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The Effects of a Park Awareness Campaign on Rural Park Use and Physical Activity

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Abstract

Objective—To examine the effects of a park awareness campaign on park use in six community parks.

Design—One group pretest-posttest design.

Setting—Six community parks located in a South Carolina county.

Participants—Children, adolescents, and adults observed in community parks.

Intervention—A one-month awareness campaign that culminated in single 1.5-hour events at six parks in April 2011 and May 2011.

Main Outcome Measures—The System for Observing Play and Recreation in Communities (SOPARC) was used to objectively measure park use in May 2010 (baseline) and May 2011 (post campaign). Zero-inflated Poisson models tested whether the number of total park users and the number of park users engaged in sedentary, walking, and vigorous activities differed by observation date.

Results—Park use was significantly greater at baseline than post campaign (97 versus 84 users, respectively, $\chi^2=4.69$, $P=.03$). There were no significant differences in the number of park users engaged in sedentary ($\chi^2=2.45$, $P=.12$), walking ($\chi^2=.29$, $P=.59$), and vigorous ($\chi^2=.20$, $P=.65$) activities between baseline and post campaign.

Conclusions—Although only 97 and 84 people were observed across all parks at baseline and post campaign, a total of 629 people were observed during the six separate 1.5-hour campaign park events. This suggests there is potential for greater park utilization in these communities, and important questions remain on how to conduct effective awareness campaigns and how to harness interest in park events for the purpose of contributing to future community-wide physical activity and health promotion efforts.

Keywords

environment; intervention; public health; recreation

Introduction

Parks play an important role in helping individuals and communities reach public health recommendations for physical activity (PA).¹ Few studies have examined the impact of park and recreation facility improvements (e.g., skate park renovations, installation of fitness zones), with varying levels of success at increasing facility use.^{2,3} Less is known about the effectiveness of informational outreach activities on park and recreation facility use.⁴ Residents are often unaware of parks in their community, and lack of awareness is often cited as a reason why people do not use them.⁴ Informational outreach activities may be important for increasing park awareness and maximizing park use.

Rural populations have poorer health and engage in less PA than their urban and suburban counterparts.⁵ Parks have been identified as a potentially important setting for PA in rural communities.⁶ However, few studies have examined rural park use. The omission of rural settings from the park research literature is a concern as differences have been observed in park visitation and park-based PA between urban and rural parks.⁷ Research is needed to determine if park promotion strategies are effective in these settings. The purpose of this study was to examine the effects of a park awareness campaign on park use in six parks serving rural populations. We hypothesized that park use would increase from baseline to post campaign.

Method

Study Setting

The awareness campaign occurred in a South Carolina (SC) county where six community parks previously benefited from a mini-grant program implemented by the University of South Carolina Prevention Research Center. Three of six communities were identified as rural (Table 1).⁸ Although three communities were identified as urban, they had a high proportion of rural residents and low population densities (Table 1).⁸ The parks were located in a county with a higher proportion of African American residents (47%) than the US (13%) and SC (28%), and a higher proportion of residents living below the poverty level (19%) than the US (14%) and SC (16%).⁸ To protect community confidentiality, the parks were identified as Parks A-F. The study was approved by the University of South Carolina Institutional Review Board.

Intervention

The awareness campaign initiated a larger effort to promote PA in this county (a walking program for rural communities). The campaign consisted of single 1.5-hour events at each park in late spring 2011. Event activities included group walks, child and adult activities and games, and music via a radio station truck. A pedometer, map of county walking tracks and trails (including those featured in the awareness campaign), and other items were provided. Park event promotion efforts included advertisements in the county's newspaper, a banner placed on a frequently-used street, and three billboards. Advertisements aired on five radio stations for one month (averaging 13 advertisements/day on each station). Postcards containing event information were mailed to all households within a 2-mile radius of each park (14,103 total). Event posters were displayed at each park and flyers were distributed through local churches and schools.

