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The Health Benefits of Parks among Older Adults in Atlanta

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The Health Benefits of Parks among Older Adults in Atlanta

By

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B.S.
The University of Alabama at Birmingham
2010

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An abstract of
a thesis submitted to the faculty of the
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2012

Abstract

The Health Benefits of Parks among Older Adults in Atlanta
By Gaëlle Gourmelon

Background: Parks have the potential to serve as free or low cost venues for physical activity for older adults. They also provide contact with green environments and serve as places to increase social capital, both of which have been linked to positive health outcomes. The goal of this study is to investigate relationships between health and park use for older adults.

Methods: This study is a secondary analysis of 207 older adults (age 50 and older) recruited during the Neighborhood Parks and Active Living (NPAL) project. Recruitment occurred between 2005 and 2006 in 11 study parks in Atlanta, Georgia. Park users (PUs) were matched to non-users (PNs) within catchment areas for each study park. A questionnaire was administered to collect data on demographics, park use, health, and time spent being physically active. Additionally, physical activity was objectively measured through accelerometers. Models were built to calculate the odds ratios for various physical activity and health outcomes comparing PUs and PNs.

Results: Being male, having a higher education level, having fewer limiting health conditions, owning a dog, or having a child less than 10 years old in the house was associated with being a park user (p-value: <0.05). The prevalence odds of reaching higher levels of physical activity were higher for PUs compared to PNs for most measures of physical activity. The prevalence odds of reporting a higher number of diagnosed conditions were significantly lower for PUs when controlling for physical activity.

Discussion: For most measures of physical activity, a positive association was found between park use and physical activity. While self-reported health, depression, and cardiovascular disease were not significantly associated with park use, park users reported fewer diagnosed conditions.

Conclusion and Significance: Our findings suggest that using parks is related to higher levels of physical activity and better health for older adults. Thus, parks may play a significant role in supporting active living and increasing the quality of life of older individuals, as well as reducing the health care burden of this generation.

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Introduction

Older Adults

The population of older adults is projected to grow substantially over the next few decades, resulting in an increase in the worldwide burden of chronic disease. Currently, adults age 50 and older represent one fifth of the world population (U.S. Census Bureau 2012). In the United States alone, nearly one third of the population is aged 50 or older, and this proportion is expected to rise as the Baby Boomer Generation ages (Ortman and Guarneri 2009; U.S. Census Bureau 2012). By 2030, the last of the baby boomers will reach the age of enrollment for Medicare, increasing coverage to an estimated 70 million Americans (U.S. Census Bureau 2000). Medicare expenditures are projected to rise from $525 billion in 2010 to $922 billion by 2020 to meet the health demands of this growing population (Centers for Medicare & Medicaid Services 2009; Congressional Budget Office 2011). Because morbidity and healthcare spending increase with age, the aging of this large population may result in an enormous health-based burden (Stanton 2006).

Park Use and Access

In order to reduce the growing financial and disease burden for this and future generations, the suitability of preexisting structural components of communities may need to be reevaluated for older adults. There are indications that the greatest growth in senior populations will be in regions of the United States not previously associated with seniors such as the West and the Southeast, including Georgia (Frey 2010). The Atlanta area has been one of the fastest growing cities for population growth of older adults, ranking fourth among 102 large metropolitan areas (Frey 2010). Additionally, older adults are choosing to "age in place," favoring independent living in their own

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communities (National Aging in Place Council 2012). Therefore, senior-specific

demands may not be met in certain cities since they lack the amenities that seniors may

need (i.e., sidewalks, public transportation, access to healthy foods). Furthermore, the

continuing global shift toward urbanization places individuals in uninterrupted contact

with the built environment, which could either have positive or negative health

consequences (Galea and Vlahov 2005). Hence, existing urban public places could

become essential sites to improve the health of older adults by providing settings for

activity, socialization and contact with nature.

Urban parks may increasingly serve as health tools since many older adults live in

cities, and parks may provide venues to improve health. Parks are particularly relevant

for the physical and psychological health of older adults (Moore, Gauvin et al. 2010). The

World Health Organization highlights the importance of green spaces as being essential

to age-friendly cities (2007). However, adults 50 and over are less likely than younger

age groups to visit parks (Payne, Mowen et al. 2002; Mumford, Rutt et al. unpublished).

Previous research has found that this is due, in part, to reduced companionship and social

isolation (Scott and Jackson 1996). Additionally, older adults may have limited access to

parks due to a reduced ability to drive motor vehicles. Neighborhood and community

features, such as neighborhood walkability and public transportation may be critical for

older adults to access parks (King, Brach et al. 2003). However, few studies have

investigated which population characteristics of older adults determine park use.

Physical Activity

Parks have the potential to serve as health tools in urban settings by providing free

or low cost venues for physical activity (Bedimo-Rung, Mowen et al. 2005; Maller,

Townsend et al. 2006; Mowen, Kaczynski et al. 2008). More specifically, they may aid in the United States' goal of meeting the Healthy People 2020 objective to "increase the proportion of older adults with reduced physical and cognitive function who engage in light, moderate, or vigorous leisure-time physical activities" from the 2008 baseline of 34% to 37% by 2020 (U.S. Department of Health and Human Services). However, relatively few studies have explored the association between the built environment and physical activity of older adults (Centers for Disease Control and Prevention 2005; Shores, West et al. 2009). Thus, there is a need to investigate whether parks are associated with physical activity levels in this population.

The U.S. Department of Health and Human Services reports that there is strong evidence that regular physical activity lowers the risk of early death, coronary heart disease, stroke, high blood pressure, high cholesterol or triglycerides, type 2 diabetes, metabolic syndrome, colon cancer, and breast cancer (2008). Older adults, specifically, benefit from the prevention of weight gain, weight loss when combined with diet, improved cardiorespiratory and muscular fitness, prevention of falls, reduced depression, and better cognitive function (U.S. Department of Health and Human Services 2008). There is also moderate to strong evidence that older adults may benefit from better functional health (U.S. Department of Health and Human Services 2008). Some research suggests that regular physical activity can lower the risk of hip fractures and increase bone density, improve sleep quality, maintain weight after weight loss, and lower the risk of lung and endometrial cancers (U.S. Department of Health and Human Services 2008). Mental health benefits of physical activity include reductions in depression and anxiety, better physical self-perception and self-esteem, as well as improved sleep (Fox 1999).

Despite the various health benefits of physical activity, approximately one third of U.S. adults age 50 and older currently report no leisure-time physical activity (Centers for Disease Control and Prevention 2005; Shores, West et al. 2009). Thus, there is a need to determine whether parks can increase physical activity in older adults.

Green Space

Additional health benefits for older adults may be realized by contact with nature. Arrif and Rioux (2011) found that the majority of elderly people perceived the park "as a place to walk in contact with nature." Thus, parks may serve as a therapeutic natural milieu in urban environments. While this parameter is difficult to measure, it may play an important role in the improvement of health in older adults, especially for those who are physically impaired.

The concept of biophilia, the idea that humans have an instinctive bond with other living systems, asserts that there is an inherent biological need for contact with life and lifelike processes (Wilson 1984; Delavari-Edalat and Abdi 2010). There is now a substantial body of literature addressing the concept of biophilia in the field of environmental psychology (Howell, Dopko et al. 2011). Nature connectedness is associated with "autonomy, personal growth, and purpose in life" (Howell, Dopko et al. 2011). The sense of "meaningful involvement in something larger that oneself" may be essential in groups of people with limited social support, like older adults (Howell, Dopko et al. 2011). The implications of biophilia include restorative benefits of interaction with natural elements (Annerstedt and Wahrborg 2011).

There are associations between nature connectedness and health that extend beyond positive affect and life satisfaction. The use of natural environments to promote

health and prevent illness is well recognized. Early studies in 1984 found that patients recovered from surgery faster if they had a view of trees (7.96 days), compared to a view of brick wall (8.7 days; Ulrich 1984). Patients with views on nature also needed less pain medication and had fewer complaints from nurses. In a broader environmental context, De Vries, Verheji et al. found a positive association between green space in the living environment and health (2003). It has also been shown that depression is negatively associated with time spent in natural environments (Morita, Fukuda et al. 2007). Additionally, green space has been linked with reduced aggression and violence (Kuo and Sullivan 2001). A study by Takano, Nakamura et al. found that the probability of five year survival of senior citizens increased significantly for senior citizens with parks and tree lined streets near their residences (2002).

Contact with nature may enhance health benefits conferred by physical activity. Exercising in natural environments was found to be associated with greater feelings of revitalization and positive engagement, decrease in tension, confusion, anger, and depression, and increased energy compared with exercising indoors (Coon, Boddy et al. 2011). Bodin and Hartig found that running in a park resulted in more psychological restoration than did running in an urban environment (2003). Walking in a natural setting also alleviated symptoms of mental fatigue more than walking in an urban environment (Hartig, Mang et al. 1991). Thus, because parks often provide contact with natural environments, they may facilitate access to various health-improving pathways.

Social Capital

As U.S. adults age and increasingly live alone, community-based social capital will become an essential aspect of healthy aging (Cannuscio, Block et al. 2003). Social

capital, defined as "the resources available to individuals and groups through social connections and social relations with others" (Cannuscio, Block et al. 2003), is dependent on interpersonal contact. Social capital integrates shared participation with interpersonal trust, making social networks that serve as central resources to prevent physical and mental illness (Chappell and Funk 2010; Gele and Harslof 2010). Accordingly, perceptions of higher mental health correlate with high degrees of social capital (Renalds, Smith et al. 2010).

