

THE INFLUENCE OF PERCEPTION OF CRIME ON LEISURE TIME PHYSICAL
ACTIVITY (LTPA) IN HISPANIC COMMUNITIES

By

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Abstract of Dissertation Presented to the Graduate School
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THE INFLUENCE OF PERCEPTION OF CRIME ON LEISURE TIME PHYSICAL
ACTIVITY (LTPA) IN HISPANIC COMMUNITIES

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Chair: John O. Spengler
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The purpose of this study was to understand the relationships between income and perception of crime in Hispanic communities and how these perceptions affect participation in leisure time physical activity resulting in improved health.

Obesity has been being one of leading causes of coronary heart diseases. Also the expenses to treat them are taking a toll in today's economy.

The study focused on Hispanic areas with different socio economic status, since African American and Hispanic had a higher tendency of cardio vascular diseases and has shown to engage in less physical activity that white people. The area was divided in 12 parks spread through the city of Orlando, FL Latino population. The study showed similar participation between gender but differences in age, with most of the participants being between 18 and 40 years old.

Ethnicity was selected using the U.S. census data. Within Hispanic areas, only 60% of the residents consider themselves to be Hispanic. Males where 3 to 1 more active, while females mostly participated on moderate physical activity. Most of the participants do not perceived incivilities or are afraid to walk in their neighborhood. Also about 44% of the people that did not

participated in physical activity were afraid of walking around their neighborhood. When we asked about their fear of walk in their neighborhoods about 70% of the participants reported no fear of walking. However, almost half of the participants, especially in low income areas, are worried to become a victim of a crime in the future. High and low income neighborhoods showed age to have a negative association with moderate and vigorous physical activity while age and gender had a positive relation.

This study can help determine why people in Hispanic communities engage or fail to engage in physical activity and how social and environmental variables influence participation.

CHAPTER 1 INTRODUCTION

Background

The aim of this paper is to understand the relationship between fear of crime and its influence on self reported leisure time physical activity participation in Hispanic neighborhoods.

The organization of this document is as follows:

Chapter 1 provides a brief literature review of physical activity and fear of crime. The statement of the problem, delimitations, limitations and research questions are also found in this chapter. Chapter 2 is focused on the setting of the study and data collection procedures. A detailed explanation of the measurements is also present in this chapter, as well as a statement of the experiences the researcher faced while collecting the data. Chapter 3 is based on a set of analyses using measures of association to understand how fear of crime affects participation by Hispanics in areas of differing socioeconomic status. Chapter 3 will be submitted to a professional, peer reviewed journal for publication. Chapter 4 will also be submitted to a peer reviewed journal to be considered for publication. In Chapter 4, multinomial regression analysis will be used to explain how the study variables affect the odds of participants reporting participation in physical activity. Finally Chapter 5 provides the concluding remarks of the study and suggestions for future studies and future policy.

Obesity and related health conditions are among the primary health issues facing Americans today. In the last three decades, the incidence of obesity has doubled for both adults and children (Powers et al 2007). African Americans and Hispanics, especially in low income neighborhoods, have shown some of the highest rates of cardiovascular disease in the U.S. (Center of Disease and Control Prevention, 2004). Reasons for low levels of physical activity among these groups include lack of access to facilities and community services promoting

exercise (Powell et al., 2004). Other important factors limiting the use of recreation facilities and communal areas are crime and fear of crime due to the neighborhood physical environment (Gordon-Larsen, P. et al. 2006). Other studies have focused on social issues like fear of crime as a factor leading to community decline and reducing community participation in physical activity (Pendleton 2000; Manning et al. 2001; Bairner & Shirlow, 2003 Tynon & Chavez, 2006).

According to The National Health and Nutrition Examination (NHANES) survey, the prevalence of obesity in the United States for men (2005-2006) was up two percent (33.3%) from the previous year. Among women, the prevalence of obesity in 2005-2006 was 35.3%. In 2007 only one state (Colorado) had a prevalence of obesity less than 20%. Obesity is still a big problem even with a slight increase of physical activity among adults (US DHHS 2008).

According to the CDC, the proportion of the U.S. population that reported no LTPA, in 36 states surveyed, decreased from 31% in 1989 to about 24% in 2007.

In 2002, chronic diseases associated with obesity accounted for 5 of the leading 6 causes of death in the United States (Center of Disease and Control Prevention, 2006). The problem of physical inactivity is even higher among African Americans and Hispanics that tend to have higher rates of obesity and cardiovascular diseases (Crespo et al., 2000; Giles-Corti & Donovan, 2003). Also, people in Hispanic neighborhoods with low socioeconomic status usually have fewer resources for physical activity, and are at higher risk for obesity-related problems than those in high income neighborhoods (Eyler et al., 1998; Baker et al., 2000; Sundquist et al., 2004).

In an effort to promote physical activity, researchers have found that park and trail use can promote healthier lifestyles (Brown et al., 2000). The use of facilities that promote physical activity can be beneficial for individuals of all ages, regardless of gender, ethnicity and socio-

economic status (Sallis et al., 2000; Gobster, 2002). There has been evidence to show that people with access to areas that promote physical activity like trails, sidewalks, and parks, tend to be more active (Estabrooks et al., 2003).

There have been investigations of the types of constraints that influence the non-use of recreational facilities (Godbey et al., 1992; Brown et al., 2000; Giles-Corti & Donovan, 2003). Lack of access to facilities is one of the greatest perceived impediments to participation in physical activities (Godbey et al., 1992). Other physical characteristics, such as limited access (to parks, trails, sidewalks, and recreational centers), unsafe zones, and environmental characteristics, are among the most important factors that must be considered in attempts to increase physical activity (Romero et al., 2001). People in activity-friendly environments are more likely to engage in physical activity (Eyler et al., 1999; Giles-Corti & Donovan, 2003).

Estabrooks et al. (2003) found out that people are more physically active when they have greater access to recreational facilities. Similarly, Sallis et al. (2009) found that obesity was lower in neighborhoods that enjoy high levels of walkability or areas for walking. However, lower socio economic and neighborhoods with a high percentage of minority residents had reduced access to facilities, which in turn was associated with decreased PA and increased overweight (Gordon-Larsen et al., 2006). Powell (2006) found that facilities for physical activity were less likely to be present in lower-income neighborhoods, especially in those with more African American and Hispanic residents.

Other factors include perceived environmental characteristics that might negatively influence levels of physical activity and participation (Sallis et al., 1997; Giles-Corti. & Donovan, 2003). For example, a fully lighted, clean and well-signed area might reflect safety. However, an area where trash, graffiti, abandoned cars and buildings exist might reflect

abandonment and social disorganization, giving the impression of an unsafe area. Previous research suggests that neighborhood conditions and other physical characteristics can act as determinants for levels of physical activity among different populations (Andrews, 1997, Donovan, 2003).

Perceived safety is one of the most influential external factors affecting engagement in physical activity, especially in areas with high criminal activity (Godbey et al., 1992; Estabrooks et al., 2003). Powell et al. (2003) identified a significant relationship among those who reported having a place where they felt safe walking for exercise or recreation and their likeliness to engage in regular physical activity. Physical activity rates were more than twice as high among those who perceived their neighborhoods to be safe (Romero et al., 2001). Perceptions of neighborhood safety may be particularly salient among residents in lower-income urban settings who are from racial or ethnic minority groups (Boslaugh, S.E. et al., 2004).

Huston, S. et al (2003) found that neighborhood environmental characteristics and access to places for physical activity were strongly associated with race, education, and income, with generally less favorable environments and less access reported among African Americans and American Indians and among those with low education and income.

Access to public parks and recreational facilities has been linked to reductions in crime and delinquency by keeping at-risk youth off the streets and providing a safer environment to interact with others, thereby increasing community strength (Sherer, 2003).

Fear of crime in the United States has contributed to increased societal insecurity and reduced community unity (Romero et al., 2001). In addition, fear of crime has reduced social interaction and community organization (Romero et al., 2001). Some scholars have exposed the negative aspects of fear of crime and its effect on the quality of community life and social

control that is responsible for community decline (Skogan & Maxfield, 1981; Taylor & Hale, 1986). McGinn et al. (2008) found that perception of crime in the neighborhood is detrimental to outdoor leisure activity. Similarly, Estabrooks et al. (2003) found that perceived safety is one of the most influential external factors in the decision to engage in physical activity. Also, fear of crime has been a serious problem in public urban areas, negatively affecting participation (Tynon & Chavez 2006).

Social disorganization and changes of behavior influenced by crime are even more evident in underrepresented communities (O'Neill & Reid, 1991). Among the areas that benefit less from social interaction are low-income neighborhoods (Sampson & Groves, 1989). Low income areas are of importance given that they are considered to be among the most important determinants of differences in delinquency rates (Pendleton & Thompson, 2000). Studies have shown that a higher percentage of the non-white population is positively related to crime and delinquency (Andrews, 1997; Bowers & Hirschfield, 1999). However, some studies have suggested that for black communities it is socio economic status, and not race, that is the source of high crime levels (Pendleton & Thompson, 2000). Participation in physical activity might be affected by social barriers such as crime and fear of crime (Bairner & Shirlow, 2003; Gordon-Larsen P., et al. 2006). Frequency and location of crime also have a direct impact on perception of crime in different neighborhoods (Romero et al., 2001). Other types of crime that influence perception of crime are indirect crimes, such as prostitution, drug use, and vagrancy (Taylor, 1988). Crimes that occur multiple times cause people to consider taking precautions versus a crime that occurs only once. Also, there is evidence that crime in an area one frequents causes more fear than crime occurring in less used areas (Bowers & Hirschfield, 1999; Bairner & Shirlow, 2003).

Statement of the Problem

The aim of this study was to investigate the relationship between self-reported leisure time physical activity (LTPA) and perceived crime in Hispanic communities of differing socio-economic status (SES) in Orlando, Fl.

Sub-problems of the Study

1. To determine the relationship between SES and self-reported participation in leisure time physical activity.
2. To determine the relationship between fear of crime, self-reported participation in leisure time physical activity, and walking in the neighborhood.
3. To determine the relationship between individual and environmental variables and self reported participation in leisure time physical activity.

Purpose of the Study

Economic disadvantage and neighborhood instability are key contributors to social disorganization (Romero et al., 2001). In addition, fear of crime has reduced social interaction and community organization while also reducing quality of life (Chavez, 2006).

Skogan (1990) found that community deterioration leads to social disorganization and presents challenges to social control, increasing perceptions of social and physical disorder and heightening fear of crime. This problem is more evident in low-income neighborhoods that lack the resources to maintain an organized community (Taylor, 2001). Also, persons living in areas with high crime tend to be more exposed to victimization; this will likely be reflected by an increase in fear of crime (Taylor, 2001).

The purpose of this study is to understand the relationships between SES and perception of crime in Hispanic communities, and how these variables might affect park and neighborhood participation as they offer increased opportunities for physical activity and improved health.

Significance of the Study

Fear of crime has been studied in a variety of neighborhoods and ethnic groups (Taylor & Hale, 1986; Skogan, 1990; Taylor, 2001; Lane, 2002). Fear of crime has been proven to be a factor that prevents an individual or community from engaging in daily activities (R.J. et al. 2002). However, no research has studied the relationship between fear of crime and engagement in leisure time physical activity in parks, especially in Hispanic communities. Neighborhoods with low socioeconomic status tend to have fewer resources for physical activity than higher income neighborhoods (Eyler et al., 1998, Baker et al., 2000; Sundquist, et al., 2004). For example, Gordon-Larsen et al (2006) found that lower income and high minority block groups had reduced access to facilities.

Access to public parks and recreational facilities has been strongly linked to reductions in crime and delinquency (Sherer, 2003). Other studies have shown that physical activity rates were more than twice as high among those who perceived their neighborhoods to be safe (Romero et al., 2001). Some studies have shown that people in activity-friendly environments are more likely to engage in physical activity (Eyler et al., 1999; Giles-Corti & Donovan, 2003).

If fear of crime is shown to be a factor that prevents physical activity in Hispanic communities, then stronger safety measures, including community campaigns, safety education, and evidence based improvements to the quality and safety of these neighborhoods, must be taken to reduce the problem.

Delimitations

The study will be delimited to Hispanic residents of Orlando, Florida as denoted by the U.S. Census Bureau. Within these areas, neighborhood residents 18 years and older were studied. The study area included residents living no further than ½ mile from urban parks.

Limitations

This study was limited by sampling only from the Hispanic ethnic population for one county in Florida; consequently, the results of the study may not apply to the entire state or other ethnic groups in the state. For this study, ethnicity is considered a cultural trait that is not mutually exclusive like race. People belonging to a Hispanic ethnic group can be of any race (e.g., black or white) and from any country of origin (e.g., Mexico, Cuba, Puerto Rico, etc).

Also, the study relied on self-reported measures of physical activity. Limitations with this method are over-reporting of physical activity, or otherwise unreliable answers from participants. This approach, however, was necessary given economic and time considerations. Finally, questions used to evaluate walking did not specify if walking was done for the purpose of physical activity, leisure or necessity.

Research Questions

Question 1: Does self-reported LTPA differ between high and low SES Hispanic neighborhoods?

Question 2: Does fear of crime prevent neighborhood residents from participating in LTPA?

Question 3: Does fear of crime prevent neighborhood residents from walking?

Question 4: How does neighborhood cohesion affect self reported LTPA?

Question 5: How do neighborhood incivilities affect self reported LTPA?

CHAPTER 2
METHODOLOGY AND PROTOCOLS EMPLOYED

Neighborhood Characteristics

The study area included a geographically defined area in the city of Orlando, FL (Figure 2-1). The data for the study were collected during the months of June and July of 2008.



Figure 2-1. Orange County, Orlando, FL.

According to the US census, Orlando has a population of 357,637 and nearly eighteen percent of residents are Hispanics. The median income for a household in the city was \$35,732. About 13.3% of families were below the poverty line, including 27% of those below the age of

18 (U.S. Census Bureau). Neighborhood selection was made using U.S. Census Bureau 2002 (TIGER files) and geographic information system (GIS) software (ArcGIS. 9.2).

