BARRIERS TO A HEALTHY LIFESTYLE FOR LOW INCOME, MINORITY YOUTH: A CASE STUDY OF THE CUYLER BROWNVILLE NEIGHBORHOOD IN SAVANNAH, GEORGIA

By

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To Raegan

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The aim of this research is to further understand the relationships between the built environment, neighborhood crime and obesity in a low income, historically African American community in Savannah, Georgia. This research investigates the built environment, access to healthy food options (e.g., fruits and veges) public parks/ green space and neighborhood crime as factors in achieving healthy lifestyles for low income, minority youth.

This research encompassed several research methods to fully understand the barriers to healthy lifestyles for low income children including the built environment, access to healthy food, access to public parks/green space and neighborhood crime. The methodological steps in this research consist of: 1) selection of a case study neighborhood; 2) analysis of demographic data; 3) analysis of national and state level obesity data; 4) observations of the built environment within the study area; 5) geospatial analysis of distance to healthy food options and public park locations; 6) analysis of crime data.

The findings of this research confirm that the built environment shapes individual health, especially the health of children, in terms of accessibility to healthy food sources (or unhealthy

food sources like fast food restaurants), accessibility to well maintained public parks/green space and presence of neighborhood crime.

CHAPTER 1
BARRIERS TO A HEALTHY LIFESTYLE

"The health of people is really the foundation upon which all their happiness and all their power as a state depend."- Benjamin Disraeli

Obesity is a serious epidemic facing our nation. Nationally, obesity costs U.S. companies more than $13 billion for health insurance, $2.4 billion for sick leave, $1.8 billion for life insurance, and another $1 billion for disability insurance according to the 2001 Surgeon General's Call to Action. As a society, if we can prevent our children from becoming obese, the prevalence of obesity related health conditions, as adults, can be lessened.

Low income, minority youth are at a greater risk of being obese. "The poor eat just as much meat and poultry as the rich, but eat far more French fries and far fewer fruits and veges…they show the biologic markers of their behavior with higher rates of obesity and high blood pressure (Farley & Cohen, 2005, pp. 210). Opportunities must be created in low income, minority neighborhoods that allow residents to engage in healthy eating behaviors and physically active lifestyles. Many low income minority children (and adults) do not engage in regular physical activity within their communities. Weight gain occurs from an improper balance of diet and exercise. Many low income individuals do not reside in communities that support physical activity through design or safety. Low income, minorities have decreased access to adequate, safe public parks and green space.

An individual's everyday life is structured around the environment in which he or she lives. An individual's access to full service grocery stores as well as the density of fast food restaurants plays a significant role in the quality of foods they consume. Researchers have become increasingly interested in the affects of our built environment and health. "The built environment includes all aspects of the environment that are modified by humans, including

homes, schools, workplaces, parks, industrial areas, and highways" (Wakefield, 2004, pp. A616-A618). "The built environment is defined as a multidimensional concept broadly including patterns of human activity at various scales of geography within the physical environment" (Popkin, 2005, pp. 603-613). Many low income neighborhoods have numerous small, limited food markets and fast food restaurants that sell products that are high in fat and calories. Residents of these neighborhoods are faced with the burden of traveling outside of their neighborhoods to purchase healthy foods or staying in their neighborhood and consuming unhealthy foods.

Research aim: The aim of this research is to further understand the barriers low income, minority children face in living healthy lifestyles. Specifically, this research investigates the built environment, access to healthy food, public green space and neighborhood crime as factors in achieving healthy lifestyles. This understanding will allow for recommendations that will increase healthy opportunities for low income, minority youth.

"Chronic diseases such as diabetes and asthma are leading health concerns which are influenced by environmental conditions. Decisions about zoning, transportation, land use and community design influence the distances people travel to work, the convenience of purchasing healthy foods, and the safety and attractiveness of neighborhoods for walking. It is clear from the health implications of these decisions that public health can and should be a strong ally to ensure that decisions about neighborhood design are made with the health of community members at the fore" (Prevention Institute, n.d.). This study adds to the literature on health outcomes and low income, minority communities in that it addresses three significant barriers low income children face regarding health and physical activity.

This research is conducted through a case study of a historic, African American, low income neighborhood in Savannah, Georgia; Cuyler Brownville. First is a review of the literature pertaining to health and the built environment with the inclusion of crime and fear of crime. Next, the research methodology, which is largely based on a review of policy documents and place based observations. Then, the history of Cuyler Brownville is examined. Cuyler Brownville has a rich African American history that provides the character and framework for present day conditions. Then, the current conditions of the neighborhood are examined and analyzed; the built environment, access to healthy food and public green space, and neighborhood crime are investigated: All attributes that notably influence the lifestyles and daily activities of children. Lastly, given the history and current conditions, inferences will be made regarding the current barriers to healthy lifestyles for the children who reside in Cuyler Brownville.

CHAPTER 2
REVIEW OF THE LITERATURE

Introduction

This chapter consists of a review of the literature that concentrates on the built environment and its relationship to obesity, physical activity, access to healthy food, and public recreation space, and neighborhood crime. The purpose of this review is to present previous research conducted within the area of health, the built environment and crime and how the research can be used to develop strategies for implementing healthy communities in existing low income, minority neighborhoods.

Researchers have become increasingly interested in the way in which an individual's everyday environment contributes to health outcomes. The rising prevalence of childhood obesity has caused concern for medical doctors, sociologists, urban planners, public health officials, and numerous other disciplines. The disparities in obesity and its adverse health effects are significantly associated with income and race. Individuals in low income areas lack the resources needed to travel outside of their community and are therefore limited to the resources that are available within walking distance to their homes. The argument has been shown to be more about access to resources than it is about individual desire to partake in physical activity.

The literature supports theories of healthy communities and their relations to the built environment, childhood (and adult) obesity, access to healthy food options and access to public parks and crime. Arguments have been made against these factors affecting health, with the inclusion of personal intervening variables such as self-selection and sedentary behaviors.

This literature review provides evidence that health outcomes are complex, and besides those instances in which health problems are genetic, or not related to individual physical activity, our everyday world shapes our children's health outcomes.

Opportunity and accessibility are key words when discussing community health. Even if an individual does not choose to partake in physical activity outside their home, he or she should be given the choice; in many low income communities this is not an option: "Evidence suggests that environmental factors bear significant influence on diet, physical activity and obesity" (Popkin, Duffey, & Gordon-Larsen,2005, pp. 603-613, 2005).

Opportunities for a healthy lifestyle are related to the built environment, access to healthy food options such as fruits and veges, access to recreation facilities and levels of crime within a given neighborhood. These variables play an integral role in the everyday lives of individuals not only in low income neighborhoods, but in the United States as a whole. When an individual does not have access to healthy food choices, the only option available is the consumption of unhealthy foods that are high in fat and calories. Lack of access to recreation facilities does not allow for an individual to engage in physical activity outside of his or her home. These issues create a barrier in the achievement of healthy lifestyles for low income, minority youth.

The Built Environment

There is an overwhelming consensus that neighborhood design affects physical activity levels and quality of foods consumed, both are important factors in the prevention of obesity and its associated adverse health consequences (Dannenberg, et al., 2003) (Papas, et al., 2007) (Diez Roux, 2001) In many instances the built environment in low income neighborhoods is less inviting than those environments of middle and upper income individuals of the United States. Diez Roux states that socioeconomic position is one of the dimensions along which residential segregation occurs; living in disadvantaged neighborhoods may be one of the mechanisms leading to adverse health outcomes in persons of low socioeconomic status (Diez Roux, 2001). Our everyday environment shapes our world more than some may realize; from billboards to traffic, our built environment influences our daily actions (Farley & Cohen, 2005). Research has

shown that income inequality plays a significant role in determining the health outcomes of individuals. Low income neighborhoods have a high proportion of older structures that are either abandoned or not properly maintained; these structures are then tagged with graffiti, have broken windows and are generally unsafe. Low income neighborhoods also have higher concentrations of convenience and liquor stores, these factors may reflect poor community health (Dannenberg, et al., 2003, pp. 1500-1805).

Our daily activities rely heavily on the environment in which we live, work and play. Low income individuals face additional challenges when their built environment does not support their daily needs. These individuals have low rates of car ownership and must rely heavily on public transportation if they work outside of their neighborhood or if they must leave their neighborhood to get groceries, etc... The built environment that exists today have zoning and land use strategies that make it increasingly difficult for individuals to walk through a neighborhood for everyday needs (Dannenerg, et al., 2003). Creating mixed land uses in a neighborhood provides for a more walkable environment. Mixing residential, retail/commercial, recreational and institutional land uses allows individuals to easily travel to various destinations by foot. (Dannenberg, et al., 2003).

The built environment is extremely relevant when assessing healthy opportunities for children in low income areas. The design of one's community plays a vital role in how much they engage in physical activity outside the home. The built environment in which a child lives ultimately determines their physical activity options. "Adolescents living in neighborhoods characterized by mixed-use, pedestrian-oriented retail development, connected streets and relatively high residential density were more physically active than those living in less walkable neighborhoods"(Kligerman, et al.,2007, pp. 274-277).

Previous research shows an association between increased mixed land use reduced obesity (Frank et al., 2004). Land use, distance and connectivity are important features of the built environment that promote physical activity. These characteristics allow for individuals to easily access different uses with modes of transportation other than a motorized vehicle; increases in mixed land use decreases the likelihood of obesity (Wakefield, 2004). If the linkages between the built environment and obesity are better understood, communities that encourage health and well being can be created (Wakefield, 2004). According to the Center for Disease Control and Prevention "Contributing Factors to Overweight and Obesity", a lack of sidewalks, safe bike paths, and parks in neighborhoods can discourage children from walking or biking to school as well as from participating in physical activity (Centers for Disease Control and Prevention (2), 2008).

Access to Healthy Food

Where are the grocery stores? "Major retail organizations have constantly excluded inner-city neighborhoods in their store locations choices because of land and development costs, crime, lower resident incomes and a host of other real or imagined issues" (Savannah State University, 2006).

Low income areas have been known to be food desserts in that individuals residing in these communities do not have access to healthy food. "Individual behavioral change can occur only in a supportive environment with accessible and affordable healthy food choices and opportunities for regular physical activity" (Surgeon General's Call to Action to Prevent and Decrease Overweight and Obesity, 2001). In low income communities there are overwhelming numbers of convenience and liquor stores as well as many fast food restaurants and few, if any, supermarkets providing healthy foods such as fresh fruits and veges.

Supermarket location is a key issue in many low income areas. Vehicle availability is a deciding factor in whether or not residents of these communities can travel for grocery shopping purposes (Morland, et al., 2002). "A study that compared supermarkets, neighborhood groceries, convenience stores, and health food stores in San Diego, California, found that supermarkets had twice the average number of "heart-healthy" foods compared to neighborhood grocery stores and four times the average number of such foods compared to convenience stores"(Morland, et al., 2002, pp.24). Research has shown that the type of food and food stores accessible to individuals vary greatly based on income and race; poor and wealthy neighborhoods have different food service places. (Morland, et al., 2002) Many low income members of our society are faced with the high food costs. "A study of US consumers (Finke, et al., 1997) showed among urban residents, those on low incomes paid higher prices for food than their higher income counterparts; but this pattern did not occur among suburban residents"(Winkler, Patterson & Turrell, 2006, pp.742). It has been shown that ethnic and socioeconomic disparities exist when examining food choice. Increased food consumption from fast food restaurants is a growing concern for obesity outcomes in low income communities. Studies have shown that younger age, lower-income, greater BMI and non-white ethnicity are associated with greater intakes of fat, saturated fat and cholesterol (Haines, French & Popkin,2006) "The proportion of children's meals consumed at fast food restaurants has increased in parallel with the childhood obesity epidemic, and consumption of fast food has been frequently implicated as an important cause of childhood obesity" (Burdette & Whitaker, 2004, pp. 57-63). Changes in obesity levels over the past decade are a probable outcome of decreased physical activity levels and increased fat and calories; causes that are in turn influenced by the physical, social and economic environment (Dannenburg, et al., 2003).