Park Data Collection

The System for Observing Play and Recreation in Communities (SOPARC)⁹ was used to document park use in May 2010 (baseline) and May 2011 (post campaign). SOPARC has demonstrated good inter-rater reliability, and the PA coding system used in SOPARC has been validated previously.⁹ Across all parks, a total of 42 target areas (TAs) (an observation area in which park users could engage in PA, such as a basketball court) were observed at baseline and 43 TAs at post campaign. There was one additional TA at post campaign because play equipment was installed in Park D prior to the campaign park events. TA conditions and number of park users and their gender, age, and race/ethnicity, along with type and intensity of PA, were recorded for every TA observation. Each TA observation scan averaged 2-4 minutes to complete.

Each park was observed four times per day on four randomly-selected days at baseline and post campaign: two weekdays, one Saturday, and one Sunday.¹⁰ Ninety-two percent of baseline and 100% of post campaign SOPARC observations were completed by two raters. When an observation was completed by two raters, one rater's data were randomly selected for analysis. For each park, one weekday and one weekend day were randomly assigned an observation schedule of 7AM, 11AM, 3PM, and 6PM, with the remaining weekday and weekend day assigned to 8AM, 12PM, 4PM, and 7PM. This observation protocol³ and these observation times are consistent with the literature.¹⁰

Analysis

For each observation day, TA use was summed across the four observation periods. Due to a high number of zero counts, zero-inflated Poisson models were used to determine whether the number of park users differed between baseline and post campaign. Initial analysis used all data, with subsequent analyses stratified by park. Zero-inflated Poisson models were not appropriate for Parks B and D given their distribution of park use data. For these two parks, logistic regression was used to determine whether the likelihood of observing park use differed between baseline and post campaign: TA use was dichotomized into one or more users or no users. Separate zero-inflated Poisson models (with all parks included in the models) were conducted to determine whether the number of park users engaged in

sedentary, walking, and vigorous activities differed between baseline and post campaign. Statistical analyses were conducted using SAS version 9.2.

Results

There was 100% agreement between raters on whether users were present during TA observations, and near perfect agreement on number of users (ICC=.99). Table 1 presents park event attendance and park use. Combining parks, park use was significantly greater at baseline than post campaign ($\chi^2=4.69$, $P=.03$). Stratified analyses showed no significant difference in park use between baseline and post campaign at Park A ($\chi^2=2.48$, $P=.12$), Park C ($\chi^2=2.29$, $P=.13$), Park E ($\chi^2=2.88$, $P=.09$), and Park F ($\chi^2=3.52$, $P=.06$). The likelihood of observing park use was not significantly different between baseline and post campaign at Park B (OR=3.19; $P=.49$), but the likelihood of observing park use was significantly lower at baseline than post campaign at Park D (OR=.04; $P=.04$), indicating an increase in park use from baseline to post campaign. There were no significant differences between baseline and post campaign for number of park users engaged in sedentary ($\chi^2=2.45$, $P=.12$), walking ($\chi^2=.29$, $P=.59$), and vigorous ($\chi^2=.20$, $P=.65$) activities.

Discussion

The strategies used to promote the campaign park events were reasonably effective in reaching residents; however, park use decreased by 13% from baseline to post campaign. Park use data show the results were driven by community events observed at baseline but not at post campaign. Eighty-seven percent of people observed at Parks A and F at baseline were observed during a community church event (one observation period) and from a church after-school program (two observation periods). These three observation periods (3% of total observations) accounted for 62% of total park use at baseline. If these observation periods were excluded, park use would more than double from baseline to post campaign, leading to very different conclusions about the effectiveness of the awareness campaign. As these events were not regular park programming, their exclusion may result in more representative park use data. The results may also be reflective of a secular trend in park use in the county. Walking track use was observed at a well-known park centrally located in this county using the same observation protocols described in this study (this park was not included in the awareness campaign). The results show walking track use decreased by 23% from baseline to post campaign at this facility.