Manipulating U.S. Census Bureau 2002 (TIGER files) at the block level with geographic information system (GIS) software (ArcGIS. 9.2), the city was divided into Hispanic or Non-Hispanic using 50% or more as the “cut point” of Hispanics residing in each block group. The area was divided into high income and low income from which all urban parks were identified. The parks were used as the center point of the area for collecting data (Figure 2-2). For the study, 9 parks in high income areas, and 8 parks in low income areas were selected.

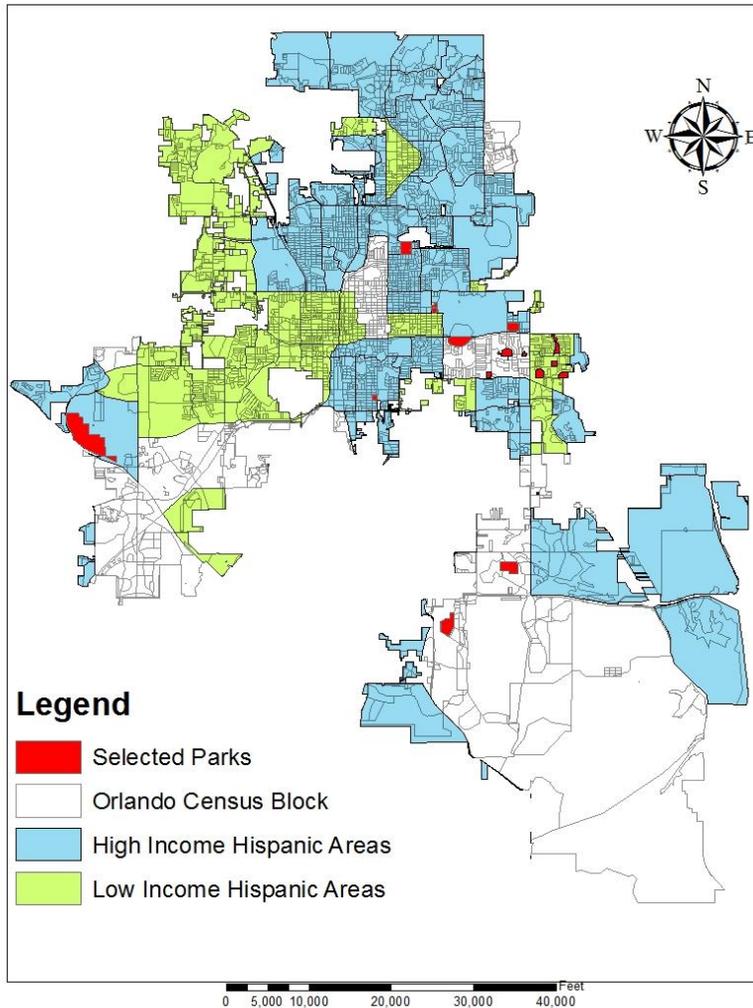


Figure 2-2. Orlando high and low income areas with selected parks.

The focus of the study was Hispanic communities of high and low income status. Self reported measures of leisure time physical activity were collected. It has been stated that Hispanics and African Americans in lower income areas are more likely to demonstrate cardiovascular risk factors than those in neighborhoods with higher incomes (Sundquist et al. 1999; Baker et al., 2000). Gordon-Larsen et al., (2006) also found that lower SES and high minority block groups had reduced access to facilities, which in turn was associated with decreased physical activity and increased overweight. Similarly Powell (2006) found that facilities for physical activity were less likely to be present in lower-income neighborhoods, especially in those with more African American or Hispanic residents.

However, it has been found that the availability and use of park facilities and trails in and around neighborhoods can be beneficial in promoting physical activity among groups of all ages, regardless of gender, ethnicity and socio-economic status (Sallis et al., 2000; Gobster, 2002). If this is true, why do most Hispanic people fail to engage in recommended levels of physical activity? Huston, S. et al (2003) found that neighborhood environmental characteristics and access to places for physical activity were strongly associated with race, education, and income, with generally less favorable environments and less access reported among minorities and among those with low education and income.

This study focuses on houses near urban parks with facilities that encourage and promote physical activity among residents. In addition to the proximity to parks as a place for residents to be physically active, neighborhoods themselves can be used to engage in activities like bicycling, walking and jogging. The study will also measure social and environmental

characteristics of the neighborhood to better understand their influence on physical activity participation.

Only houses adjacent or close to urban parks (up to ½ mile) were surveyed. The purpose was to assure that houses were selected that had accessibility to parks and physical activity areas. The ½ mile limit was selected as a precautionary method in case parks might not have enough houses ¼ mile from them (Figures 2-3 and 2-4). In 90% of the neighborhoods, the ¼ mile boundary was not violated. Some studies have used different distances when selecting houses with proximity to parks. For example: Aultman-Hall, et al. 1997 found that ¼ mile distance was suitable for ‘good’ walkability. Cohen et al. (2006) found that the associations between PA and park proximity was strongest up to a half-mile and diminished significantly for parks that were farther away. Similarly, Cohen et al. (2007) found that people living within 1 mile of the park were positively associated with park use and LTPA. People living within 1 mile of the parks were more likely to engage in 38% more exercise sessions than those living farther away. Schlossberg and Brown (2004) explained that ¼ to ½ mile is the standard distance in the literature for how far people can be assumed to walk to urban services, including parks.

Figures 3 and 4 are examples of Demetree Park (a park used as a center point in the study) at the ½ mile and ¼ mile buffer respectively.

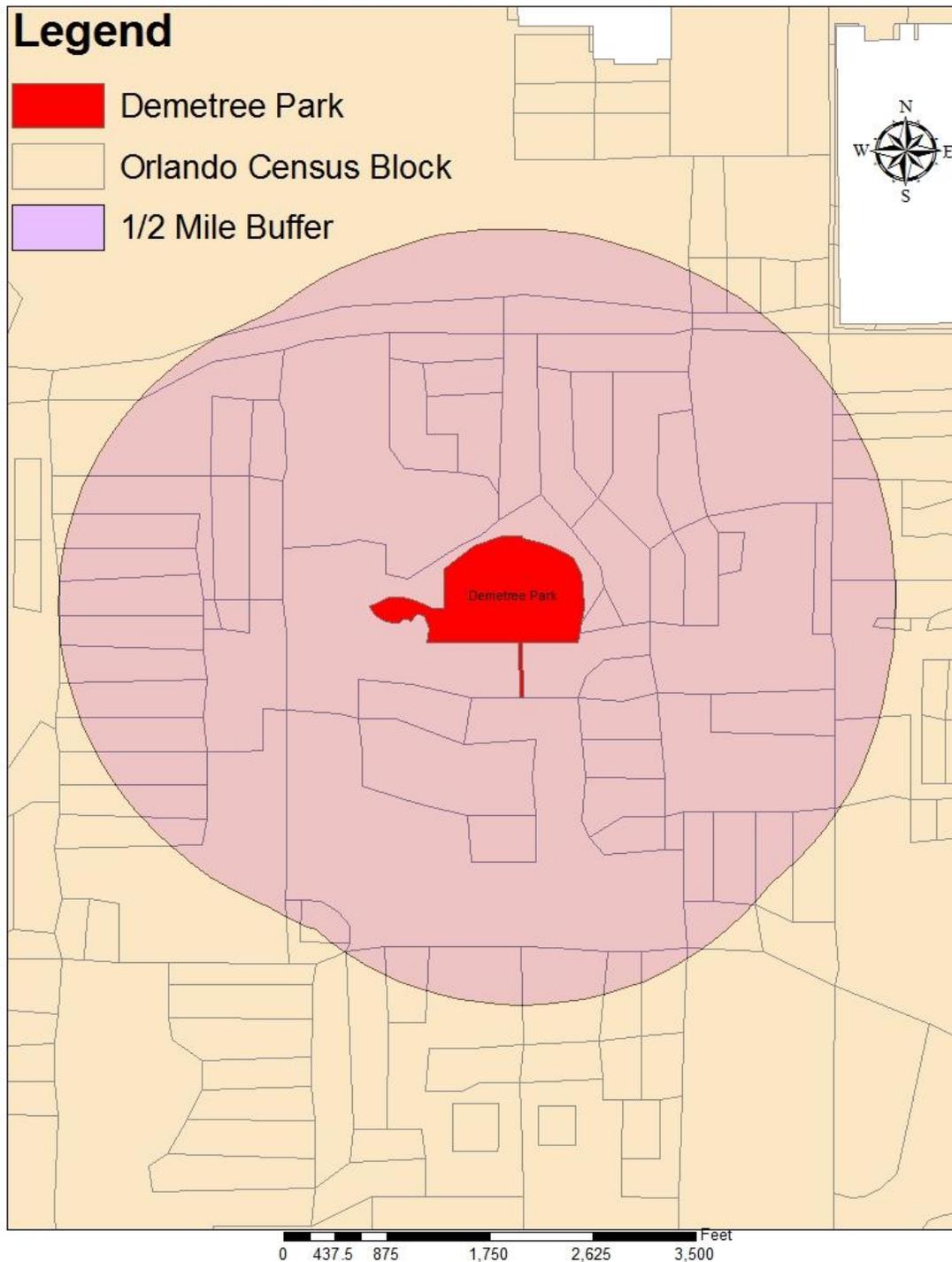


Figure 2-3. Demetree park and 1/2 mile buffer over census block file in Orlando, FL.

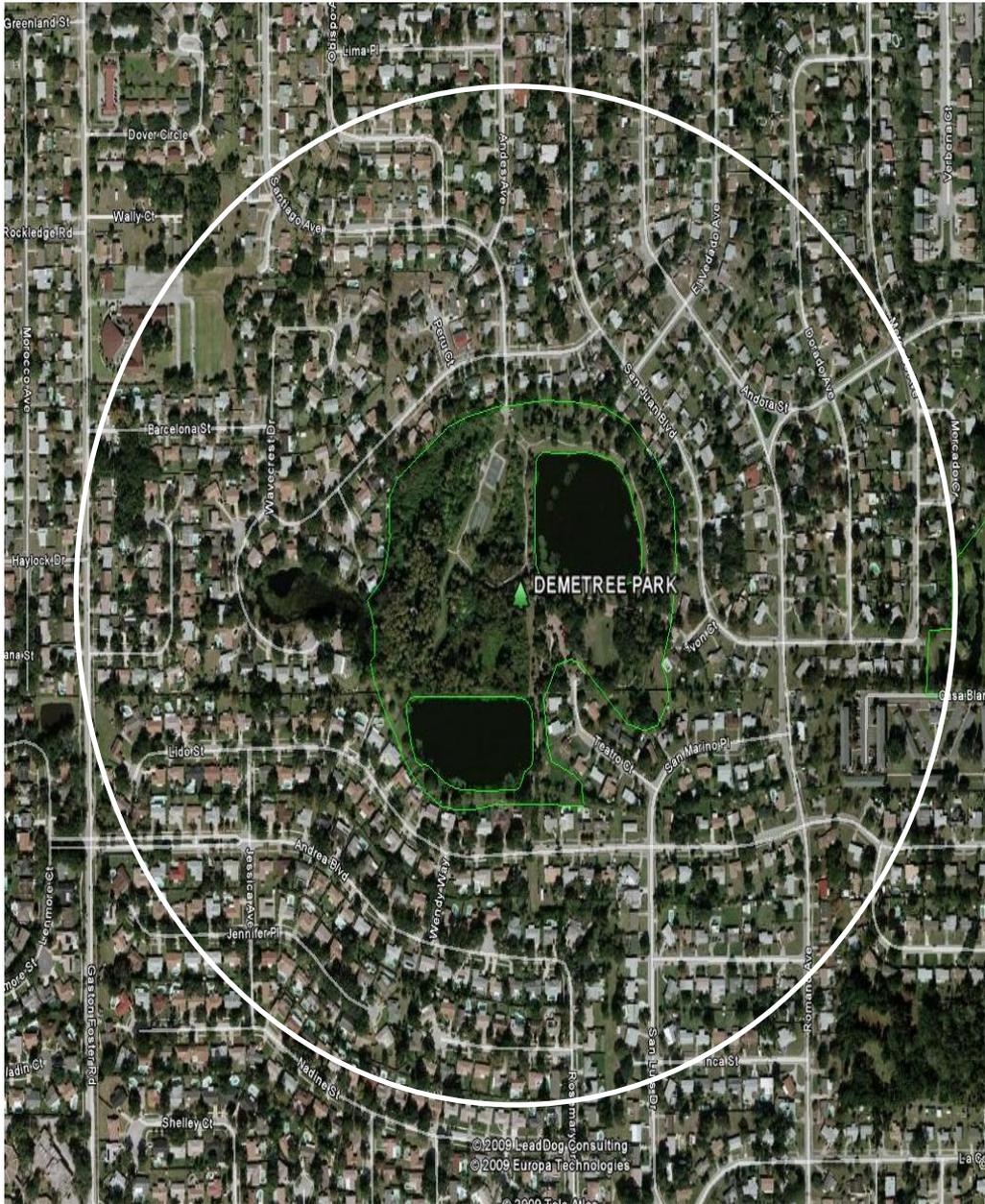


Figure 2-4. Aerial picture of Demetree park and 1/4 mile buffer in Orlando, FL.

Sampling

The sampling design ensured an equal chance of participation among households. The data were collected weekdays from 5:30 to 7:30pm and 10:00am to 12:00 pm and from 3:00 to 6:00 pm on weekends. The stratum, or population subset, was determined by income level, since our sample focused only on one race/ethnicity. To reduce sampling error, a systematic sampling for house selection was used to select the first house in each neighborhood (Groves et al., 2004). With systematic sampling, selection usually begins at a random place in the population list to identify the first case, then, cases are selected at regular intervals from the list (Freedman and Taub, 2006). This type of sampling is considered as accurate and unbiased as a simple random sample, provided that there is no repetitive pattern to the sampling frame list (Freedman and Taub, 2006). In this study after the first house was indentified, every 3rd house was interviewed to obtain a representative sample from each neighborhood (n=30 per neighborhood).

Face-to-face interviews were collected in English and Spanish. Hispanic areas in Orlando have 63,678 residents according to the US census. To calculate our sample size the Raosoft sample size calculation program was used resulting in a minimum sample size of 382 for that population. Respondents completed 500 usable interviews, 250 from high income neighborhoods and 250 from low income neighborhoods. Table 2-1 shows the neighborhood demographics for the selected neighborhoods compared to the results from the survey interviews.