It has been demonstrated that specific aspects of the built environment are correlated with increased social capital (Renalds, Smith et al. 2010). Neighborhood-based studies have found that social capital is associated with improved health by fostering a safe and supportive environment for physical activity, buffering stress, and establishing healthy behavioral norms (Broyles, Mowen et al. 2011). The recent interest in parks as possible social and built environments for building social capital may find similar associations since parks provide a space for the development and maintenance of social ties (Kweon, Sullivan et al. 1998; van den Berg, Hartig et al. 2007). In order to counteract the negative health impacts of social isolation, older adults may benefit drastically from the social benefits of park use. However, few studies have looked at parks as a place-based context for increasing social capital, especially for older adults

Future Directions

Older adults are choosing to age in their community, rather than in retirement facilities (National Aging in Place Council 2012). In order to promote the complete physical, mental, and social well-being of older adults, we must investigate and employ all of our possible health-improvement tools, such as parks and how we build

communities. By addressing the associations between park use and health for older adults, more focused built-environment interventions can be suggested to decision-makers.

Public health is beginning to examine the interactions between the built environment and people (Renalds, Smith et al. 2010). An understanding of disease etiology focusing on the "upstream" factors of disease, such as social constructs and physical environment, are becoming clearer through research (Renalds, Smith et al. 2010). The social-ecological model contextualizes health outcomes and behaviors within larger physical and social contexts (Figure 1). This model recognizes that health is affected by factors outside of individual traits and perceptions. Thus, although much of the literature that has been reviewed indicates that there are countless health benefits from green space in the built environment, much research is needed to determine how the physical environment supports or impedes the health of older adults (Arrif and Rioux 2011).

Societal | Community | Relationship | Individual
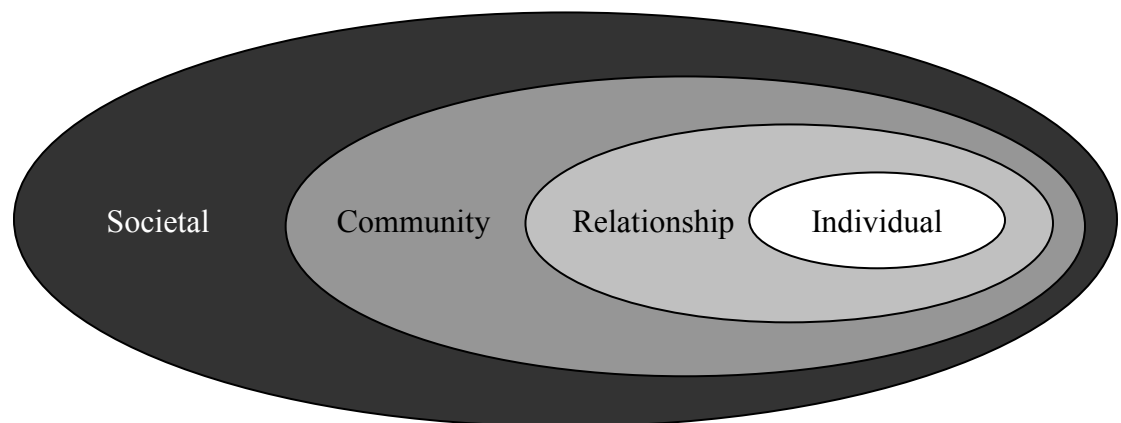
Figure 1: The social ecological model framework (adapted from Centers for Disease Control and Prevention 2009).

Goal and Scope

The goal of this study is to investigate relationships between health and park use for older adults. The current study focuses on adults aged 50 or older living in Atlanta, Georgia in 2005 and 2006.

Aims

The aims of the study are:

1) To determine which demographic and personal characteristics are associated with park use for older adults.

2) To determine if park use is associated with higher levels of physical activity for older adults.

3) To determine if park use is associated with better health for older adults, regardless of physical activity levels.

Hypotheses

We hypothesize that:

1) Sex, age, marital status, and education are associated with park use for older adults.

2) Park users have higher odds of attaining higher physical activity levels compared to those who do not use parks.

3) Park users have higher odds of reporting better health and lower odds of having diagnosed conditions, including depression, and cardiovascular disease compared to those who do not use parks, regardless of physical activity levels.

Methods

Study Design

This study is a secondary analysis of older adults recruited during the

Neighborhood Parks and Active Living (NPAL) project, a project aimed at identifying

individual and community-level predictors of park use along with predictors of physical

activity in parks. This study was approved by the Emory University and Centers for

Disease Control and Prevention Institutional Review Boards.

Study Population

The target population for the NPAL project consisted of adults that resided in

DeKalb County, Georgia (the county includes part of the city of Atlanta). In the county,

there are 106 county-managed parks and 30 city- or town-managed parks. To maximize

variability in park size, programming and facilities, and socioeconomic and racial

composition in the neighborhoods surrounding the park, eleven study parks were selected

by expert opinion from a roster of all DeKalb County parks.

Recruitment

Recruitment occurred between June 2005 and September 2005 in five study parks

and June 2006 through September 2006 for the remaining six study parks. Participants

were eligible for the study if they were age 18 or older and spoke English or Spanish.

Park users (PUs) had to be at a target park on a day of recruitment and had to have

previously used the same park at least once within the last month. PUs were recruited

randomly at the entry and exit points of the parks and areas of high volume to maximize

contact with users. Every third user was asked to participate in parks with high user

volume; every user was asked to participate in parks with low user volume. A total of 610

people in parks were intercepted and screened for eligibility. Of those who were approached in a park, 269 agreed to participate (response rate = 44%). Participants completed a brief interviewer-administered survey, indicating whether they had walked, biked, or driven to the park, and scheduled a follow-up appointment with study staff for further data collection.

Shortly after the recruitment of PUs, park non-users (PNs) were randomly selected within catchment areas around the park used by the PU. PNs were recruited using a reverse phone directory from a household resident list from the Georgia Institute of Technology Geographic Information Center within catchment areas surrounding the parks. These catchment areas were based on a 2004 intercept survey of the distances that park users walked, biked, or drove to the study parks. Using data from the intercept survey, residential locations of PUs were mapped using geographic information systems (GIS) to calculate the shortest walking or driving distance from the home to the park. If PUs had walked to the park at the time of recruitment, PNs were chosen from an area approximately 0.56 miles around the outer edge of the park, based on the mean distance traveled to the park by 80% of all PUs who walked. If PUs had driven to the park at the time of recruitment, PNs were recruited from a three-mile buffer zone around the outer edge of the park, based on the median driving distance ("as the crow flies"). Because of the low number of bicyclists among the PUs, biking PUs were matched to PNs from the walking catchment area.

PNs had to report no use of the specified park within the last six months, but were required to be aware of the existence of the park. Each household was allowed to contribute only one participant to the study. Those unable to participate in physical

activity were excluded from the study. Of the 2,190 PNs contacted via phone, 273 agreed to participate (response rate = 12%).

Data collection occurred through individual site visits to participants' homes or at a convenient public location, typically one week after initial contact. Participants were given a $10 gift card for their participation.

Survey

After informed consent was obtained, trained interviewers administered a 114-item, 30-minute questionnaire to collect data on neighborhood attributes, park use and perceptions, time spent being physically active, location and places for physical activity, benefits of physical activity, barriers to physical activity, and social support for physical activity. Participants' perceptions of neighborhood and park environments were also collected, based on questions from the Neighborhood Environment Walkability Scale (NEWS) instrument (e.g., availability and condition of sidewalks, traffic, crime) and positive and negative social and physical aspects of the park (e.g., crowdedness, presence of dog waste or dogs off leash in parks, presence of shade, social opportunities; Saelens, Sallis et al. 2003). Demographic data including age, sex, race and ethnicity (non-Hispanic White, other), presence of a limiting health condition (yes/no), employment (yes/no), marital status (single, married, other), education level (high school or less, some college, college, advanced degree), annual household income (<$25,000, $25-50,000, $50,001-75,000, >$75,000), residential dwelling (single family, multifamily), access to a yard/open space (yes/no), dog ownership (yes/no), and number of cars owned (none, one, two or more) were also collected. Body mass index (BMI; kg/m^2) was calculated using

height and weight measurements (underweight: <18.5, normal weight: 18.5-24.9, overweight: 25.0-29.9, obese: ≥30.0) taken by interviewers during the site visit.

The total number of minutes engaged in moderate activity, vigorous activity, and total physical activity were estimated to determine whether subjects had met the 2008 Physical Activity Guidelines (PAGs) outlined by the U.S. Department of Health and Human Services (2008). The PAGs recommend engaging in 150 minutes of moderate-intensity physical activity per week, 75 minutes of vigorous-intensity physical activity per week, or the equivalent combination of moderate and vigorous physical activity. Physical activity levels were obtained through self-report with questions from the International Physical Activity Questionnaire (IPAQ) included in the questionnaire. Respondents were asked to report the frequency and duration of physical activity during the last seven days before the questionnaire. Responses were collected for time engaged in vigorous activity, moderate activity, walking, and sitting. Physical activity was also objectively measured through MTI Actigraph activity monitors that recorded vertical movement, such as walking and engaging in aerobic activity. The monitor data were considered valid if the accelerometers were used by the participant a minimum of ten hours per day and worn at least 4 days.

