ParkIndex: Developing and applying a practical measure of access to parks

Background

Parks benefit people and communities. Research has studied how park features, including facilities, amenities, distance, and conditions, impact health behaviors and outcomes. However, the availability and quality of parks vary greatly within and across neighborhoods and communities. Also, how we evaluate park access and impact is not standardized. To fill this gap, we developed the ParkIndex tool to help researchers, residents, and other key decision makers evaluate park access and potential for use with a simple, standardized score of 0-100.

The purpose of this study was to further develop and validate ParkIndex in four different U.S. cities. A second goal was to show how ParkIndex can be used to estimate how likely a person is to use a park in certain cases, like if a park is improved or a new park is added to a neighborhood. The use of a standardized tool, like ParkIndex, helps communities and professionals (e.g., parks and recreation staff, planners, real estate agents) better understand and use information about park access to improve quality of life for residents and communities. This tool can also inform decisions for policy and research, like where new parks are needed and how parks impact physical and mental health.

What We Did

The study was conducted in Seattle, WA, Brooklyn, NY, Raleigh, NC, and Greenville County, SC. These locations were chosen for their diversity in park resources, and because they are places where the research team had existing partnerships. Within each place, we chose 32 block groups based on park availability and income levels. We chose 8 that were low income and low park availability, 8 that were low income and high park availability, 8 that were high income and low park availability, and 8 that were high income and high park availability. This resulted in 128 block groups across the four cities.

We gave out surveys to randomly chosen households within the study areas. The survey helped us to better understand park use, health behaviors, and other information. We used a unique online map-based survey to ask one adult in the household about their park use in the last 30 days. The survey also asked for basic demographic information, like gender, age, race/ethnicity, and education level.

In addition to the surveys, the research team rated parks using park auditing tools. All parks or greenways within one-half mile of the study areas were included in the study. We used the electronic Community Park Audit Tool (eCPAT) to rate each park in person. In total, 275 parks were rated during the study: 94 in Seattle, 64 in Brooklyn, 71 in Raleigh, and 46 in Greenville County. Key metrics included the number of parks within one-half mile of the person's home, the total park size (acres), and the park quality score. Park quality was based on six key factors:

- Sum of 6 park access resources (e.g., sidewalks, transit stop)
- Sum of 14 park facilities (e.g., playground, sports field)
- Sum of 3 key park amenities (restroom, drinking fountains, lighting)

- Sum of 7 park beautification features (e.g., landscaping, historical/educational feature)
- Sum of 8 park quality concerns (e.g., graffiti, litter)
- Sum of 10 neighborhood quality concerns (e.g., poor lighting, heavy traffic)

These 6 sub-scores were averaged to create a park quality score for each park. Scores could range from 0-100.

In addition, to show how ParkIndex could be used as a planning tool and to estimate how likely it is that a person would use the park, we looked at the impact that two changes would have on the area's ParkIndex score in a Brooklyn neighborhood. These two changes were: 1) adding a park and 2) improving a park.