Table 2-1. Selected neighborhood demographics vs. survey results.

Variables	Census Data (n)	Census Data (%)	Survey Results (n)	Survey Results (%)
Total Population	7,949	-	500	100
Caucasians	3,274	41.19	325	65
African American	492	6.19	95	19
Hispanic	3,413	42.94	298*	59.6*
Other	770	9.69	80	16
Males	3,893	48.97	265	53
Females	4,056	51.03	235	47
Children	1,409	17.73	-	-
Adults	6,540	82.27	500	100
Mean age	38.9	-	38.15	-
Mean income	35,732.	-	41,555	-

*Participants can be Hispanics of any race (African American, Caucasian and other) and also be of Hispanic ethnicity.

813 houses were visited including houses with no responses (n=216), avoided houses (n=7), vacant houses (n=35) or those that provided incomplete surveys (n=55) for a response rate of 61.5% (Table 2-2).

Table 2-2. Survey interviews response rate.

Variables	Survey Response (n)	Survey Response (%)
Total visited houses	813	-
No Response	216	26.6
Avoided houses	7	0.9
Vacant houses	35	4.3
Incomplete surveys	55	6.77
Complete surveys	500	61.5

Participation in survey interviews was completely voluntary and subjects were not identified. Those eligible for participation in the survey were 18 or older and residing at that particular address. The research protocol was approved by IRB at the University of Florida.

Measures

Dependent Variable

The instrument was developed using validated questions from existing surveys including the 2005 Questionnaire for the Behavioral Risk Factor Surveillance System (BRFSS), 2005 Neighborhood Survey created by Roman and The Urban Institute, and a survey about Victimization: An Alternative and Reliable Measure for Fear of Crime (Williams, et. al. 2000). The dependent variable, physical activity, was assessed with a single item: “Usually when you engage in physical activity, what type of physical activity do you do? Would you say it is moderate, vigorous or no physical activity (sedentary)?”

Lee and Moudon (2008) used a similar measure of self-reported survey data with moderate physical activity and vigorous physical activity as indicators of active living. Also Floyd, et al. (2007) and Gobster (2005) used the same measures for observational data in urban parks.

Independent Variables

Ethnicity

Hispanic ethnicity was assessed by a single item to measure participant’s Hispanic ethnicity. Respondents were asked: “Do you consider yourself to be Hispanic?” Participants responded “Yes”, “No” or “Don’t know”. Responses were re-coded into 1 for “Yes” and 2 for “No.” Measures were obtained from BRFSS. Participants that consider themselves to be of Hispanic ethnicity can belong to any race (e.g., black or white).

Neighborhood Cohesion

Neighborhood cohesion was measured using a 4-point Likert scale in which participants offered their opinions about the level of cohesion or unity in their neighborhoods. Respondents

were asked to indicate the extent of their agreement with cohesion questions by answering “strongly agree”, “agree”, “disagree” or “strongly disagree”. Questions for neighborhood Cohesion were: (1) This is a unified neighborhood; (2) People around here are willing to help others; (3) People in this neighborhood don’t get along with others; (4) People in this neighborhood do not know each other; (5) People in this neighborhood can be trusted;(6) People in this neighborhood watch out for each other; (7) People in this neighborhood do favors for each other; (8) People in this neighborhood have parties for each other; and (9) People in this neighborhood visit each other. Questions 3 and 4 are negatively stated so a reverse coding was implemented where answers ranged from “strongly disagree” to “strongly agree”.

The scale was shown to have a high internal consistency (Cronbach’s Alpha = .913). Measures were obtained from Roman and The Urban Institute.

Incivilities

The physical characteristics of the area were addressed by asking residents their opinions and perceptions of their neighborhood.

Incivilities were measured using a 3-point Likert scale in which participants provided their opinions about a specific uncivil behavior. We asked residents to describe problems from a specific list of incivilities. Respondents were allowed a choice of describing these as “a big problem”, “somewhat of a problem” or “not a problem.”

Questions for incivilities addressed: litter, broken glass, trash on the sidewalks and streets; graffiti on buildings and walls; vacant houses; trash in the neighborhood; drinking in public; people selling drugs; groups of rowdy teenagers; abandoned cars; prostitution; police not patrolling the area; and police not responding to calls from the area. The study showed this scale to have a high internal consistency (Cronbach’s Alpha = .941). Measures were obtained from Roman and The Urban Institute.

Fear of Crime

Neighborhood-level fear of crime is a five-item construct representing how worried residents are about specific crimes. Respondents were asked to indicate the extent of their agreement on a ten-point scale from "Not worried" to "Very worried." This allowed for a more specific answer about each type of crime (e.g., assault, rape, burglary, theft, murder, etc.) instead of asking the more general question: Are you afraid of crime? (Williams, et. al. 2000). The variable was re-coded into a 3 level ordinal measure 1 - 3 (not worried), 4 - 6 (somewhat worried) and 7-10 (very worried) where 1-3 represents low fear, 4 – 6 medium fear and 7 – 10 high level of fear of crime. Items for fear of crime were: Assault with a weapon, assault without a weapon, rape, burglary, theft, vandalism and murder (Cronbach's Alpha = .972). This measure was obtained from Williams, et al, 2000.

Fear of Walking

Fear of walking is a scale composed of a series of questions where respondents were asked to indicate the extent of their fear about walking outside. Respondents were asked to respond on a four-point scale: never, rarely, sometimes and often. The item was developed to capture a behavior resulting from fear of crime.

Questions for fear of walking were: (1) How often does worry about crime prevent you from walking someplace in your neighborhood during the day?; (2) How often does worry about crime prevent you from walking someplace in your neighborhood during the night?, (3) How often does worry about crime prevent you from walking someplace around or in the park during the day?, (4) How often does worry about crime prevent you from walking someplace around or in the park during the night? The scale was shown to have a high internal consistency (Cronbach's Alpha = .851). Measures were obtained from Roman and The Urban Institute.

Victimization

Victimization was a series of dichotomous questions asking respondents about their past experience with crime. Victimization questions were: (1) Have you been a victim of a crime in the last 4 years?; (2) Have you been a victim of a crime in the last 10 years?; (3) Do you know if a member of your family or someone you know has been a victim of a crime in the last 4 years?; and (4) Do you know if a member of your family or someone you know has been a victim of a crime in the last 10 years? Respondents answered: “Yes”, “No” or “Don’t know.” Responses were re-coded into (1) for “Yes” and (2) for “No”. This measure was obtained from Williams, et al, 2000.

Table 2-3 shows the results of the multicollinearity tests to find if two or more explanatory variables were highly correlated. The variance inflation factor (VIF) is an index which measures how much the variance of a coefficient is increased because of multicollinearity. If the largest VIF is greater than 5, this might indicate a multicollinearity problem (Myers, 1990; O'Brien 2007).

Results of the VIF test for this study showed none of the variables to have a VIF value higher than 1.8, well below the critical value of 5. Also results were obtained for tolerance. A small tolerance value indicates that the variables under consideration are almost in a perfect linear combination of the independent variables already in the equation. Variables with very small tolerance values (.1 for serious multicollinearity problem and .2 for concern of a potential problem) should not be added to the regression equation (Menard, 1995; O'Brien 2007). Our study showed all tested variables to have a tolerance well above the .2 value of concern for a potential multicollinearity problem (Table 2-3).

Table 2-3. Multicollinearity analysis.

Variable	Tolerance	VIF
Hispanic ethnicity	.925	1.081
Gender	.881	1.135
Cohesion	.839	1.193
Incivilities	.851	1.175
Fear of walk	.566	1.767
Fear of crime	.561	1.784
Victimization	.861	1.162

Data Analysis

Descriptive statistics were generated, including frequency distributions, means, standard deviations, standard errors and confidence intervals, to summarize all variables. Correlations and cross-tabulations for categorical variables and chi-square tests were used to determine whether levels of physical activity and fear of crime varied significantly across the independent variables.

For multivariate tests, multinomial logistic regression was employed to examine the influence of individual and neighborhood predictors on leisure time physical activity since the dependent variable was categorical with three levels (i.e., sedentary, moderate and vigorous). Dichotomous variables kept their original coding for the multinomial regression due to the fact that the test in the software categorizes the variables automatically. The moderate and vigorous categories were contrasted against sedentary as the reference category. Odds ratios (OR) at the 95% confidence intervals are reported to indicate the association between independent variables and the three levels of physical activity.

Data was analyzed using SPSS Statistical Software, version 16.0 (SPSS Inc., Chicago, IL).

Data Collection

Data collection is probably the most exciting and important part of any research. It is without question the most demanding step if secondary data is not used. Some types of data collection are fun and exciting, such as observational data or when mail-in surveys arrive. However, other techniques, such as face to face interviews, can be challenging, tedious and even a bit unsafe.

Below are my experiences from collecting the data in this study.

I think that one of the most important aspects of door to door data collection is to familiarize oneself with the surroundings. It is important to obtain as much information as possible about the area being studied. I took it upon myself to drive around for a few days through all of the neighborhoods in which I was going to interview. I spent time observing residents, house conditions, evidence of incivilities, evidence of police patrolling, and usage of the park or neighborhood. I also drove about two miles around the selected areas, since neighborhoods can change from street to street. Finally, I spent some time visiting the nearest community center and asking about the safety of the neighborhood. This provided me with an idea of what I was likely to encounter and what level of safety to expect. Once I got a feeling about the neighborhood and in which areas I was going to focus, the data collection began.

Data collection took place during weekday and weekend mornings and afternoons, to assure equal participation among residents. I tried to survey every third house per neighborhood until the desired amount of interviews for that area was reached. For the whole study I only intentionally avoided about 23 houses because they looked unsafe or abandoned.

For my first set of houses, I chose the safest neighborhood and the easiest one to walk around. Since I was doing all of the data collection by myself, I needed to feel as safe as possible

and build from there. The ideal scenario was to find some people to help me. I think that having two or more interviewers improves the chances of collecting the data more quickly and making the environment safer. Due to financial constraints, I was on my own (apart from receiving regular calls from my wife). If I failed to call her, she would have called me back; if after two attempts she had no reply, she would have called a contact in the city. However, this was never necessary. I tried to contact the police department to see if they could provide some sort of patrol, but they ignored my request.

The most anxious part of door to door surveying is definitely the first house. This is the initial test for how well one is prepared to get satisfactory results from the participants. There are many risks when approaching a house: uncertainty of who lives there; their response to you; if they own a dog and if the dog is on a leash; and their willingness to participate. In my case, being able to speak Spanish helped me on more than a few occasions, even though most of the Spanish speakers chose to talk in English I had to conduct about 6 surveys in Spanish.

After the first response, it is necessary to identify participant interest in the survey. It is important to notice if they are talkative, smiling, and friendly or if they seem to be in a hurry. With experience, one learns how to push the issue of people failing to complete the whole survey. The first two minutes are critical: if someone opens the door, the first thing a researcher must do is smile and step back half a step to offer a sense of security. Then, one must pitch the study like a salesman. It is crucial to be quick and to the point with introductions, explaining how the data is going to be used and most importantly how the interviewee will benefit. If a researcher manages to get this far without having the door slammed in his face, chances are he will be able to secure an interview.

After the interview, people might wish to discuss the neighborhood or ask some questions, and it is important to give them the time. I felt that as they had been kind enough to open their door for me to answer my questions, I should stay and make them feel as useful as possible.

Once several interviews have been conducted, it is possible to get into a pattern and develop a more systematic approach. I focused on a goal of 15 surveys per day. Some days I almost reached that goal, while on other days I fell short of it; the most important thing was to keep moving forward and follow the research protocol. For example, in my study there were two or three days that I had to cut the interviews short owing to potential conflicts with people who did not want me on their property. One of them kept screaming and shouting, so in the spirit of avoiding confrontation I left. Other days fell to the weather.

The last thing that I did, which I recommend to other researchers, was to enter the data the same day. This provided an accurate count of how many surveys had been completed and how many more were required. By entering the data the same day, once the goal has been reached, work is complete.

CHAPTER 3
FIRST ARTICLE MANUSCRIPT

Introduction

The benefits of physical activity for reducing obesity and promoting a healthier life style are well established (Kesaniemi et al. 2001). In the last three decades, the incidence of obesity has doubled for both adults and children (Powers et al 2007). Among groups that have shown some of the highest rates of cardiovascular disease in the U.S. are minority groups like Hispanics and African Americans, especially in low income neighborhoods (Center of Disease and Control Prevention, 2004). The problem of physical inactivity is also higher among African Americans and Hispanics (Crespo et al., 2000; Giles-Corti & Donavan, 2003). Important factors limiting the use of recreation facilities and communal areas for physical activity among minority and low income populations are actual crime and fear of crime (Gordon-Larsen, P. et al. 2006).

Obesity is one of the primary health issues facing the U.S. population today. In 2002, chronic diseases associated with obesity accounted for 5 of the leading 6 causes of death in the United States (CDC, 2006). According to The National Health and Nutrition Examination (NHANES) survey, the prevalence of obesity in the U.S. (2005-2006) increased two percent (33.3%) for men and remained about the same for women (35.3%). In 2007 only one state (Colorado) had a prevalence of obesity less than 20%.

The CDC also found that the proportion of the U.S. population that reported no LTPA, of 36 states surveyed, decreased from 31% in 1989 to about 24% in 2007. Even with a slight increase in physical activity participation overall, obesity is still a problem. According to the U.S. Surgeon General's Report, about 64% of all Americans are overweight and over 30% are obese (Sundquist et al., 2004; U.S. Surgeon General's Report, 2006). Some studies have found that regular physical activity improves quality of life and reduces the risk of coronary heart

disease, colon cancer, hypertension, diabetes, and early mortality (Sundquist et al., 2004). Physical inactivity is even greater among African American and Hispanic populations, which tend to have higher rates of obesity and cardiovascular disease (Crespo et al., 2000; Giles-Corti & Donovan, 2003). Also, people in Hispanic neighborhoods with low socioeconomic status usually have fewer resources for physical activity, and are at higher risk for obesity-related problems than those in high income neighborhoods (Eyler et al., 1998; Baker et al., 2000; Sundquist et al., 2004).