Childhood obesity is not solely dependent to access to healthy food. Although there are many factors that influence childhood obesity levels, access to recreation areas is an integral component when investigating opportunities in achieving a healthy lifestyle.

Access to Recreation Areas

Who uses the parks? The use of parks and public green space varies on many different levels. Parks are utilized differently by different groups of people (e.g., income, race, age, gender, etc.) (Sideris, 1995) Studies have shown that race is a significant variable when looking at parks in low income areas. The presence of basketball courts, ball-fields and playground equipment plays an immense role in whether or not a park is utilized by neighborhood residents, particularly children. In a study by Loukaitou-Sideris, it was found that there were significant differences between racial groups in the way each group comes to the park, the type of group association at the park, the type of activities engaged at the park, and the most liked park qualities (Sideris, 1995).

Public parks/green space is essential when assessing activity levels of children. "Children's physical activity was positively associated with the proportion of green space…and with the frequency of parallel parking spaces and parking lots in the neighborhood; with the residential density and with the general rating of activity-friendliness of the neighborhood…Children's physical activity is associated with certain modifiable factors of the built environment. Modeling neighborhoods into activity-friendly neighborhoods may be an effective strategy to increase children's activity level" (DeVries, et al., 2007).

The amount of physical activity an individual partakes in can be hindered by his or her fear of crime and/or neighborhood crime. The next section addresses the result of crime and fear of crime on physical activity levels.

Crime, Fear of Crime and Fear of Place in Neighborhoods and Public Parks

Crime

One of the key factors influencing physical activity in low income areas is crime and fear of crime. Simply stated, people do not leave their homes out of fear for personal safety. Literature suggests that crime may be a significant environmental barrier to outdoor physical activity. When one fears the outdoor environment in which they live, they are less likely to engage in physical activity outside of their home.

Gomez, et al., (2004) state that there are many barriers to physical activity for low income people including neighborhood crime. Women in particular are more likely to be aware of their surroundings and not visit certain areas of a neighborhood due to fear for their own personal safety. Young females have also been shown to be more hesitant to visit places that did not "feel" safe compared to young males. (Eyler, et al., 1998).

Reports of violent crime in a neighborhood can be an enormous deterrent for physical activity. These crimes can range from personal robberies to rape or homicide. . "Neighborhood violence remains a fact of life for many children and teenagers living in urban areas"(Gomez, et al., 2004, pp. 876). Land use can also affect crime; land uses such as pawn shops, vacant lots and abandoned buildings are considered to be "crime generators" (Eck & Loukaitou-Sideris, 2007).

In a study about direct experience of crime in public parks, avoidance of the park was associated with alcohol consumption, rowdy/loud offensive behavior, drug use, harassment, intimidation, fighting, and vandalism (Westover, 1985). Jacobs states that many existing sites are underused, in part because they are often seen as undesirable, threatening places where crimes frequently occur (Jacobs, 1993).

Many communities have begun using strategies from Defensible Space (DS)/Crime Prevention Through Environmental Design (CPTED) to combat crime and criminal mischief in communities. These strategies consist of territoriality, surveillance, access control, activity support/generation and maintenance (Schneider, Kitchen, 2007). These strategies not only aid in crime prevention but also people's perceptions of neighborhood safety. For example, an individual generally feels more comfortable and safe in a well lit, well maintained area as opposed to a dark, litter filled graffiti tagged area (Schneider, Kitchen, 2007).

Fear of Crime

Fear of crime plays a large role in how often and individual partakes in physical activity. It has been shown that inner city parents' anxiety about crime in their neighborhood is negatively associated with activity levels of children. Children are not the only community members affected by fears of crime; women and senior citizens are also known to have lower physical activity levels due to fear of crime in their neighborhoods. "Fear of crime studies consistently reveals higher fear levels and increased likelihood of behavioral responses to perceived risk among the elderly, female, nonwhite, low education, low income, and urban segments of the population (Westover, 1985).

Fear of Place

There are various correlations between the scenic quality and perceptions of a neighborhood or park. The broken windows theory of CPTED/DS is relevant when discussing fear of place. "Fear inducing factors in public environments include darkness, desolation, lack of opportunities for surveillance by the general public, lack of maintenance and poor environmental quality" (Eck & Sideris, 2007, pp. 380). Positive associations of perceived security in a park setting are linked to the amount of grass visible, lighting, fences, and surveillance ability (Schroeder & Anderson, 1984).

Summary

The built environment is a key component in examining obesity, physical activity, access to healthy food, and access to public recreation space, and crime for low income, minority communities. This chapter highlighted income inequality and its role in opportunities for health in terms of access to healthy food, access to public parks and crime. Previous research has linked obesity and the built environment, obesity and access to healthy food and recreation sites, and obesity and crime; however it has failed to include all three aspects in determining health outcomes for low income communities.

Residents of low income communities often do not have access to healthy food nor public parks/green space. Low income communities often have incidents of violent crime which prevent community members from partaking in physical activity within their neighborhoods. These factors do not allow for the opportunity for obtaining healthy lifestyles.

CHAPTER 3
RESEARCH DESIGN

Introduction

This chapter describes the research methods and materials for this study. This research uses case study methodology to investigate the barriers low income, minority children face in living healthy lifestyles.

This research encompassed several methods to fully understand the barriers to healthy lifestyles for low income children including the built environment, access to healthy food, access to public parks/green space and neighborhood crime. The methodological steps in this research consist of: 1) selection of a case study neighborhood; 2) analysis of demographic data; 3) analysis of national and state level obesity data; 4) observations of the built environment within the study area; 5) geospatial analysis of distance to healthy food options and public park locations; 6) analysis of crime data.

Site Selection

The first step in this research was selecting a study area that possessed characteristics pertaining to income and race as presented in the research aim. Cuyler Brownville, a neighborhood in the southwestern section of the City of Savannah is a low income, African American Community. This community was selected because, the City of Savannah is known for its extensive park system and the layout of City streets in a grid pattern. The City of Savannah should be highly walkable and its residents should have various opportunities for active, healthy living. Upon initial observation, it was found that there were very few residents in Cuyler Brownville engaged in physical activity outside of their homes within the boundaries of the study area.

The second step in this research was determining a center of the neighborhood using geospatial analysis. This determined center was established in order for the researcher to gauge distance to food sources, recreation and crime density within the study area. The determined center was calculated by using GIS distance on parcel level data. The longest perimeter roads (Martin Luther King Jr. Blvd and Victory Dr.) were measured in miles. The median point of each road was plotted to determine the approximate center of the neighborhood. Given the unique shape of the study area, the approximation was used to aid in visual determination of the given center using a map of the neighborhood. The researcher established 709 West 37th Street as the center of the study area.

Demographic Information

Demographic information pertaining to individuals residing in the study area (race, educational attainment, employment status, commuting to work, household and family income, poverty status and tenure by vehicles available) was obtained using U.S. Census data from the Census 2000 Summary file 4; U.S. Census tract level data from tracts 12 and 23 in Chatham County, Georgia were used. Census tracts generally include between 2,500 and 8,000 persons and are designed to be homogeneous with respect to population characteristics, economic status, and living conditions (U.S. Census Bureau, 2000).

Demographic data was used to evaluate the characteristics of community members within the study area including both adults and children. A profile of general demographic characteristics for the year 2000 was used to examine the following variables: total population; race; educational attainment; employment status; income; poverty status; and vehicles available. Additionally, the U.S. Census American Community Survey was used to examine demographic information for the year 2006.

National poverty levels and poverty level guidelines were obtained from U.S. Census data on income and wealth for the year 2000. This data was used to make comparisons of poverty and income between U.S. national averages and the averages of the study area.

Obesity

The definition of obesity was provided by the Centers for Disease Control and Prevention as ranges of weight that are greater than what is generally considered healthy for a given height. The terms also identify ranges of weight that have been shown to increase the likelihood of certain diseases and other health problems (Centers for Disease Control and Prevention, n.d.).

Obesity data was obtained at both the state and national levels. Georgia obesity data came from Georgia Department of Human Resources, Division of Public Health data for the Coastal District. Georgia 2007 overweight and obesity data was obtained through the Centers for Disease Control and Prevention BRFSS. Obesity rates for children in Georgia were obtained through healthyamericans.org.

Data for the prevalence of physical inactivity among adults in Georgia public health districts in the years 2000 through 2004 was obtained from OASIS, the state's web based tools for public health and public policy data analysis (Georgia Office of Health Information and Policy, 2003-2009). Georgia chronic disease indicators were obtained through the Center for Disease Control and Prevention.

National trends in childhood obesity as well as prevalence of obesity by race/gender were obtained using the National Health and Nutrition Examination Survey (NHANES) from years 1976 through 2006 from the Center for Disease Control and Prevention website.

Obesity data was used to draw conclusions about the health of the youth population living within the boundaries of the study area.

The Built Environment

The built environment consist of all features of the environment that are modified by humans; including homes, schools, workplaces, parks, industrial areas and highways (Wakefield, 2004). In order to evaluate the current condition of the built environment within the study area, various features were observed. Features observed consisted of property conditions, sidewalk conditions, location of existing public parks/green space, condition of existing public parks/green space. Additionally, location of food markets and full service grocery stores were observed.

Observations within the study area were used to evaluate scenic quality of the built environment. Scenic was defined by the Merriam Webster Dictionary as meaning "of or relating to natural scenery" (Merriam-Webster, 2009). Conditions of the neighborhood were evaluated as fair, poor, dilapidated, vacant or condemned. These conditions were applied to building structures, sidewalks, parks/green space and vacant lots. These observations were performed by one researcher and photographs were taken. This data was used to evaluate the built environment within the study area.

Aerial photography was obtained from Google Earth and used to evaluate characteristics of the neighborhood such as tree canopy and street connectivity.

Zoning data was obtained from the Metropolitan Planning Commission of Savannah. Zones within the study area were analyzed using the clip feature of GIS software. Zoning codes were obtained from City of Savannah Zoning Regulations found on the Metropolitan and Planning Commission's website.

Access to Healthy Food

The North American Industry Classification System (NAICS) codes and definitions were modified to describe the types of food stores and food service places located in a two mile radius from the determined center of the neighborhood (Morland, 2002). Full service grocery stores

were defined as, " stores, commonly known as supermarkets, food stores, and grocery stores, primarily engaged in the retail sale of all sorts of canned foods and dry goods, such as tea, coffee, spices, sugar, and flour; fresh fruits and vegetables; and fresh and prepared meats, fish, and poultry" (Occupational Safety and Health Administration, 2008). Food markets were defined as non-franchised stores, primarily engaged in the retail sail of foods, canned and dry goods. Convenience stores attached to gas stations were not included in the study.

Fast food restaurants were defined as franchised eating establishments primarily engaged in the retail sale of prepared food and drinks for on-premise or immediate consumption (Occupational Safety and Health Administration, 2008).

Observation, GIS data analysis, and secondary data from the "Grocery Store and Concentrated Uses Feasibility Report for Martin Luther King, Jr. Boulevard and Montgomery Street Corridor" (prepared by Savannah State University College of Business Administration) were used to locate food stores and food service places, such as fast food restaurants and small food markets. These sources of unhealthy food were then analyzed using GIS distance tools to determine the distance from the determined center of the neighborhood.

Secondary data from the Grocery Store and Concentrated Use Feasibility Report was also used to examine the needs of individuals within the study area in terms of a "full service" grocery store. This report was also used as a guide for a proposed location for an affordable, full service grocery store to be patronized by citizens of the study area.

Data regarding food options was used to assess the existing opportunities and barriers for healthy lifestyles for children residing within the study area.

Access to Public Parks/Green Space

Access to Public Parks/Green space was defined as an open play area readily accessible for use by the public, including municipal and neighborhood squares, athletic fields, parks and playgrounds (Gomez, et al., 2004, pp.878).