Self-reported health was rated on a five-point scale in response to "In general, would you say your health is…" and provided with the choices "excellent," "very good," "good," "fair," "poor," and "don't know." Self-reported physician-diagnosed conditions were also collected from a list of ten conditions including high blood pressure, heart disease, asthma, other chronic lung diseases (such as emphysema or bronchitis), diabetes, depression, arthritis, hay fever or other environmental allergies (not food or medicine-

related), cancer, and back pain. Respondents could indicate more than one condition and could provide additional conditions.

Data Analysis

For the entire NPAL study, 269 PUs (44% response rate) and 273 PNs (12% response rate) agreed to participate. For our secondary analysis, the sample consisted of 207 participants aged 50 and older (71 PUs and 136 PNs) from the participants of the original NPAL study (38% of original sample).

Physical activity was categorized into a variable (met or did not meet the PAGs) and into physical activity level categories (inactive, insufficiently active, active, and highly active). For self-reported physical activity, the physical activity scores were calculated using score = (minutes per week of moderate physical activity) + (minutes per week of vigorous physical activity)*2. For accelerometer-derived records, the physical activity scores were calculated using the formula score = (minutes per day of moderate physical activity)*7 + (minutes per day of vigorous physical activity)*2*7. Participants with a total score of 150 of more were coded as having met the PAGs. Participants with a score of 0 were coded as inactive, 1-149 as insufficiently active, 150-299 as active, and 300 minutes or more as highly active.

Self-reported health was categorized as excellent-very good, good, and fair-poor. Respondents who did not answer or selected "don't know" were coded as missing. The number of physician-diagnosed conditions reported by participants (chosen from the list of ten conditions) was grouped into four categories (no conditions, one condition, two conditions, and three or more conditions). If participants reported a diagnosis of depression, they were coded as positive for depression. If participants reported a

diagnosis of high blood pressure and/or heart disease, they were coded as being positive for cardiovascular disease (CVD).

The prevalence of PU and PN demographic characteristics were compared with chi-squared tests. Differences in age characteristics were determined using a t-test comparing PUs and PNs. Forward conditional multiple stepwise regression was used to examine how variables influenced the odds of being a park user after controlling for demographic characteristics (entry: 0.05; removal: 0.10). The demographic variables (age, sex, race/ethnicity, education, marital status, and employment status) were entered in the first step. Income level was excluded from the model due to high non-response rates (12%). Health, physical activity level, and personal characteristic variables were entered in the second step (to avoid redundancy, meeting or not meeting the PAGs was not included in the model).

Logistic models were built to calculate the odds ratios (ORs) of meeting the PAGs. Ordinal regression models were built to calculate the OR for levels of physical activity. All physical activity models were run twice, using either self-reported physical activity or accelerometer data.

Ordinal models were also built to assess the ORs of reporting better self-reported health and higher number of diagnosed conditions for PUs versus PNs. Logistic models were built to determine the ORs of having diagnosed depression or CVD for PUs versus PNs. The health outcome analyses were repeated controlling for either the PAG variable or the physical activity level variable, for self-reported or accelerometer data.

All analyses were repeated using a sex-, age-, and education-adjusted model (selected *a priori* based on the literature). Education was selected as a proxy for socio-

economic status since 12% of the participants did not report their household income. The analyses were not controlled for park because the sample size was inadequate to support such an analysis. Only the adjusted results are presented in the text because the estimates were similar for crude and adjusted models. SPSS Statistics 19 was used for all analyses.

Results

Sample Characteristics

To determine which characteristics of older adults in the study sample were associated with park use, we compared participant characteristics of PUs and PNs using chi square analyses (Table 1). Race and ethnicity, household income, marital status, body mass index, employment status, having a yard or outdoor space at home, smoking status, and age did not differ significantly by park use (p-value: > 0.05). Both the majority of PUs and PNs were White non-Hispanic (69% for PUs, 61% for PNs), had a household income greater than $75,000 (54% for PUs, 36% for PNs), were employed (65% for PUs, 54% for PNs), and had a yard or outdoor space on their residence (93% for PUs, 92% for PNs). Most PUs (94%) and PNs (87%) were non-smokers. Approximately half of both PUs (52%) and PNs (43%) were married. Over half of PUs and PNs were overweight or obese (68% for both PUs and PNs). The mean age for all subjects was 61 (59±9 for PUs, 62±10 for PNs).

Sex, education, having a limiting health condition, owning a dog, and living in a household with a child less than 10 years old varied significantly by park use status (p-value: <0.05). While the majority of both PUs and PNs were female (58% for PUs, 71% for PNs), there were significantly more female PNs than PUs. Most subjects had at least some college education (92% for PUs, 89% for PNs), with PUs having a significantly

higher level of education. More PNs (33%), compared to PUs (17%), reported having an on-going or long-term condition that substantially limits one or more basic physical activities, such as walking, climbing stairs, reaching, lifting, or carrying. A larger proportion of PUs (38%) reported owning a dog compared to PNs (24%). Few participants overall had a child under the age of 10 in their household (14% for PUs, 6% for PNs). However, PUs represented a significantly larger proportion of households with a child under the age of 10 compared with PNs.

Physical activity levels, stratified by park use, are summarized in Table 2. Overall, 68% of all respondents (75% of PUs and 65% of PNs) met the PAGs according to self-report measures, and 31% of all respondents (51% of PUs and 20% of PNs) met the PAGs according to accelerometer data. In conclusion, while the majority of participants reported meeting the PAGs, accelerometer data suggest that less than a third of respondents met the PAGs.

Health characteristics, stratified by park use, are presented in Table 3. The majority of PUs and PNs reported being in very good or excellent health (69% for PUs, 54% for PNs). Thirty-one percent of PUs and 13% of PNs reported having no diagnosed conditions. Of the remaining 69% with diagnosed conditions, 21% of PUs and 35% of PNs reported having three or more diagnosed conditions. Less than half of both PUs (37%) and PNs (46%) reported diagnosed cardiovascular disease. Most PUs (93%) and PNs (85%) did not report diagnosed depression.

Stepwise Model

Forward conditional multiple stepwise regression was used to examine how variables influenced the odds of being a park user after controlling for demographic

characteristics (Table 4). No demographic variables remained significant in the model. The number of diagnosed conditions reported by participants remained in the model, with those having three or more conditions (OR= 0.3; 95% Confidence Interval [CI]: 0.1, 0.8) and those with two conditions (OR=0.2, 95% CI: 0.1, 0.7) having lower prevalence odds of being a PU compared to those with no diagnosed conditions. Out of the participant characteristics added to the model, the prevalence odds of being a PU were higher for highly active participants, compared to inactive participants (OR=7.6, 95% CI: 2.2, 26.5) according to accelerometer-measured physical activity levels. In conclusion, when all variables were considered, only the level of physical activity and the number of conditions were significantly associated with park use.

Physical Activity

To investigate the association between park use and physical activity, the prevalence odds ratios for various physical activity outcomes were determined for PUs compared to PNs (Table 5). We hypothesized that PUs would have higher odds of attaining higher physical activity levels and meeting the PAGs compared to PNs. According to self-report data (subjective measure of PA), PUs had twice the odds of reaching a higher physical activity level than PNs (OR: 2.0, 95% CI: 1.1, 3.7). According to accelerometer data (objective measure of PA), PUs had three times higher odds of meeting the PAGs compared to PNs (OR: 3.0, 95% CI: 1.5, 6.1) and three times higher odds of reaching a higher physical activity level than PNs (OR: 3.0, 95% CI: 1.7, 5.5). Overall, the odds of reaching higher levels of physical activity were higher for PUs compared to PNs for most measures of physical activity.

When the analysis was repeated including only those who did not report a long-lasting condition that limited physical activity (N=150), self-reported physical activity was not significantly different between PUs and PNs for meeting the PAGs (OR: 1.6, 95% CI: 0.7, 3.6). This analysis was repeated for self-reported physical activity levels; however, because the slope coefficients in the model were not the same across response categories (Test of Parallel Lines, p-value: 0.03), the results from this model are suspect. Accelerometer measures were still significantly higher for PUs than PNs both for meeting the PAGs (OR: 2.7, 95% CI: 1.2, 6.2) and for being in a higher physical activity category (OR: 2.9, 95% CI: 1.4, 5.8). In conclusion, even when those who had conditions that limited their ability to engage in physical activity were removed from the analysis, the odds of reaching higher measures of accelerometer-recorded physical activity were significantly higher for PUs than PNs.

Health

To investigate the association between park use and health, the odds ratios for various health outcomes were determined for PUs compared to PNs (Tables 6 and 7). We hypothesized that PUs would have higher odds of reporting better health and lower odds of having diagnosed conditions, depression, or CVD compared to PNs, even when controlling for physical activity. Park use status was not significantly associated with general self-reported health status, depression, or cardiovascular disease once it was adjusted for age, sex, and education. However, the odds of reporting a higher number of diagnosed conditions were significantly lower for PUs when controlling for either self-reported physical activity for meeting the PAGs (OR: 0.5, 95% CI: 0.3, 0.8), accelerometer-measured physical activity for meeting the PAGs (OR: 0.5, 95% CI: 0.3,

0.9), self-reported physical activity level (OR: 0.5, 95% CI: 0.3, 0.8), and accelerometer-measured physical activity level (OR: 0.4, 95% CI: 0.2, 0.7). In conclusion, the number of physician-diagnosed conditions was the only health outcome in the study that was significantly associated with park use.

