

SOPARC

(System for Observing Play and Recreation in Communities)

Description and Procedures Manual

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SOPARC

(System for Observing Play and Recreation in Communities)

PURPOSE

SOPARC was designed to obtain direct information on community park use, including relevant concurrent characteristics of parks and their users. It provides an assessment of park users' physical activity levels, gender, activity modes/types, and estimated age and ethnicity groupings. Additionally, it provides information on individual park activity areas, such as their levels of accessibility, usability, supervision, and organization.

Relevant Target Areas within a park are first measured, coded, and mapped. Certified assessors then visit the target areas during specific time periods on randomly scheduled days. During the RAND PARKS study, SOPARC observations will be made throughout the day, and include specified times in the morning, noon, afternoon, and evening (7:30AM; 11:30AM; 3:30PM; 6:30PM).

RATIONALE

Physical activity and recreation are positively associated with good health. Investigations of activity participants in "open" environments (e.g., recreation and leisure settings) have been hampered by the lack of an objective tool for quantifying physical activity and user characteristics. Measurement in these settings is complicated because the number of participants and their activity modes and intensity levels change frequently.

SUMMARY

SOPARC is based on momentary time sampling techniques in which systematic and periodic scans of individuals and contextual factors within pre-determined target areas in parks are made. During a scan the activity of each individual is mechanically or electronically coded as Sedentary (i.e., lying down, sitting, or standing), Walking, or Very Active. Separate scans are made for females and males, and for estimating the age and ethnic groupings of participants. Simultaneous entries are also made for time of day, area accessibility, area usability, presence of supervision and equipment, and presence and classification of organized activities. Summary counts describe the number of participants by gender, activity modes and levels, and estimated age and gender groupings. The instrument permits physical activity level comparisons to be made among different environments or within the same setting over different time periods. Energy expenditure estimates (Kcal/kg/min) for a Target Area of park can be calculated based on previously validated constants for each level of activity.

VALIDITY & RELIABILITY

Validity

Validity of the activity codes used by SOPARC has been established through heart rate monitoring (McKenzie et al., 1991; Rowe, Schuldheim, & van der Mars, 1997). These provide support for the initial construct validity of SOPARC. Providing measures of persistent behaviors (i.e., physical activity) are taken frequently and at random, momentary time sampling techniques have shown to yield valid behavioral samples. Because only brief episodes are recorded, response and recording occur simultaneously with observations occurring at an approximate rate of one person per second.

Reliability

Reliability data for a similar instrument (SOPLAY) were collected during 14 days of field assessments in middle schools. A pair of assessors simultaneously and independently made counts of boys and girls in each activity category in selected target areas. Activity counts from a total of 186 target areas were used in the reliability analysis. Interobserver agreements for the five contextual variables were 95%, 97%, 93%, 96%, and 88%, for area accessibility, usability, presence of supervision, presence of organized activity, and provision of equipment, respectively. To examine the reliability of activity counts made by different assessors, a series of intraclass correlations were computed. Correlations were high for sedentary girls ($R=.98$) and walking girls (.95), although lower for counts of very active girls (.76). For boys, correlations were high for sedentary (.98), walking (.98), and very active (.97) behavior. It was concluded that all interobserver agreements and intraclass correlations met acceptable criteria (IOA=80%, $R=.75$) for reliable assessment.

OBSERVATION AREAS

Direct observations are made in designated **Target Areas** that represent all standard locations likely to provide opportunities for park users to be physically active. These Areas will be predetermined and identified for observations prior to baseline assessments. A map is provided to identify areas and a standard observation order for each park. Additional target areas may be added by observers on site and then documented.

During occasions of high user density, Target Areas are subdivided into smaller **Subtarget Areas** (scan spaces) so that accurate measures can be obtained. Observers use standard court or field markings to determine appropriate Subtarget Areas within each Target Area. Data from these smaller spaces are summed to provide an overall measure for each Target Area.

