A STUDY OF FOOD ENVIRONMENTS AND FOOD MANAGEMENT STRATEGIES AMONG AFRICAN AMERICAN HOUSEHOLDS IN GARY, INDIANA

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This thesis is dedicated to my community back home-Gary, Indiana. I pray that my research can inspire change.

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Title: A Study of Food Environments and Food Management Strategies among African American Households in Gary, Indiana

African-Americans are disproportionately affected with food-related diseases. In fact, making healthy dietary choices—which is a frequent recommendation to reduce overweight and obesity, is not always feasible with presence of food deserts in many low-income communities. Income inequalities are the basis for many of the nation's health disparities, and individuals' food management strategies are often shaped by what they can afford and what is available to them. Unfortunately, low-income African-American communities compared to higher-income White communities often lack access to healthy food options and/or are not in close proximity to healthy quality grocery stores (Alwitt & Donley, 1997; Morland, Wing, Diez Roux, & Poole, 2002; Zenk, Schulz, Israel, Kames, Bao, & Wilson, 2005). Therefore, in order to effectively address food related disease within African-American populations, it is important to understand the complexities surrounding eating environments (i.e. social and cultural factors influencing aspects of food purchasing, access to safe and nutritious food and overall food management strategies).

The aim of the proposed small-scale study is to examine differences and similarities in food purchase and consumption strategies of African American households during perceived periods of food shortage and financial crisis. A better understanding of food choices and food environments among African American households is essential for the development of appropriate and culturally sensitive public health interventions that inform research and practice. Thus, this exploratory study will examine food management strategies as a facilitating behavior to diet-related obesity, while exploring the environmental context in which these behaviors occur in African-American households in Gary, Indiana. Participants for this study (n=10) will be involved in two in-depth interview, as well as participate in a community-integrated geographic information systems (CIGIS) process exploring food coping and management strategies.

It is anticipated that the results of the study will produce solution-oriented research implications to: 1) develop much needed culturally appropriate and generalizable public health interventions around food management strategies to reduce diet-related overweight and obesity; 2) inform policy (i.e. community land-use, zoning, etc.) to improve social and economic conditions in disadvantaged communities; and 3) advance the use of geographic analysis for assessing food environments in an effort to reduce exposure to elements that negatively affect health.

Key words: food management strategies, household, African American

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Introduction

Overall, most Americans need to improve their diets. However, 28% of African Americans have poor- quality diets in comparison to 16% of Whites and 14% of all other racial groups (Basiotis et al., 2002). In fact, African Americans have the highest rate of obesity (36.6%) in the state of Indiana and are disproportionately affected with higher rates of diet-related diseases such as type II diabetes, cardiovascular diseases, and hypertension (Centers for Disease Control and Prevention, 2009 (CDC)). Compared to 8% of whites, African Americans suffer from diabetes at a higher rate of 14 %. African Americans are also 15% more likely to suffer from obesity in comparison to whites. Specifically, within Gary, Indiana, African Americans are often categorized as a group vulnerable to nutritional risk. They are faced with many social and economic factors (i.e., poverty, economic stress due to lack of income, housing costs, and transportation issues). In addition, nutritious and safe foods are often limited or unavailable within the community which leads to significantly lower intakes of key foods and nutrients. Previous research studies show that not having the availability of nutritious and safe foods can negatively affect an individual's intellectual attainment, concentration, work capacity, and most importantly their health. Therefore, in order to effectively address this issue within the African-American community, it is important to understand and develop public health interventions that reflect on the complexities surrounding eating environments such as taste, pricing, personal perceptions, social and cultural factors influencing aspects of food purchasing, access to safe and nutritious food, and overall food management strategies. Physical, social, cultural, and material environments all influence health through a variety of ways. Each of the environments overlaps with one another, but together can create opportunities to be healthy.

The current study considers each of the aforementioned environments in determining factors that influence food management strategies among African American households in Gary, Indiana. In this study, "food management strategies" is defined as ongoing process that evaluates

how individuals, households, and communities all engage with the food system; these strategies assess the range of food consumption practices to meet food needs and then reassesses each strategy to determine whether food needs have been met or need replacement by a new strategy to meet changed circumstances, a new economic environment, or a new social or political environment. These strategies include but are not limited to why and how individuals determine food choices, purchasing decisions, food storage, preparation, and cooking for their household.