A public park/green space was defined as a public space within the study area that was used for human recreation and enjoyment containing green space and at least one of the following: seating structures; picnic area/pavilion; playground equipment; basketball court; tennis court; baseball/softball fields.

Parks/green spaces were located through observation and official City of Savannah maps. Parks within a 0.5 mile radius from the center of the neighborhood were examined. The distance was measured using GIS software from the determined center of the neighborhood, 709 West 37th Street.

The safety of parks/green space was measured by observation using the application of five CPTED/DS strategies: Territoriality, access control, maintenance, natural surveillance and activity support/generation. The definition of territoriality is where physical design and management extend the sense of ownership even when the space is not personally owned. Access Control is defined as the delaying, channeling, or denying entry to crime targets. Maintenance is the upkeep of property, free of litter, debris, broken windows, graffiti, etc... Natural surveillance is the ability of individuals to observe a particular area without the use of technology. Activity support/generation is the act of bringing individuals to a particular area to engage in some form of activity, or an activity/attraction that attracts individuals. (Schneider, Kitchen, 2007)

Crime

Data for crimes committed in the study area were obtained from the Savannah Metropolitan Police Department interactive crime mapping website. Crime data was obtained from January 1, 2008 through January 13, 2009 in 28 day increments.

The Savannah Metropolitan Police Department interactive crime mapping website displays a map of the City of Savannah in which one can enter an address and locate crimes within a given radius. This research used the determined center of the neighborhood (709 West 37th St.) as the address point within the study area and a one mile radius to show crimes within the study area. Only violent crimes were investigated: Aggravated assault, homicide, rape and robbery.

Definitions of violent crime were obtained from the Federal Bureau of Investigation's Unified Crime Reporting (UCR) definitions. Aggravated assault is defined as an unlawful attack by one person upon another for the purpose of inflicting severe or aggravated bodily injury…this type of assault is usually accompanied by the use of a weapon or by other means likely to produce death or great bodily harm. Attempted aggravated assault that involves the display of—or threat to use—a gun, knife, or other weapon is included in this crime category because serious personal injury would likely result if the assault were completed. The UCR was also used to define homicide as the willful (non-negligent) killing of one human being by another; robbery as the taking or attempting to take anything of value from the care, custody, or control of a person or persons by force or threat of force or violence and/or by putting the victim in fear; and rape as the carnal knowledge of a female (or male) forcibly and against his/her will.

All crime data obtained through the Savannah Metropolitan Police Department website was compiled using spreadsheet software and used to determine crime density within the study area.

Summary

This chapter focused on the organization and procedures used to determine the barriers to healthy lifestyles for low income children within the study area. The researcher selected a neighborhood in Savannah, Georgia: Cuyler Brownville. The researcher developed the case study after evaluation of public health, planning and sociological documents that showed correlations to income, the built environment and adverse health outcomes. These documents came from sources including the Centers for Disease Control and Prevention, The Journal of Public Health, Journal of Planning Education and Research, and the Journal of Physical Activity and Health.

Various forms of data and data analysis were used in this research. Secondary data was obtained in order to investigate childhood obesity, access to healthy food options, access to public parks/green space and neighborhood crime. Place based observation allowed for the conditions of the built environment within the study area to be examined (e.g., public park location, public park condition). Geospatial data analysis allowed for an accurate calculation of distances of public parks/green space and healthy and unhealthy food locations to/from the determined center of the study area. Combining secondary data, place based observations and geospatial analysis allowed the researcher to fully understand the components that fundamentally create barriers to a healthy lifestyle for low income, minority youth within the study area.

CHAPTER 4
FINDINGS

Introduction

This chapter includes the findings of the case study of the Cuyler Brownville neighborhood. The results are presented in eight sections: 1) history; 2) the study area; 3) a summary of characteristics of the population; 4) an analysis of the study area's built environment; 5) assessment of unhealthy food choices and options; 6) assessment of public parks/green space within the study area; 7) analysis of crime data within the study area; 8) CPTED/DS components throughout neighborhood and public parks/green space. These findings offer an assessment of the barriers to a healthy lifestyle for low income children.

Savannah, Georgia is a historic, beautiful, quaint, southern, highly walkable (Oglethorpe "grid" plan), city in the South East, United States. When one travels by car to the historic district of the city, their voyage can lead them down various paths, one of them being Martin Luther King, Jr. Boulevard. When one makes the right turn off of Victory Drive onto "MLK" they will see historic Cuyler Brownville on the left. Cuyler Brownville is a predominately low income, historic, African American residential community located on the west side of the City of Savannah. After initial observation, one will notice this is not the Savannah as seen in photographs where tourists flock to: Welcome to Cuyler Brownville (Figures 4-1, 4-2).

History

Cuyler Brownville is a historic African American community located in Savannah, Georgia. According to General Oglethorpe's 1733 original plan for the City of Savannah, the neighborhood was identified as farm lots/agriculture areas (Historic Savannah Foundation Form 10-900a).

"The development of the Cuyler-Brownville neighborhood is directly related to the migration of former slaves from the rural areas to Savannah following the Civil War…Two African American neighborhoods developed during this period within the southern half of the district" (Historic Savannah Foundation Form 10-900a). These two districts were Dillontown, a 100-acre tract of land, and Brownville, located between Dillontown and Laurel Grove Cemetery (present day Ogeechee Road). Both tracts of land were laid out in a grid pattern matching that of the Oglethorpe Plan of 1733. Similar to Oglethorpe's plan, Dillontown included squares, Brownville did not.

West Broad Street (present day Martin Luther King, Jr. Boulevard) makes up the eastern boundary of the Cuyler Brownville neighborhood. West Broad Street was the first paved street in Savannah and has a rich history all within its own right. Many African American owned businesses were located along West Broad Street including the Guaranty Life Insurance Company and the Colored Millery Store (464 West Broad Street) (Hoskins, 2002). "Black West Broad Street and the fortunes of black life in general, cannot be understood without reference to segregation. White supremacy was at every turn unsympathetic to the plight of African Americans…Due to the repercussions of segregation, African Americans in Savannah were obligated to create their own economy independent of white influence. "Black Savannah" would become home to schools, barber shops, cafes and restaurants, coal and wood yards, fish and poultry markets, drugstores, a furniture store and many other businesses" (Hoskins, 2002, pp.29-31).

The population of Cuyler-Brownville was predominately black in the beginning of the twentieth century. "Residents of the neighborhood remember the Cuyler-Brownville area as an "exclusive" neighborhood inhabited by the black bourgeoisie" (Hoskins, 2002, pp.23). A

newspaper owner, banker, funeral director, real estate agent, glazier, pastor, and many others were citizens of this "black enclave" (Hoskins, 2002, pp. 23). In addition to West Broad Street businesses, Cuyler Brownville was home to corner stores (1900 – 1920), a masonry store (late 1920's early 1930's), a gas station (1937), two churches, Charity Hospital (1931) and the Cuyler Street School (1914) (Hoskins, 2002). The Cuyler Street School was the first public school in Savannah open to African American students (Hoskins, 2002)

Cuyler Brownville was considered to be a thriving African American community up until desegregation. At this time, those African Americans who had the ability to relocate elsewhere in middle class neighborhoods left the community, leaving behind those individuals who did not have great financial resources.

Study Area

Cuyler Brownville is a neighborhood located in the southwestern section of the City of Savannah. The neighborhood is bordered by Anderson Street on the north, Victory Drive on the south, Martin Luther King Jr. Boulevard on the east, Ogeechee Road, Kullock and Block Streets on the west (Laurel Grove Cemetery) (Figure 4-2). The determined center of the neighborhood was established as 709 West 37th Street (Figure 4-3).

Existing zoning (Figure 4-4) within the study area are as follows: 1) community business (B-C); 2) general business (B-G); 3) neighborhood business (B-N); 4) four family residential (R-4); 5) residential business (R-B); 6) residential-institutional-professional (R-I-P); 7) multifamily residential (25 units/acre) (RM-25); 8) multifamily residential (37 units/acre) (RM-37); 9) planned unit development institutional (PUD-IS-B) (Savannah Metropolitan Planning Commission, 2005). .

Existing land uses within the neighborhood consist of the following: 1) duplex; 2) institutional; 3) mixed use; 4) multifamily residential; 5) open space; 6) single family residential; 7) vacant lot (Savannah Metropolitan Planning Commission, 2005).

Characteristics of the Population

Cuyler Brownville was selected as a study area due to the researcher's knowledge of neighborhood characteristics pertaining to income and race. Data obtained from the 2000 U.S. Census confirms the hypothesized characteristics of the study area.

According to the 2000 Census, the total population for census tracts 12 and 23 was 3,544 persons, including 827 children aged 0-17 (U.S. Census, 2000).

In 2000, the two census tracts combined showed 28 individuals classified as White alone and 3,456 as black or African American alone. By examining 2006 American Community Survey data, research showed poverty continues to be a major issue plaguing residents of Cuyler Brownville.

Data from the 2000 U.S. Census shows that census tract 12 had 52.6 percent of families living below the poverty level and census tract 23 had 33.7 percent of families living below the poverty level. The poverty rate for census tract 12 is more than four times higher than the year 2000 national poverty rate of 11.3 percent (Figure 4-5).

Consistent with the rate of poverty, residents of Cuyler Brownville also had low levels of education. In census tracts 12 and 23, more than 70 percent of the residents have twelve years or less of education; 78.5 percent and 72.7 percent respectively. In census tract 12, 21.5 percent of the population has less than a ninth grade education. (Figure 4-6). According to the Census 2000, 80 percent of the population, age 25 and older, had a high school diploma or more and 24 percent had completed at least a bachelor's degree (U.S. Census, 2000).

For the year 2000, national median (real) household income was $42,148 compared to $9,720 for census tract 12 and $18,188 for census tract 23 (Figure 4-7). Employment rates were also investigated showing that the majority of the population (16 years and older) in the study area are out of the labor force. Additionally, car ownership was investigated. Regarding available vehicles, census tract 23 has 24 percent of individuals having no car available; the number is almost double for census tract 12 with 40.7 percent of individuals having no car available.

The population in Cuyler Brownville is predominately African American, have rates of poverty higher than the national average, low educational attainment and low median income, and almost half of the population is without private transportation.

Obesity

Health data directly related to the study area was not obtained. National data and Georgia State data were obtained in order to draw conclusions about current health conditions and predicted health outcomes for the study area. In 2004, the state of Georgia ranked 13th in percentage of childhood obesity with 16.4 percent of the youth population (age 10-17) being obese (Healthyamericans.org, 2009).

It was observed that individuals in the study area walked throughout the neighborhood as a means of transportation rather than a form of physical activity. Older individuals in public parks/green space partook in recreational activities such as basketball; children were rarely observed on playground equipment.

National Obesity Data

Childhood obesity rates are rapidly increasing across the United States. “The percentage of children and adolescents who are overweight has more than doubled in the past 30 years” (U.S. Department of Health and Human Services, n.d.). Results show that nationally, obesity rates are

disproportionate by race. Previous studies indicate the prevalence of obesity in black girls can in some cases be twice as high as obesity rates in white girls. "Data from NHANES (Figure4-8) surveys (1976–1980 and 2003–2006) show that the prevalence of obesity has increased: for children aged 2–5 years, prevalence increased from 5.0 percent to 12.4 percent; for those aged 6–11 years, prevalence increased from 6.5 percent to 17.0 percent; and for those aged 12–19 years, prevalence increased from 5.0 percent to 17.6 percent (Centers for Disease Control and Prevention, 2008).

Georgia Obesity Data

In the State of Georgia, among black individuals in 2007, 31.4 percent were considered overweight (having a BMI of 25-29.9) and 35.5 percent were considered obese (having a BMI of more than 30). Data shows that those individuals making less than $24,999.00 per year have higher rates of obesity (Figure 4-10) (BRFSS Prevalence Data, 2008).

Modifications of behavior, such as increased fruit and vegetable consumption and increased physical activity have been shown to prevent obesity and aid individuals in maintaining a healthy weight.