NOTE: A decision to subdivide a Target Area depends upon the (1) number of park users in the area and (2) the type of user activity. Fast moving activities with people clustered together and moving in diverse directions (e.g., during soccer) require smaller scan spaces.

OBSERVATION PREPARATION

1. Prior to leaving for the park, prepare observation materials including: synchronized wristwatch, counter, clipboard, sufficient SOPARC recording forms, target area map, and pencils.
2. Arrive at the park site at least 20 minutes prior to the official start of coding. Review the sequence for observing Target Areas. Visit each Target Area in order and plan how to sub-divided it into Subtarget Areas if necessary. Mentally rehearse by scanning each area a few times.



SOPARC CODES and RECORDING

- Date** Enter the date (mm/dd/yyyy) of the observation.
- Park ID#** Enter the designated Park ID. This is generally a two-letter abbreviation of the park name (e.g., Pecan Park is represented by "PP").
- Observer ID** Enter your ID code.
- Period** Check the appropriate box to indicate whether observations were made in the morning, lunch, afternoon, or evening.
- Target Area** Refers to the number of a previously designated Target Area (see the park map). If necessary, assign Sub-target Area numbers when you divide the area into multiple scan spaces.
- Start Time** Enter the start time of the scan for that designated area.

Area Condition Check "Yes" or "No" to describe specific conditions for each scan area.

Accessible = Code "YES" if area is accessible to the public (e.g., area is not locked or rented to a private party).

Usable = Code "YES" if area is usable for physical activity (e.g., is not excessively wet or roped off for repair). For example, code "YES" when the space is usable, even though it may be locked. Code "NO" when there is insufficient lighting to use the space (e.g., no outdoor lights permitting play after sunset).

Equipped = Code "YES" if equipment (e.g., balls, jump ropes) provided by the park is present during the scan. Code "NO" if the only equipment available is permanent (e.g., basketball hoops and climbing apparatus) or owned by park users themselves (e.g., frisbee, ball, or bicycle brought by a family).

Supervised = Code "YES" if area is supervised by designated park or adjunct personnel (e.g., park rangers, playground supervisors, volunteers, sport officials, teachers). The supervisor must be in or adjacent to that specific area (e.g., available to direct park users and respond to emergencies), but does not have to be instructing, officiating, or organizing activities.

Activity Organized = Code "YES" if an organized physical activity is occurring in the scan area (e.g., a scheduled sporting event or exercise class is being lead by park staff or adjunct personnel).

Dark = Code "YES" to indicate the area has insufficient lighting to permit active play. Observers should not enter a target area unless there is sufficient lighting.

Empty = Code "YES" when there are no individuals present during the scan. Also, code "YES" when the area is dark.

Comments Enter relevant additional information about the condition, people, or activities within the Target Area.

Activity

Write in the most prominent (primary) physical activity that females and males are doing in the area. If applicable, write in the second most prominent physical activity (secondary) that females and males are doing. A space is also provided to write in the most prominent activity attracting female and male onlookers/spectators to the area (this only applies to organized activities).

During scans of the target area, all people should be accounted for as either participating in the primary activity, secondary activity, or as a spectator.

Some physical activity modes are:

Fitness Related Codes:

aerobics (dance/step aerobics)
fitness stations
jogging/running
strengthening exercises (pull ups)
walking

Sport Related Codes:

baseball
basketball
cheer leading
dance
football
gymnastics
handball
horseshoes
soccer
tennis/racquet
tetherball
volleyball

Active Game Related Codes:

climbing/sliding
jumping (rope, hoops, hop scotch)
manipulatives/racquet activities
tag/chasing games

Sedentary Related Codes:

artwork
chess/checkers/cards
lying down
picnicking (food involved)
reading
standing
sitting