The African American response to food shortage during the American financial crisis has not received great attention. Therefore, this study will examine health disparities among the African American population -specifically as it relates to the food management strategies among African American households in Gary, Indiana. This study will also provide a better understanding of the African American experience with food systems, specifically around food purchasing and consumption and connect this experience to the disproportionate burden of disease and illness among the African American population in Gary, Indiana.

Background and Significance

High rates of obesity plague the world especially the United States, and as a result there are increasing numbers of preventable obesity-related diseases and conditions including diabetes, hypertension, and cardiovascular disease (Mokdad, Ford, Bowman, Dietz, Vinicor, Bales, & Marks, 2003). There is no surprise that within the US, Americans gain on average 1 to 2 pounds annually (Hill, Wyatt, Reed, & Peters, 2003). Indeed foods in higher-calorie have not only increased, but are less expensive in comparison to healthier alternatives. The portion sizes are larger, and Americans are consuming more food on a daily basis (Block, Scribner, DeSalvo, 2004; Tippett, & Cleveland, 1999). Poor quality dieting practices is one of the majoring contributing behavioral factors to overweight and obesity related diseases (CDC, 2008; Ebbeling, Pawkak, Ludwid, 2002; Ludwig, Peterson, & ortmaker, 2001). Yet, making healthy dietary

choices-a frequent recommendation to reduce income and obesity, are not always feasible in low-income communities.

The basis for the many of the nation's health disparities is essentially due to income inequalities, which is most often experienced by individuals living in lower-income communities. In fact, research shows that individual food management strategies are often shaped by what is available to them as well as what they can afford to purchase. Unfortunately low-income African-American communities compared to higher-income White communities often lack access to healthy food options and/or are not in close proximity to healthy grocery stores in terms of quality (Alwitt & Donley, 1997; Morland, Wing, Diez Roux, & Poole, 2002; Zenk, Schulz, Israel, Kames, Bao, & Wilson, 2005). In fact, many grocery stores are less accessible in poorer communities in comparison to higher-income communities (Stewart & Davis, 2005). Research indicates that grocers in predominantly low-income communities frequently sell foods that are of lesser quality, but have the ability to feed an entire family (Koh & Caples, 1979). Kaufman et al. (1997) conducted a review of 14 prior studies which showed that in comparison to suburban areas, many grocers tend to be higher priced in urban communities (p. 3). Similar study results have been found for restaurant prices in lower-income communities. Prices at restaurants are higher in communities that are predominately black and with lower-incomes (Graddy, 1997).

According to the U.S. Census Bureau (2010) the term *household* is best defined as all individuals who occupy a housing unit as their permanent residence. The average household size among African Americans in Gary Indiana is an estimation of 2.50 and the average family size is approximately 3.18. Among African-Americans in Indiana, the median household income is $28K, whereas White households earn over $45K– a difference of $17K (Indiana Business Review, 2005). Specifically, within Gary, Indiana, the median household income for 50% of the

population is approximately $27K or less. This indeed contributes to the household food purchasing and consumption behaviors.

There is a strong relationship between economic-related indicators of socio-economic status, or class, and mortality (Duncan, Daly, McDonough, & Williams, 2002). Research indicates that some subgroups of the population disproportionately have poorer health status and nutritional health in comparison to the majority population. Compared to Whites at all income levels, African-Americans report having poorer general health status (NCHS, 2000). The U. S. Census Bureau defines the term *African American* as "referring to people having origins in any of the Black race groups of Africa… [i]t includes people who report "Black, African American, or Afro American" (U.S. Census Bureau, 2000). Currently, overweight and obesity is more prevalent among African-Americans than Whites; women more than men (71% vs. 62%); and is continuing to rise in children (18%) and adolescents (17%) (NIH, 2008). Additionally, diabetes and hypertension is more prevalent among African Americans in comparison to Whites and all other ethnic minority groups (CDC, 2009).