Savannah, Georgia is located within the Coastal Georgia Health District (determined by the Chatham County Health Department); within this health district it is reported that between 30.0 – 38.6 percent of black adults are physically inactive compared to 18.1 – 23.7 percent of white adults (4-1).

The Georgia report on physical activity confirms in 1999, lack of regular physical activity caused an estimated: 32 percent of all cases of heart disease; 18 percent of all cases of high blood pressure; 32 percent of all cases of stroke; 32 percent of all cases of colon cancer; 18 percent of all cases of diabetes; 32 percent of all cases of osteoporotic falls with fracture (Georgia Physical Activity Surveillance Report, 2006).

The Built Environment

Cuyler Brownville has a land area of approximately 2 square miles; mostly residential units. Through observation it was found that the study area has a mixture of residential, commercial and institutional structures: old, new, fair and poor (Figures 4-12, 4-13, 4-14, and 4-15).

Residences throughout Cuyler Brownville neighborhood consist of one and two story Row Houses, Hall Parlor, Georgian Cottage, Central Hallway, Double Pen, Side-Hallway, Bungalow, Queen Anne, and Shotgun (Historic Savannah Foundation Form 10-900-a). There have been redevelopment efforts as well as home owner programs promoted by the City of Savannah within Cuyler Brownville which has resulted in many structures being rehabilitated and developed. The new Cuyler Brownville neighborhood bordering Floyd "Pressboy" Adams Park is an example of these redevelopment efforts.

There are many institutional uses within Cuyler Brownville, many consisting of churches. These churches are in fair condition and many provide various services for the study population.

The study area has street connectivity based on the grid street pattern. For street analysis, the main arteries of the neighborhood were examined (Martin Luther King Jr. Boulevard, Anderson Street, Ogeechee Road, West 37th Street and Victory Drive) (Figure 4-2).

Martin Luther King Jr. Boulevard, West 37th Street and Victory Drive are four lane roads (Figure 4-11); the remaining roads in the neighborhood consist of two lanes, sometimes one way streets. The speed limit within the Cuyler Brownville neighborhood is 20 miles per hour. The speed limit along perimeter roads is greater; the speed limit along Martin Luther King Jr. Boulevard and West 37th Street is 35 miles per hour. Anderson Street, Ogeechee Road and Victory Drive all have speed limits of 30 miles per hour. On street, parallel parking is generally done by residents owning cars. On street parallel parking is allowed on both sides of the street

along West 37th Street, Anderson Street, and Martin Luther King Jr. Boulevard. There are no on street parking spots located on Victory Drive and parking along Ogeechee Road is located along the northbound side after West 37th Street.

The sidewalks within the study area were classified as good, poor, and non-existent (Figure 4-16). There were no correlations between the conditions of properties and their adjoining sidewalks. For example, a property in poor condition in some cases had a sidewalk in good condition. Sidewalks in good condition were clear of clutter (garbage cans, cars, etc.) and easy to walk along. Sidewalks in poor condition were cracked, uneven and contained grass or tree roots. Areas of roadways where sidewalks were non-existent often contained foot paths.

Access to Healthy Food

The Grocery Store and Concentrated Uses Feasibility Report was used to determine the need for healthy food options within the Cuyler Brownville neighborhood. Findings from the Grocery Store and Concentrated Uses Feasibility Report's interviews show that each respondent affirmed the need for a neighborhood supermarket. One respondent stated that a large number of area residents are unemployed or underemployed persons of low to moderate incomes. (Savannah State University, 2006)

Analysis of existing small grocers found five small grocers within walking distance of the center of the study area (Figure 4-17). Four of the five small grocers were investigated in Savannah State University's Grocery Store and Concentrated Uses and Feasibility Report. These four small grocers are located at 1407 Montgomery Street (Chu's Market), 0.45 miles from the center of the neighborhood; 1820 Montgomery Street (T.M. Supermarket), 0.32 miles from the center of the neighborhood; 2401 Montgomery Street (Milan Food Market), 0.33 miles from the center of the neighborhood; and 2402 Bull Street (David's Market), 0.55 miles from the center of the neighborhood. Of the four grocers, only three carried fresh produce, but was shown to be in

limited quantities. One grocer was found to carry fresh meat, however it was noted that this meat was "not very good". Another grocer carried frozen and smoked meats. Three out of the five grocers were found to not have accessibility. Zero out of the four small grocers had a deli, one grocer was shown to have a limited bakery, and one grocer carried seafood. (Savannah State University, 2006) The fifth small grocer within walking distance of the center of the study area, Yash Food Mart, located at 701 West 37th Street (.01 miles from the center of the neighborhood), recently opened in the beginning of 2009; availability of fresh produce and meat was not established. The average distance to the five food markets is 0.72 miles. Chooses #5 (Figure 4-18) is a food market that was examined in the Concentrated Use and Feasibility Report, however this research concluded that Choose's #5, being 0.85 miles from the determined center, was not within a reasonable distance for Cuyler Brownville residents.

"After their in-depth survey of existing grocers operation in the area, the consultants determined that none of the current operations would satisfy customer's needs for a full-scale grocer. At best, they are merely convenience stores satisfying the immediate emergency or impulse shopping needs of nearby residents"(Savannah State University, p.23, 2006)

There is currently one full service grocery store located at 311 East Gwinnett Street (Figure 4-18) which is 1.5 miles away from the center of the neighborhood; an individual walking an average speed of 2 – 3 miles per hour would arrive at this location (one way) in 30 to 45 minutes. A round trip to the grocery store on foot from the center of the neighborhood would take approximately one hour to one hour and a half.

Observations show that fast food restaurants were not located within the boundaries of the study area. Six fast food restaurants (Figure 4-19) were located outside the study area and within a two mile radius of the center of the neighborhood: Burger King ® located at 601 Martin

Luther King Jr. Boulevard (0.90 miles from determined center of neighborhood); Church's Chicken ® located at 1503 Montgomery Street (0.41 miles from determined center of neighborhood); KFC ® located at 405 W. Gwinnett Street (0.77 miles from determined center of neighborhood); McDonalds ® located at 2701 Montgomery Street (0.43 miles from determined center of neighborhood); Popeye's Chicken and Biscuits ® located at 605 Martin Luther King Jr. Boulevard (0.90 miles from determined center of neighborhood); and Wendy's ® located at 615 Martin Luther King Jr. Boulevard (0.91 miles from determined center of neighborhood). The average distance to fast food restaurants from the center of the neighborhood is 0.33 miles.

Access to Public Parks/Green Space

There are a total of five parks within a 0.5 mile radius of the center of the study area (Figure 4-20). One public park/green space is located within the study area. Floyd "Pressboy" Adams Park is located at West 32nd Street between Cuyler and Brownsville Streets and is 0.27 miles from the center of the study area (Figure 4-27). Tompkins Gym Playground, privately owned but utilized by neighborhood residents, is 0.37 miles from the center of the study area located at West 39th Street and Ogeechee Road (Figure 4-29). Cann Park is located 0.46 miles from the center of the study area on West 46th Street between Bulloch and Stevens Streets (4-26). Myers Park, located along Victory Drive between Burroughs and Florence Streets is 0.34 miles from the center of the study area (Figure 4-28). Wells Square, 0.24 miles from the center of the study area, is located at the corner of Martin Luther King Jr. Boulevard and West 39th Street (Figure 4-30).

Four of the five parks are very well maintained. The features of Cann Park include a baseball/softball field, basketball court, playground equipment, swings and open green space (Figure 4-21). Floyd "Pressboy" Adams Park contains a gazebo, picnic s, benches, water fountains, a decorative fountain and open green space (Figure-22). Myers Park contains a

gazebo, benches and picnic s (Figure 4-23). Tompkins Gym contains a pavilion, picnic s and playground equipment in the rear of the building (Figure 4-24).

Wells Square is less maintained than the other four parks. Wells Square contains a basketball court, pavilion, picnic s, playground, benches, and numerous trash receptacles (Figure 4-25).

Large numbers of children do not frequent parks in the area. Children that were observed in the public park/green space setting were unsupervised.

Neighborhood Crime

Neighborhood crime was measured using the Savannah Chatham Police Department's interactive crime mapping tool. Crimes were examined within a one mile radius from the determined center of the neighborhood (709 West 37th Street).

Within this radius it was found that there were a total of 217 violent crimes from January 1, 2008 to January 13, 2009. Of these 217 violent crimes, 85 were aggravated assaults, 6 were homicides, 8 were rapes and 118 were robberies (4-2).

Results show a majority of aggravated assaults and robberies taking place along the 37th Street corridor (Figure 4-33). This corridor is predominately residential; a few of these residences have recently been renovated and are in fair condition. 37th Street links Interstate 16 to greater downtown Savannah; heavy amounts of traffic travel this route.

Additionally, aggravated assault and robberies were clustered in the western part of the neighborhood (the section bordered by Block Street, Kullock Street and Ogeechee Road). This is a residential area with property conditions ranging from poor to fair (Figure 4-34).

The corner of Victory Drive and Martin Luther King Jr. Boulevard had a cluster of robberies within the year time frame; at least 5. There are residential uses and three eating establishments on this corner, Willie Bells, Shabazz Seafood Restaurant and McDonalds ®.

CPTED Strategies throughout Neighborhood and Public Park/Green Space

This section will discuss each observed principle of CPTED/DS in relation to the neighborhood as a whole and each individual park in a 0.5 mile radius from the center of the study area.

Neighborhood CPTED Strategies

Access Control is an element of CPTED/DS; it is the delaying, channeling, or denying entry to crime targets (Schneider, Kitchen, 2007). Cuyler Brownville is a permeable community. An individual on foot, bicycle, or in a car can easily access all streets, particularly the major arteries, Martin Luther King Jr. Boulevard, Ogeechee Road, Victory Drive and Anderson Street. Savannah, Georgia is a city that attracts many tourists, so various individuals are constantly traveling throughout the area. Martin Luther King Jr. Boulevard is one of the major roads individuals can travel to visit the historic portion of the City.

Activity Support/Generation in the study area is mainly located at institutional uses, bus stops, and neighborhood parks.

Maintenance is another CPTED/DS strategy. There are many different structures within the neighborhood ranging from dilapidated to fair (Figures 4-12, 4-13, 4-14, and 4-15). There are several boarded up, dilapidated homes with graffiti on the exterior as well as poorly maintained yards and sidewalks. There is not an abundant amount of trash on the streets within the neighborhood. It was found that structures that have been recently built or renovated and are in fair condition and are well maintained.

Surveillance can be conducted both formally and informally. The formal surveillance that exists within Cuyler Brownville consists of presence of police officers as well as neighborhood watch programs. Due to the fact that Cuyler Brownville is a dense, residential neighborhood, there are many opportunities for informal surveillance.

Territoriality is where physical design and management extend the sense of ownership even when the space is not personally owned. Based on observations, there does not appear to be great territoriality within the Cuyler Brownville neighborhood. The exception would be the new section of the neighborhood containing Floyd "Pressboy" Adams Park.

Public Park/ Green Space CPTED Strategies

Cann Park is located in a residential area outside the perimeter of the study area (Figure 4-26). Cann Park is enclosed by West 46th, Stevens, West 47th and Bulloch Streets. There are five access points to enter Cann Park; a chain link fence creates a boundary along the east and south sides of the park. The northern and western sides of the park are open and are easily accessible. Activity is concentrated on the basketball court, baseball/softball field and playground equipment (Figure 4-21). Cann Park is well maintained, free of litter. Trash receptacles are scattered throughout the park. Surrounding residences and park patrons provide informal surveillance of the park. Formal surveillance is conducted by a woman who oversees the park. Territoriality is observed mostly from individuals on the basketball court.