- Age Group** Determine age according to the following criteria:
- Child** = Children from infancy to 12 years of age as children.
- Teen** = Code adolescents from 13 to 20 years of age as teenagers.
- Adult** = Code people from 21 to 59 years of age as adults.
- Senior** = Code people 60 years of age and older as seniors.
- Ethnicity** Code whether the primary ethnicity for each individual is Latino (L), Black (B), White (W), or Other (O).
- Activity** Scanning left to right, determine the activity level based on the following criteria:
- Sedentary (S)** = Individuals are lying down, sitting, or standing in place.
- Walking (W)** = Individuals are walking at a casual pace.
- Vigorous (V)** = Individuals are currently engaged in an activity more vigorous than an ordinary walk (e.g., increasing heart rate causing them to sweat, such as jogging, swinging, doing cart wheels).
- Participants** Include all individuals who are participating in the primary activity in the target area (e.g., baseball). If more than one significant activity is going on, record the information for the group in the “secondary” activity.
- Spectators** When spectators are at an organized event, write in the name of the activity they are watching and describe their characteristics. Spectators can be watching from the sidelines or bleachers.

RECORDING PROCEDURES

- On the observation form, enter the **Date**, **Park ID**, **Observer ID**, **Period**, and **Target Area**.
 - Observers are encouraged to complete this section prior to the start of the observation period.
- If there are too many people to count in any area, divide it into separate **Subtarget Areas** and follow the below procedures for each Subtarget Area separately. Use letters to distinguish the Subtarget Areas (i.e., A, B, C).
 - When people move to a different Subtarget Area while you are scanning, count only those who are present at the time you are scanning. In rare cases you may count people twice or miss them as they change Subtarget Areas. Make sure that all space in each main target area is included within the Subtarget Areas.
- Enter the **Start Time** for each area scan.

4. Record the conditions for each area (Accessible, Usable, Equipped, Supervised, Organized, Dark, and Empty).
 - When there are people are in the area, continue with action #5.
 - When the area is “dark” or “empty,” complete the conditions and then move to the next Target Area.
5. Determine if there are **Females** within the target area.
 - If no females are located within the target area, write “none” and move to action #13.
6. For **Females**, decide which is the main activity in the target area and record it under **Primary Activity**. Refer to the codes listed on the SOPARC data form (or this protocol) to determine the appropriate terminology for the activity (e.g., aerobics, baseball, climbing).
 - If no females are participating in a primary activity, write “none” and move to action #11.
7. Scan the target area for **Females** who are participants in the primary activity. Use the counter to record the number of females by age and ethnicity groupings.
 - Use the top row of the counter to help with age grouping, with children on the left (chartreuse), teens (light green), adults (dark green), and seniors (gray). Use the second row of buttons is ethnicity, (tan=Latino, Black= African American, White=Caucasian, Yellow=other). Count age first, and then ethnicity, for each person.
 - Always scan from LEFT to RIGHT. Observe each person for each category in the area only once. If an observed person reappears in the scan area, do not record a second time. Do not backtrack to count new people entering the area.
8. Transfer these data to the SOPARC Observation Form and reset the counter.
9. Now scan all participating females in the primary activity and record their activity level (sedentary, walking, or vigorous).
10. Transfer these data to the SOPARC Observation Form and reset the counter.
11. Now scan the entire target area again for **Females** who are participating in a **Secondary Activity**. Describe the activity and scan for age, ethnicity, and activity level.
 - If there are no females participating in the secondary activity, write “none” under Secondary Activity and move to action #12.
12. Scan the entire target area again for **Females** who are **Spectators**. Describe the activity they are watching and scan for age, ethnicity, and activity level (they will typically be sedentary, but could be walking or vigorously involved).
 - If there are no female spectators, write “none” under organized activity and move to action #13.
13. Repeat actions #5 through #12 for **Males**, scanning first for participants in the primary activity, then secondary activity, and finally spectators.
14. Move to the next Target Area.