This problem of inactivity is more evident in neighborhoods with lower income (Estabrooks, P.A et al., 2003; Wilson, D.K., et al., 2004). One of the reasons might be the lack of physical activity resources in these neighborhoods (Baker et al., 2000; Sundquist et al., 2004). Lack of access to facilities is one of the greatest perceived impediments to participation in physical activities (O'Neill & Reid, 1991; Godbey et al., 1992). For example, open areas for recreation (i.e., playgrounds, fields, courts) that are close to residential areas enjoy high use and a reputation of helping to increase community levels of physical activity and perceived safety (Bowers & Hirschfield, 1999; Romero et al., 2001). Other factors influencing physical activity might include perceived environmental characteristics that might negatively influence levels of physical activity and participation (Sallis et al., 1997; Giles-Corti. & Donovan, 2003).

Parks, facilities and trail use can be beneficial in promoting physical activity among groups of all ages, regardless of gender, ethnicity and socio-economic status (Brown et al., 2000; Sallis et al., 2000; Gobster, 2002). However, people are often active only in places where they feel safe, given that perceived safety is one of the most influential factors affecting engagement in physical activity (Godbey et al., 1992; Estabrooks et al., 2003; Boslaugh, S.E. et al., 2004). For example, Romero et al (2001) found that physical activity rates were more than twice as high

among those who perceived their neighborhoods to be safe. Huston et al (2003) found that neighborhood environmental characteristics and access to places for physical activity were strongly associated with race, education, and income, with generally less favorable environments and less access reported among minorities and those with low education and income.

Other factors, such as perceived environmental characteristics, might negatively influence behavior towards physical activity and participation (Sallis et al., 1997; Giles-Corti & Donovan, 2003). These are factors that indicate the condition or safety level of the park or neighborhood; an area where trash, graffiti, abandoned cars and buildings exist might reflect abandonment and social disorganization, giving the impression of an unsafe area (Bairner & Shirlow, 2003; Gordon-Larsen, P., et al. 2006). Previous research suggests that neighborhood conditions and other physical characteristics can act as determinants for levels of physical activity among different populations (Murray et al., 1995; Andrews, 1997). The presence of groups of teenagers or others considered socially dissimilar is associated with perceptions of greater crime in urban recreation areas (Schroeder, H. & Anderson, L. M., 1984). Powell et al. (2003) found that there was a significant relationship between those who reported having a place where they felt safe walking for exercise or recreation and the likelihood that they would engage in regular physical activity. Some studies have shown that people in activity-friendly environments are more likely to engage in physical activity (Eyler et al., 1999; Giles-Corti & Donovan, 2003). Several studies have shown that residents located closer to other houses tend to feel safer because of the societal interaction (Hartnagel, T.H., 1979; Sampson, R.J. et al. 2002). Other studies have shown that physical activity rates were more than twice as high among those who perceived their neighborhoods to be safe (Romero et al., 2001). Also, urban parks and

recreational facilities keep at-risk youth off the streets and provide a safer environment to interact with others and increase community strength (Sherer, 2003).

The objectives of this study were to examine the associations of self reported leisure time physical activity in Hispanic neighborhoods that differ by socio economic status (SES), and determine the relationship between perceived crime and self-reported participation in leisure time physical activity.

Methods

Setting and Sample: The data for this study was collected during the summer of 2008 within the city limits of Orlando, (total population, 357,637). The city has a median household income of \$35,732, with 13.3% of families living below the poverty line (U.S. Census Bureau).

Orlando was of interest due to the higher than average Hispanic population (17.70%). House selection for this study involved several steps: First, using a U.S. Census Bureau 2002 data (TIGER files) at the block level, and geographic information system (GIS) software (ArcGIS), the city was divided into high and low income areas. Second, the data were manipulated to show Hispanic and non-Hispanic areas. The next step was to select all the parks available in areas that met the previous criteria. Finally, 9 parks were chosen in high income areas and 8 in low income areas with high density population around them. To ensure access to areas for physical activity, only houses close to these parks (up to ½ mile) were selected.

The sampling design ensured equal participation among residents. Trained interviewers visited 813 households during weekdays from 5:30 to 7:30 pm and from 10:00 am to 12:00 pm and 3:00 to 6:00 pm on weekends. Participants were 18 years of age or older and resided at the address selected. To reduce sampling error, a random sampling technique was implemented to select every third house until we obtained a sample size large enough for us to be reasonably

confident that the stratum represented the population (Groves et al., 2004). After removing houses with no response or incomplete surveys, a total of 500 complete surveys were collected for a 61.5% response rate. Using census data we found that Hispanic areas in Orlando have 63,678 individuals. The Raosoft sample size calculation program was used to obtain a minimum sample size of 382. The research protocol was approved by the University of Florida Institutional Review Board.

Measures

Dependent Variable

The instrument was developed using validated questions from existing surveys including the 2005 Questionnaire for the Behavioral Risk Factor Surveillance System (BRFSS), the 2005 Neighborhood Survey created by Roman and The Urban Institute, and a survey about Victimization: An Alternative and Reliable Measure for Fear of Crime (Williams, et. al. 2000). The dependent variable, physical activity, was assessed with a single item: “Usually when you engage in physical activity, what type of physical activity do you do? Would you say it is moderate, vigorous or no physical activity (Sedentary)?” Lee and Moudon (2008) used a similar measurement using self-reported survey data as moderate physical activity and vigorous physical activity as indicators of active living.

Independent Variables

Ethnicity

Hispanic ethnicity was assessed by a single item to measure participant’s Hispanic ethnicity. Respondents were asked: “Do you consider yourself to be Hispanic?” Participants responded “Yes”, “No” or “Don’t know.” Responses were re-coded to represent 1 for “Yes” and 2 for “No.” The measure was obtained from the BRFSS instrument.

Incivilities

The physical characteristics of the area were addressed by asking residents their opinions and perceptions of their neighborhood. Incivilities were measured using a 3-point Likert scale in which participants provided their opinions about a specific uncivil behavior. Residents were asked to describe problems from a specific list of incivilities. Respondents were allowed a choice of describing these as “a big problem”, “somewhat of a problem” or “not a problem.”

Questions for incivilities centered on the existence of: litter, broken glass, trash on the sidewalks and streets; graffiti on buildings and walls; vacant houses; trash in the neighborhood; drinking in public; people selling drugs; groups of rowdy teenagers; abandoned cars; prostitution; police not patrolling the area; and police not responding to calls from the area. The study showed this scale to have a high internal consistency (Cronbach’s Alpha = .941). Measures were obtained from Catherina Roman and The Urban Institute.

Fear of crime

Neighborhood-level fear of crime is a five-item construct representing how worried residents are about specific crimes. Respondents were asked to indicate the extent of their agreement on a ten-point scale from "Not worried" to "Very worried." This allowed for a more specific answer about each type of crime (e.g., assault, rape, burglary, theft, murder, etc.) instead of asking the more general question: Are you afraid of crime? (Williams, et. al. 2000). The variable was re-coded into a 3 level ordinal measure 1 - 3 (not worried), 4 - 6 (somewhat worried) and 7-10 (very worried) where 1-3 represents low fear, 4 – 6 medium fear and 7 – 10 high level of fear of crime. Items for fear of crime were: Assault with a weapon, assault without a weapon, rape, burglary, theft, vandalism and murder (Cronbach’s Alpha = .972). This measure was obtained from Williams, et al, 2000.

Fear of walking

Fear of walking is a scale composed of a series of questions where respondents were asked to indicate the extent of their fear about walking outside. Respondents were asked to respond on a four-point scale: never, rarely, sometimes and often. The item was developed to capture a behavior resulting from fear of crime.

Questions for fear of walking were: (1) How often does worry about crime prevent you from walking someplace in your neighborhood during the day?; (2) How often does worry about crime prevent you from walking someplace in your neighborhood during the night?, (3) How often does worry about crime prevent you from walking someplace around or in the park during the day?, (4) How often does worry about crime prevent you from walking someplace around or in the park during the night? The scale was shown to have a high internal consistency (Cronbach's Alpha = .851). Measures were obtained from Roman and The Urban Institute.

Data Analysis

Descriptive statistics including frequency distributions, means, standard deviations, standard errors and confidence intervals were generated to summarize all variables. Correlations and cross-tabulations for categorical variables and chi-square tests were used to determine whether levels of physical activity varied significantly across the independent variables. All data was analyzed using SPSS Statistical Software, version 16.0 (SPSS Inc., Chicago, IL).

A single multinomial logistic regression was employed to examine the influence of individual and neighborhood predictors on leisure-time physical activity, since the dependent variable was categorical with three levels (i.e., sedentary, moderate and vigorous). The moderate and vigorous categories were contrasted against sedentary as the reference category. Odds ratios (OR) at the 95% confidence intervals are reported to indicate associations between independent variables and physical activity.

Results

A total of 12 neighborhoods around parks were selected, producing a total of 500 interviews of which 250 were in high income neighborhoods and 250 in low income. Gender distribution for this study was 53% males and 47% females (Table 3-2). No significant differences were found between genders from different SES neighborhoods (Table 3-3). Of the selected population living in Hispanic neighborhoods, only 61.2% of the participants consider themselves to be Hispanics. High income areas showed 58 % of the Hispanic population living in Hispanic areas, while low income areas had 64.4% of the participants being Hispanics of any race. About 70% of the respondents were between the ages of 18 and 45 years old (mean = 38.15).

Physical Activity

Overall 60.8% of the participants reported that they had engaged in leisure time physical activity during the last month, with 63.6% being active in low income neighborhoods versus 57% for high income neighborhoods (Table 3-2). Of those who participated in physical activity, 42.8% reported they had engaged in moderate activity while only 18% engaged in vigorous physical activity (Table 3-2). Significant differences were found between genders, with 76.4% of males being vigorously active versus 23.6% of females. In contrast, female participants showed more physical inactivity (66.3%) than males for both SES neighborhoods (Table 3-4). There was no significant difference found for levels of physical activity between neighborhoods with different SES (Table 3-4). Males were more active in low income areas (42.1% vigorous) than in high income areas (30%).

Analyses were made to understand the association between levels of physical activity and demographic independent variables. Only age ($X^2=74.330$, $p<.000$) and gender ($X^2=48.207$, $p<.000$) were shown to be significantly different (Table 3-4).

Results for the multinomial logistic regression showed that only age have a significant negative relationship with moderate and vigorous physical activity (Table 3-5). Gender showed to increase significantly the odds of participants reporting vigorous physical activity but not moderate PA. Participants in high income showed a significant negative relationship with moderate physical activity, however no relationship was found for vigorous physical activity.

For neighborhood variables, fear of walk, fear of crime and incivilities help predict participation in Physical activity by increasing significantly the odds of reporting participation in moderate PA (Table 3-5). Only fear of walk had a positive significant relationship with vigorous PA participation.

Fear of Crime

Forty two percent of the respondents showed a high level (“worried to very worried”) fear of crime, while 36% expressed little or no fear (Table 3-5). Fear of crime in high income areas was shown to be slightly lower than in low income neighborhoods (Table 3-3). Similarly, Table 3-3 shows high income neighborhoods demonstrating significantly less fear of walking around their neighborhoods than low income areas. About 70% of the participants showed no fear of walking for Orlando’s Hispanic neighborhoods (Table 3-2). Close to 90% of the participants reported no problems with incivilities in their neighborhoods (Table 3-2). A significant difference was found in incivilities between high income and low income neighborhoods (Table 3-3).

For the dependent variable physical activity, analyses were made to understand the association between levels of physical activity, and fear of crime variables. Fear of crime was shown to be significantly different over the three levels of physical activity ($X^2=100.862$,

p<.000), with most of the sedentary respondents being more worried than active participants (Table 3-4).

Fear of walking showed significant differences ($X^2=30.335$, $p<.000$) between participants in all three levels of physical activity with most of the participants showing no fear of walking (Table 3-4). Forty four percent of the people that did not participate in physical activity were afraid of walking around their neighborhood. Neighborhood incivilities was also significantly associated with physical activity ($X^2=27.658$, $p<.000$) with participants reporting moderate physical activity having more problems with incivilities than those sedentary or vigorous (Table 2-3).

Discussion

Gender distribution for this study was fairly even, with slightly more physical activity participation among males (53%) than females (47%). For the study, only about 60% of the participants in this study considered themselves to be Hispanic, and there was a higher concentration of Hispanic residents in low income areas than in high income areas.

Overall, 60.8% of the participants reported that they had engaged in physical activity during the last month. This finding mirrors national levels of physical activity among adults as reported by a 2007 US Department of Health and Human Services survey that found that 64.5% percent of respondents reported meeting the acceptable levels of physical activity. Similar to national statistics, our study also showed 63% in low income areas and 57% participation in high income areas.

Results for gender participation in moderate and vigorous physical activity (MVPA), showed a male to female ratio of almost 3:1. Some studies in the literature have found women to be just slightly less physically active than men (Brownson, R.C. et al., 2004; Eyster, A.E. et al.,

2002). In our study, female participants were shown to be significantly more inactive (66.3%) than males. A follow-up, in-depth study of female behavior should be conducted to better understand the extent of physical inactivity among females in Hispanic communities.

No significant differences were found between MVPA participation among high and low income communities. Sallis et al. (2009) also did not find significant differences in MVPA between low and high income neighborhoods. Fear of crime has been identified as one factor that might prevent the use of parks and neighborhoods for physical activity (Eyler et al., 1999; Giles-Corti & Donovan, 2003). In this study, 42% of respondents showed a high level of concern about crime (versus 36% who expressed little or no fear), while 70% of the participants reported no fear of walking in their neighborhoods. This may be due to perceptions that the types of crime, or locations of other crimes, were not particularly worrisome to participants. Whether for the purpose of leisure or physical activity, walking has positive health outcomes. Future studies should determine the purpose of walking, and investigate the differences between fear of crime and walking for recreation versus necessity.