Discussion

Sample Characteristics

Park users and non-users did not significantly differ in demographic characteristics other than in education and gender. Numerous other studies have found that education was a fairly good predictor of constraints of park use (Mowen, Payne et al. 2005). Barriers associated with income are similar to barriers related to education. Mowen, Payne et al. found that respondents with lower incomes or lower education were more likely to report fear of crime, no way to get to parks, poor health, and the cost of parks being too much as park use barriers (2005). This contrasts with the barriers reported by subjects with higher incomes and those with higher education, such as lack of time and being busy with other activities (Mowen, Payne et al. 2005). Additionally, there is some evidence that suggests that low-income residents may live in communities that are viewed as less walkable than those of their higher-income counterparts (Giles-Corti and Donovan 2002). One study in Glasgow, Scotland found that parks were less common and/or farther for more deprived neighborhoods compared to wealthier neighborhoods (MacIntyre, MacDonald et al. 2008). Thus, access to and use of parks may be lower for poorer people.

For our study, income was not included in the model due to the high non-response rate (24 missing). However, education may be serving as a proxy for socioeconomic

status (SES), since higher income (Browson, Baker et al. 2001; Chad, Reeder et al. 2005) and employment (Paxton and Sharpe 2005) are related to greater use of parks. In our study, employment was not found to be a significant variable related to park use, but this may be due to people being retired, rather than unemployed. The difference in park use based on education may highlight the socioeconomic inequalities in park use among older adults. Therefore, our study provides further evidence that use of parks is associated with SES and suggests that this relationship holds true for older adults.

Our study found that gender was significantly different between park users and nonusers, which is consistent with other studies (Byrne and Wolch 2009; Moore, Gauvin et al. 2010; Biazzo, Mumford et al. unpublished). Older women are more likely to report not using parks due to fear of crime, lack of companionship, having no way to get to parks, and poor health (Scott and Jackson 1996). As older adults age, however, these barriers become equally reported by men and women (Scott and Jackson 1996). As expected, because poor health is one of the barriers to park use for this population, those with health conditions limiting physical activity were found to have lower odds of being park users in our study. While previous studies have identified differing barriers to park use by gender, our study confirms that there are gender differences in actual park use for older adults.

Other participant characteristics that varied significantly between park users and non-users were owning a dog and having a child under the age of 10 in the household. The majority of dog owners are known to walk their dogs regularly (Christian, Giles-Corti et al. 2010). Additionally, dog owners are more physically active and use parks more frequently than people who do not own dogs (Cutt, Giles-Corti et al. 2008; Christian,

Giles-Corti et al. 2010; Ioja, Rozylowicz et al. 2011). Studies have found that dog walking is one of the main reasons people use green space (Dunnett, Swanwick et al. 2002). Households with children under the age of 10 also had higher odds of being park users. This is expected, since grandparents may participate in recreation opportunities with grandchildren, and children are some of the most prevalent users of parks (Gardyn 2001; Kaczynski, S. A. Wilhelm Stanis et al. 2011; Biazzo, Mumford et al. unpublished). Our findings demonstrate that having a dog or a young child in the household is related to higher park use. This association may be extremely important to identify park facilities and features that older adult park users seek. Areas such as dog parks and children's playgrounds may increase the appeal and usability of parks by older adults.

Other studies have typically found mixed results with respect to park use by race and ethnicity (Hutchison 1987; Payne, Mowen et al. 2002; Ho, Sasidharan et al. 2005; Reed, Price et al. 2012). Mowen, Payne et al. (2005) found that Blacks were more likely to report fear of crime and lack of access to parks as limitations to park use compared to Whites. Our study did not find a significant difference between White non-Hispanic participants and other participants. However, this lack of observable differences could be due to the grouping of minorities into a dichotomous variable in the analysis. Reed, Price et al. found that there was a smaller proportion of non-White individuals to be observed in parks than was expected based on the proportion of ethnicities in Michigan (2012). Our study was based on a similar disproportionately large number of White non-Hispanic participants. While DeKalb County is comprised of only 29% White non-Hispanics (U.S. Census Bureau 2012), our study included a majority of White non-Hispanic participants (69% for PUs, 61% for PNs). This inequality in recruitment was found even though the

study parks were selected to maximize variability across ethnicities and incomes. For further investigations on the association of race and park use in older adults, it may be necessary to recruit a larger population of minorities.

Physical Activity

Despite the multiple health benefits of regular physical activity, over half (57%) of adults aged 50 and older in the United States reported being inactive or insufficiently active (Centers for Disease Control and Prevention 2009). In our study, self-report data found that one third of respondents were either inactive or insufficiently active. However, according to accelerometer data, nearly 70% of respondents were measured to be either inactive or insufficiently active. The discrepancy between these values is likely due to the limitations of both measurement instruments (Harris, Owen et al. 2009; Troiano and Freedson 2010). Over-reporting usually occurs for self-reported measures (Troiano and Freedson 2010), and because accelerometers do not record activities such as weight-bearing and water exercises, they often underreport physical activity. However, the values indicate that even by the most conservative measures, nearly a third of participants did not participate in sufficient physical activity. Thus, the potential to increase physical activity in this population is vast.

For the general adult population, many studies have shown a positive association between physical activity and park use (Addy, Wilson et al. 2004; Deshpande, Baker et al. 2005). For older adults, this association has previously been shown in studies by looking at proximity to a park, rather than park use itself (Chad, Reeder et al. 2005). Our study found a positive association between park use and physical activity levels for most measures of physical activity. While only the physical activity data measured by

accelerometer were consistently significantly associated with park use, self-reported measures of physical activity still produced park use associations in the expected direction. Thus, these findings correspond to our hypothesis that park use by older adults is associated with higher levels of physical activity. While the association between park use and physical activity does not establish causality, it points to the importance of parks as venues for physical activity for older adults.

Health

Previous studies have demonstrated that contact with nature is related to better health (De Vries S., Verheij et al. 2003), faster recovery (Ulrich 1984), and reduced negative mental states (Morita, Fukuda et al. 2007; Coon, Boddy et al. 2011). Because parks may provide health benefits beyond those associated with physical activity, the association between park use and health was investigated, controlling for physical activity levels. In our study, park users had half the odds of having a higher number of diagnosed conditions than those who did not use parks, even when we controlled for physical activity. However, the causality of this association cannot be inferred from our analysis. Thus, it is unclear whether having fewer conditions increases park use, or whether using parks reduces or prevents illness. Based on the findings of our study that suggest that health and park use are associated, further analyses are needed to analyze the pathways of park use on health.

Self-reported health was also expected to be higher for park users compared to non-users but was non-significant in our study. Additionally, cardiovascular disease and depression did not show any significant association with park use, even though both were expected to be reduced. Previous literature on contact with green space suggested that

park use would be associated with improved mental states and lower rates of cardiovascular disease (Maller, Townsend et al. 2006; Grinde and Patil 2009; Li, Otsuka et al. 2011). Future studies may be needed to investigate various mental health and restoration outcomes of park use in older adults. In our study, there may not have been enough participants to provide the power needed to investigate the association between self-reported health or individual conditions and park use. In addition, our measure of mental health (i.e., depression diagnosed by a doctor) might not have been sensitive enough to detect more subtle differences in mental health status.

Strengths

Strengths of our study include the collection of both self-reported and accelerometer-measured physical activity data. Our study controlled for both over-reporting and under-reporting of physical activity. Our study also included several measures of health, both mental and physical. Self-reported general health allowed for a more subjective measure of health status, while physician-diagnosed conditions provided a more objective measure of health.

Limitations

Because the NPAL study was initially designed to include all adults over the age of 18, the sample was reduced when we examined only older adults. Due to the low number of adults over the age of 65 recruited into the study, the analysis had to be expanded to include all adults over the age of 50. Additional limitations of our study include its reliance on self-reported behaviors and characteristics. Errors in recall responses must be considered, especially since the age group under analysis is prone to cognitive impairment (Tomioka, Iwamoto et al. 2011). Because our study was not

designed specifically for older adults, measures developed to examine health in older adults were not included (e.g. cognitive and mobility measures). Another limitation is due to the seasonality of the data. Participants were interviewed only during the summer, and older adults may have been underrepresented in the original study since they may be more sensitive to heat (Hansen, Bi et al. 2011). Additionally, the generalizability of the study findings may be limited due to the low response rate of PNs (12%) and the homogeneity of participants. Findings from our study were constrained to only one U.S. city and may not be reproducible in other areas. Finally, the study design does not establish causality. While associations can be demonstrated between park use and participant characteristics, one cannot assess the direction of the association between physical activity or health and park use.

Conclusion and Significance

Through our study, the association between park use and health in older adults was investigated. Our findings suggest that using parks is associated with higher physical activity and better health for older adults. We conclude that parks may have important implications for public health in this age category. Regular physical activity has been found to have a strong dose-response effect on health care utilization and costs in the Medicare population (Wang, McDonald et al. 2005). Moderately active retirees have annual costs approximately $1,200 to $1,700 lower than their sedentary counterparts (Wang, McDonald et al. 2005). Retirees who are very active have an even greater drop in medical expenditure, costing $600 to $1,800 less annually compared to moderately active retirees (Wang, McDonald et al. 2005). Additionally, Medicare-age adults without serious chronic conditions spend $1,000 to $2,000 less on healthcare annually than

similar adults without a condition (Joyce, Keeler et al. 2005). Thus, because our study suggests that parks are associated both with increased physical activity and lower number of conditions, parks may increase not only the quality of life of older individuals but also decrease national healthcare costs.