RECORDING PROCEDURES FOR WALKING/JOGGING TRACKS

1. Prior to observing in the park, a research team member will walk the path/track and record the length of time, in minutes, it took to complete one full lap around it (e.g., seven minutes). The Target Area will be observed for this length of each time a scan of the area is conducted.
2. A standard location from which all scans will be made will be identified. This location is referred to as the **Coding Station** and will easily identifiable.
3. On the SOPARC Observation Form, enter the **Date**, **Park ID**, **Observer ID**, **Period**, and **Target Area**.
 - If possible, complete this section prior to the start of the observation period.
4. Enter the **Start Time** for the area scan on the SOPARC Observation Form.
5. Record the conditions for each area (Accessible, Usable, Supervised, Organized, Equipped, Dark, and Empty).
 - If the area is “dark” or “empty,” complete the conditions and then move to the next Target Area. If one or more people are in the area, continue with action #6.
6. Enter the **Start Time** and **End Time** on the Path Coding Form.
7. Count ALL people as they walk by the *coding station* and record their characteristics on the Path Coding Form. You may count some people more than once (e.g., runners), and some (e.g. slow walkers) may not pass by the area and will not be counted.
 - When two observers with counters are present during the scan, one counts for females and the other for males.
 - When recording data on the Path Coding Form, place a one (1) in each column that represents the individual characteristics (e.g., male, adult, Latino, walking).
8. Once time has expired, transfer the data from the Path Coding Form to the SOPARC Observation Form.
 - Use CAUTION when transferring data onto the SOPARC Observation Form. If time permits after the park scans are completed, check the form for errors.
 - Attach the Path Coding Form to the SOPARC Observation Form before submitting the data.
9. Move to next Target Area.

MORNING OBSERVATION PERIOD

The objective is to obtain an accurate measure of people engaged in the park Target Areas between 7:30AM and 8:30AM. Make sure that you are in Target Area 1 and ready to begin the first rotation of scans at precisely **7:30AM** (07:30 hours).

When there is sufficient time, do a second complete rotation of scans during the time period. The second rotation always begins 30 minutes after the start of the first rotation. For the morning observation, start the second rotation at Target Area 1 at **8:00AM** (08:00 hours).

LUNCHTIME OBSERVATION PERIOD

The objective is to obtain an accurate measure of people engaged in the park Target Areas between 12:30PM and 1:30PM. Make sure that you are in Target Area 1 and ready to begin the first rotation of scans at precisely **12:30PM** (12:30 hours).

When there is sufficient time, do a second complete rotation of scans during the time period. The second rotation always begins 30 minutes after the start of the first rotation. For the lunchtime observation, start the second rotation at Target Area 1 at **1:00PM** (13:00 hours).

AFTERNOON OBSERVATION PERIOD

The objective is to obtain an accurate measure of people engaged in the park Target Areas between 3:30PM and 4:30PM. Make sure that you are in Target Area 1 and ready to begin the first rotation of scans at precisely **3:30PM** (15:30 hours).

When there is sufficient time, do a second complete rotation of scans during the time period. The second rotation always begins 30 minutes after the start of the first rotation. For the afternoon observation, start the second rotation at Target Area 1 at **4:00PM** (16:00 hours).

EVENING OBSERVATION PERIOD

The objective is to obtain an accurate measure of people engaged in the park Target Areas between 6:30PM and 7:30PM. Make sure that you are in Target Area 1 and ready to begin the first rotation of scans at precisely **6:30PM** (18:30 hours).

When there is sufficient time, do a second complete rotation of scans during the time period. The second rotation always begins 30 minutes after the start of the first rotation. For the evening observation, start the second rotation at Target Area 1 at **7:00PM** (19:00 hours).

SAMPLE OBSERVATION SCHEDULE

MORNING OBSERVATION PERIOD

7:15am Check Target Areas and prepare SOPARC data forms

7:30am Initiate SCAN in Target Area 1 (following established sequence)

7:50am Complete SCAN of final Target Area

8:00 am Initiate second rotation SCAN in Target Area 1 (continue established sequence)

KEY WORDS

Coding Station: Identified location from which scans are conducted.

Condition: Descriptive characteristics (contextual variables) of a Target Area.

Counter: Device used to record data during park observations.

Observation Period: A predetermined period of time in which scans are conducted.

Primary Activity: The activity in which a majority of individuals are participating during the observation.