Floyd "Pressboy" Adams Park is a public square located within new development of Cuyler Brownville (Figure 4-27). This park is located in the center of the block, surrounded by residences. The park contains benches, a gazebo, decorative fountain as well as water fountains for drinking (Figure 4-22). Results show that there is not any particular form of access control within this park; there is not a fence, only pathways (sidewalk) around the perimeter of the park as well as four entrances leading to the gazebo. Based on observations, activity support/generation for children takes place at the decorative fountain. It was observed on three different occasions that children were playing in the water in the fountain. Floyd "Adams" Pressboy Park is well maintained. There are several trash receptacles located throughout the park; the park is free of litter or other debris.

Surrounding residences provide for informal surveillance of the public park; however it was noted that the majority of the residences surrounding the park had curtains/blinds that were not open. In addition, there is often a police car located at the northwest corner of the park in front of one of the residences. Results show that not many individuals frequent this park, therefore territoriality was not detected.

Myers Park is located on the southern bordering street (Victory Drive) of Cuyler Brownville and is surrounded by residential uses (Figure 4-28). Vehicles park along three perimeter streets of the park (Florence, West 44th and Burroughs). Access control at this location is done by the use of vegetation and 3 ft. wooden posts, which compel pedestrians to enter the park through designated entrances (sidewalks). Myers Park contains several benches and a gazebo which may attract individuals (Figure 4-23). People observed at this park were not patronizing the facility, but rather passing through to get to their destination. Maintenance at this park is fair. There are trash receptacles located throughout the park and the area is free from litter and debris. Surrounding residences had blinds/curtains open, thus providing informal surveillance of Myers Park. Few individuals were seen in the park.

Wells Square is located on the corner of Martin Luther King Jr. Boulevard and West 39th Streets (Figure 4-30). A fence along the north, east and west sides of park and sidewalks create seven access points to the square. This location is accessible along the southern side of the park as well as an entrance on both the northeast and northwest corners. Wells square contains a pavilion, benches, a playground and a basketball court, all activity generators (Figure 4-25). The basketball court was observed to get the most use out of all features of the park. Trash receptacles are located throughout the park; trash is scattered by water fountains and in vegetation and graffiti is on a few lamp posts. The surrounding uses along the perimeter of the

park do not allow for natural surveillance (Figure 4-31). The commercial uses on the east side of the park are automotive uses (repair and sales), there is an institutional use to the north and residential uses along the west and south sides of the square. The high shrubbery along the perimeter of the park does not allow motorists or pedestrians to view inside of the park. Territoriality is noticed in the park by individuals who frequently sit along the benches on the east side of the park.

Tompkins Gym Playground is outside the study area boundaries, located on the southwest section of Ogeechee Road (Figure 4-29). Tompkins Gym Playground is accessible from the main facility (Tompkins Gym) on Ogeechee Road and a fence opening along Kollock Street. Tompkins Gym Playground is surrounded by the main recreation facility, residences and Laurel Grove Cemetery. The playground contains a pavilion, picnic, playground equipment and trash receptacles (Figure 4-24). The location of the playground does not allow for natural surveillance unless an individual is traveling along Kullock Street; besides this traffic, individuals in the playground area cannot be easily observed. Summary

Cuyler Brownville has always been a predominately African American community. Cuyler Brownville was at once an exclusive neighborhood home to various black owned businesses. Currently, the community is plagued with poverty, educational attainment is low and the median income is below the national average. The neighborhood lacks healthy food options, such as a full service grocery store. The neighborhood does however contain five food markets that provide limited, if any, healthy food options. There is one full service grocery store located in the southwestern part of the City of Savannah; this store is 1.5 miles away from the center of the neighborhood.

Public parks and green spaces for children in the Cuyler Brownville neighborhood are accessible; within the five parks are two basketball courts and three playgrounds. In order for children to access the public parks with basketball courts and playgrounds they must cross busy roadways.

Table 4-1. Prevalence of physical inactivity among adults in the Coastal Georgia Public Health District, years 2000-2004

Category	Percentage
Male	18.1 - 23.7
Female	27.4 - 32.5
White	19.9 - 24.1
Black	30.0 - 38.6
Age 18-44	18.5 - 23.5
Age 45-64	27.3 - 34.4
Age 65 and over	29.0 - 39.0

Note: Obtained from http://oasis.state.ga.us/oasis/brfss/qryBRFSS.aspx

Table 4-2. Violent crimes within the study area from January, 1, 2008 through January13, 2009

	Aggravated assault	Homicide	Rape	Robbery
01/01/08 - 01/29	6	0	3	5
01/30 - 02/27	3	0	0	7
02/28 - 03/27	4	1	0	1
03/28 - 04/25	5	0	1	3
04/26 - 05/24	7	1	1	14
05/25 - 06/22	13	1	0	9
06/23 - 07/21	7	0	0	6
07/22 - 08/19	6	1	1	5
08/21 - 09/18	8	0	1	12
09/20 - 10/18	4	1	1	26
10/19 - 11/16	9	0	0	9
11/17 - 12/15	7	0	0	13
12/16 - 01/13/09	6	1	0	8
Total	85	6	8	118

Note: Obtained from http://www.scmpd.org/cityweb/SCMPDorg.nsf/238f728e195a9dbb85256ae90052f4a9/7258e5dfeea7e221852574530068ff7c?OpenDocument

Table 4-3. Violent crimes for the Savannah Chatham Metropolitan Police entire jurisdiction

Type of crime	Total for year 2008
Homicide	26
Rape	37
Commercial robbery	116
Street robbery	620
Residential robbery	68
Aggravated assault with gun	212
Aggravated assault other weapon	206
Total violent	1285

Note: Obtained from
http://www.savannahpd.org/cityweb/scmpdorg.nsf/238f728e195a9dbb85256ae90052f4a9/84ef77c07e7a6dff852574ce00582e4a?OpenDocument

Figure 4-1. A map of the study area, Cuyler Brownville, and the historic district of Savannah, GA. [Map provided by Google Earth, ® 2009].

Figure 4-2. Study area, Cuyler Brownville in Savannah, GA. [Map provided by Google Earth, ® 2009].

Figure 4-3. Study area determined center. [Map provided by Google Earth, ® 2009].

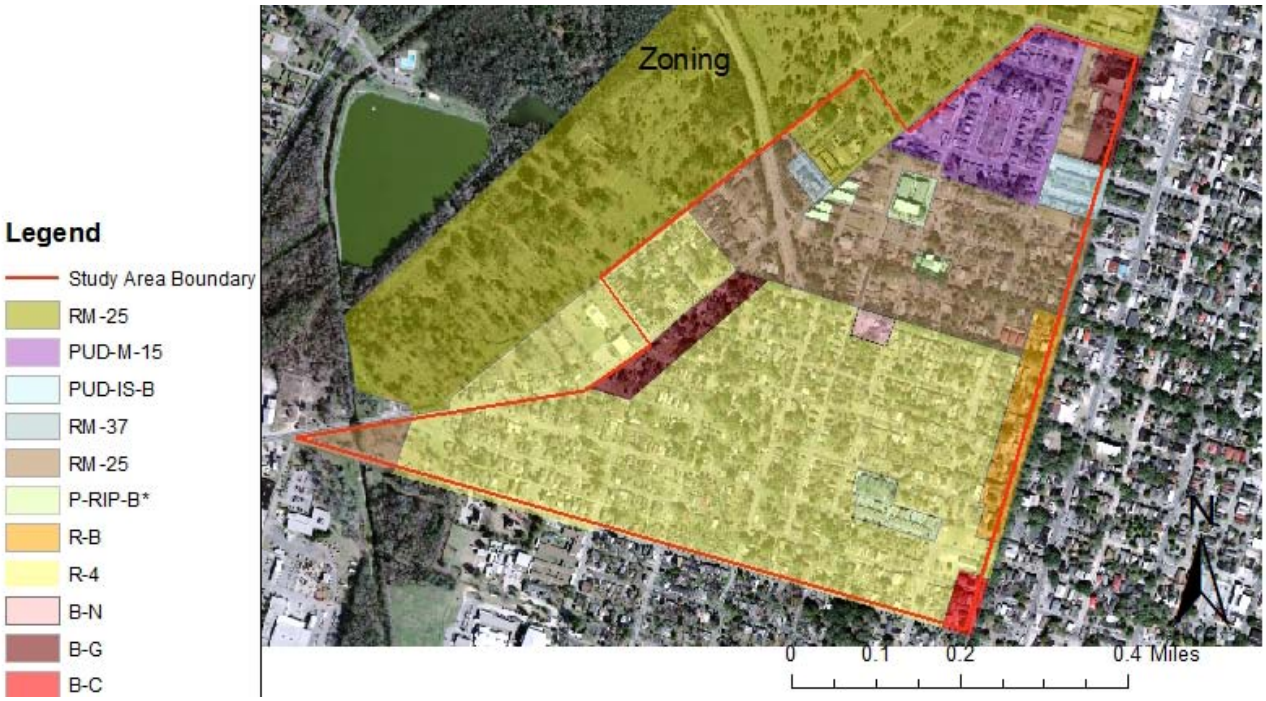


Figure 4-4. Zoning map of study area. [Source: Data for map provided by the City of Savannah].

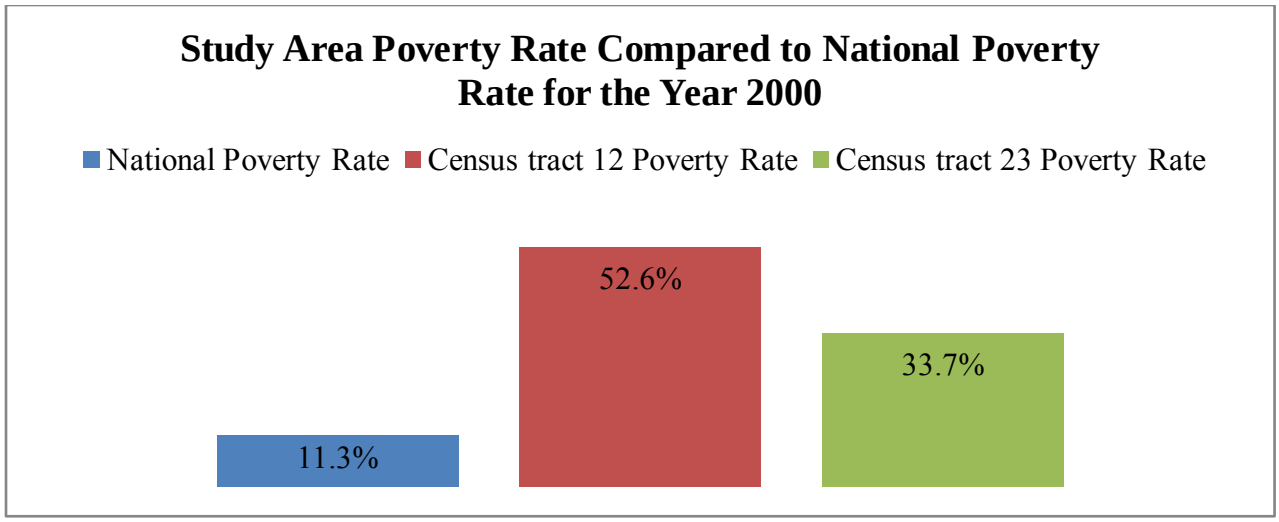


Figure 4-5. Poverty status of study area residents compared to national level data. [Source: http://factfinder.census.gov/servlet/QTCharIterationServlet?_ts=258505151191 http://www.census.gov/Press-Release/www/2002/cb02-124.html].