However, previous investigations have shown that older adults are less likely to be park users compared to other age groups (Payne, Mowen et al. 2002; Cohen, Sehgal et al. 2006; Biazzo, Mumford et al. unpublished; Mumford, Rutt et al.). A social ecological perspective, which looks beyond individual motivators and barriers and accounts for social and environmental factors, may be essential to address multi-level contributors to park use. Older adults cite barriers including individual (e.g., poor health), interpersonal (e.g., having no one to go with to parks), and community (e.g., having no way to get to parks and lack of public transportation) barriers as important constraints to park use (Mowen, Payne et al. 2005). In order to diminish these barriers, interpersonal isolation may need to be reduced by creating formal memberships for activities in parks for older adults (Moore, Gauvin et al. 2010). Because older adults are more likely to use indoor facilities of parks with programs and activities for seniors, senior-centered programs may be critical to increase park use (Biazzo, Mumford et al. unpublished). Additionally, the Complete Streets movement, which emphasizes safety regardless of age, ability, or mode of transportation, may reduce the community-scale barriers related to access to parks (National Complete Streets Coalition 2011). Creating walkable communities that support healthy lifestyles for older adults through better sidewalks, safe crossings, and other modifications of the built environment may enhance access to parks both for older adults and younger age groups.

In order to target interventions and campaigns to increase park use, further studies should investigate age-specific barriers and motivators. The heterogeneity within the older adult group should be taken into account when studying older populations and applying research to increase park use. The older adult classification includes the baby boomer cohort, one of the most diverse cohorts in terms of leisure time activity (Robinson and Godbey 1997). Additionally, very few studies have been done to measure the physical activity of the oldest of the old, especially those aged 90 and older (Johannsen, J. P. De Lany et al. 2008). However, because older adults could benefit greatly from the positive health associated with park use, it is important to study the characteristics that differentiate older adult park users and non-users.

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Appendix

Tables

Table 1: Demographic characteristics for all participants age 50 and older by park use status (N=207).

Variable	PUs (n=71) %	PNs (n=136) %	χ^2	*p*
Sex				
Male	42	29	3.87	<0.05*
Female	58	71		
Race and ethnicity				
Non-Hispanic White	69	61	1.22	0.27
Other	31	39		
Household income				
<$25,000	17	15	6.78	0.08
$25,000-$50,000	14	25		
$50,001-$75,000	15	24		
>$75,000	54	36		
Education				
High school or less	9	12	14.51	<0.01*
Some college	17	38		
College graduate	30	27		
Advanced degree	45	24		
Marital status				
Married	52	43	3.61	0.17
Single	19	14		
Other	29	43		
Body mass index				
Underweight or Normal (<25)	31	33	0.99	0.61
Overweight (25-29.9)	41	35		
Obese (≥30)	27	33		
Employed				
No	35	46	2.06	0.15
Yes	65	54		
Limiting health condition				
No	83	67	6.13	0.01*
Yes	17	33		
Yard or outdoor space				
No	7	8	0.07	0.79
Yes	93	92		
Own a dog				
No	62	76	4.29	0.04*
Yes	38	24		
Child <10 years old in household				
No	86	94	3.95	<0.05*
Yes	14	6		
Smoke				
No	94	87	2.89	0.09
Yes	6	13		
	PUs (n=71)	**PNs (n=136)**	**T-test**	***P***
Age Mean	59 ± 9	62 ± 10	1.70	0.09

Note: PUs = park users, PNs = park non-users; *p<0.05

Table 2: Distribution of physical activity variables by park use status (N=207).

Variable	PUs% (n=71)	PNs % (n=136)
Physical activity level (sr)		
Inactive	13	16
Insufficiently Active	13	19
Active	9	19
Highly active	66	46
Physical activity level (ac)		
Inactive	11	23
Insufficiently active	37	57
Active	13	10
Highly active	39	10
Met Physical Activity Guidelines (sr)		
No	25	35
Yes	75	65
Met Physical Activity Guidelines (ac)		
No	49	80
Yes	51	20

Note: PUs = park users, PNs = park non-users, sr = self-reported, ac = accelerometer

Table 3: Distribution of health variables by park use status (N=207).

Variable	PUs % (n=71)	PNs % (n=136)
Health status		
Excellent to Very Good	69	54
Good	27	34
Fair to Poor	4	12
Number of medical conditions		
None	31	13
One	31	24
Two	17	28
Three or more	21	35
Cardiovascular disease		
No	63	54
Yes	37	46
Depression		
No	93	85
Yes	7	15

Note: PUs = park users, PNs = park non-users

Table 4: Participant demographic and characteristic variables in forward 2-block hierarchical model for park users compared with non-users (N=207).

Variable	B	Standard Error	p	OR	(95% CI)
Step 1: *Demographic*					
Education					
High school or less			0.05	Ref.	
Some college	-1.00	0.71	0.16	0.4	(0.1, 1.5)
College	-0.62	0.72	0.39	0.5	(0.1, 2.2)
Advanced degree	0.23	0.68	0.74	1.3	(0.3, 4.8)
Step 2: *Characteristic*					
Number of conditions					
0			0.03	Ref.	
1	-0.58	0.50	0.25	0.6	(0.2, 1.5)
2	-1.43	0.56	0.01	0.2*	(0.1, 0.7)
3+	-1.32	0.53	0.01	0.3*	(0.1, 0.8)
Physical activity level (ac)					
Inactive			0.01	Ref.	
Insufficiently Active	0.63	0.55	0.25	1.9	(0.6, 5.5)
Active	0.56	0.70	0.42	1.8	(0.4, 6.9)
Highly Active	2.03	0.64	<0.01	7.6*	(2.2, 26.5)
Constant	-0.31	0.81	0.70	0.7	

Note: ac = accelerometer; *indicates odds ratio significantly different from reference group at $p<0.05$ level

Table 5: Odds ratios for the association between physical activity factors and park use.

	All participants (N=207)				
Variable	**Crude OR (95% CI)**		*p*	**Adjusted OR[†] (95% CI)**		*p*
Met Physical Activity Guidelines (sr)[a]	1.6	(0.8, 3.0)	0.16	1.6	(0.8, 3.2)	0.16
Met Physical Activity Guidelines (ac)[a]	4.3*	(2.3, 8.1)	<0.001	3.0*	(1.5, 6.1)	<0.01
Physical activity level (sr)[b]						
Unit level increase	2.0*	(1.1, 3.5)	0.02	2.0*	(1.1, 3.7)	0.02
Physical activity level (ac)[b]						
Unit level increase	3.9*	(2.2, 6.9)	<0.001	3.0*	(1.7, 5.5)	0.02

	Participants with no limiting health conditions only (N=150)				
Variable	**Crude OR (95% CI)**		*p*	**Adjusted OR[†] (95% CI)**		*p*
Met Physical Activity Guidelines (sr)[a]	1.4	(0.7, 2.8)	0.40	1.6	(0.7, 3.6)	0.23
Met Physical Activity Guidelines (ac)[a]	4.2*	(2.0, 8.6)	<0.001	2.7*	(1.2, 6.2)	0.02
Physical activity level (sr)[b]						
Unit level increase	1.6	(0.8, 3.0)	0.17	1.8	(0.9, 3.5)	0.11
Physical activity level (ac)[b]						
Unit level increase	4.1*	(2.1, 7.9)	<0.001	2.9*	(1.4, 5.8)	<0.01

Note: sr = self-reported, ac = accelerometer; [†]adjusted for age, sex, and education; *indicates odds ratio significantly different from reference group at $p<0.05$ level; [a] logistic regression using "Did not meet Physical Activity Guidelines" as reference; [b] ordinal regression using levels "inactive," "insufficiently active," "active," "highly active"

Table 6: Odds ratios for the association between health and park use, controlling for meeting the Physical Activity Guidelines (N=207).

Variable	OR (95% CI)				Adjusted OR[†] (95% CI)			
	Self-report	p	Accelerometer	p	Self-report	p	Accelerometer	P
Health category[a]								
Unit level increase	2.0* (1.1, 3.6)	0.03	1.7 (0.9, 3.2)	0.12	1.3 (0.7, 2.5)	0.43	1.3 (0.7, 2.6)	0.42
Number of conditions[b]								
Unit level increase	0.4* (0.2, 0.7)	<0.01	0.5* (0.3, 0.8)	0.01	0.5*(0.3, 0.8)	0.01	0.5* (0.3, 0.9)	0.01
Depression[c]	0.4 (0.2, 1.3)	0.13	0.5 (0.2, 1.6)	0.26	0.4 (0.1, 1.2)	0.10	0.5 (0.2, 1.5)	0.21
Cardiovascular disease[d]	0.7 (0.4, 1.3)	0.27	0.8 (0.4, 1.5)	0.50	1.0 (0.5, 2.0)	0.99	0.9 (0.5, 1.9)	0.83

Note: [†]Adjusted for age, sex, and education; *indicates odds ratio significantly different from reference group at $p<0.05$ level; [a] ordinal regression using levels "poor-fair," "good," "very good-excellent;" [b] ordinal regression using levels 0, 1, 2, 3+; [c] logistic regression using "No depression" as reference; [d] logistic regression using "No cardiovascular disease" as reference

Table 7: Odds ratios for the association between health and park use, controlling for physical activity level (N=207).