This study has limitations that should be considered. Other than providing a map of county walking tracks/trails, no efforts were made to promote regular park use at the campaign park events. Further, a campaign consisting of single events may not be sufficient to alter residents' park use behavior, and a series of events may be needed. A lack of control parks is an additional limitation. However, there were notable strengths in this study, including informational outreach activities being a largely untested approach for increasing park awareness and use, and the use of a longitudinal design and objective measures of park use. This study was also conducted in rural communities with a high representation of racial/ethnic minorities, for which little information on park promotion efforts is known.

Practice and Policy Implications

Parks may be an important setting for PA in rural communities.^{1, 6} However, a lack of awareness is often cited as a reason why people do not use parks.⁴ The park event promotion efforts used in this study have the potential to reach a large number of residents. Although 97 and 84 people were observed across all parks at baseline and post campaign, respectively, a total of 629 people were observed during six separate 1.5-hour campaign park events. This suggests there is strong public enthusiasm for parks in these communities. Important questions remain about how to deliver effective park awareness campaigns and how to harness interest in park events for the purpose of contributing to future community-wide PA promotion efforts.

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Table 1 Park Community Characteristics, Campaign Park Event Attendance, and Park Use in May 2010 (Baseline) and May 2011 (Post Campaign) by Park

	Park A	Park B	Park C	Park D*	Park E	Park F	Total†
Urban/Rural Classification	Urban	Rural	Rural	Rural	Urban	Urban	N/A
% Population Rural							
Block Group	26%	82%	100%	74%	0%	77%	N/A
Tract	27%	63%	100%	23%	0%	88%	N/A
Population Density (persons/miles ²)							
Block Group	524.0	145.9	63.1	165.5	1141.4	61.5	N/A
Tract	151.7	93.3	73.4	484.6	1312.0	35.1	NA
Campaign Park Event Attendance	104	100	150	110	48	117	629
Data Collection Time Period	2010	2010	2010	2010	2010	2010	2010
	2011	2011	2011	2011	2011	2011	2011
Total Park Use‡	48	13	1	0	15	20	0
							33
							12
							15
							21
							3
							97
							84
Park Use by Gender							
Female	29	9	1	0	4	11	0
							11
							0
							2
							6
							3
							40
Male	19	4	0	0	11	9	0
							22
							12
							13
							15
							0
							57
							48
Park Use by Age							
Child	8	7	0	0	3	18	0
							19
							8
							5
							17
							1
							36
Teen	7	2	0	0	7	0	0
							4
							0
							1
							0
							19
							2
Adult	32	4	1	0	5	2	0
							14
							0
							10
							3
							2
							41
Senior	0	0	0	0	0	0	0
							0
							0
							0
							0
							0
							0
Park Use by Race/Ethnicity							
Latino	0	0	0	0	0	0	0
							2
							0
Black	9	13	1	0	15	16	0
							33
							11
							15
							19
							0
							55
White	38	0	0	0	0	4	0
							1
							0
							0
							3
							39
Other	1	0	0	0	0	0	0
							0
							0
							1
							0

	Park A	Park B	Park C	Park D*	Park E	Park F	Total [†]
Park Use by Activity Level							
Sedentary	38	11	1	0	2	8	58
Walking	7	2	0	0	8	12	26
Vigorous	0	0	0	0	5	3	10
					2	4	7
Park Use by Type of Day							
Weekday	1	6	1	0	15	20	43
Weekend	47	7	0	0	0	7	54
					33	13	53

Urban/rural classification and land area data are from the US Census G001 Geographic Identifiers dataset (2010 SF1 100% Data), total population data are from the US Census P1 Total Population dataset (2010 SF1 100% Data), and percent population rural are from the US Census P2 Urban and Rural dataset (2010 SF1 100% Data)⁸

*The probability of observing use was significantly lower in May 2010 than May 2011 ($P = .04$).

[†]Total park use was significantly greater in May 2010 than May 2011 ($P = .03$).

[‡]Number of park users by age, race/ethnicity, and activity level group may not equal total park use as separate observation scans were conducted for sub-groups, consistent with the momentary time sampling protocol used in the study.