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Target population involvement in urban ciclovias: a preliminary evaluation of St. Louis Open Streets

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ABSTRACT

Ciclovias are active street events when roads are open to walkers, cyclists, and families, and closed to automobiles. Over 70 cities in the US have implemented ciclovias to promote physical activity. The authors evaluated four events during 2010 to determine what activities participants perform and who is attending. For two ciclovía events in St. Louis, Missouri, observation reports of activities, gender, and age of 1452 participants were collected, and 82 adults were interviewed via direct approach. The survey covered six domains: physical activity, travel to event, sense of community, marketing, economic impact, and demographics. Each event occurred within the city, along multiple streets. Domains were selected from Ciclovía Recreativa developed by Ciclovía Bogota, Pan American Health Organization, and CDC. Additional questions addressed city-specific goals and matched similar evaluations in other cities. Over 50% of participants met CDC-defined weekly minute thresholds for physical activity. Participants, primarily (>80%) middle-class, college educated, and white, were not representative of the majority minority city population, which has high rates of poverty, and low percentage of college graduates. Cities must work with residents to increase low-income minority population participation in ciclovía-based physical activity.

BACKGROUND

Over one-quarter of adults and 17% of youth in the United States are obese.¹ Obesity rates are higher among minority and low-income groups and particularly disparate among children. The etiology of obesity is complex, with policy and environmental factors such as lack of access to healthy foods and places to be physically active considered major contributors.²

Ciclovias, active street events, originated in Bogota, Colombia, as days to promote free health and community oriented events,³ and there is an increasing number of *ciclovias* across the US. St. Louis (Missouri) Open Streets is a *ciclovía* initiative implemented by the mayor's office in 2010 to highlight assets of the city and encourage residents to be physically active. Open Streets provides space for healthy recreation, encourages St. Louisans to use more sustainable forms of transportation, and complements the city's bicycling, and complete streets initiatives. The authors evaluated the 2010 Open Streets to determine if the St. Louis *ciclovía* was reaching an urban, disparate population. The authors also wanted to understand the potential sustainability of *ciclovias* based on community awareness and city-defined success of health, economic, community-based, and environmental benefits.

METHODS

We collected observation data from *ciclovias* held in April and October of 2010 in St. Louis, Missouri, and additional survey data from adult participants at the June *ciclovía*. The April and June events ran approximately six miles across the center of St.

Louis, and the October event was a five-mile loop between downtown and North St.

Louis.

Observations

The research team used two observation tools for Open Streets.⁴ The tools were counts of adult (18 years of age and older) participants by gender, who were walking, cycling, or skating, and the number of youth (under 18) by gender, who were walking, cycling, skating, or being pushed/carried. The sample frame was all participants in Open Streets passing the designated point during one of three 15 minute timeframes. These counts were used to estimate attendance per hour, by multiplying the count at each timeframe by four, and an average attendance per hour was estimated by taking the mean attendance across the three hours.

Participant Survey

The questionnaire included 25 questions covering six areas: (1) physical activity (PA) (e.g., What type of activities are you doing at Open Streets?); (2) travel to/from the event (How did you get to today's event?); (3) sense of community (Is the city more lively or vibrant during Open Streets?); (4) marketing/communication (How did you hear about this event?); (5) money spent at event (How much money do you/your family anticipate spending associated with Open Streets?); and (6) basic demographics (e.g., race/ethnicity, gender, household income, and age).

Measures

For the observational records, researchers were placed at each of three locations.

Observer one counted the number of adult participants passing the point during each 15

minute period. They noted gender and mode of active transport (walking, cycling, etc.)

Observer two completed the same for youth.

For the questionnaire, researchers positioned themselves at one terminus of the event and at two open intersections, where police alternated between allowing Open Streets participants and vehicles through the road intersection. These locations were selected as natural points for participants to slow or stop their activity, such as cycling. Researchers approached all individuals appearing over the age of 18 during a 90 minute timeframe to request participation.