While, Americans consume two-thirds of their daily calories from food prepared within the home (Guthrie, Lin, Frazao, 2002), NHANES III analyses reveal that women living in food insufficient households are more likely to be overweight than women in food sufficient households (Basiotis and Lino, 2002). In addition, another study found a significant positive relationship between parent and youth in terms of their fruit and vegetable intake (Cooke, Wardle, Gibson, Sapochnik, Sheiham, & Lawson, 2004). Results of both studies have implications for offspring and other household residents, especially considering that 1) women are often the primarily responsible for doing the household grocery shopping (Taylor & March, 1998); and 2) overweight and obesity among children and adolescents often continues into adulthood, where it is then difficult to treat (Summerbell, Waters, Edmunds, Brown, & Campbell, 2005).

Thus, in examining individual dietary behaviors, acknowledgement of the interrelatedness and influence of environmental, socio-economic, and cultural factors should be taken into consideration as they may contribute to the variation in dietary patterns and practices through access to food and resources (Devine, Sobal, Bisogni, & Connors, 1999). Improving diets of disadvantaged populations require interventions that go beyond the scope of providing information and resources regarding the relationship between diet and health. A thorough understanding of food environments, as well as race and class-based food management strategies, and their contribution to overweight and obesity may help advance understandings of racial and socio-economic inequalities (Lake & Townshend, 2006), which can lead to improved health outcomes among disadvantaged populations. Therefore, while improved health can be attained through lifestyle change, creating supportive environments will produce sustainable changes (O'Donnell, 1989). A better understanding of social, cultural, and environmental factors influencing aspects of food management strategies is essential in order to 1) determine if class matters in African-American food management strategies; and 2) clarify the role of the environment and whether or not it is conducive to practicing food management.

Gary, Indiana

Historically Gary, Indiana has been known as the "steel city". It was the home to many Americans, including both Whites and African Americans. During the 1950s, Gary hosted thousands of businesses, comprising between 14,000 to 16,000 retail jobs located in downtown Broadway. Today, due to the massive economic crisis, Gary has virtually been abandoned leaving fewer businesses and manufacturing jobs. Specifically, private own-businesses have migrated to other neighboring cities, causing an 8.3 unemployment rate and 39.9 poverty rate (U.S. Census Bureau, 2000). Approximately 84% of Gary residents are African American, a disproportionate higher rate in this area in comparison to the neighboring cities. The city is mainly comprised with both middle-class and working-class families. It is important to note that

most households that are under poverty level are headed by single-parent females with children under the age of five (Barnes, 2005). The challenges faced in this urban area such as business segregation, discrimination, increased social and residential isolation has led to increased poverty rates, decreased employment opportunities, and increased crimes. There is also a disproportionate burden of disease and illness within this community such as diabetes, hypertension, cancer, and obesity.

As a result to business segregation and isolation, there are a limited number of food stores available within the Gary community that offers healthy food options, leaving many residents with the only option to purchase unhealthy foods, which leads and contributes to the high prevalence of diet-related diseases within this community. This study will examine the availability, accessibility, and cost of healthy foods within this urban community. Specifically, this study will help provide a better understanding of food management strategies among African American households in Gary, Indiana. The significance of this study is to 1) understand the food management strategies of African American households in Gary, Indiana, and 2) understand the environmental and socio-cultural conditions that inform food management strategies of African American households in Gary, Indiana.

Methods Section

This was a four city study and over 100 interviews were conducted with families/households in Oakland and San Francisco, California as well as Gary and Indianapolis, Indiana. The current research study focuses solely on the data collection in Gary, Indiana. Arrangements for data collection have been approved via an exempt review through the Institutional Review Board (IRB) through the Office of Research Administration at Indiana University-Bloomington (See Appendix 4).

This research study adopted a four phase, comprehensive mixed-method, CBPR design that looks beyond the individual and addresses norms, beliefs, social and economic systems, as well as environments in an effort to create conditions that enable communities to be healthy.

- **PHASE I:** Involved conducting a series of Community-Integrated Geographic Information Systems (CGIS) mapping focus groups with 10 African Americans. These groups investigated food environments and food choices during periods of perceived food shortages by "ground-truthing" food environment maps.
- **PHASE II:** Used data generated from the CIGIS to design, develop and implement the semi-structured interview guide which included a convenience sample of 10 African-American households. The questions included, but were not limited to the use of convenience stores, stores where participants did most of their grocery shopping, the use of food stamps, and the use of nutritional guides when grocery shopping.
- **PHASE III:** Analyzing and publishing research findings that will include recommendations to local and state government agencies.
- **PHASE IV:** Translating and disseminating the research findings back to the community through a series of 'town meetings' and health seminars.