Scan: A single observation movement from left to right across a Target or Sub-target Area. During a scan, each individual person in the area is counted and coded for age, ethnicity, and activity level.

Scan Space: The geographical area within a Target or Subtarget Area.

Secondary Activity: The second most prominent activity occurring in a Target Area.

SOPARC: System for Observing Play and Recreation in Communities. This research method is used to observe physical activity in area parks.

Subtarget Area: A subdivision of a predetermined Target Area. Subtarget areas are created for a specific observation time and apply only to the scan space during that specific observation period. Activity level and the number of people located in a Target Area determine whether Subtarget Areas are necessary during a given observation period.

Target Area: A predetermined observation area in which park users may potentially engage in physical activity. A number of Target Areas will be established for each park.

SPEICAL CODING CONVENTIONS

Unidentifiable Person. This coding situation applies IF a person is observed sleeping in the area, but cannot be seen directly (i.e., due to blankets or sleeping position).

Gender: Code as “male”

Activity: Code as “Sleeping”

Age Group: Code as “Adult”

Ethnicity: Code based on the “majority” of park users in the neighborhood (i.e., if the community is primarily Latino, code as such).

Activity Level: Code as “Sedentary”

Comments: In the comments section of the data form, write a notation indicating that one or more individuals could not be identified due to sleeping position.

SCORING (FOR DATA ANALYSES ONLY)

Depending on the unit of analysis (gender, area, period, park, etc.), raw counts in each activity level are aggregated (sums or means) according to the variables of interest.

Example: To calculate the most active areas for females and males at a park on a given day

Steps:

- a. Reduce data. Calculate mean activity counts from the double-scan data to provide a single count for each activity level of females and males. For multiple scans, sum these counts across periods to compute a single TIME PERIOD count for each level of user activity.
- b. Sum across the park observation day. Aggregating by area, calculate a mean for each activity level (females and males separately) across all four periods observed to arrive at single counts for females and males at each level of activity in each area. Repeat for age and gender groupings.
- c. Calculate energy expenditure rates. To estimate kilocalories/kg expended, the number of people counted in the sedentary, walking, and very active categories are multiplied by the constants .051kcal/kg/min, .096kcal/kg/min, and .144kcal/kg/min, respectively. Kilocalories/kg from each category can be summed to provide a measure of the total kilocalories/kg expended by park users in a given area. These values can be interpreted as the number of kilocalories per kg of body weight per minute expended in each area during the observed day. These energy expenditure rates are dependent on the number of people observed.

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SAMPLE SOPARC OBSERVATION FORM

DATE 6-9-04 PARK ID # AP OBSERVER ID # AA PERIOD: Morning Lunch Afternoon Evening
 TARGET AREA 3 Subtarget Area # B START TIME 3:34

CONDITIONS OF TARGET AREA
 Accessible (i.e., not locked or rented to others) Yes No **Dark** (i.e., insufficient lighting) Yes No
 Supervised (i.e., not locked or rented to others) Yes No **Empty** (i.e., scan area is empty) Yes No
 Equipped (i.e., removable balls available) Yes No
 Usable (i.e., is not excessively wet or windy) Yes No
 Organized (i.e., team sporting event) Yes No

Comments:

PEOPLE	ACTIVITY	AGE GROUP			ETHNICITY				ACTIVITY LEVEL					
		Child	Teen	Adult	L	B	W	O	S	W	V			
Participants	Primary Activity													
Female	<i>Soccer</i>	4			2	1	1			2	2			
Male	<i>Soccer</i>	4		2	5		3			3	3			
Participants	Secondary Activity													
Female	<i>cheer leading</i>	5		1	6					1	1			4
Male	<i>None</i>													
Spectators	Organized Activity													
Female	<i>Soccer</i>									3	1	2		
Male	<i>Soccer</i>			2						2				2