Descriptive and frequency statistics were computed for the observational records and questionnaires. Washington University in St. Louis Institutional Review Board approved the questionnaire and protocol.

RESULTS

Observational data

The April 2010 Open Streets averaged 587 participants per location, per hour (see Figure 1). The majority of participants at the event were cycling; 67.6% of adults and 74.6% of youth. Women comprised 42.4% of the adult participants. Rain forced the cancelation of the September event. The October event averaged 211 participants per hour, per location, with 39.9% cycling and 49.6% women.

Survey data

Our response rate for the questionnaires was 65.6%, with 82 completed surveys. Women represented 41.6% of participants and the average age was 43.3 years. 86.8%

were white (compared to 43.9% in St. Louis city and 70.3% in St. Louis County), 89.0% reported being a college graduate (compared to 25.5% and 38.5%), and 80.0% reported a household income over \$45,000 (median household income: \$34,227 in city, \$57,502 in county).⁵ The June route crossed three city ZIP codes, with 20 of 80 respondents residing within these ZIP codes. Another 21 lived within the city limits (51.9%), but the other 48.1% reside outside of the city limits, including five from outside the metro area (Figure 2).

On average, respondents participated in Open Streets for just under 2.5hrs and chose to visit the event to cycle, be with children, have fun, get outside, exercise, expose children to city, and see the neighborhood. Two-thirds visited with family.

Physical Activity

Participants identified their primary activity and number of minutes performing the activity while visiting Open Streets (Table 1). Cyclists spent over 1hr45min biking the route. Walkers spent just over an hour and joggers just over half an hour. Those primarily visiting activity stations participated in the activities (zumba, yoga) for 53min. Fifty-seven percent of respondents said if they were not at Open Streets they would be recreating elsewhere, leaving just under half being physically active because of their participation in Open Streets. Almost two-thirds, 63.0%, of participants rated St. Louis as good or very good in terms of walk/bike environments.

Economic Activity

Eighty-two percent spent money associated with Open Streets, with over half of those spending greater than \$10.00. Participants spent money at stores, restaurants, and

vendors along the route with 56% becoming aware of a new restaurant or store along the route.

Social Capital

Eighty-nine percent of participants said the event changed their feelings for the city in a positive way and 74% felt the city was more vibrant during the event. The majority strongly agreed/agreed (88.1%) that Open Streets strengthens the local community.

Regarding safety along the route, 91% felt very safe with the other 9% reporting feeling somewhat safe.

DISCUSSION

Over 70 US municipalities hosted ciclovias during 2010-2011, many for the first time. The boom in the number of events is associated with efforts across the country to increase PA and community engagement, especially during difficult economic times. This study is one of the first in the US to systematically evaluate a ciclovia. Participants during the 2010 events in St. Louis reported spending money, becoming aware of new restaurants and stores, performing PA, traversing the city on bicycles and foot, experiencing positive feelings associated with the city. Over 50% of surveyed adults met the CDC-recommended 75min PA/week. Results support the investment and efforts taken by the city to promote and implement the events. However, most of the participants did not live near the route, half of the participants were not city residents, and the majority was not representative of the city populations facing health disparities. This gap between participants and populations facing disparities presents an opportunity for

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directed communication and marketing efforts to increase participation by city residents and those facing health disparities.

The poverty rate in St. Louis is double that of Missouri and the US (11% of households). The heart disease and diabetes mortality rate is 1.4 times that of the US. St. Louis has a majority minority population, but the Caucasian population still has an average household income 49% higher than African-Americans.⁶ Minority and low-income populations were missing from the Open Streets events. In a city where these are prominent populations and with the understanding that low income and minority populations face greater disparities in health,⁷ St. Louis should improve efforts to make Open Streets more inclusive.

TABLES

Table 1. Primary activity and average minutes spent performing activity.