Participant Recruitment

A convenience sample strategy was used to recruit 10 African-Americans households in Gary, IN (n=10). Study participants were recruited from a nonprofit local community center-Young Women's Christian Association of Gary (YWCA) to participate in a series of in-depth semi-structured interviews to determine food-purchasing patterns and food management strategies during periods of perceived food shortage or financial crisis (See Appendix 1). All participants for this study were solely responsible for purchasing food in their household, at least 21 years of age, and African American. Both participants and their immediate environments were observed by the interviewer to canvass the community for available food stores and the

number of food facilities using data from both state maps and state/ county health departments. Each participant received a $50 gift certificate for their time.

Data Collection and Analysis

Ten semi-structured interviews were conducted with ten African American households in Gary, Indiana. A 27-item interview guide was developed based on food management literature and the Food Security BRFSS supplement (See Appendix 3). The 27-item interview guide elicited information about (1) demographics, (2) household development, and (3) household consumer/food purchasing behavior. During the beginning of each interview, all study participants were informed about the confidentiality of their responses and were asked to sign the informed consent form (See Appendix 2), and were asked for permission to audiotape their responses. Detailed notes were taken by the interviewer during each interview and were used in conjunction to the transcripts.

A content analysis of verbatim text was conducted by the interviewer and the research team to indicate both differences and similarities with respect to food management strategies, specifically how subjects perceived food insufficiency and their coping strategies. A frequency analysis was performed to identify the most frequently mentioned strategies in each group using analysis worksheets and summaries. Currently, ArcGIS software and data from state maps and state/county health departments are being used to develop food maps which will help identify all food stores in the communities of the study participants.

Results

A total of 10 African American households were interviewed. The study participants were women aged 29 to 67 years (mean age of 47.3± 10 years) and African American (N=10). All of the participants had at least graduated from high school and some had completed college. 60% reported households with less than 3 relatives. 40% reported households with 3 to 6

relatives. Three of the participants received financial federal funding- Food Stamps (see table 1 for demographic information).

There were seven overall themes that emerged from the 10 in-depth interviews. The themes include the following: (1) purchasing and consumption practices, (2) income and buying power, (3) availability of food (both inside and outside of the home), (4) mode of transport, (5) economic circumstances, (6) taste, and (7) health scares.

Purchasing practices versus consumption practices

In this study, purchasing practices was used to describe what foods were bought for the household, whereas consumption referred to what foods were actually prepared and eaten within the household. In this study sample, purchasing and consumption practices were context based. This means that for each study participant, purchasing and consumption practices were determined by availability, accessibility, and affordability in the area.

Purchasing practices

Many factors such as level of income, availability, and accessibility all determined what foods were purchased within each household. For many of the study participants, their level of income determined not only what types of foods they were able to purchase but also the quantity for each food purchase. In this study sample, the average income was less than $49,999 for most participants. Therefore, many participants purchased lower-cost foods, store-brand items, and used coupons. Participants were more likely to purchase foods that were on sale such as canned foods (i.e., tuna, chicken, vegetables, and fruit), frozen foods, rice, pasta, and dry beans; and they refrained from buying higher-priced foods. The amount/quantity of food purchased varied across the board for each household but in many cases participants purchased food items in bulks. Other purchasing practices included shopping for a month at a time, making shopping lists, and borrowing food items from a close relative. The below quotations illustrate individual purchasing practices. One woman stated:

> For my household I only purchase food on sale. This saves my household money each month. We got light bills, gas bills, and rent so I buy whatever foods are on sale in the Sunday newspaper.

Another participant stated:

> I purchase canned foods and store brand foods for my household. These are the only foods we can afford to eat because they are the only ones on sale. I want to purchase healthy foods but they are too expensive and out of our monthly budget.

Another participant stated:

> Keeping a shopping list allows me to plan out what I need to buy and stay on track with my food purchases, like not spending over my budget. With a shopping list I can go and purchase food for my entire household and find meals to stretch for days at a time. When I use my list, I make sure to include food items that are more likely to be one sale but still healthy for my family.