Fitness Related Codes: aerobics (dance/step aerobics) fitness stations jogging/running strengthening exercises (pull ups) walking
Sport Related Codes: baseball basketball cheer leading dance football gymnastics handball horseshoes soccer tennis/racquet tetherball volleyball
Active Game Related Codes: climbing/sliding jumping (rope, hop scotch) manipulatives/racquet tag/chasing games
Sedentary Related Codes: chess/checkers/cards lying down picnic (food involved) reading standing sitting

SOPARC Data Collection Form, Revised 6/22/04



SAMPLE PATH CODING FORM & CORRESPONDING SOPARC OBSERVATION FORM

PATH CODING FORM (Sample)

**SOPARC OBSERVATIONS
PATH CODING FORM**

Date: 6-10-04 Park ID #: AP Observer ID #: AA
 Target Area #: 20 Start Time: 8:21 End Time: 8:28
7 minutes

Person	Gender		Age Group				Ethnicity				Activity Level	
	Female	Male	Child	Teen	Adult	Old	L	B	W	O	W	V
1	/				/		/				/	
2	/				/		/				/	
3		/			/		/					/
4	/				/			/			/	
5	/					/		/			/	
6		/				/	/				/	
7	/					/	/				/	
8		/		/				/				/
9	/			/				/				/
10		/				/	/				/	
11		/			/		/					/
12												
13												

CORRESPONDING SOPARC OBSERVATION FORM (Sample)

DATE 6-10-04 PARK ID # AP OBSERVER ID # AA PERIOD: Morning Lunch Afternoon Evening
 TARGET AREA 20 START TIME 8:20
Target Area # Subtarget Area #

CONDITIONS OF TARGET AREA
 Accessible (i.e., not locked or rented to others) Yes No **Dark** (i.e., insufficient lighting) Yes No
 Supervised (i.e., not locked or rented to others) Yes No **Empty** (i.e., scan area is empty) Yes No
 Equipped (i.e., removable balls available) Yes No
 Usable (i.e., is not excessively wet or windy) Yes No
 Organized (i.e., team sporting event) Yes No

Comments: *Path Coding Form Attached.*

PEOPLE	ACTIVITY	AGE GROUP				ETHNICITY				ACTIVITY LEVEL		
		Child	Teen	Adult	Old	L	B	W	O	S	W	V
Participants	Primary Activity											
Female	<i>walking</i>		1	3	2	3	3				5	1
Male	<i>running</i>		1	2	2	4	1				2	3
Participants	Secondary Activity											
Female												
Male												
Spectators	Organized Activity											
Female												
Male												

Fitness Related Codes: aerobics (dance/step aerobics) fitness stations jogging/running strengthening exercises (pull ups) walking	Sport Related Codes: baseball basketball cheer leading dance football gymnastics handball horseshoes soccer tennis/squash football volleyball	Active Game Related Codes: climbing/sliding jumping (rope, hop scotch) manipulative/squash tag/chasing games	Sedentary Related Codes: chess/checkers/cards lying down picnic (food involved) reading standing sitting
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DATE _____ PARK NAME _____ OBSERVER Init. _____ PERIOD: ? 2:00 ? 2:30 ? 3:00 ? 3:30 ? 4:00 ? 4:30 ? 5:00 ? 5:30
 TARGET AREA _____ START TIME _____

Target Area # _____

Subtarget Area # of Total Subtarget areas _____

CONDITIONS OF TARGET AREA

Accessible (e.g., not locked or rented to others) ? Yes ? No
Usable (e.g., is not excessively wet or windy) ? Yes ? No
Equipped (e.g., removable balls available) ? Yes ? No
Supervised (e.g., not locked or rented to others) ? Yes ? No
Organized (e.g., team sporting event) ? Yes ? No

Dark (e.g., insufficiently lit) ? Yes ? No
Empty (i.e., scan area is empty) ? Yes ? No

Comments: _____

PEOPLE	ACTIVITY	AGE GROUP				ETHNICITY				ACTIVITY LEVEL		
		Child	Teen	Adult	Senior	B	W	H	O	S	W	V
Participants	Primary Activity											
Female												
Male												
Participants	Secondary Activity											
Female												
Male												
Spectators	Organized Activity											
Female												
Male												