One of the most interesting findings of this study was that sedentary respondents were more worried about crime than active participants. About 44% of people who did not participate in physical activity were afraid of walking around their neighborhood. Also, we found that females had a higher frequency of physical inactivity. We can hypothesize that females were more afraid than males. This is consistent with some of the crime literature that has found females to be more afraid than males (Fetchenhauer, D. & Buunk, B., 2005; Ferraro, 1995, 1996; Fisher and Sloan, 2003; Warr, 1984; Young, 1992). However, some studies have found that males are more afraid than females when fear is measured by specific crimes (Madriz, 1997; Wesely and Gaarder, 2004; Hollander, 2001; Stanko, 1990). Different types of crime might

produce a dissimilar effect on perception of criminal safety (Brantingham and Brantingham, 1990). For example, physical assault produces more fear than burglary or vagrancy (Dubow et al., 1979). Previous studies have found that levels of fear in neighborhoods can be attributed to the presence of incivilities (Bairner & Shirlow, 2003; Gordon-Larsen, P. et al., 2006). Examples of incivilities are: panhandling, rowdy behavior, drug use, public drinking, prostitution, litter, vandalism, abandoned cars and buildings. In the present study, 90% of participants reported no problems with incivilities in their neighborhoods.

This study has several limitations. This study does not represent the broader Hispanic population that lives in Florida or the U.S. Second, the physical activity data was self-reported. Respondents often over-report levels of physical activity, leading to some level of inaccuracy in results. Third, the questions used to evaluate walking did not specify if walking was done for physical activity, leisure or necessity.

The present results emphasize the need to better understand the effects of crime and fear of crime on physical activity at a micro level for specific minority communities. Future studies should investigate how neighborhoods in diverse Hispanic communities can improve female participation in MVPA. Park managers should focus on providing safe and easy access to recreational facilities, especially those that are at low cost for the cities and free for the users. Since walking is one of the most reported activities for physical health and is inexpensive or free, future research should continue to focus on policies and behavior to promote this activity. If neighborhoods in diverse and disadvantaged communities are to benefit from physical activity, more research is needed to explore residents' behavior and how this is affected by possible external (individual and social) factors.

Tables

Table 3-1. Variables summary

Variable	%	N	Mean	Cronbach's α
Age	-	490	39.44	-
Gender				
Male	53	265	-	-
Female	47	235		
Hispanic ethnicity				
Hispanic	61.2	298	-	-
Not Hispanic	38.8	192		
Physical activity				
Sedentary	39.2	195	1.79	-
Moderate	42.8	215		
Vigorous	18	90		
Fear of crime				
Low	36	180	4.98	.972
Medium	22	110		
High	42	210		
Fear of walk				
Often	6.4	27	3.10	.852
Sometimes	23.3	98		
Rarely	23.8	100		
Never	46.4	195		
Incivilities				
A big problem	2	20	2.81	.941
Somewhat of a problem	10.4	51		
Not a problem	87.6	439		

Gender (1= male, 2 = female); Hispanic ethnicity (1= yes, 2= no); Physical activity (1= No PA, 2= sedentary, 3= vigorous); Fear of crime (1 = not worried to 10 = very worried).

Table 3-2. Summary statistics for Hispanic neighborhoods by socio-economic status

Variables (n=500)	Total	High Income		Low Income	
	%	Freq.	%	Freq.	%
Age (Years)					
18 - 30	28.6	92	37	50	20
31- 45	41.6	88	35	114	45.6
46 - 60	22.9	41	16.4	71	28.4
Over 61	6.9	19	7.6	15	6
Gender					
Male	53	130	52	135	54
Female	47	120	48	115	46
Hispanic ethnicity					
Hispanic	61.2	145	58	161	64.4
Not Hispanic	38.8	105	42	89	35.6
Physical activity					
No PA	39.2	109	43	91	36.4
Moderate	42.8	101	41	109	43.6
Vigorous	18	40	16	50	20
Fear of crime					
Low	36	100	40	80	32
Medium	22	45	18	65	26
High	42	105	42	105	42
Fear of walk					
Often	6.4	19	9.3	8	3.7
Sometimes	23.3	60	29.4	38	17.6
Rarely	23.8	50	24.5	50	23.1
Never	46.4	75	36.8	120	55.6
Incivilities					
A big problem	2	20	7	0	0.00
Somewhat of a problem	10.4	39	13.6	12	38.4
Not a problem	87.6	201	79.4	238	61.6

Gender (1= male, 2 = female); Hispanic ethnicity (1= yes, 2= no); Physical activity (1= No PA, 2= sedentary, 3= vigorous); Fear of crime (1 = not worried to 10 = very worried).

Table 3-3. Hispanic neighborhoods by socio-economic status

Variables (n=500)	High Income		Low Income		X ²	P
	Freq.	%	Freq.	%		
Age (Years)						
18 - 30	92	64.3	50	35.7	22.564	.000***
31- 45	88	44.1	114	55.9		
46 - 60	41	36.6	71	63.4		
Over 61	19	55.9	15	44.1		
Gender						
Male	130	49.1	135	50.9	.201	.654
Female	120	51.1	115	48.9		
Hispanic ethnicity						
Hispanic	145	47	161	53	2.691	.101
Not Hispanic	105	54.5	89	45.5		
Physical activity						
Sedentary	109	54.8	91	45.2	2.381	.304
Moderate	101	48.8	109	51.2		
Vigorous	40	44.4	50	55.6		
Fear of crime						
Low	120	58.8	84	41.2	11.020	.004**
Medium	40	41.7	56	58.3		
High	90	45	110	55		
Fear of walk						
Often	19	70.4	8	29.6	19.478	.000***
Sometimes	60	61.2	38	38.8		
Rarely	50	50	50	50		
Never	75	38.5	120	61.5		
Incivilities						
A big problem	9	45.6	11	54.4	7.906	.019*
Somewhat of a problem	30	58.1	21	41.9		
Not a problem	201	43.6	238	56.4		

***p< .000, **p< .01, *p< .05

Note: Income percentages should add to 100% if read horizontally.

Table3-4. Bivariate associations of socio-demographic characteristics and physical activity

Variables	Levels of Physical Activity			X ²	P
	No PA	Moderate	Vigorous		
Age (Years)	(%)	(%)	(%)		
18 - 30	25.5	34.3	22.2	74.330	.000***
31- 45	37.8	29.4	77.8		
46 - 60	27	28.9	0.00		
Over 61	9.7	7.4	0.00		
Gender					
Male	35.7	58.4	76.4	48.207	.000***
Female	66.3	41.6	23.6		
Hispanic ethnicity					
Hispanic	65.8	56.5	62.2	3.754	.153
Not Hispanic	34.2	43.5	37.8		
SES					
Low Income	53.6	49.1	44.4	2.186	.335
High Income	46.4	50.9	56.6		
Fear of crime					
Low	15.3	46.7	55.6	100.862	.000***
Medium	23.5	29.9	0.00		
High	61.2	23.4	44.4		
Fear of walk					
Yes	44.4	19.2	31.1	30.335	.000***
No	55.6	80.8	68.9		
Incivilities					
A big problem	0.00	4.7	0.00	27.658	.000***
Somewhat of a problem	11.3	14	0.00		
Not a problem	88.7	81.3	100		

***p< .000, **p< .01, *p< .05

Note: Income percentages should add to 100% if read vertically.

Table 3-5. Multinomial logistic regression odds ratios for physical activity in Hispanic neighborhoods

Parameter	Adjusted Sedentary (Ref.) vs. Moderate Physical Activity				Adjusted Sedentary (Ref.) vs. Vigorous Physical Activity			
	95% CI				95% CI			
	Exp(B)	Low	High	<i>p</i>	Exp(B)	Low	High	<i>p</i>
Age	.952	.930	.975	.000***	.924	.888	.961	.000***
Gender								
Male	1.260	.710	2.236	.430	4.935	2.250	10.821	.000***
Female	(Ref.)							
Hispanic								
Yes	1.173	.654	2.102	.592	.457	.205	1.020	.056
No	(Ref.)							
Income								
High	.288	.162	.511	.000***	.564	.252	.1.263	.164
Low	(Ref.)							
Fear of Walk								
Often	4.218	1.027	17.322	.046*	6.155	1.311	28.889	.021*
Sometimes	1.279	.599	2.708	.531	.158	.032	.775	.023*
Rarely	1.051	.550	2.007	.881	.901	.342	2.374	.833
Never	(Ref.)							
Incivilities								
A big problem	1.367	.637	2.934	.422	.519	.177	1.525	.233
Somewhat of a problem	7.575	3.869	14.442	.000***	.078	.130	1.115	.078
Not a problem	(Ref.)							
Fear of crime								
Low	3.105	1.695	5.687	.000***	1.686	.739	3.845	.215
Medium	6.188	3.015	12.700	.000***	1.997	.639	6.239	.234
High	(Ref.)							

Intercept cut points are excluded from the output.

p* < .05; *p* < .01; ****p* < .001

OR, odds ratio; CI, confidence interval

CHAPTER 4
SECOND ARTICLE MANUSCRIPT

Introduction

Today, Americans face many health issues. Among them are problems like obesity and related conditions like cardiovascular disease (Powers et al 2007). In the last three decades, the prevalence of obesity has doubled for both adults and children (Powers et al 2007). African Americans and Hispanics living in low income neighborhoods also have shown high rates of cardiovascular disease (Center of Disease and Control Prevention, 2004; Powell et al., 2004). These populations also suffer from physical inactivity. Reasons for low levels of physical activity among these groups include lack of access to facilities and community services promoting exercise (Powell et al., 2004). Other important factors limiting the use of recreation facilities and communal areas, and subsequent physical activity, are crime and fear of crime due to the neighborhood physical environment (Gordon-Larsen, P. et al. 2006). The purpose of this study is to understand how fear of crime might affect participation in leisure time physical activity in Hispanic communities that different by income level.

Healthy Living

In the last three decades, the obesity rate has doubled for Americans (Powers et al 2007). According to The National Health and Nutrition Examination (NHANES) survey, the obesity rate among men has increased by two percent (33.3%) in 2006 from the previous year. Among women, the obesity rate in 2006 was 35.3%. It is safe to say that obesity is still a big problem even with a slight increase in physical activity among adults (US DHHS 2008). According to the CDC, the proportion of the U.S. population that reported no leisure time physical activity (LTPA) decreased from 31% in 1989 to about 24% in 2007 for the 36 states that participated in the study. According to a US Department of Health and Human Services survey, 64.5% percent

of respondents in 2007 reported meeting the guidelines for acceptable levels of physical activity. But even with wider recognition of the benefits of exercise, obesity rates are still climbing (US DHHS 2008).

One-third of U.S. adults reported not meeting minimum levels of aerobic physical activity as defined by the 2008 guidelines. Also, higher rates of physical inactivity are more severe in minority and low-income communities, and people in these communities are more likely to demonstrate cardiovascular risk factors than in neighborhoods with higher incomes (Sundquist et al., 1999; Baker et al., 2000). Crespo et al. (2000) found that African Americans and Hispanics in low-income neighborhoods have shown some of the highest rates of cardiovascular disease in the U.S.

One of the main problems among these groups is the lack of access to facilities and community services that promote physical activity (Estabrooks et al., 2003). Lower-SES and high-minority block groups had reduced access to facilities, which in turn was associated with decreased physical activity (PA) and increased overweight (Gordon-Larsen et al., 2006). Powell et al (2006) found that differences in access to facilities for physical activity may contribute to ethnic and income (SES) disparities in PA and overweight patterns since physical activity facilities were less likely to be present in lower income communities and communities with higher proportions of African American and Hispanic residents (Powell et al. 2006). Also, people living within 1 mile of parks were positively associated with LTPA and engage in 38% more exercise sessions than those living farther away (Cohen et al. 2007). Further, Wilson et al. (2004) found that respondents from low SES neighborhoods had about 2 miles of trails around, or in, their neighborhoods. This was substantially less than in high income communities that enjoy on average, 37 miles of trails in or around their neighborhoods.

Access is not the only factor that may prevent physical activity. There has been a considerable amount of academic discussion of the types of constraints that influence the non-use of recreational facilities (Godbey et al., 1992; Brown et al., 2000; Giles-Corti & Donovan, 2003). These analyses have taken into consideration such factors as gender, social class, age and mobility, and at least some of these include the fear of entering certain spaces as an additional constraint (O'Neill & Reid, 1991; Estabrooks et al., 2003; Giles-Corti & Donovan, 2003).

Social barriers such as neighborhood crime and safety might negatively affect physical activity participation (Bairner & Shirlow, 2003). Some studies have shown that physical activity rates were more than twice as high among those perceiving their neighborhoods to be safe (Booth et al., 2000; Romero et al., 2001). Also, neighborhood residents limit their mobility as they tend to stay closer to other houses to feel safer (Brown et al., 2000; Booth et al., 2000). Zhu and Lee (2008) found that low income Hispanic areas not only have poorer environments than high income areas, but they also have more danger from crime and lower street level walkability.

Fear of Crime

One of the problems with crime is the indirect effect or fear that it can produce in a community. This is referred to as fear of crime. Fear is an emotional and physical response to a threat, and is usually related to a fear of victimization (Maxfield, 1984). Fear of crime is considered to be a significant factor in reducing community quality (Moore & Trojanowicz, 1988; Pendleton 2000; Manning et al., 2001; Tynon & Chavez, 2006). Studies show that even in cities where crime had decreased, the fear of crime remained consistently high (Skogan, 1990).

Fear of crime usually arises from community disorder. For example, areas where trash, graffiti, abandoned cars and buildings are present might reflect abandonment and social disorganization, giving the impression of an unsafe area (Bairner & Shirlow, 2003; Gordon-

Larsen, P. et al., 2006).

Once fear is established, it can be a factor in community decline and a breakdown in community quality (Moore & Trojanowicz, 1988; Pendleton, 2000; Manning et al., 2001; Tynon & Chavez, 2006). For example, we tend to feel safer in areas we know or control, but when crime arrives in an area we frequent, this causes more fear than crime occurring in other areas (Bowers & Hirschfield, 1999; Bairner & Shirlow, 2003).

Pendleton & Thompson (2000) found that in non-white populations, socioeconomic status, rather than race, was the source of high crime rates. This creates a problem when attempts are made to increase levels of physical activity in lower income areas, especially since perceived safety is one of the most influential external factors for different SES groups to engage in physical activity (Boslaugh, S.E. et al., 2004). Wen et al. (2007) showed that perceived safety and cohesion was lowest among low income Hispanic groups. Previous research suggests that physical characteristics and neighborhood conditions can act as determining factors in levels of physical activity (Murray et al., 1995; Andrews, 1997). Crime and safety issues have been found to act as barriers to physical activity participation (Bairner & Shirlow, 2003; Gordon-Larsen, P. et al. 2006). Some studies have found that perceived safety is one of the most influential factors affecting an individual's decision to engage in physical activity (Godbey et al., 1992; Boslaugh et al., 2004).