Variable	OR (95% CI)				Adjusted OR[†] (95% CI)			
	Self-report	p	Accelerometer	p	Self-report	p	Accelerometer	P
Health category[a]								
Unit level increase	1.9* (1.0, 3.5)	0.04	1.7 (0.9, 3.3)	0.12	1.2 (0.6, 2.4)	0.51	1.3 (0.6, 2.6)	0.47
Number of conditions[b]								
Unit level increase	0.4* (0.2, 0.7)	0.001	0.4* (0.2, 0.8)	0.01	0.5* (0.3, 0.8)	0.01	0.4* (0.2, 0.7)	0.01
Depression[c]	0.4 (0.2, 1.2)	0.12	0.5 (0.2, 1.4)	0.20	0.4 (0.1, 1.1)	0.07	0.5 (0.1, 1.4)	0.18
Cardiovascular disease[c]	0.8 (0.4, 1.4)	0.38	0.8 (0.4, 1.4)	0.40	1.1 (0.5, 2.3)	0.76	0.9 (0.4, 1.8)	0.73

Note: [†]Adjusted for age, sex, and education; *indicates odds ratio significantly different from reference group at $p<0.05$ level; [a] ordinal regression using levels "poor-fair," "good," "very good-excellent;" [b] ordinal regression using levels 0, 1, 2, 3+; [c] logistic regression using "No depression" as reference; [d] logistic regression using "No cardiovascular disease" as reference

Internal Review Board Approval

TO: Gaelle Gourmelon
        Principal Investigator
        School of Public Health

DATE: January 20, 2012

RE: **Expedited Approval**
        IRB00054625
        The Health Benefits of Park Use among Older Adults in Atlanta

Thank you for submitting a new application for this protocol. This research is eligible for expedited review under 45 CFR.46.110 and/or 21 CFR 56.110 because it poses minimal risk and fits the regulatory category F5 as set forth in the Federal Register. The Emory IRB reviewed it by expedited process on 1/19/2012 and granted approval effective from **1/19/2012** through **1/18/2013**. Thereafter, continuation of human subjects research activities requires the submission of a renewal application, which must be reviewed and approved by the IRB prior to the expiration date noted above. A complete HIPAA waiver and a waiver of informed consent have been granted for this study.

Any reportable events (e.g., unanticipated problems involving risk to subjects or others, noncompliance, breaches of confidentiality, HIPAA violations, protocol deviations) must be reported to the IRB according to our Policies & Procedures at www.irb.emory.edu, immediately, promptly, or periodically. Be sure to check the reporting guidance and contact us if you have questions. Terms and conditions of sponsors, if any, also apply to reporting.

Before implementing any change to this protocol (including but not limited to sample size, informed consent, study design), you must submit an amendment request and secure IRB approval.

In future correspondence about this matter, please refer to the IRB file ID, name of the Principal Investigator, and study title.

Thank you,

Tom Penna, MTS
Research Protocol Analyst

Survey

Introduction

Thank you so much for taking the time to participate in this survey. This survey will include questions about your neighborhood, your views about parks, the physical activity you participate in, and some information about you. This survey should take about 20 minutes of your time.

Remember:
      Your responses will remain confidential and will not be shared with anyone else.
      There are no right or wrong answers
      You do not have to answer all the questions
      You can stop at any time
Please let me know if….
      A question is unclear
      You need the question repeated
      You would prefer not to answer the question

Neighborhood Environment

I would like to begin by asking you questions about your neighborhood -- by this I mean <u>an area within a 10 or 15 minute walk from your home</u>. Think about your neighborhood and about the different facilities and people who live in your neighborhood. For each of the statements I read, tell me whether you strongly agree, somewhat agree, neither agree nor disagree, somewhat disagree, or strongly disagree. <u>**(USE BLUE COLORED CARD)**</u>

1.   Many shops, stores, markets or other places to buy things I need are within easy walking distance of my home. Would you say that you…

1	2	3	4	5
Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree

2.   There is a park I would walk to from my home.

1	2	3	4	5
Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree

3.   There are sidewalks on most of the streets in my neighborhood.

1	2	3	4	5
Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree

(Interviewer Note: If "somewhat disagree or strongly disagree," skip to #4)

    3A.   The sidewalks in my neighborhood are well maintained (paved, with few cracks) and not obstructed.

1	2	3	4	5
Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree

4. The crime rate in my neighborhood makes it unsafe to go on walks **at night**.

1	2	3	4	5
Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree

5. The crime rate in my neighborhood makes it unsafe to go on walks **during the day**.

1	2	3	4	5
Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree

6. There is so much traffic on the streets that it makes it difficult or unpleasant to walk in my neighborhood.

1	2	3	4	5
Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree

7. I see many people being physically active in my neighborhood doing things like walking, jogging, cycling, or playing sports and active games.

1	2	3	4	5
Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree

8. There are many interesting things to look at while walking in my neighborhood.

1	2	3	4	5
Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree

9. People around my neighborhood are willing to help their neighbors.

1	2	3	4	5
Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree

10. People in my neighborhood can be trusted.

1	2	3	4	5
Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree

Park Use and Perceptions

I will now ask you about your use and perceptions of parks.....

11. Within the last year, did you visit a public park in the Atlanta metro area?
   1   Yes
   0   No -- [skip to Question 12]

   11A. If so, can you tell me the name of the park or its location?_____

   _____

   [Interviewer tip: If respondent says there is a larger number or starts naming a large number of parks, ask "Which one is closest to your home?" and "Which one do you use most often?"]

Closest? _____

Use most often? _____

Thinking about parks generally in the Atlanta metro area, please indicate your level of agreement or disagreement with each of the statements below. (**<u>USE BLUE CARD</u>**)

12.　Parks near my home are safe.

1	2	3	4	5
Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree

13.　Parks are great places to meet people and socialize.

1	2	3	4	5
Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree

14.　There are too many homeless people, strange, or threatening people in the parks.

1	2	3	4	5
Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree

15.　Dog waste or dogs off leash ruin my enjoyment of parks.

1	2	3	4	5
Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree

16.　It's easy for me to get to a park on foot or by bicycle.

1	2	3	4	5
Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree

17.　Parks are too crowded.

1	2	3	4	5
Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree

18.　Parks do not offer the types of facilities or amenities that I like to use.

1	2	3	4	5
Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree

19.　Parks are great places to walk a dog. (Note: Not Applicable)

1	2	3	4	5
Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree

20.　Parks provide great places to enjoy nature.

1	2	3	4	5
Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree

21. Park equipment and facilities are well maintained.

1	2	3	4	5
Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree

22. There is plenty of shade in the park to avoid the summer heat.

1	2	3	4	5
Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree

23. Parks are filled with graffiti, litter, and trash.

1	2	3	4	5
Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree

24. Parks are great places to get exercise and be physically active.

1	2	3	4	5
Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree

I'd like you to think about when you were growing up....

25. As a child or youth, how often did you visit public parks in your community?

1	2	3	4	5
At least once a week	Once a month	Once a year	Rarely	Never

26. As a child or youth, did you ever participate in organized activities such as summer camps, cheerleading, sports leagues?

      1 Yes   0 No **[skip to Question 27]**

    26A.   **If yes**, did **even one** of these activities occur at:
           public parks   1 yes   0 no
           public recreation facilities?   1 yes   0 no
           private recreation facilities?   1 yes   0 no
           If all no, where?_____

27. As a child or youth, **where did you engage** in physical activity—think about where you played with friends or the types of activities you participated in (circle all that apply):

    1   Backyard or neighborhood
    2   School yard or playing fields
    3   Parks
    4   Recreation facilities-gyms, indoor courts, pools, etc.
    5   Private club (fitness, tennis, or golf)
    6   Other (specify_____)

Physical Activity

Now I am going to ask you about the time you spent being physically active in the last 7 days. Please answer each question even if you do not consider yourself to be an active person.

Think about the activities you do at work, as part of your house and yard work, to get from place to place, and in your spare time for recreation, exercise or sport. I am going to ask you about 4 different activity levels: **moderate, vigorous, walking, and sitting.**

First, think about activities which take *moderate physical effort* that you did in the last 7 days. Moderate physical activities make you breathe somewhat harder than normal and may include carrying light loads, bicycling at a regular pace, or doubles tennis. Do not include walking. Do not include vigorous activities—I will ask about these in the next section. Again, think about only those physical activities that you did for at least 10 minutes at a time.

28. During the **last 7 days**, on how many days did you do **moderate** physical activities for at least 10 minutes at a time?

    _____ Days per week [MDAY; Range: 0-7, 8, 9]   *[If "0" or don't know or refused,*
       8.   Don't Know/Not Sure   *skip to Question 30]*
       9.   Refused

29. How much time did you usually spend doing **moderate** physical activities on one of those days?

    __ __ Hours per day [MDHRS; Range: 0-16]
    __ __ __ Minutes per day [MDMIN; Range: 0-960, 998, 999]
       998. Don't Know/Not Sure
       999. Refused

    [Interviewer probe: An average time for one of the days on which you do moderate activity is being sought. If the respondent can't answer because the pattern of time spent varies widely from day to day, or includes time spent in multiple jobs, ask: "What is the total amount of time you spent over the **last 7 days** doing moderate physical activities?"

    __ __ __ Hours per week [MWHRS; Range: 0-112]
    __ __ __ Minutes per week [MWMIN; Range: 0-6720, 9998, 9999]
    9998. Don't Know/Not Sure
    9999. Refused]

30. Over the past 6 months, have you been **exercising regularly** at a moderate level? By regularly, I mean at least five times a week for 30 minutes a day or longer?
       1 Yes   0 No

31. Now, think about all the *vigorous* activities which take *hard physical effort* that you did in the last 7 days. Vigorous activities make you breathe much harder than normal and may include heavy lifting, digging, aerobics, running, or fast bicycling. Think only about those physical activities that you did for at least 10 minutes at a time.