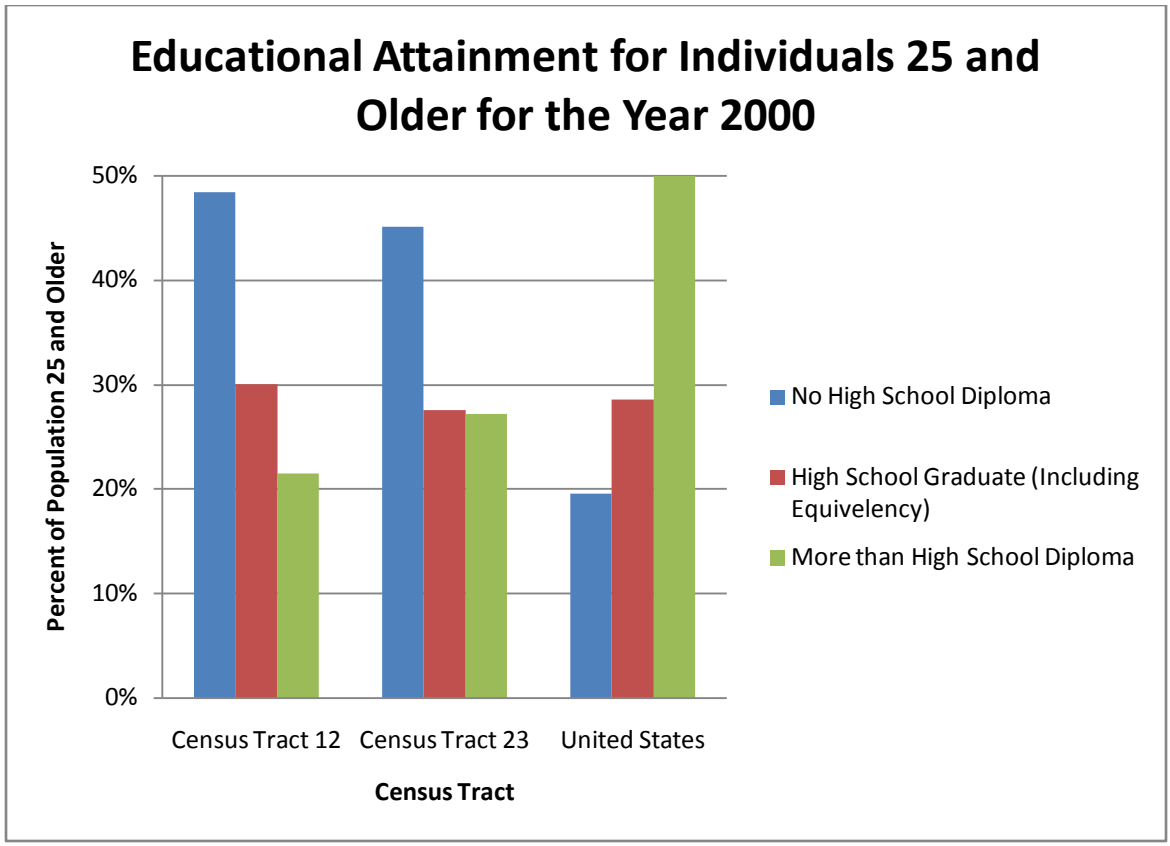


Figure 4-6. Educational attainment of study area for the year 2000. [Source: http://factfinder.census.gov/servlet/ http://www.census.gov/prod/2003pubs/c2kbr-24.pdf].

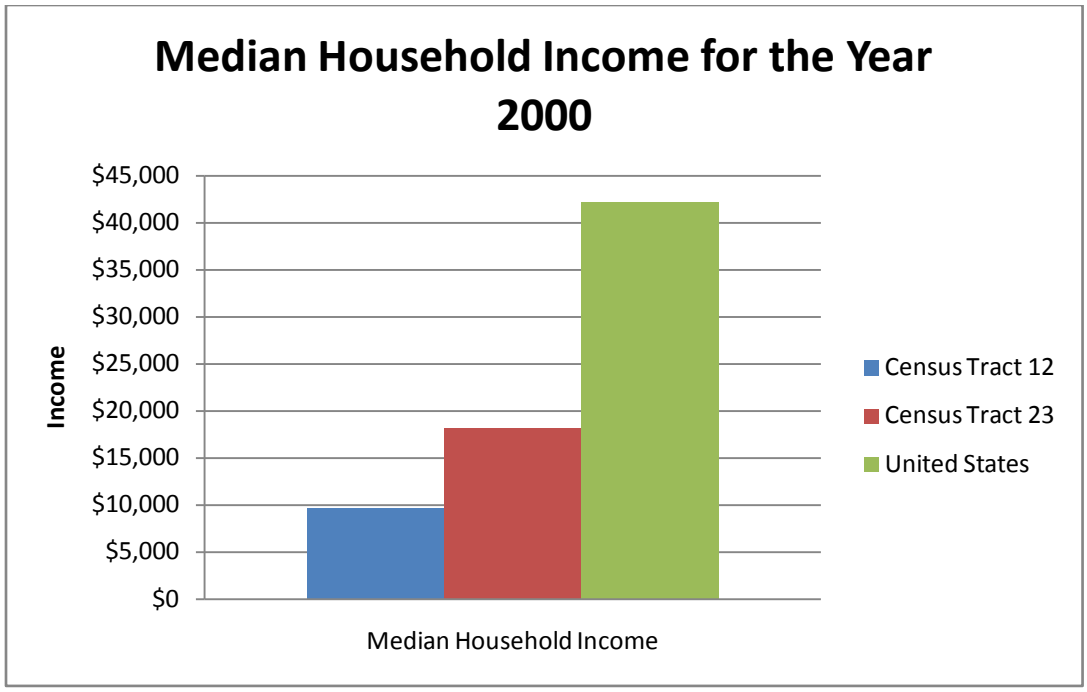


Figure 4-7. Median household income of the study area compared to the national median income for the year 2000. [Source: http://factfinder.census.gov/servlet/QTCharIterationServlet?_ts=258505151191 http://www.census.gov/hhes/www/income/income00/statemhi.html].

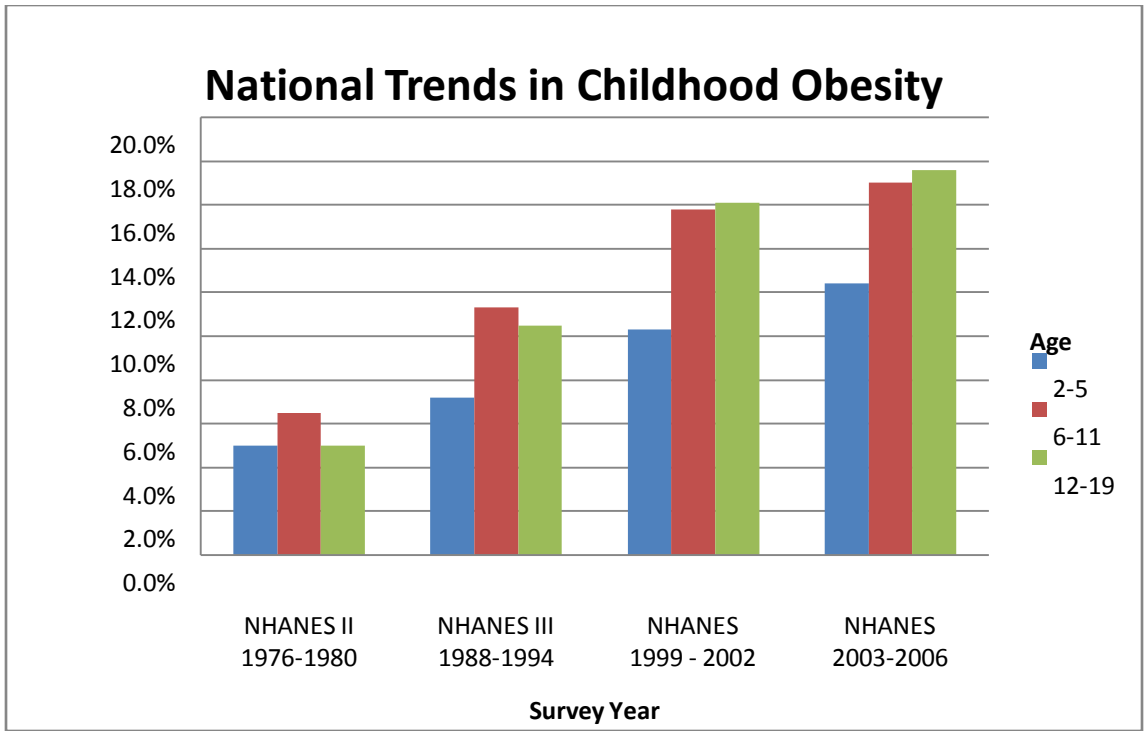
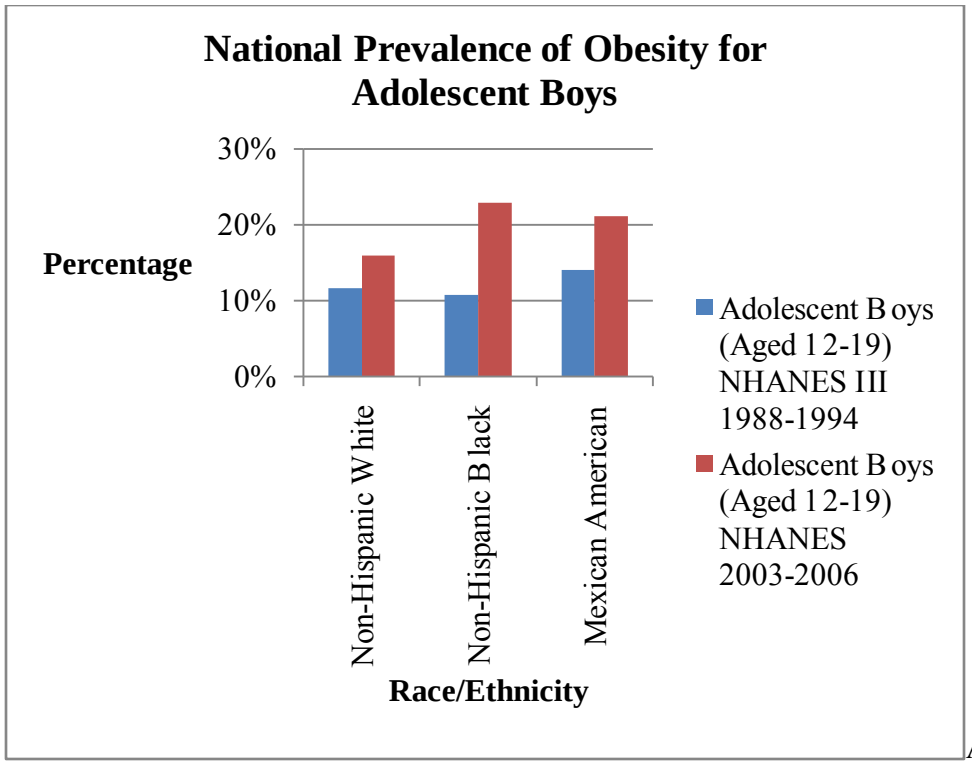
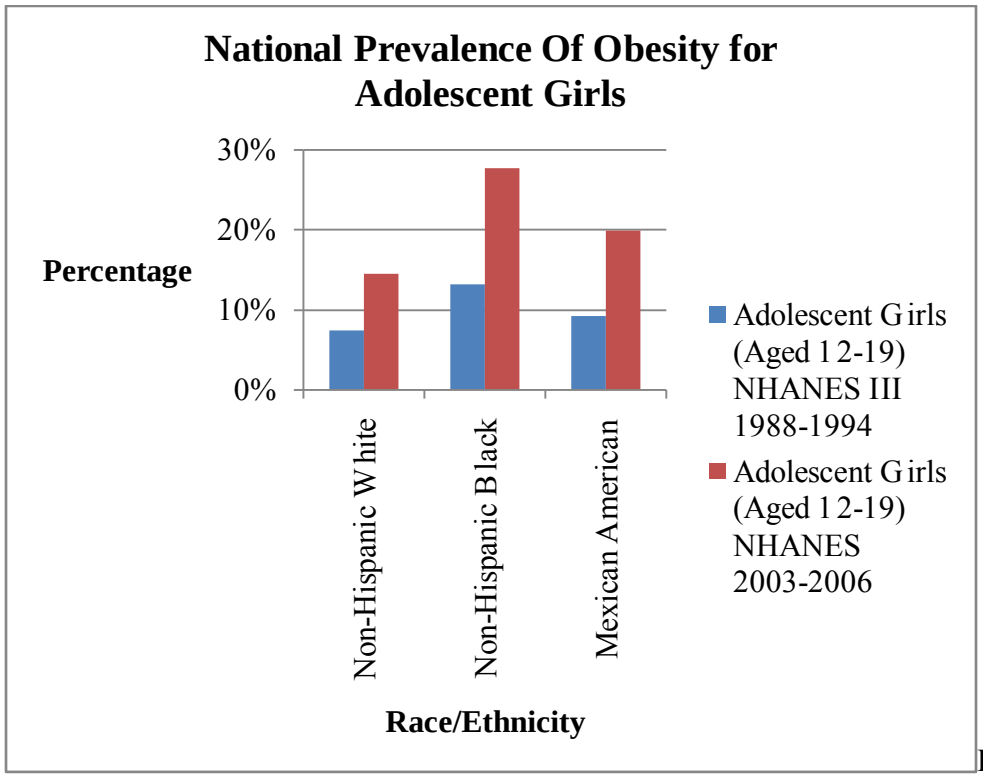


Figure 4-8. National trends in childhood obesity. National Health and Nutrition Examination Survey (NHANES) years 1976 through 2006. [Source: http://www.cdc.gov/nccdphp/dnpa/obesity/childhood/prevalence.htm].