The purpose of this analysis is to examine the relationships between socio economic status and perception of crime in Hispanic communities, and how personal and environmental variables like fear of crime, cohesion, fear or of walking and incivilities might affect physical activity participation as they offer increased opportunities for improved health.

Methods

The study was conducted in the city of Orlando, FL during the summer of 2008. Orlando has a median income of \$35,732 with 13.3% of families living below the poverty line (US Census Bureau). According to the US census, Orlando has a population of 357,637 and nearly eighteen percent of those are Hispanics.

Neighborhood and park selection was made manipulating U.S. Census Bureau 2002 (TIGER files) at the block level with geographic information system (GIS) software (ArcGIS 9.2). The city was divided into areas with 50% or more Hispanic population. Then the area was divided into high income and low income from which urban parks were identified. The final park selection was made by choosing 9 parks in high socio economic areas and 8 parks in lower socioeconomic areas with a dense population around them. Only houses adjacent or close to the parks (up to ½ mile) were selected to assure accessibility to parks and physical activity areas.

Face-to-face interviews were collected in English and Spanish. Hispanic areas in Orlando have 63,678 individuals according to the US census. To calculate our sample size the Raosoft sample size calculation program was used, resulting in a minimum sample size of 382 for that population. Interviewers completed 500 usable interviews, 250 for high income neighborhoods and 250 for low income neighborhoods. 813 houses were visited including houses with no responses (n=216), avoided houses (n=7), vacant houses (n=35) or those that provided incomplete surveys (n=55) for a response rate of 61.5% (Table 2-2).

A systematic sampling for house selection was used to select the first house in each neighborhood (Groves et al., 2004). With systematic sampling, selection usually begins at a random place in the population list to identify the first case to be selected; then, cases are selected at regular intervals from the list (Freedman and Taub, 2006). This type of sampling is considered as accurate and unbiased as a simple random sample, provided that there is no

repetitive pattern to the sampling frame list (Freedman and Taub, 2006). In our study after the first house was indentified, every 3rd house was interviewed to obtain a fair representativeness of each neighborhood since only about 30 houses were selected by neighborhood.

All participants were of 18 years of age or older residing at that particular address. The sample structure was designed to assure equal chance of participation between households. The data were collected week days from 5:30 to 7:30 pm and from 10:00 am to 12:00 pm, and 3:00 to 6:00 pm weekends. The research protocol was approved by the University of Florida Institutional Review Board.

Measures

Dependent Variable

The instrument was developed using validated questions from existing surveys including the 2005 Questionnaire for the Behavioral Risk Factor Surveillance System (BRFSS), the 2005 Neighborhood Survey created by Catherina Roman and The Urban Institute, and a survey about Victimization: An Alternative and Reliable Measure for Fear of Crime (Williams, et. al. 2000). The dependent variable, physical activity, was assessed with a single item: “Usually when you engage in physical activity, what type of PA do you do? Would you say it is moderate, vigorous or no physical activity (Sedentary)?”

Lee and Moudon (2008) used a similar measurement using self-reported survey data as moderate physical activity and vigorous physical activity as indicators of active living. Also Floyd, et al. (2007) and Gobster (2005) measures the same levels of physical activity, but their data collection method was observation, not self reported.

Independent Variables

Ethnicity

Hispanic ethnicity was assessed by a single item to measure participant's Hispanic ethnicity. Respondents were asked: "Do you consider yourself to be Hispanic?" Participants responded "Yes", "No" or "Don't know". Responses were re-coded into 1 for "Yes" and 2 for "No." Measures were obtained from the BRFSS.

Neighborhood cohesion

Neighborhood cohesion was measured using a 4-point Likert scale in which participants offered their opinions about the level of cohesion or unity in their neighborhoods. Respondents were asked to indicate the extent of their agreement with cohesion questions by answering "strongly agree", "agree", "disagree" or "strongly disagree". Questions for neighborhood Cohesion were: (1) This is a unified neighborhood; (2) People around here are willing to help others; (3) People in this neighborhood don't get along with others; (4) People in this neighborhood do not know each other; (5) People in this neighborhood can be trusted;(6) People in this neighborhood watch out for each other; (7) People in this neighborhood do favors for each other; (8) People in this neighborhood have parties for each other; and (9) People in this neighborhood visit each other. Questions 3 and 4 are negatively stated so a reverse coding was implemented where answers ranged from "strongly disagree" to "strongly agree".

The scale was shown to have a high internal consistency (Cronbach's Alpha = .913). Measures were obtained from Catherina Roman and The Urban Institute.

Incivilities

The physical characteristics of the area were addressed by asking residents their opinions and perceptions of their neighborhood. Incivilities were measured using a 3-point Likert scale in which participants provided their opinions about a specific uncivil behavior. Residents were asked to describe problems from a specific list of incivilities. Respondents were allowed a choice of describing these as “a big problem”, “somewhat of a problem” or “not a problem”.

Questions for incivilities were in reference to: litter, broken glass, trash on the sidewalks and streets; graffiti on buildings and walls; vacant houses; trash in the neighborhood; drinking in public; people selling drugs; groups of rowdy teenagers; abandoned cars; prostitution; police not patrolling the area; and police not responding to calls from the area. The study showed this scale to have a high internal consistency (Cronbach’s Alpha = .941). Measures were obtained from Roman and The Urban Institute.

Fear of crime

Neighborhood-level fear of crime is a five-item construct representing how worried residents are about specific crimes. Respondents were asked to indicate the extent of their agreement on a ten-point scale from "Not worried" to "Very worried." This allowed for a more specific answer about each type of crime (assault, rape, burglary, theft, murder, etc.) instead of asking the more general question: Are you afraid of crime? (Williams, et. al. 2000). The variable was re-coded into a 3 level ordinal measure 1 - 3 (not worried), 4 - 6 (somewhat worried) and 7-10 (very worried) where 1-3 represents low fear, 4 – 6 medium fear and 7 – 10 high level of fear of crime. Items for fear of crime were: Assault with a weapon, assault without a weapon, rape, burglary, theft, vandalism and murder (Cronbach’s Alpha = .972). This measure was obtained from Williams, et al 2000.

Fear of walking

Fear of walking is a scale composed of a series of questions where respondents were asked to indicate the extent of their fear about walking outside. Respondents were asked to respond on a four-point scale: never, rarely, sometimes and often. The item was developed to capture a behavior resulting from fear of crime.

Questions for fear of walk were: (1) How often does worry about crime prevent you from walking someplace in your neighborhood during the day?; (2) How often does worry about crime prevent you from walking someplace in your neighborhood during the night?, (3) How often does worry about crime prevent you from walking someplace around or in the park during the day?, and (4) How often does worry about crime prevent you from walking someplace around or in the park during the night? The scale was shown to have a high internal consistency (Cronbach's Alpha = .851). Measures were obtained from Roman and The Urban Institute.

Victimization

Victimization was a series of dichotomous questions asking respondents about their past experience with crime. Victimization questions were: (1) Have you been a victim of a crime in the last 4 years?; (2) Have you been a victim of a crime in the last 10 years?; (3) Do you know if a member of your family or someone you know have been a victim of a crime in the last 4 years?; and (4) Do you know if a member of your family or someone you know have been a victim of a crime in the last 10 years? Respondents answered: "Yes", "No" or "Don't know". Responses were re-coded into (1) for "Yes" and (2) for "No". This measure was obtained from Williams, et al, 2000.

Data Analysis

Descriptive statistics, including frequency distributions, means, standard deviations, standard errors and confidence intervals, were generated to summarize all variables. Correlations

and cross-tabulations with chi-square tests for categorical variables were used to determine whether levels of physical activity varied significantly across the independent variables.

For multivariate tests, multinomial logistic regression was employed to examine the influence of individual and neighborhood predictors on leisure-time physical activity, since the dependent variable was categorical with three levels (i.e., sedentary, moderate and vigorous). The moderate and vigorous categories were contrasted against sedentary as the reference category. Odds ratios (OR) at the 95% confidence intervals are reported to indicate associations between independent variables and physical activity. Results of the VIF test for our study showed none of the variables to have a VIF value higher than 1.8, well below the critical value of 5. Also results were obtained for tolerance. A small tolerance value indicates that the variables under consideration are almost in a perfect linear combination of the independent variables already in the equation. Variables with very small tolerance values (.1 for serious multicollinearity problem and .2 for concern of a potential problem) should not be added to the regression equation (Menard, 1995; O'Brien 2007). Our study showed all tested variables to have a tolerance well above the .2 value of concern for a potential multicollinearity problem (Table 2-3).

All data were analyzed using SPSS Statistical Software, version 16.0 (SPSS Inc., Chicago, IL).

Results

The results show that only 61.2 percent of the participants considered themselves to be of Hispanic ethnicity. Fifty eight percent of those who reported to be Hispanics reside in high income neighborhoods, while 64.4 % of those who consider themselves to be Hispanic live in low income areas (Table 4-2). About 70 percent of the respondents were between the ages of 18 and 45 years old (mean = 38.15). Female participants showed more physical inactivity (66.3%) than males in both SES neighborhoods. Close to 70 % of the participants showed no fear of

walking in Orlando's Hispanic neighborhoods and 90 percent of the participants reported no problems with incivilities in their neighborhoods (Table 4-2).

High Income

Unadjusted multinomial logistic regression results show that when the moderate category of PA was contrasted against the sedentary category, only the variables of age, gender, cohesion and ethnicity significantly predicted an association in the moderate category (Table 4-3). Age was associated with lower odds of moderate physical activity (OR=0.968, 95% CI, .968-.947). In other words, age showed a negative association with moderate to vigorous physical activity (Table 4-3). Gender was positively associated with moderate to vigorous physical activity. Males had 5 times higher odds of moderate and vigorous physical activity (MVPA) than females (OR=5.00, 95% CI, 2.782-8.988). Hispanics also showed positive association MVPA than non-Hispanics (OR = 1.787, CI 95%, 1.032-3.096). Cohesion (OR = .379, 95% CI, .217-.661) was negatively associated with increased odds of being classified as moderate (Table 4-3). None of the neighborhood predictors of fear were statistically significant. Adjusted odds ratio results show the effects of each variable controlling for all others.

Age, gender, ethnicity, cohesion and incivilities were significantly associated with moderate activity. The results of the adjusted model were similar to the unadjusted results. However, the effects of gender and Hispanic identity were more pronounced (Table 4-3). Males were 7.2 times (OR=7.236, 95% CI, 3.569-14.669) more likely than females to report moderate physical activity. Hispanics were 2.2 times (OR = 2.260, CI 95%, 1.129-4.526) more likely to report moderate physical activity than non-Hispanics.

Two of the neighborhood measures were significant in the adjusted model. Cohesion (OR = .352, 95% CI, .205-.656) was associated with increased odds of being classified as moderately active (Table 4-3). Incivilities were associated with decreased odds of moderate activity. The

response “A big problem” (OR = .191, 95% CI, .041-.884) was associated with 81% lower odds of participant’s reporting moderate physical activity.

When examining the effects of the predictor variables on vigorous category versus the sedentary category for unadjusted regression in high-income neighborhoods, only age, gender, Hispanic ethnicity and cohesion were significant predictors. Similar to the model for moderate physical activity, age, gender and Hispanic identity were significant predictors of vigorous physical activity (Table 4-4). The directions of the relationships were the same. Age (OR=0.889, 95% CI, .845-.934) was associated with 11% lower odds of vigorous activity (Table 4-4). Males (OR=7.50, 95% CI, 3.265-17.226) were 7.5 times more likely than females to report vigorous physical activity. Respondents of Hispanic ethnicity (OR = 3.300, CI 95%, 1.466-7.431) were 3.3 times more likely than non-Hispanic to report vigorous activity.

One of the neighborhood measures was significant in the adjusted model. Cohesion (OR = .352, 95% CI, .205-.656) was associated with increased odds of being classified as moderate (Table 4-4). For the model showing the effects of the predictor variables on vigorous activity versus sedentary for adjusted regression in high-income neighborhoods, only age, gender, ethnicity and cohesion were significant predictors. The adjusted model for vigorous physical activity showed the similar results as the unadjusted model. However results for gender (19.382, 95% CI, 6.433-58.400) were more pronounced (Table 4-4).

Low Income

Unadjusted multinomial logistic regression results for low income show that when the moderate category was contrasted against the sedentary category, only Hispanic ethnicity significantly predicted an association in the moderate category (Table 4-5). Hispanic ethnicity was associated with lower odds of moderate physical activity (OR=.233, 95% CI, .122-.445). In

other words, Hispanic ethnicity showed a negative association with moderate to vigorous physical activity (Table 4-5).

None of the neighborhood predictors of fear were statistically significant. Adjusted odds ratio results show the effects of each variable controlling for all others. Similar to the unadjusted model, only Hispanic ethnicity (OR=.235, 95% CI, .118-.467) was associated with lower odds of preference of sedentary to moderate physical activity (Table 4-5). When examining the effects of the predictor variables on the vigorous category versus the sedentary category for unadjusted regression in low-income neighborhoods, only gender, Hispanic ethnicity and cohesion were significant predictors (Table 4-6). Males (OR=5.000, 95% CI, 2.228-11.218) were 5 times more likely than females to report vigorous physical activity. Respondents of Hispanic ethnicity (OR = .349, CI 95%, .161-.757) were associated with 65% lower odds of vigorous activity.

One of the significant neighborhood measures in the adjusted model was cohesion. Cohesion (OR = .353, 95% CI, .160-.775) was associated with increased odds of being classified as moderately active (Table 4-6). For the adjusted model for low income areas, only age, gender, Hispanic ethnicity and cohesions were significant predictors of vigorous physical activity. Age (OR=.956, 95% CI, .918-.996) was associated with 5% lower odds of vigorous activity (Table 4-7). Males (OR=7.205, 95% CI, 2.794-18.582) were 7 times more likely than females to report vigorous physical activity. Respondents of Hispanic ethnicity (OR = .313, CI 95%, .125-.782) were associated with 69% lower odds of vigorous activity. Only one of the neighborhood measures was significant in the adjusted model. Cohesion (OR = .269, 95% CI, .111-.653) was associated with increased odds of being classified as moderate (Table 4-7).