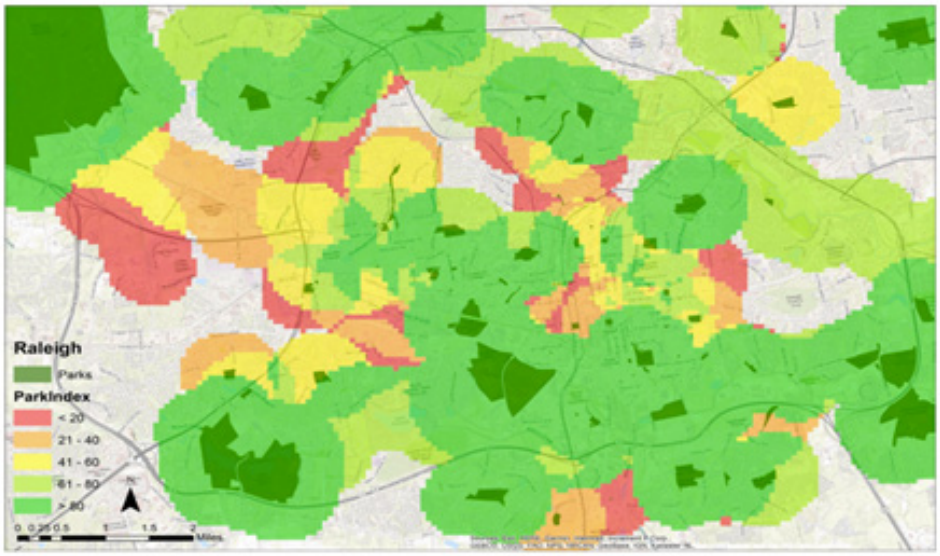

Fig. 1. Map of ParkIndex values for Raleigh, NC.

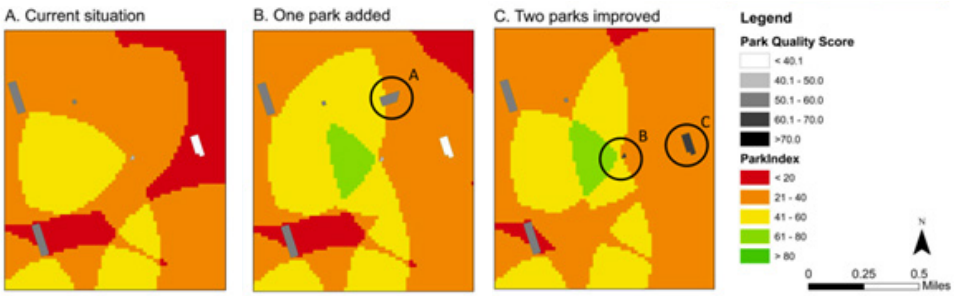

Fig. 2. ParkIndex value increases with park addition and improvement.

What We Found

In total, 360 people took the ParkIndex survey, and 23.3% said they used a park within one-half mile of their home within the last 30 days. All three park features - number of parks, park acreage (size), and average park quality score within one-half mile of their home - were related to greater park use. ParkIndex scores in the study areas ranged from 0 to 100. As an example, Figure 1 shows ParkIndex values for the entire city of Raleigh, NC.

Using the tool, if a new park were added to the Brooklyn neighborhood (see Figure 2), the ParkIndex score would go up by 22.7%, from 28.6 to 35.1. If a park were improved in this same neighborhood, the ParkIndex score would go up by 19.2%, from 28.6 to 34.1. We made maps based on estimates from ParkIndex to show how likely a person may be to use a park within the study areas (see Figure 1). These maps visibly explain the impact that park characteristics have on park use. The ParkIndex tool can also help researchers and community partners relate park access to health behaviors and outcomes, which may help in promoting health and community planning. Overall, ParkIndex is useful in helping to plan and upgrade parks and green spaces, and it also ensures that parks provide fair and effective benefits for all.

Summary

ParkIndex is a tool that can help public health researchers and community advocates predict park access and use in their communities. ParkIndex requires the use of a community park audit tool and geographic information system resources, both of which are becoming more available within this type of research and practice. This study has some weaknesses: it only included 128 blocks groups in four cities, it had a small sample that was not very diverse, and it did not include an objective measure of park use. Future goals for ParkIndex include sharing ParkIndex nationally, using ParkIndex in new and more diverse settings, and continuing to evaluate the tool's use for community planning and health promotion.

To learn more: *The ParkIndex report in its entirety is available here: https://doi.org/10.1016/j.pmedr.2020.101218. If you have questions about ParkIndex, please contact Dr. Andrew Kaczynski, University of South Carolina, Prevention Research Center, atkaczyn@mailbox.sc.edu. To learn more about ParkIndex, please visit https://beachlab.sc.edu/past-research/parkindex/.*

Other reference materials: ParkIndex: A tool for advancing parks and public health research and practice (2016)