

Parks, Environmental Justice, and Childhood Obesity in Greenville, SC

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Study Background

Obesity rates in South Carolina are among some of the highest in the United States, increasing the personal and societal burden from related chronic diseases and expanding health care costs. The design of neighborhoods and communities is now recognized as a key determinant of a variety of health behaviors that contribute to obesity. Within this broader perspective, parks are acknowledged as key community assets for promoting physical activity and health, especially among youth and especially within lower income neighborhoods that may lack other personal and environmental resources for participating in healthy behaviors. However, to support the development of a comprehensive strategy for addressing obesity through parks, detailed information is needed about a) the current state of resources in communities and b) the impact these open spaces are having on youth physical activity participation, obesity rates, and overall health.

Study Objectives

The two related objectives of this study are:

- 1) To examine whether the availability, features, and quality of parks are equitably distributed across the greater Greenville area according to a variety of demographic indicators (income, race/ethnicity, education level, youth population, etc.).
- 2) To examine the relationship between park availability, features, and quality and obesity levels among youth in the greater Greenville area.

Study Setting

- This study will take place in the greater Greenville metropolitan area (including the City of Greenville and other surrounding urban areas to be determined).



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Study Methods

To accomplish objective 1, we will combine geographic mapping of the city and county parks and observational audits of all public parks to examine the equitability of access to quality park environments across the greater Greenville area. Specifically, the following steps will be undertaken:

- Information about a variety of demographic characteristics will be downloaded for each census tract in the greater Greenville area from the American Community Survey website.
- All parks in the greater Greenville area will be mapped using geographic information systems (GIS) technology to determine the number and total area of parks that intersect each census tract.
- On-site audits of all parks will be conducted using the Community Park Audit Tool (CPAT).
- Using the census tract information and GIS and CPAT parks data, a variety of statistical and spatial analyses will be conducted to explore the distribution of park availability, features, and quality across diverse census tracts throughout the greater Greenville area.

To accomplish the second study objective, we will combine the park data collected for objective 1 with data on childhood obesity among Greenville area youth to examine the relationship between access to quality park environments and health. Specifically, the following steps will be undertaken:

- At multiple time points from 2012 to 2015, body mass index (BMI) is being measured for all 3rd, 4th, 5th, and 7th grade students from all schools in Greenville County.
- Upon approval and receipt of these data from the school district, we will use de-identified geocoded home location information and geographic information systems (GIS) technology to calculate distances from each child's school and home to their nearest park and all parks within 1 mile.
- Data collected via the aforementioned park audits will be used to characterize the features and quality of the park environment near each child's home and school location.
- These park data will be combined with detailed Greenville food outlet data being collected in another study to provide a comprehensive picture of two key environments – one related to physical activity and one related to nutrition – for the greater Greenville area.
- We will conduct a variety of spatial and statistical analyses to document how the availability, features, and quality of local parks and food environments are impacting the obesity and health of Greenville area youth.

Study Timeline

The following chart displays the approximate timeline for the study activities.

Study Activities (2013-2014)	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June
GIS mapping of Greenville area parks												
Environmental audits of Greenville area parks												
Compilation of park and food environment and youth BMI data												
Analysis of park equity across the Greenville area												
Analysis of relationships b/w park and food environments and BMI												
Preparation of draft reports and funding applications												

Study Funding Source

Piedmont Health Foundation