Discussion

This study sought to understand the relationships between socio economic status and perception of crime in Hispanic communities. Social and environmental variables were measured to better understand these relationships.

Results for our study show that sixty percent of participants reported they had engaged in physical activity in the last month. This is inconsistent with the extant literature, which reports that only about 25% of American adults participate in the recommended levels of physical activity. McKenzie et al. (2006) reported that park users were sedentary 66% of the time. Surprisingly, in our study, physical activity participation was more evident in low SES areas (63%) than high-income (57%). According to some studies, low-income areas have been shown to be less active than high-income areas (Evans & Katrowski, 2002; Estabrooks, P.A et al. 2003; Gómez et al., 2004; Wilson DK, et al. 2004).

Results for multinomial logistic regression for high and low income showed that when the sedentary category was contrasted against the moderate or vigorous, age showed a negative association with moderate and vigorous physical activity. In other words, as age groups increase, the reported preference for sedentary activity also increased. This result is similar to some studies indicating that few older persons engage in regular physical activity (Talbot, L.A. et al. 2002; U.S. HHS, 2000).

This study showed more participation by males (53%) than females (47%). Gender was a significant predictor of moderate and vigorous physical activity for both income groups. For vigorous physical activity, males exceeded females by a 3 to 1 ratio. This contrasted with some studies in the literature that found women to be a little less physically active than men, but still

showed a higher level of physical activity among women than our study (McKenzie et al., 2000; Brownson, R.C. et al., 2004; McKenzie et al., 2006).

Close to 60% of the participants reported to be from Hispanic ethnicity of any race, with more present in low-income areas (64.4 %) than in high-income areas (58 %). Hispanic ethnicity also showed a positive association with moderate and vigorous physical activity; more than non-Hispanics in high income areas. However, for low income neighborhoods, Hispanic ethnicity showed a negative association with moderate and vigorous physical activity. Studies have found that Hispanics fail to participate in physical activity (Gordon-Larsen, P., et al. 2000, Kesaniemi, Y.K. et al. 2001). Also, several studies have found less access to facilities for physical activity in unacceptable conditions in low income areas (Wilson et al. 2004; Gordon –Larsen et al. 2006; Powell et al. 2006; Zhu & Lee, 2008)

One factor that might prevent the use of parks and neighborhoods for physical activity is the fear of crime (Eyler et al., 1999; Giles-Corti & Donovan, 2003). Our study shows 70% of participants reporting no fear of walking in their neighborhoods. This makes sense since levels of fear in neighborhoods can be attributed to the presence of incivilities or previous experience with crime (Bairner & Shirlow, 2003; Gordon-Larsen, P. et al. 2006). About 90% of the participants reported no evidence of incivilities in their neighborhoods. Participants that registered no participation in physical activity were more worried about crime than active participants. However, about 44% of people that did not participate in physical activity were afraid of walking around their neighborhood.

Two of the neighborhood measures were significantly associated with physical activity in the study. Cohesion and incivilities were associated with decreased odds of moderate and vigorous physical activity in both SES. Fear or crime, fear of walking and victimization were

not significantly associated with moderate activity for any neighborhood in this study. This contradicts the literature where fear of crime has been found to be a factor affecting physical activity participation in parks (Pendleton, 2000; Manning et al. 2001; Tynon & Chavez 2006).

Conclusions

The present study emphasizes the need to better understand the effects of crime and fear of crime on physical activity at a micro level for specific minority communities. Perceptions of fear and incivilities may affect leisure time physical activity. This study has several limitations. First, the study area was a selection of Hispanic areas in Orlando, FL. This does not represent the broader Hispanic population that lives in Florida or the U.S. The study was done with a random sample that included Hispanic neighborhoods only. We focused on this region because of the high propensity for cardiovascular diseases in this population (Mokdad AH, et al. 2001; Giles-Corti & Donovan, 2003). Second, data were self-reported; each participant might not accurately (e.g., they may over-report levels of PA) or truthfully report their responses. Finally, the questions used to evaluate fear of walking do not specify if the activity was done for physical activity or as a necessity.

Future studies should investigate how neighborhoods in diverse communities can adopt policies to improve safety perceptions and minimize risks; especially in low income areas. If neighborhoods in diverse and disadvantaged communities are to benefit from physical activity, more research is needed to explore residents' behavior and how this is affected by possible external (individual and social) factors. Also policy makers should focus on low cost physical activities like walking. Walking is one of the most reported activities for physical health, and is fairly inexpensive. Future research should focus on policies and behavior to promote walking; either for recreation or other purposes.

Additionally, further studies should be made to study factors that decrease female

physical activity participation in Hispanic communities. Finally more in-depth studies should be made to focus on physical activity in Hispanic areas with different income levels. Differences in moderate and vigorous physical activity preferences for different incomes in Hispanic areas left some unanswered questions about what might prevent PA participation.

Tables

Table 4-1. Variables summary

Variable	%	N	Mean	Cronbach's α
Age	-	490	39.44	-
Gender				
Male	53	265	-	-
Female	47	235		
Hispanic ethnicity				
Hispanic	61.2	298	-	-
Not Hispanic	38.8	192		
Physical activity				
Sedentary	39.2	195	1.79	-
Moderate	42.8	215		
Vigorous	18	90		
Cohesion				
Agree	44.2	221	-	.913
Disagree	55.8	279		
Fear of crime				
Low	36	180	4.98	.972
Medium	22	110		
High	42	210		
Fear of walk				
Often	6.4	27	3.10	.851
Sometimes	23.3	98		
Rarely	23.8	100		
Never	46.4	195		
Victimization				
Yes	8	40	-	.793
No	92	460		
Incivilities				
A big problem	2	20	2.81	.941
Somewhat of a problem	10.4	51		
Not a problem	87.6	439		

Gender (1= male, 2 = female); Hispanic ethnicity (1= yes, 2= no); Physical activity (1= No PA, 2= sedentary, 3= vigorous); Fear of crime (1 = not worried to 10 = very worried).

Table 4-2. Hispanic neighborhoods by socio-economic status

Variables (n=500)	High Income		Low Income	
	Freq.	%	Freq.	%
Age (Years)				
18 - 30	92	37	50	20
31- 45	88	35	114	45.6
46 - 60	41	16.4	71	28.4
Over 61	19	7.6	15	6
Gender				
Male	130	52	135	54
Female	120	48	115	46
Hispanic ethnicity				
Hispanic	145	58	161	64.4
Not Hispanic	105	42	89	35.6
Physical activity				
Sedentary	109	43	91	36.4
Moderate	101	41	109	43.6
Vigorous	40	16	50	20
Cohesion				
Agree	115	46	106	42.4
Disagree	135	54	144	57.6
Fear of crime				
Low	100	40	80	32
Medium	45	18	65	26
High	105	42	105	42
Fear of walk				
Yes	60	24	96	38.4
No	190	76	154	61.6
Victimization				
Yes	20	8	38	15.2
No	230	92	212	84.8
Incivilities				
A big problem	20	7	0	0.00
Somewhat of a problem	39	13.6	12	38.4
Not a problem	201	79.4	238	61.6

Gender

(1= male, 2 = female); Hispanic ethnicity (1= yes, 2= no); Physical activity (1= No PA, 2= sedentary, 3= vigorous); Fear of crime (1 = not worried to 10 = very worried).

Table 4-3. Multinomial logistic regression odds ratios for sedentary to moderate physical activity in high income neighborhoods

Parameter	Unadjusted Sedentary (Ref.) vs. Moderate Physical Activity				Adjusted Sedentary (Ref.) vs. Moderate Physical Activity			
	Exp(B)	95% CI		p	Exp(B)	95% CI		p
		Low	High			Low	High	
Age	.968	.947	.988	.002**	.957	.932	.983	.001**
Gender								
Male	5.00	2.782	8.988	.000***	7.236	3.569	14.669	.000***
Female	(Ref.)							
Hispanic								
Yes	1.787	1.032	3.096	.038*	2.260	1.129	4.526	.021*
No	(Ref.)							
Cohesion								
Agree	.379	.217	.661	.001**	.352	.205	.656	.002**
Disagree	(Ref.)							
Fear of Walk								
Often	.927	.176	4.875	.929				
Sometimes	.927	.448	1.918	.838				
Rarely	.859	.460	1.603	.633				
Never	(Ref.)							
Incivilities								
A big problem	.363	.106	1.239	.106	.191	.041	.884	.034*
Somewhat of a problem	.645	.357	1.165	.146				
Not a problem	(Ref.)							
Fear of crime								
Low	1.200	.584	2.467	.620				
Medium	1.337	.633	2.827	.447				
High	(Ref.)							
Victimization								
Yes	1.651	.733	3.719	.226				
No	(Ref.)							

Intercept cut points are excluded from the output.

*p < .05; **p < .01; ***p < .001

OR, odds ratio; CI, confidence interval

Table 4-4. Multinomial logistic regression odds ratios for sedentary to vigorous physical activity in high income neighborhoods

Parameter	Unadjusted Sedentary (Ref.) vs. Vigorous Physical Activity				Adjusted Sedentary (Ref.) vs. Vigorous Physical Activity			
	Exp(B)	95% CI		<i>p</i>	Exp(B)	95% CI		<i>p</i>
		Low	High			Low	High	
Age	.889	.845	.934	.000***	.862	.812	.915	.000***
Gender								
Male	7.50	3.265	17.226	.000***	19.382	6.433	58.400	.000***
Female	(Ref.)							
Hispanic								
Yes	3.300	1.466	7.431	.004**	7.985	2.570	24.810	.000***
No	(Ref.)							
Cohesion								
Agree	.205	.091	.464	.000***	.203	.101	.458	.000***
Disagree	(Ref.)							
Fear of Walk								
Often	1.900	.351	.10.291	.456				
Sometimes	.330	.100	1.088	.069				
Rarely	.602	2.64	4.376	.226				
Never	(Ref.)							
Incivilities								
A big problem	.667	.168	2.651	.565				
Somewhat of a problem	.421	.174	1.018	.055				
Not a problem	(Ref.)							
Fear of crime								
Low	.989	.382	2.540	.986				
Medium	1.067	.398	2.858	.898				
High	(Ref.)							
Victimization								
Yes	.450	.095	2.125	.313				
No	(Ref.)							

Intercept cut points are excluded from the output.

* $p < .05$; ** $p < .01$; *** $p < .001$

OR, odds ratio; CI, confidence interval

Table 4-5. Multinomial logistic regression odds ratios for sedentary to moderate physical activity in low income neighborhoods

Parameter	Unadjusted Sedentary (Ref.) vs. Moderate Physical Activity				Adjusted Sedentary (Ref.) vs. Moderate Physical Activity			
	Exp(B)	95% CI		<i>p</i>	Exp(B)	95% CI		<i>p</i>
Age	1.012	.988	1.037	.326				
Gender								
Male	1.250	.715	2.186	.434				
Female	(Ref.)							
Hispanic								
Yes	.233	.122	.445	.000***	.235	.118	.467	.000***
No	(Ref.)							
Cohesion								
Agree	1.250	.715	2.186	.434				
Disagree	(Ref.)							
Fear of Walk								
Often	.530	.137	2.045	.357				
Sometimes	.762	.363	1.599	.472				
Rarely	1.206	.620	2.345	.581				
Never	(Ref.)							
Incivilities								
A big problem	1.192	.256	5.546	.823				
Somewhat of a problem	1.277	.703	2.320	.422				
Not a problem	(Ref.)							
Fear of crime								
Low	1.163	.566	2.390	.681				
Medium	.699	.340	1.435	.329				
High	(Ref.)							
Victimization								
Yes	.798	.329	1.936	.618				
No	(Ref.)							

Intercept cut points are excluded from the output.

* $p < .05$; ** $p < .01$; *** $p < .001$

OR, odds ratio; CI, confidence interval

Table 4-6. Multinomial logistic regression odds ratios for sedentary to vigorous physical activity in low income neighborhoods

Parameter	Unadjusted Sedentary (Ref.) vs. Vigorous Physical Activity				Adjusted Sedentary (Ref.) vs. Vigorous Physical Activity			
	Exp(B)	95% CI		<i>p</i>	Exp(B)	95% CI		<i>p</i>
Age	.970	.939	1.002	.063	.956	.918	.996	.031*
Gender								
Male	5.000	2.228	11.218	.000***	7.205	2.794	18.582	.000***
Female	(Ref.)							
Hispanic								
Yes	.349	.161	.757	.008**	.313	.125	.782	.013*
No	(Ref.)							
Cohesion								
Agree	.353	.160	.775	.009**	.269	.111	.653	.007**
Disagree	(Ref.)							
Fear of Walk								
Often	.738	.132	4.123	.729				
Sometimes	.830	.308	2.240	.714				
Rarely	1.909	.835	4.366	.126				
Never	(Ref.)							
Incivilities								
A big problem	1.269	.201	7.999	.800				
Somewhat of a problem	1.156	.550	2.429	.703				
Not a problem	(Ref.)							
Fear of crime								
Low	.688	.281	1.680	.411				
Medium	.688	.295	1.604	.386				
High	(Ref.)							
Victimization								
Yes	.458	.122	1.728	.249				
No	(Ref.)							

Intercept cut points are excluded from the output.

* $p < .05$; ** $p < .01$; *** $p < .001$

OR, odds ratio; CI, confidence interval

CHAPTER 5 CONCLUSIONS

The purpose of this study was to understand the relationships between income and perception of crime in Hispanic communities and how these perceptions affect participation in leisure time physical activity resulting in improved health. Several research questions were developed to better understand the relationship between fear of crime and LTPA.

The first question asked if self-reported LTPA differed between high and low SES and neighborhood conditions. The results indicate that there were no significant difference between neighborhoods with higher income and neighborhoods with lower income.

The second question asked if fear of crime prevented neighborhood residents from self-reported LTPA participation. The results indicate that fear of crime significantly increased the odds of those participants that reported moderate levels of physical activity. However, no association was found between fear of crime and those who reported vigorous physical activity.

The third question asked if fear of walking prevented neighborhood residents from self-reported LTPA participation. The results indicate that fear of walking significantly helped predict participation in LTPA. Participants who answered that they often feel fear of walking increased their odds of reporting engagement in moderate and vigorous physical activity.