    During the **last 7 days**, on how many days did you do **vigorous** physical activities for <u>at least 10 minutes at a time</u>?

    _____ Days per week   [MDAY; Range: 0-7, 8, 9]   *If "0" or don't know or refused,*
    8.   Don't Know/Not Sure   *skip to Question 33*
    9.   Refused

32. How much time did you usually spend doing **vigorous** physical activities <u>on one of those days?</u>

    __ __ Hours per day   [VDHRS; Range: 0-16]
    __ __ __ Minutes per day   [VDMIN; Range: 0-960, 998, 999]
    998.   Don't Know/Not Sure
    999.   Refused

    [Interviewer probe: An average time for one of the days on which you do vigorous activity is being sought. If the respondent can't answer because the pattern of time spent varies widely from day to day, ask: "How much time in total would you spend **over the last 7 days** doing vigorous physical activities?"

    __ __ Hours per week   [VWHRS; Range: 0-112]
    __ __ __ __ Minutes per week   [VWMIN; Range: 0-6720, 9998, 9999]
    9998. Don't Know/Not Sure
    9999. Refused]

33. Over the past 6 months, have you been **exercising regularly** at a <u>vigorous level</u>? By regularly, I mean at least three times a week for 20 minutes a day or longer?
    1   Yes   0   No

34. Now think about the time you spent **walking** in the last 7 days. This includes at work and at home, walking to travel from place to place, walking your dog, and any other walking that you might do solely for recreation, sport, exercise, or leisure.

    During the **last 7 days**, on how many days did you **walk** for at least 10 minutes at a time?

    _____ Days per week   [MDAY; Range: 0-7, 8, 9]   [*If "0" or don't know or refused,*
    8.   Don't Know/Not Sure   *skip to Question 36]*
    9.   Refused

35. How much time did you usually spend **walking** on one of those days?

    __ __ Hours per day   [WDHRS; Range: 0-16]
    __ __ __ Minutes per day [WDMIN; Range: 0-960, 998, 999]
    998.   Don't Know/Not Sure
    999.   Refused

[Interviewer probe: An average time for one of the days on which you walk is being sought. If the respondent can't answer because the pattern of time spent varies widely from day to day, ask: "What is the total amount of time you spent walking over **the last 7 days**?"

__ __ __ Hours per week [WWHRS; Range: 0-112]

__ __ __ __ Minutes per week   [WWMIN; Range: 0-6720, 9998, 9999]

      9998. Don't Know/Not Sure

      9999. Refused]

36. Now think about the time you spent **sitting on week days** during the last 7 days. Include time spent at work, at home, while doing course work, and during leisure time. This may include time spent sitting at a desk, visiting friends, reading, or sitting or lying down to watch television.

    During the last 7 days, how much time did you usually spend *sitting* on a **week day**?

    __ __ Hours per weekday [SDHRS; 0-16]

    __ __ __ Minutes per weekday   [SDMIN; Range: 0-960, 998, 999]

         998. Don't Know/Not Sure

         999. Refused

    [Interviewer clarification: Include time spent lying down (awake) as well as sitting]

    [Interviewer probe: An average time per day spent sitting is being sought. If the respondent can't answer because the pattern of time spent varies widely from day to day, ask: "What is the total amount of time you spent *sitting* last **Wednesday**?"

    __ __ Hours on Wednesday   [SWHRS; Range 0-16]

    __ __ __ Minutes on Wednesday [SWMIN; Range: 0-960, 998, 999]

         998. Don't Know/Not Sure

         999. Refused]

37. Do you work outside the home?

    1   Yes

    0   No [skip to question 39]

38. When you are **at work**, which of the following best describes what you do?

    1. Mostly sitting
    2. Mostly standing
    3. Mostly walking

    4. Mostly heavy labor or physically demanding work
    5. Don't know
    6. Refused

39. Which of the following best describes how you spend your **days at home**?

    1. Mostly sitting
    2. Mostly standing
    3. Mostly walking

    4. Mostly heavy labor or physically demanding work
    5. Don't know
    6. Refused

Location of Recreation, Sport, or Leisure-time Activity

Now I would like to ask you **specifically about your leisure time physical activity**. By leisure time physical activity, I mean **non-work related activities in which you choose to be physically active**. Examples might include gardening in your backyard, walking or jogging in your neighborhood or at a fitness club; participating in a recreational league or organized sports team such as tennis or basketball, taking an aerobic class. This would **not include activities done sitting** such as playing computer games, cards, or doing handicrafts.

40. Do you engage in physical activity during your leisure time?

     1   Yes [continue with Question 40A]
     0   No [skip to Places for Physical Activity] (respondent comment: _____
_____)

     40A. On average, how many days per week do you engage in physical activity in your leisure time?

          _____

     40B. On average, how many minutes on each of these days do you spend doing physical activity?
               _____ minutes

     40C. What types of leisure-time physical activities do you engage in?
          _____
          _____

Places For Physical Activity

I'm interested in learning about the places where you are physically active, how often you use these places or facilities, and the amount of physical activity you get at these places.

I will list the names of several places where you could engage in physical activity. I will ask you to indicate whether in a typical week you use each of these places or facilities and, on average, how many days per week you use these place or facilities.

Do you engage in physical activity.....:

    41.   In your Home or Yard? This could include using home workout equipment—treadmill; weights; gardening

          1 Yes   If yes ----→ 41A. How many days per week?   _____
          0 No

    42.   At your Place of Work? This could include gym or facilities at work; jogging or walking at lunch time, etc.

          1 Yes   If yes ----→ 42A. How many days per week?   _____
          0 No

43. At your School, Church, College or University facility? This could include using a fitness facility or track at these locations

    1 Yes   If yes ----→ 43A. How many days per week?   _____
    0 No

44. At a Park--**not including a gym or indoor recreational facility**? This could include walking in a park, walking your dog in a park; taking your kids to the park if you are not sedentary (sitting) the whole time

    1 Yes   If yes ----→ 44A. How many days per week?   _____
    0 No

45. At a Free Recreational facility--**this includes a public gym or rec center**?

    1 Yes   If yes ----→ 45A. How many days per week?   _____
    0 No

46. At a Fitness Club or Commercial Facility not part of your home, work, or school?

    1 Yes   If yes ----→ 46A. How many days per week?   _____
    0 No

47. In your **neighborhood** on streets, paths, or sidewalks?

    1 Yes   If yes ----→ 47A. How many days per week?   _____
    0 No

48. At your apartment or condominium pool or fitness facility?

    1 Yes   If yes ----→ 48A. How many days per week?   _____
    0 No

49. Somewhere else? Please specify _____

    1 Yes   If yes ----→ 49A. How many days per week?   _____
    0 No

50. Where or at what location do you get the greatest percentage of your weekly exercise? (**pick one only**)

    1 Home or Yard
    2 Work
    3 School, church, college or university facility
    4 Park
    5 Apartment or condominium pool or fitness facility

    6 Private club or commercial facility
    7 In my neighborhood on streets, paths, sidewalks, or trails
    8 Free recreational facility

    9 Other, Please specify
    _____

What reasons are important to you in **choosing where you are physically active**? I will read a set of factors and ask you to tell me how strongly you agree or disagree with the statement, or whether it is not applicable **(USE GREEN COLORED CARD).**

I choose the location where I exercise because...:

51. It is at my home or close to my home...

1	2	3	4	5	6
Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree	Not Applicable

52. It is free or inexpensive...

1	2	3	4	5	6
Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree	Not Applicable

53. It is safe...

1	2	3	4	5	6
Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree	Not Applicable

54. I like the people that are there (either exercising or the staff)...

1	2	3	4	5	6
Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree	Not Applicable

55. My whole family can use the facility...

1	2	3	4	5	6
Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree	Not Applicable

56. It provides access to or contact with nature (wildlife, trees, greenspaces, etc.)...

1	2	3	4	5	6
Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree	Not Applicable

57. There is plenty of parking...

1	2	3	4	5	6
Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree	Not Applicable

58. It is not crowded....

1	2	3	4	5	6
Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree	Not Applicable

59. I like the equipment or programs, organized sports, or leagues there....

1	2	3	4	5	6
Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree	Not Applicable

60. Is there any other reason you use in choosing where you are physically active?
    1 Yes, Please specify _____
    0 No

61. Do you belong to any sports or fitness club, facility, or team?
    0 No
    1 Yes   61A. If yes, what ones?

        [Interviewer tip: Here is a list to read, if helpful, and then circle all responses]
        1 YMCA or YWCA   8 Private fitness club
        2 Private country club   9 Martial arts team or club
        3 Church sports league   10 City/county-sponsored sports team/league
        4 Running club   11 Biking club
        5 Hiking or outdoor recreational club 12 Garden club
        6 Tennis team or club   13 Swim team or club
        7 Seniors activity club/organization 14 Other, specify _____

Benefits of Regular Physical Activity

The next set of statements are about the possible effects of regular physical activity or exercise. Please indicate how strongly you agree or disagree with the following statements (**USE BLUE COLORED CARD):**

If I participate in regular physical activity or sports, then

	Strongly agree	Somewhat agree	Neither Agree nor Disagree	Somewhat Disagree	Strongly Disagree
62. I will feel less depressed and/or bored	1	2	3	4	5
63. I will improve my self-esteem….	1	2	3	4	5
64. I will meet new people …………..	1	2	3	4	5
65. I will lose weight or improve my shape	1	2	3	4	5
66. I will build up my muscle strength	1	2	3	4	5
67. I will feel less tension and stress …	1	2	3	4	5
68. I will improve my health or reduce my risk of disease	1	2	3	4	5
69. I will do better at my work………..	1	2	3	4	5
70. I will feel more attractive………. .	1	2	3	4	5
71. I will improve my heart & lung fitness	1	2	3	4	5

Barriers to Regular Physical Activity

Next, I will read you a series of statements that could be reasons for limiting the amount of physical activity you get. For each statement, please indicate how strongly you agree or disagree with it as a barrier to your regular physical activity (**USE BLUE COLORED CARD**).