<i>ACTIVITY</i>	<i>N (%)</i>	<i>MINUTES Mean (SD)</i>
Bicycling	49 (60.5)	108.2 (53.4)
Walking	16 (19.8)	66.3 (38.4)
Activity Stations	13 (16.0)	53.1 (42.5)
Jogging	3 (3.7)	35.0 (31.2)

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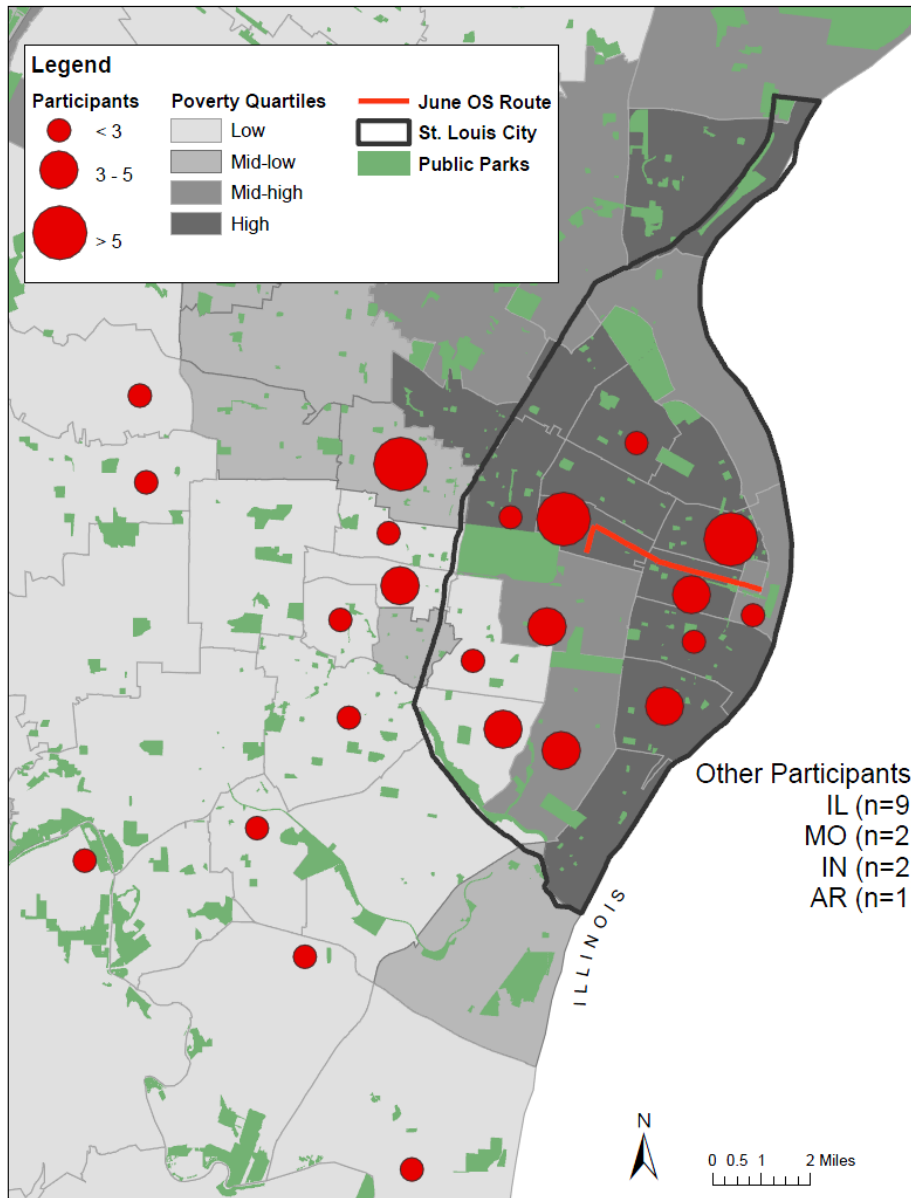


Figure 2. Map of June 2010, Open Streets survey respondents' home ZIP code.