The fourth question asked how neighborhood cohesion affects self reported LTPA. Differences between levels of LTPA and cohesion were supported by the findings of the study. Results indicated that for all income levels and all physical activity levels, except low income moderate, neighborhood cohesion was found to significantly reduce the odds of reporting participation in physical activity.

The last question asked if neighborhood incivilities affect self reported LTPA. The results indicated that only one level (a big problem) of incivility showed to have a significant negative

effect on high income moderate physical activity. For high income vigorous and low income levels of PA, incivilities failed to predict participation in LTPA.

Physical activity is important for everyone. Parks and neighborhoods play an important role in facilitating physical activity in low-income and minority communities. However, further studies are needed to understand preferences of facilities and types of physical activity. For example, some studies have shown that walking is the most common type of physical activity (Simpson, M.E. et al. 2003). Since most people like to walk, making parks and neighborhoods suitable for walking should be a priority. Cities can improve the design of parks and neighborhoods to focus on creating more walking paths and tracks.

It should be interesting, almost necessary, to understand differences between walking for recreation versus walking as a necessity and the role of fear on this. Further studies should focus on specific questions about the purpose of walking around parks and neighborhoods; as this study fails to ask why participants engaged in walking.

Walking can play a significant role in increasing physical activity in low-income and minority communities. Walking is not only the most reported physical activity but is free to do and almost everyone has access to a street or a sidewalk, while others may have access to parks (Simpson, M.E. et al. 2003). For our study, fear of walking fail to predict participation in physical activity, but other measures should be developed to better understand this relationship. For example Sallis et al. (2009) found that obesity was lower for high walkability neighborhoods.

Also, little is known about who uses parks and neighborhoods for LTPA in these communities, how frequent they use it and for how long. Policymakers and city planners should work with community associations to promote the use of neighborhoods and parks for leisure

time physical activity. Studies like this one should be replicated with a focus on more detailed physical activity participation. Physical activity is important for everyone, and since most people who engage in LTPA choose to walk, making parks and neighborhoods suitable for walking should be a priority. Perceptions of safety may affect the use of recreational areas for physical activity.

However, participation in LTPA around parks and neighborhoods can be affected by fear and crime concerns (Zhu & Lee, 2008). Perceptions of safety may affect the use of recreational areas and leisure time physical activity. For example, when we asked about their fear of walking in their neighborhoods, about 70% of the participants reported no fear of walking. We assume that crimes that worried people in these neighborhoods might not be present while walking. Further studies should be conducted to understand levels of fear of crime during other non recreational activities since in our study sedentary respondents were more worried about crime than active participants.

Fear of crime has been identified as one factor that might inhibit the use of parks and neighborhoods for physical activity. However, this study showed that 60.8% of the participants reported participation in physical activity during the last month. This level of participation was similar to the National levels of LTPA for 2007 where about 65% of adults participated in the recommended levels of PA according to the 2008 US DHHS report. Of those physically active in this study, males participated three times more than females. A follow-up, in-depth study of female behavior should be conducted to better understand the extent of physical inactivity in this area. Also, sedentary respondents were more worried about crime than active participants; specifically 44% of people who did not participate in physical activity were afraid of walking around their neighborhood. Roman (2007) found that females have 52% higher odds of

reporting a higher level of fear than males. This concurs with the crime literature where females have been found to be more concerned with some crimes than males (Fetchenhauer, D. & Buunk, B., 2005; Ferraro, 1995, 1996; Fisher and Sloan, 2003). However, some studies have found that males are more afraid than females when fear is measured by specific crimes (Wesely and Gaarder, 2004; Hollander, 2001).

This study found that while perceptions of fear and incivilities may affect the use of recreational areas, they fail to predict park use in this study. Our study was limited to a few parks in Hispanic neighborhoods in Orlando; maybe a larger sample of neighborhoods with different ethnic backgrounds might provide different results. In this setting, Park and Recreation departments should work hand in hand with local police to develop policies to provide a safer feel to our parks and neighborhoods.

Further studies should be made to understand levels of fear of crime during other non recreational activities since our study found that sedentary respondents were more worried about crime than active participants. New questions should be formulated to better understand how levels of fear of crime change through the day for different activities including work. For example, future studies should focus on the difference between fear of walking for recreation and fear of walking as a necessity. This study focused on general questions about walking around the neighborhoods, they did not specify the purpose of the activity.

The present study emphasizes the need to better understand the effects of crime and fear of crime on physical activity at a micro level for specific minority communities. However, this study has several limitations. First, the study area is limited to the Hispanic population in Orlando, Fl. This does not represent the broader Hispanic population that lives in Florida or the U.S. A more detailed study about the relationship of fear and physical activity should focus on

wider populations of Hispanics. Second, the interviews were self-reported; each participant might not accurately report their responses. Future studies should include observations to monitor physical activity participation. Finally, the questions used to evaluate fear of walking do not specify if the activity was done for physical activity or as a necessity. Future studies should address this issue in more detail.

APPENDIX A
SAMPLE LETTER OF INFORMED CONCENT

Health and Human Performance
Department of Tourism, Recreation
and Sport Management

300 FLG PO Box 118208
Gainesville, FL 32611-8208
352-392-4042 ext. 1395

Dear Resident:

The University of Florida, Department of Tourism, Recreation and Sport Management along with the cities of Orlando, FL; Tampa, FL and Chicago, IL are conducting a study to learn about residents understanding and opinion of urban park participation and fear of crime. **Your participation of this study is important in understanding these issues.**

The survey shall not take more than 15 minutes to complete. Nowhere in this survey will we ask you to provide any information that can be used to identify you. This survey is completely anonymous and confidential and the information will only be used by our researchers. If you do not want to answer a particular question, you can **always refuse to answer**. Also, you are free to withdraw your consent to participate and may discontinue your participation in the interview at any time without consequence. The only people who will be able to view your comments with will be the principal investigator.

Please note that at any time you don't have to talk to the investigator if you don't wish to.

Instructions:

1. Please answer all the questions in the survey. You can use a pencil or a pen.
2. After you finish, simply put the filled survey back in the door. Our researchers will collect the survey during the next 3 days from the day it was posted.
3. If you decide not to help with this study, simply leave the survey at the door and it will be collected within 3 days.

If you have any questions or concerns about your rights as a research participant or about this research please contact Luis Suau at (352) 392-4042, ext. 1395 or via e-mail at: luisj@ufl.edu

Thank you in advance for the time you will take answer these questions. Your participation will help us and city planners to better understand these problems.

APPENDIX B
SURVEY INSTRUMENT

Hello, I'm [Luis Suau] from the University of Florida and we are conducting a survey on people's use of neighborhood and community parks for Leisure Time Physical Activity. The purpose of this study is to learn more about how people feel about using their neighborhoods and parks for physical activity. The study will help park planners design parks and neighborhoods that lead to more active use for health benefits.

This interview will take about 15 minutes and will ask questions about your physical activity routine. Your name will not be used in any way. Your identity will remain anonymous. Your participation is completely voluntary. And you may withdraw or end the interview at any time without penalty.

Do you wish to volunteer to be interviewed? Yes No [If yes, provide informed consent information].

1. How long, in years and months, have you lived in this neighborhood?

_____ Years _____ Months

2. How many members of your household are under 18 _____ under 12 _____

3. Not counting those who live with you, how many friends do you have in your neighborhood? Would you say none, one or two, three to five, six to nine or ten or more?

none one or two three to five six to nine ten or more Don't Know

Physical Activity measures

4. During the past month, did you participate in any voluntary physical activities or exercises such as running, calisthenics, golf, gardening, or walking for exercise?

Yes (1) No (2) Don't know (99)

5. Usually when you engage in physical activity, what type of PA do you do? Would you say it is moderate or vigorous physical activity?

No physical activity (1) Moderate (2) Vigorous (3)

6. Where do you do most of your physical activity?

- Inside your house (1)
- Around your house (2)
- Around your neighborhood (3)
- Around the park (4)
- Inside the park (5)

7. Around what time do you do most of your physical activity?

During the morning (1) In the afternoons (2) At night (3)

8. How many days per week do you usually do these physical activities?

1 - 2 (1) 3 - 4 (2) 5 - 7(3) No PA (4)

if other explain _____

9. Within the LAST MONTH (i.e., last 30 days), did you visit a park? (if no skip to question 12)

Yes (1)

No (2)

Don't know (99)

10. DURING your LAST park visit, how many minutes did you spend in a park?

Number of minutes _____

11. Of those ___ minutes you said you spent in a park during your LAST park visit, how many of those total minutes did you spend being physically active?

Number of minutes _____

12. On a typical visit (in general) to a park which of the following BEST describes your level of activity when visiting parks? Please circle one response.

1. Mostly sitting
2. Mostly light activities (standing, walking or strolling at a slow pace)
3. Mostly moderate activities (walking at a moderate pace, playing tennis)
4. Mostly vigorous activities (jogging, soccer, playing basketball)
99. Don't know/Not sure

13. When you go to a park, who do you usually go with? (Please select all that apply. Please Read)

No one (I usually go alone)

Family

Friends

Family and Friends

Organized group

Other (please list) _____

Don't know/Not sure

Now we would like to know about some things you might do with people in your neighborhood.

14. Does your neighborhood have any type of crime watch group, like block watch or Citizens on Patrol?

Yes (1)

No (2)

Don't know (99)

15. In the past 12 months have you or anyone in your household participated in this organization?

Yes (1)

No (2)

Don't know (99)

16. For each of these statements, please indicate whether or not you strongly agree, agree, disagree or strongly disagree. (Please check one box.)

	Strongly Agree	Agree	Disagree	Strongly Disagree	Don't Know
a. This is a unified neighborhood.	<input type="checkbox"/>				
b. People around here are willing to help their neighbors	<input type="checkbox"/>				
c. People in this neighborhood generally don't get along with each other	<input type="checkbox"/>				
d. People in this neighborhood do not know each other	<input type="checkbox"/>				
e. People in this neighborhood can be trusted	<input type="checkbox"/>				
f. People in this neighborhood watch out for each other	<input type="checkbox"/>				
g. The park closest to where I live is safe during the day.	<input type="checkbox"/>				
h. The park or playground closest to where I live is safe at night	<input type="checkbox"/>				

17. About how often do you and people in your neighborhood do favors for each other? By favors we mean such things as watching each other's children, helping with shopping, lending garden or house tools, and other small acts of kindness. Would you say often, sometimes, rarely or never?

Often (1) Sometimes (2) Rarely (3) Never (4) Don't Know (99)

18. How often do you and people in this neighborhood have parties or other get together where other people in the neighborhood are invited? Would you say often, sometimes, rarely or never?

Often (1) Sometimes (2) Rarely (3) Never (4) Don't Know (99)

19. How often do you and other people in this neighborhood visit in each other's homes or on the street? Would you say often, sometimes, rarely or never?

Often (1) Sometimes (2) Rarely (3) Never (4) Don't Know (99)

20. How often does worry about crime prevent you from walking someplace in your neighborhood? Would you say often, sometimes, rarely, or never?

A: During the day

Often (1) Sometimes (2) Rarely (3) Never (4) Don't Know (99)

B: During the Night

Often (1) Sometimes (2) Rarely (3) Never (4) Don't Know (99)

21. How often does worry about crime prevent you from walking someplace around or in the park? Would you say often, sometimes, rarely, or never?

A: During the day

Often (1) Sometimes (2) Rarely (3) Never (4) Don't Know (99)

B: During the Night

Often (1) Sometimes (2) Rarely (3) Never (4) Don't Know (99)

22. This question lists things that are problems in some neighborhoods. For each, please indicate how much of a problem it is in your neighborhood. (Please check one box.)

	A big problem	Some what of a problem	Not a problem	Don't Know
a. litter, broken glass trash on the sidewalks and streets?	1	2	3	99
b. graffiti on buildings and walls?	1	2	3	99
c. vacant houses?	1	2	3	99
d. trash in the neighborhood?	1	2	3	99
e. drinking in public?	1	2	3	99
f. people selling drugs?	1	2	3	99
g. groups of rowdy teenagers hanging out in the neighborhood?	1	2	3	99
h. different social groups who do not get along with each other?	1	2	3	99
i. abandoned cars?	1	2	3	99
j. prostitution?	1	2	3	99
k. police not patrolling the area?	1	2	3	99
l. police not responding to calls from the area?	1	2	3	99

23. The 1 point is defined as "Not worried at all about crime in general," and the 10 point is

labeled "Very worried about crime in general."

"On a scale of 1 to 10, how concerned are you about crime in this neighborhood?"

1 2 3 4 5 6 7 8 9 10

24. Is there any area within four blocks of your home where you would be worried about walking alone?

A. during the day?

Yes (1)

No (2)

Don't know (99)

B. at night?

Yes (1)

No (2)

Don't know (99)

25. Is there any area within four blocks of your home where you would be worried about walking even if someone else were with you?

Yes (1)

No (2)

Don't know (99)

33. What is the highest grade of regular school you have completed?

- Less than high school (1)
- High school/GED (2)
- Some college (3)
- 2-year college degree (4)
- 4-year college degree (5)
- Graduate school (6)

34. Which of these categories best describe your marital status?

- Never married (1)
- Separated (2)
- Divorced (3)
- Married (4)
- Domestic Partnership (5)
- Widow/Widower (6)

35. Which of the following group or groups represents your race? Black or African American, White, Asian or Pacific Islander, Native American or some other race?

[CHECK ALL THAT APPLY]

- Black or African American (1)
- White (2)
- Asian or Pacific Islander (3)
- Native American (4)
- Some other race (5) Which race is that? _____

36(A) Do you consider yourself to be Hispanic?

- Yes (1)
- No (2)
- Don't know (99)

37. Is English your primary language (speak at home)? (if not which language you speak at home with your family).

- Yes (1)
- No (2)
- If NO _____

37A. Is English your primary language you speak at work?

- Yes (1)
- No (2)
- If NO _____

38. Please think about your total combined family income during the past 12 months for all members of the family in this household.

- Less than \$10,000 (1)
- 10,000 to 19,999 (2)
- 20,000 to 29,999 (3)
- 30,000 to 39,999 (4)
- 40,000 to 49,999 (5)
- 50,000 to 59,999 (6)
- 60,000 or over (7)

39. Respondent Gender: Male (1) Female (2)

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BIOGRAPHICAL SKETCH

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