A



B

Figure 4-9. Comparing national prevalence of obesity by race/ethnicity from years 1988-1994 to 2003-2006 for A) Adolescent boys and B) Adolescent girls. [Source: http://www.cdc.gov/nccdphp/dnpa/obesity/childhood/prevalence.htm].

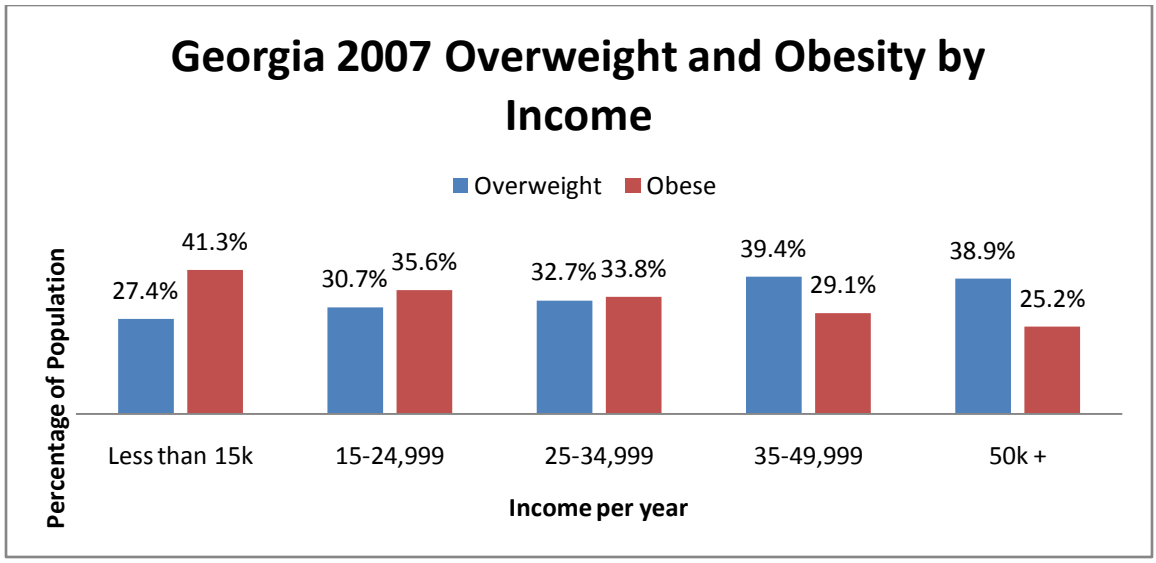


Figure 4-10. Overweight and obesity prevalence by income for Georgia residents. [Source: http://apps.nccd.cdc.gov/brfss/income.asp?cat=OB&yr=2007&qkey=4409&stateGA].

Figure 4-11. Four lane roads within the study area. [Map provided by Google Earth, ® 2009].

Figure 4-12. Photo of property in poor condition within the study area. [Source: Katie L. Leonard].

Figure 4-13. Photo of property in poor condition within the study area. [Source: Katie L. Leonard].

Figure 4-14. Property in fair condition within the study area. [Source: Katie L. Leonard].

Figure 4-15. Property in fair condition within the study area. [Source: Katie L. Leonard].

Figure 4-16. Photo of sidewalk in good condition in study area. [Source: Katie L. Leonard].

Figure 4-17. Map of five food markets within walking distance to the center of the study area. [Map provided by Google Earth, ® 2009].

Figure 4-18. Map of six food markets and one full service grocery store. [Map provided by Google Earth, ® 2009].

Figure 4-19. Fast food restaurants in a two mile radius from the center of the study area. [Map provided by Google Earth, ® 2009].

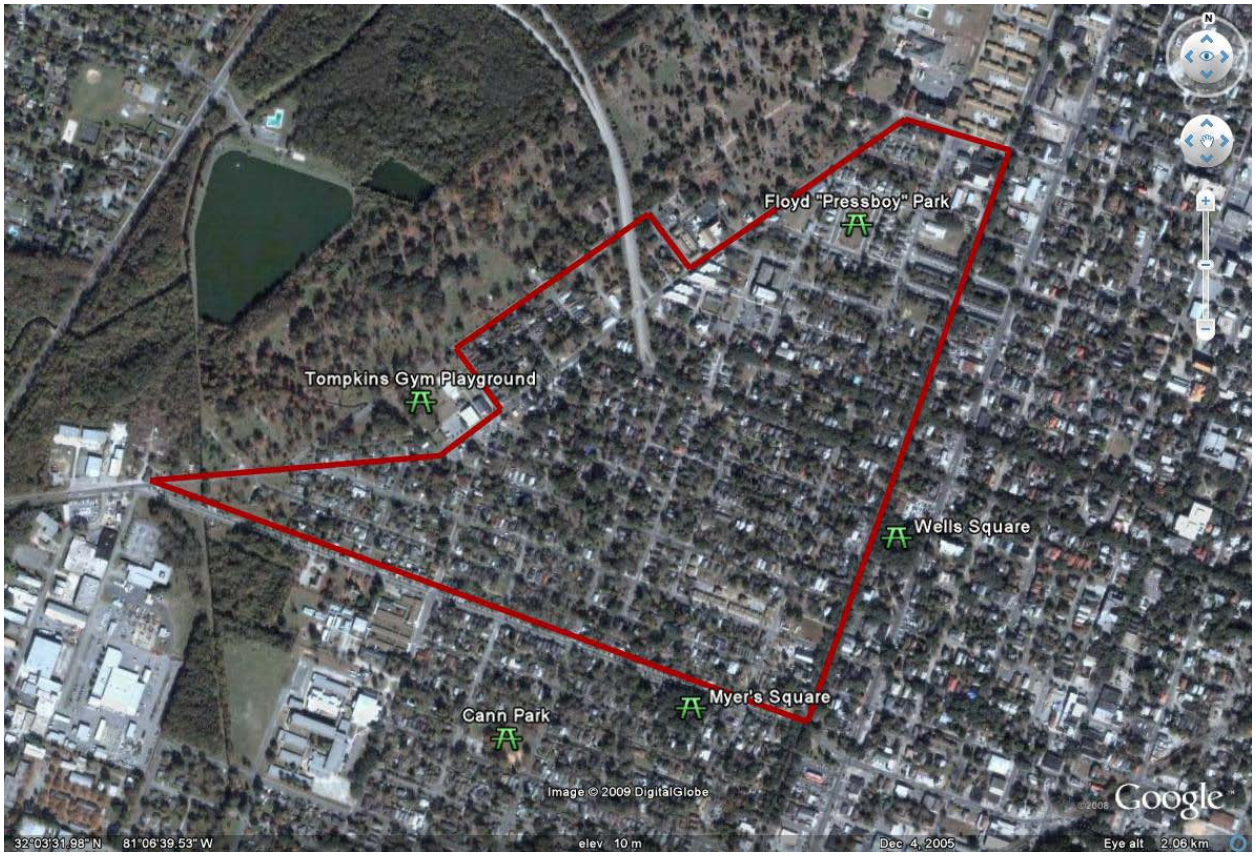


Figure 4-20. Public Parks/Green Space. [Map provided by Google Earth, ® 2009].


A


B

Figure 4-21. Cann Park in Savannah, GA features include A) playground equipment and baseball/softball field and B) pavilion, swings and basketball court. [Source: Katie L. Leonard].


A


B

Figure 4-22. Floyd "Pressboy" Adams Park in Savannah, GA A) park features B) green space. [Source: Katie L. Leonard].

A

B

Figure 4-23. Myers Park in Savannah, GA. A) gazebo B) green space. [Source: Katie L. Leonard].


A


B

Figure 4-24. Tompkins Gym Playground in Savannah, GA A) playground equipment B) pavilion and picnic tables. [Source: Katie L. Leonard].

A

B

Figure 4-25. Wells Square in Savannah, GA A) playground equipment B) basketball court and green space. [Source: Katie L. Leonard].

Figure 4-26. Location of Cann Park in Savannah, GA. [Map provided by Google Earth, ® 2009].

Figure 4-27. Location of Floyd "Pressboy" Adams Park in Savannah, GA. [Map provided by Google Earth, ® 2009].

Figure 4-28. Location of Myers Park in Savannah, GA. [Map provided by Google Earth, ® 2009].

Figure 4-29. Location of Tompkins Gym Playground in Savannah, GA. [Map provided by Google Earth, ® 2009].

Figure 4-30. Location of Wells Square in Savannah, GA. [Map provided by Google Earth, ® 2009].


A

B

C

Figure 4-31. Photos of Wells Square surrounding uses A) property along Martin Luther King Jr. Blvd. B) properties along W. 39th St. C) automotive use on Montgomery St. [Source: Katie L. Leonard].

Figure 4-32. Map of food markets, full service grocery store, fast food restaurants and public parks/green space in and around the study area. [Map provided by Google Earth, ® 2009].

Figure 4-33. Map of W. 37th Street in Savannah, GA (high crime density). [Map provided by Google Earth, ® 2009].

Figure 4-34. Map showing region of study area with higher violent crime densities. [Map provided by Google Earth, ® 2009].

CHAPTER 5
DISCUSSION

Introduction

This chapter will address: 1) conclusions of the research; 2) study limitations; 3) recommendations; 4) future research. Conclusions are mainly focused on: 1) demographics; 2) the built environment; 3) how access to healthy food in low income areas acts as a barrier to a healthy lifestyle; 4) how children residing in low income areas have access to public park/green space that does not meet their needs; 5) the affect of neighborhood crime on physical activity and outdoor play in low income areas.

Conclusions

Cuyler Brownville

In theory, the case study area would present itself to be a model healthy, walkable community. Cuyler Brownville possesses many of the characteristics needed for a healthy community including: street connectivity, high residential density, mixed uses, adequate sidewalks, tree canopy, access to public parks/green space. The problems with Cuyler Brownville that are apparent are: 1) although there is great street connectivity, residents do not have destination points that are beneficial to their health (i.e. grocery store); 2) there are not any facilities within the neighborhood that provide healthy food options; 3) there are five parks within walking distance (4 public), however only two out of the four public parks provide playground equipment, basketball courts or other activity generators and; 4) high levels of neighborhood crime.

Demographics

Cuyler Brownville is an African American community with high rates of poverty and low educational attainment. Previous research states that educational attainment is correlated to

health outcomes. Car ownership is also a considerable feature affecting adverse health outcomes among low income persons. "Previous research shows that fewer households in poor, black neighborhoods have access to private transportation and suggests that residents of these neighborhoods have greater difficulty obtaining healthy food"(Morland, 2002). Data from the 2000 U.S. Census state that combined, of the entire population residing within census tracts 12 and 23, almost 50 percent of households do not have a car available.