Fitness Related Codes:
 aerobics (dance/step aerobics)
 fitness stations
 jogging/running
 strengthening exercises (pull ups)

Sport Related Codes:
 baseball
 basketball
 cheer leading
 dance
 handball
 horseshoes
 soccer
 tennis/racquet

Active Game Related Codes:
 climbing/sliding
 jumping (rope, hop scotch)
 manipulatives/racquet
 tag/chasing games

Sedentary Related Codes:
 chess/checkers/cards
 lying down
 picnic (food involved)
 reading

This is a reliability check ☺

walking

football
gymnastics

tetherball
volleyball

active play

standing
sitting

SOPARC PATH CODING FORM

Page ____ of ____

DATE: _____ PARK ID: _____ OBSERVER _____

TARGET AREA: _____ START TIME: _____ END TIME: _____

Person	Gender		Age Group				Ethnicity				Activity Level		
	Female	Male	Child	Teen	Adult	Senior	B	W	H	O	S	W	V
1													
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													

Observing Play and Leisure Activity in Communities (SOPARC): Reliability and Feasibility Measures

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Background

While park and recreation settings are viable locations for promoting health enhancing physical activity, investigations of physical activity and associated variables in these "open" environments have been hampered by lack of objective tools. Measuring activity in these environments is challenging because the number and type of users and their activity levels are highly variable and park characteristics change often.

Objective

This paper describes the direct observation instrument, System for Observing Play and Recreation in Communities (SOPARC), with specific focus on reliability and feasibility measures.

Methods

SOPARC is based on momentary time sampling techniques in which systematic and periodic scans are made of individuals and contextual factors within pre-determined target areas in community recreation settings. During a scan the activity of each individual was coded as Sedentary (lying down, sitting, or standing), Walking, or Very Active using specialized counters. Separate scans were made for females and males, and simultaneous entries were made for user age and race/ethnicity categories and for park characteristics (e.g., time of day; area accessibility and usability; presence of supervision and equipment; presence and classification of organized activities). Following training, observers used the system to generate data during morning, noon, afternoon, and evening observations in large parks (165 targeted activity areas) in 8 multi-ethnic communities over 56 days. Reliability data were collected during 16 days of field assessment over 4 months in 4 large parks (total=85 different activity areas) by pairs of trained assessors who made simultaneous and independent observations throughout the day. Data from a total of 335 simultaneous measures were used in the reliability analysis.

Results

Interobserver agreement scores (IOA) for contextual variables were 95% for area accessibility, 91% for usability, 95% for presence of supervision, 95% for presence of organized activity, and 96% for provision of equipment. Intraclass correlations for the number of park users were high ($R=.99$ for females; $R=.97$ for males). IOAs for age grouping (89% for females; 85% for males), race/ethnic grouping (80% for females; 82% for males), and activity levels (80% for females; 88% for males) also met acceptable criteria for reliable assessment.

An average of 2,006 users (range=638-4,849) was observed per park over 7 days, with 66% being sedentary (range=49-77%), 19% walking (range=12-30%), and 16% in vigorous activity (range=11-23%). More males were seen (62 vs. 38% of users) and they were nearly twice as likely in vigorous activity than females (19 vs. 10%). One-third were children, 19% teens, 43% adults, and 5% seniors. Most common activities were sitting/picnicking (22%), basketball (15%), observing organized sports (13%), soccer (9%), and using playgrounds (8%).

Conclusions

SOPARC can be used to collect relevant physical activity and contextual data in parks, and trained observers use the system reliably. The utility and generalizability of the instrument were established through its use in generating data throughout the day and in large parks in diverse multi-ethnic communities. Because validity of the activity codes has been established through heart rate monitoring, energy expenditure rates for target areas can be estimated. The instrument will permit physical activity levels and other comparisons be made among different open settings or within the same environment over different time periods (e.g., for intervention evaluation purposes).