Engage in physical exercise at work	43.7%	33.1%	<0.07	26.1%	32.8%	<0.04
Have lived at current address one year	91.6%	92.7%	0.72	92.1	96.2%	<0.02
Average age	35.2	37.2	0.18	38.8	44.3	<0.0001
Average BMI	26.2	26.2	0.96	25.6	26.5	<0.003
Report Good to Excellent health	92.9%	84.5%	<0.06	87.7%	73.8%	<0.0001

Table 6

Factors associated with use of pocket parks compared to neighborhood parks (GEE and mixed effect model estimates)

Parameter	GEE estimate (log scale) β (se)	Relative Effect translated to percentage change
Intercept	8.82 (4.13) *	
Weekend	0.56 (0.14) ***	75.9 (23.9) ***
Proportion of household in poverty (change of 0.01 or 1%)	-0.22 (0.15)	-19.6 (11.8)
Population (10,000 people)	0.36 (0.08) ***	43.2 (10.9) ***
Park type: pocket park	reference	reference
Park type: comparison	-1.21 (0.28) ***	-70.3 (8.3) ***

Significance level:

* 0.05,

** 0.01,

*** 0.001.