The Built Environment

Cuyler Brownville is a unique neighborhood in that it contains a mixture of structures ranging from dilapidated to fair. Sidewalk conditions in most areas support walking as well as other pedestrian uses. There is a great deal of on street parallel parking: Posted motor vehicle speed limits throughout the neighborhood do not exceed 35 miles per hour. These features allow for increased walkability within the neighborhood and safer streets for children.

Access to healthy food

There is one full service grocery store 1.5 miles away from the center of the study area. Besides this facility, residents of Cuyler Brownville who do not have private transportation are forced to go to one of six food markets which carry limited varieties of fresh produce and meats. In some cases, fresh produce and meats are not available.

Although fast food restaurants were located outside the study area, these facilities are easily accessible to residents of Cuyler Brownville. Literature states that our every day environment shapes the world in which we live. Food availability shapes our diet; if one does not have access to healthy foods such as fresh fruits and vegetables, they are limited to what is supplied by local food markets and fast food chains. In the case of Cuyler Brownville, residents have ample amounts of food to choose, unfortunately their options consist of high calorie, high fat goods. The approximate average calories and grams of fat for a cheeseburger, small French

fry and small cola from a fast food restaurant is 823 calories and 29 grams of fat (McDonalds Corp.,2009) (Wendy's International Inc., 2009) (Burger King USA, 2009). Sedentary girls and boys between the ages of four and eight can have up to 1,200 and 1,400 calories per day respectively (University of Florida IFAS Extension, n.d). A meal from a fast food restaurant will comprise 69% of a sedentary female's total daily caloric needs and 59% of a sedentary male's daily caloric needs. Sedentary values were used due to results of the case study showing low levels of outdoor physical activity in children within the study area.

Access to public parks/green space

Results show that there are four public parks/green space and one privately owned park that allows neighborhood residents to utilize the facility (Figure 4-19). Savannah, Georgia is a city that prides itself on its parks/squares therefore the parks examined are observed to be in fair condition and well maintained. The problem that presents itself is the distance to the parks and available equipment within the parks.

Based on findings, there appears to be a disconnect between public park proximity and available features for children. The public parks closest to the center of the neighborhood, Floyd "Pressboy" Adams and Myers Park do not contain playgrounds or basketball courts or in the case of Wells Square are not safe for unsupervised children .

Floyd "Pressboy" Adams Park is the closest park to the center of the neighborhood. This park is well maintained, has a large green space, picnic s, water fountains, a decorative fountain and a gazebo. This park does not contain playground equipment or a basketball court.

Wells Square is located 0.24 miles away from the center of the neighborhood, located on West 39th Street and Martin Luther King Jr. Boulevard. This public park contains a playground, basketball court, pavilion, picnic s and benches. A small homeless population as well as adult

individuals who frequently sit along the western side of the park on benches comprised the bulk of park users.

If one were to walk from the center of the neighborhood to Wells Square they would have to cross Martin Luther King Jr. Boulevard (4 lanes of traffic travelling 30 miles per hour). Of all public parks/ green spaces researched, Wells Square possesses characteristics that provide an unsafe environment for children. It was apparent when observing this space that frequenters of the park were aware of an unfamiliar face thus creating an unpleasant experience as well as feeling uncomfortable in the space.

Myers Park is located 0.34 miles away from the center of the study area and shares features with Floyd "Adams" Pressboy Park. This park also lacks playground equipment; given the small area, a basketball court or baseball field would not suit the space. A child visiting Myers Park would have to cross Victory Drive, a four lane road with traffic traveling 35 miles per hour.

Cann Park is located in a residential area outside the perimeter of the study area. Cann Park is enclosed by West 46th, Stevens, West 47th and Bulloch Streets. This park contains a pavilion, picnic s, benches, a baseball/softball field, basketball court as well as a playground and swings. This park is provides ample green space as well as many of the features literature states are necessary for individuals to visit public parks. If one were to travel to Cann Park on foot they would also have to cross Victory Drive.

Tompkins Gym is located 0.38 miles from the center of the study area located at West 39th Street and Ogeechee Road. Tompkins Gym provides a playground in the back of their facility for public use; the area also contains a pavilion and picnic s. If one were to travel to Tompkins Gym on foot they would cross Ogeechee Road, a two lane road with a 30 mile per hour speed limit. The main concern with Tompkins Gym is the playground is located behind the building,

behind vegetation. On the other side of the Tompkins Gym fence is Laurel Grove Cemetery; this playground is out of sight, and audible range from traffic of pedestrians along Ogeechee Road. Although Tompkins Gym provides a public park for neighborhood use, the location of playground equipment does not provide for a safe environment for children.

Neighborhood Crime

Neighborhood crime is a major impediment to physical activity and outdoor play within low income communities. In a one year time frame, Cuyler Brownville had 217 violent crimes that were reported. According to the City of Savannah 2008 Annual Crime Report, the City of Savannah as a whole experienced 1285 total violent crimes in the year 2008.

Violent Crimes were clustered along the 37th Street Corridor and the western part of the neighborhood bordered by Ogeechee Road, Kullock and Block Streets. Both areas contain residential properties that range from fair to poor condition. Neither area feels unsafe to drive through during the day; West 37th Street is a major road connecting downtown Savannah to Interstate 16. Both West 37th Street and Ogeechee Road are busy arterials of the neighborhood.

Study Limitations

Census tract level data for the year 2000 was used to study demographics. This data is nine years old therefore does not reflect the most current demographic characteristics. Census tracts 12 and 23 for Chatham County Georgia were used. Census tract 12 has its boundaries outside the study area: Within its boundary is Herbert Kayton and Simon F. Frazier Homes, two of Savannah's largest public housing complexes. Census tract 23 is located in the southern section of the study area. This area contains many homes that have been rehabilitated and have high resale values; this area is becoming gentrified. Considering the gentrification in the south and the public housing in the north, the study area is unique and its population characteristics may not be similar to other low income communities.

Data used in this research primarily consisted of place-based observations and secondary data. Surveys and/or questionnaires were not used in this research. The use of surveys to households with children would be useful tools in understanding park use, food consumption, and fear of crime as well as safety concerns.

Crime data obtained was not time of day specific. Different conclusions may be made regarding crime and barriers to healthy lifestyles depending on when exactly crimes occur in the neighborhood. Crime data obtained from the Savannah Chatham Metropolitan Police Department's interactive crime mapping system in some cases does not run in consecutive days. For example, data for August 20, 2008 and September 19, 2008 was not reported. City wide violent crime data for the year 2008 was compiled differently than crime mapping data, so comparisons may not be accurate.

Recommendations

Due to the disconnect of park location and park features, it is recommended that playground equipment be placed in Floyd "Pressboy" Adams Park. This park is the only park within the study area boundary. Floyd "Pressboy" Adams Park has existing features which make the park safe such as surrounding residential uses for surveillance. Adding playground equipment to this location would provide the opportunity for neighborhood children to access a safe, well maintained park within the neighborhood.

Wells Square has many features that allow for park use, including a playground, pavilion and basketball court. Improvements should be made to the surrounding residential and automotive uses through code enforcement strategies. These improvements would include CPTED/DS strategies in Wells Square. The vegetation around the square should be maintained so that individuals traveling along the surrounding streets can see into the park. Increasing maintenance within the square, such as graffiti and trash removal, is an important CPTED

strategy that is easy to accomplish and cost efficient. An imperative recommendation for Wells Square is to eliminate loitering within the park; this will create a welcoming atmosphere for children as well as adults.

In addition to changes to Floyd "Pressboy" Adams Park and Wells Square, additional that provide the opportunity to for children to obtain healthy lifestyles are: 1) traffic calming devices along Victory and MLK would allow children to cross the busy arteries of the neighborhood safely; .2) renovation of dilapidated buildings; 3) include walkable elements in zoning code/master plan for City of Savannah;

Concerning access to healthy food, the inclusion of an affordable grocery store on the Grocery Store and Concentrated Uses Feasibility Report's recommended site would increase the availability of fresh fruits and vegetables for neighborhood residents (Figure 5-2). An important component of low income, minority communities continues to be faith-based institutions. Educating faith-based leaders on the benefits and rewards in living a healthy lifestyle (e.g., increased fruit and vegetable consumption and increased physical activity) will allow leaders to inform community members of available opportunities within the neighborhood. Faith-based institutions could develop an "adopt-a-park" program and act as overseers, as well as hold community picnics in the parks with an emphasis on the incorporation of fruits and vegetables.

The Savannah College of Art and Design (SCAD) has been an important factor to many revitalization efforts throughout the City of Savannah. The continued inclusion of SCAD will allow for renovation projects within Cuyler Brownville to take place: These projects will enhance the scenic quality of the community.

Future Research

The environmental factors influencing obesity within the United States is not solely dependent on the physical elements within the built environment. An individual's social

environment plays a central role in the quality of foods they consume and the amount, and type, of physical activity they partake in. Future research linking the elements of this research (access to healthy foods, access to public parks and green space and neighborhood crime) to social environment characteristics would allow for a broader understanding of the barriers low income, minority youth, and adults, face in obtaining a healthy lifestyle. Children are often not considered in neighborhood planning and the consequence is clear: Increased body mass index and decreased physical activity.

Future research can focus on neighborhood crime and their connection to the time of day and major roadways like Martin Luther King Jr., Blvd and West 37th Street. Children's perception of crime and fear of place are also important. An increased understanding of how a child views crime and the world around them will allow for significant recommendations to be made to increase the quality of life for youth in low income communities.

Figure 5-1. Map of Kayton Frazier homes, a public housing complex in Savannah, GA. [Map provided by Google Earth, ® 2009].

Figure 5-2. Site of proposed full service grocery store made by Savannah State University's "Grocery Store and Concentrated Uses and Feasibility Report".[Map provided by Google Earth, ® 2009].

CHAPTER 6
CONCLUSION

The aim of this research was to further understand the barriers low income, minority children face in living healthy lifestyles. An investigation of healthy food options, access to public parks and green space and neighborhood crime was conducted in order for the researcher to identify the impediments children confront when trying to achieve a healthy lifestyle.

There is access to public parks and green space and the majority of them are well maintained. However, only two out of the four public parks in walking distance to the center of the neighborhood provide playground equipment, basketball courts or other activity generators There is a disconnect between park/green space location and features. For example, the closest park with a basketball court and playground has "unsafe feeling" and the park furthest away from the center of the neighborhood has desired features including a baseball field, basketball court, picnic area and playground equipment.

High levels of neighborhood crime exist within Cuyler Brownville. Incorporating CPTED/DS strategies to prevent crime can play an integral role in promoting a healthy community within the study area.

Children in Cuyler Brownville face various barriers when it comes to obtaining a healthy lifestyle. In theory, the case study area would present itself to be a model healthy, walkable community. Cuyler Brownville has great street connectivity, high residential density, mixed land uses, adequate sidewalks, tree canopy and access to public parks/green space. Although Cuyler Brownville possesses these characteristics, residents of the neighborhood do not have destination points that are beneficial to their health (e.g., grocery store). There is a lack of facilities within the neighborhood that provide healthy food options. The five food markets that exist provide limited, if any, produce and fresh meats. However, healthy food sources can be

added to the neighborhood, the built environment can be renovated and violent crime can be prevented.

Cuyler Brownville has great potential to become a model, healthy, minority community. The findings of this research have allowed for recommendations to be made at the community level that will ultimately increase healthy opportunities for low income, minority youth in the Cuyler Brownville neighborhood in Savannah, Georgia.

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BIOGRAPHICAL SKETCH

Katie Linn Leonard was born in Fort Knox, Kentucky. She graduated from Pemberton Township High School in Pemberton, New Jersey in 2001. Upon graduation she attended the University of Miami and later transferred to the University of Florida where she earned a Bachelor of Arts in sociology. Within sociology, she focused primarily on social inequalities within the United States. After completing her undergraduate work, Katie enrolled in the urban and regional planning program at the University of Florida.