	Strongly agree	Somewhat agree	Neither Agree nor Disagree	Somewhat disagree	Strongly disagree
72. I'm too tired after work or at the end of the day........	1	2	3	4	5
73. I can't afford to go to a fitness or rec facility........	1	2	3	4	5
74. I don't have time.	1	2	3	4	5
75. I'm afraid of getting hurt	1	2	3	4	5
76. It's not important to me to be physically active.....	1	2	3	4	5
77. I'm already physically active at work, I don't need to exercise in my leisure time..............	1	2	3	4	5
78. Weather makes it uncomfortable.....................	1	2	3	4	5
79. It's not safe to exercise in my neighborhood...	1	2	3	4	5
80. I'm too self-conscious about the way I look........	1	2	3	4	5
81. My health is not good enough........................	1	2	3	4	5
82. I don't know where I could participate.................	1	2	3	4	5
83. I'm not skilled enough	1	2	3	4	5
84. I have problems with transportation.................	1	2	3	4	5
85. I have nobody to exercise with.....................	1	2	3	4	5
86. There are no facilities in my neighborhood...:......	1	2	3	4	5

Social Support

I'm going to ask you some questions about the role your family and friends play in your physical activity (**USE PINK COLORED CARD**).

During the past three months,

87. **My family** did physical activity with me

1	2	3	4	5
Never	Rarely	Sometimes	Often	Very Often

88. **My family** offered to do physical activity with me

1	2	3	4	5
Never	Rarely	Sometimes	Often	Very Often

89. **My family** gave me encouragement to do physical activity

1	2	3	4	5
Never	Rarely	Sometimes	Often	Very Often

During the <u>past three months,</u>

90. **My friends** did physical activity with me:

1	2	3	4	5
Never	Rarely	Sometimes	Often	Very Often

91. **My friends** offered to do physical activity with me

1	2	3	4	5
Never	Rarely	Sometimes	Often	Very Often

92. **My friends** gave me encouragement to do physical activity

1	2	3	4	5
Never	Rarely	Sometimes	Often	Very Often

Information about You (Hand Respondent White Card)

I would now like to ask you questions about your health.

93. In general, would you say your health is:

1 Excellent
2 Very Good
3 Good
4 Fair
5 Poor
6 Don't Know

94. Please indicate the number of any conditions that a doctor has diagnosed you with—you may indicate more than one: **(REFER TO PHYSICIAN DIAGNOSIS RESPONSES)**

1 High blood pressure
2 Heart Disease
3 Asthma
4 Other chronic lung diseases (such as emphysema or bronchitis)
5 Diabetes
6 Depression
7 Arthritis
8 Hay fever or other environmental allergies (not food or medicine-related)
9 Cancer
10 Back pain
11 Other, please specify _____

95. Do you have an on-going or long-term condition that substantially limits one or more basic physical activities such as walking, climbing stairs, reaching, lifting, or carrying?

    1 Yes   0 No

96. How would you rate your level of physical fitness?

    1 Excellent
    2 Good
    3 Average
    4 Fair
    5 Poor

97. Do you smoke?

    1 Yes   0 No

I will conclude with questions about you and your household.

98. Do you live in a
    1 Detached single family house
    2 Duplex
    3 Rowhouse/townhouse
    4 Apartment
    5 Condominium
    6 Mobile home or trailer *(apartment complex)*
    7 Other, please specify _____

99. Is your home owned or rented:
    1 Owned
    2 Rented
    3 Other_____
    4 Don't know
    5 Refused

100. Without leaving the property where you live, do you have a yard or outdoor space you can use for recreation?
    1 Yes   0 No

101. Please describe your current marital status?

    1 Single
    2 Married
    3 Living with partner
    4 Separated
    5 Divorced
    6 Widowed
    7 Other (please specify:_____)
    8 Refused (not on card)

102. Are you a parent, foster parent, or legal guardian <u>for children who live with you</u>?

   1 Yes
   0 No **[SKIP TO QUESTION 103]**

   102A. If yes, Please specify the number of the children <u>who live with you</u> for whom you are a parent, foster parent, or legal guardian: _____ .

103. I am interested in how many people live in your immediate household and their ages. Other than yourself, how many people live in your household that are:

     103A. Less than 10 years old: _____
     103B. Between 10 and 18 years old: _____
     103C. Between 19 and 30 years old: _____
     103D. Between 31 and 45 years old: _____
     103E. Between 45 and 65 years old: _____
     103F. Over 65 years old: _____

104. In what year were you born?   _____

105. Are you...? **(Interviewer Note: Mark this without asking)**
    0   Male
    1   Female

106. Are you of Spanish, Hispanic, or Latino origin?
    0   No
    1   Yes

107. What race do you consider your self to be? Please indicate the number from the card. You may indicate more than one response **(REFER TO WHITE CARD FOR RACE RESPONSES).**

    1   White
    2   Black, African-American
    3   Asian or Pacific Islander
    4   Multi-racial
    5   Other, please specify _____
    6   Refused (not on card)

108. Please indicate from the card the highest degree or level of school you have completed? **(REFER TO WHITE CARD FOR EDUCATION RESPONSES)**

    1   No schooling completed
    2   Less than high school diploma
    3   High school graduate *(high school diploma or the equivalent, for example GED)*
    4   Some college credit, but no degree
    5   Associates degree
    6   Bachelor's degree *(for example: BA, AB, BS)*
    7   Advanced college degree (master's, professional degree, or PhD)

109. Last week, did you do any work for either pay or profit? [*Mark "Yes" even if you only worked for one hour. Also mark "Yes" if you worked in a family business for 15 hours or more last week, or were on active duty in the Armed Forces.*]
   1 Yes
   0 No **[If no, please skip to question 110]**

   109A. Do you work... **(You may give more than one answer)**

      1 Full Time at one job only
      2 Part-time at one job only
      3 Multiple Jobs
      4 Don't Know

   109B. On average, how many hours do you work each week:

      1   Fewer than 10 hours
      2   10-20 hours
      3   21-30 hours
      4   31-40 hours
      5   41-50 hours
      6   more than 50 hours

   109C. Which category of occupations best describes your primary job:

      1 Sales or service
      2 Clerical or administrative support
      3 Manufacturing, construction, maintenance, or farming
      4 Professional, managerial, or technical
      5 Other (Specify)_____

   109D. How many minutes does it usually take you to get from home to work (one-way)?

      ____ Minutes
      9 Not applicable

   109E. How do you usually get to work? (You may pick more than one)

      1 Automobile
      2 Bus Travel
      3 Bicycle
      4 Walk
      5 Other [Specify] _____

   [SKIP TO QUESTION 111]

110. Please indicate the main reason you were not working for pay last week?
      1 Taking care of house or family
      2 Retired
      3 Going to school
      4 Unable to work for health reasons
      5 Temporarily absent from job
      6 Looking for work
      7 Other_____
      8 Prefer not to answer

111. Do you own a dog?

    1 Yes
    0 No **[If no, skip to question 112]**

        111A.   Do you walk your dog?

            1 Yes
            0 No **[If no, skip to question 112]**

        111B.   Where do you walk your dog?

            1 Yard
            2 Neighborhood
            3 Park
            4 Other, please specify_____

112. How many automobiles, vans, and trucks are kept at home for use by members of your household? _____ number

113. Please select the number from the card that best represents your <u>annual household income</u> from all sources **[REFER TO WHITE CARD FOR HOUSEHOLD INCOME RESPONSES]**:

        1    $25,000 or less
        2    $25,001 to $50,000
        3    $50,001 to $75,000
        4    $75,001 to $100,000
        5    $100,001 to $125,000
        6    $125,001 to $150,000
        7   More than $150,000
        8   Don't Know
        9   Refused (not on card)

114A. **FOR CASES (PARK USERS) ONLY:** We would like to know why you use _____ park. Can you share your reasons why you use this park?

_____
_____
_____

114B. **FOR CONTROLS (NON-PARK USERS) ONLY:** We would like to know why you don't use _____ park. Can you share your reasons why you do not use this park?

_____
_____
_____

THANK YOU SO MUCH for your time and effort. Please feel free to give us a call or email if you have any more questions.

OVER for CHECKLIST AND RECEIPT-------------→→→

Checklist at end of survey:

☐ Receipt of Accelerometer

☐ Receipt of Belt/Pouch

☐ Receipt of Activity Log

☐ Height and Weight Measurements

☐ Gift card disbursed
     Accepted by: _____
                              Respondent's Signature

     Type: ___ Wal-Mart   ___ Kroger   ___ Gas Card

     No gift card accepted ___

OVER for Respondent's RECEIPT--------------→→→

Respondent's Receipt

☐   Receipt of Accelerometer

☐   Receipt of Belt/Pouch

☐   Receipt of Activity Log

☐   Gift card disbursed
        Disbursed by: _____
               Field Staff's Signature

        Type: ___ Wal-Mart   ___ Kroger   ___ Gas Card

        No gift card received ___

Field Staff: Tear this sheet away from survey and leave with respondent.