Three participants in this study sample received federal funded aid (i.e., Food Stamps). All three participants agreed that by receiving the federal funded aid they were able to purchase more food to provide for their household, but still struggled with money for food by the end of the month. One 32-year-old woman described how during each month she had to purchase food for a household of at least six relatives with an income of less than $9,999, and this was after accounting for all other possible sources of financial aid. She reported:

> At the beginning of each moth I am able to shop for my family, but towards the middle to the end of the month I am completely out of aid. So I have to buy what I can afford for my family which is usually from fast food restaurants in the area.

For all study participants, the lack of available healthy foods and grocery stores in the area influenced the types of foods they purchased for their household. Local corner grocery stores lacked fresh supplies of fruits, vegetables, and meats. Therefore, most participants only shopped at convenient stores (i.e., 7-11, mini mart, and gas stations) and dollar stores in their community. Participants purchased foods such as eggs, bread, and soup from convenient stores. Meat markets and farmers markets were scarce within this area, but many participants did indicate that fresher vegetables and meats were sold at those venues. Interestingly, regardless of the level of income all study participants had to travel out of their community to purchase

healthy foods such as fresh produce and meats. Participants still struggled with purchasing healthy foods because of the high cost. Most of the participants were only able to purchase healthy foods if they were on sale. One participant stated:

> I can only purchase healthy foods for my household if they are on sale. This is determined only if we have extra money to spend after paying our bills. You can longer buy greens and cabbage on sale like we used to 5 years ago. Now you're spending extra money just to eat healthy. Sometimes I have to substitute the fresh vegetables for canned vegetables.

Another participant stated:

> There are no grocery stores in my neighborhood so I must travel at least 15-20 minutes to one. And if you're looking for better quality you gotta travel even further. Even with the new store in the neighborhood, the prices are just too high to even purchase fresh fruits, vegetables, and meats.

Two of the participants explained the difficulty of not having accurate transportation to go grocery shopping which often led to them only purchasing unhealthy foods for their household because they were only left with the food choices in their neighborhood. One participant responded:

> I often have to send someone to shop for me and my family. This often results to going to the nearest fast food restaurant to save money and time.

Consumption practices

Participants in the study were asked to describe the different types of meals that were prepared or eaten within their household. In most cases, participants prepared meals that included at least one vegetable and one meat. Specifically, in most cases the vegetables were canned and most likely contained high contents of sodium and carbohydrates. It is important to note that all of the participants in this study had the desire to prepare and serve meals that contained fresh vegetables and meats, but most often had to resort to canned and frozen foods due to the lack of availability, high pricing, and poor quality in their local food store.

Participants also discussed how family traditions, culture, and seasons (i.e., summer vs. winter) influenced the different meals prepared or eaten within the household. Family traditions

such cooking turkey, greens, and dressing were most often prepared during holiday seasons. Additionally during this time, participants reported that they were more likely to prepare and eat larger amounts of food. Participants also discussed how the African culture influenced the meals prepared or eaten in the household. One participant stated:

> I grew up on meals that could stretch…might not had been the healthiest meal growing up but my mom made sure that we were all fed. She fed us meals that she grew up on. Today, I prepare meals for my family similar to what momma made us back in the day-black eye peas, beef stew, chicken, and roast. These meals were embedded within my culture and I just pass it down to my children and grandchildren.

All participants reported preparing and eating hearty meals (i.e., soups and casseroles) during winter seasons and lighter meals (i.e., baked and/or grilled meats, tuna, salads, and vegetables) during the warmer seasons. Most participants were more likely to eat vegetables and fruit during the summer versus winter because of variety, quality, and lower-pricing options.

Additionally, some participants reported how their long-inflexible work schedules influenced the meals prepared or eaten within their household. In some cases, participants reported purchasing ready-to-eat meals (i.e., hot pockets, pizza puffs, and frozen precooked chicken wings) for their household due to the lack of preparation time and convenience. In fact, participants reported that after working eight hours or more on the job, they lacked the energy to prepare meals, which often resulted to eating at fast food restaurants at least 2-3 times per week. One mother reported:

> By the time I finish school and work, and picking up my children from school, there is not enough time for me to cook dinner. If I was to cook after all of this, my family would be eating late every night. So I often contemplate which is better-eating out or eating late.

Income and buying power

Cheaper foods were purchased by most participants not only during times of financial need, but also on a regular basis. The level of income, availability, and accessibility determined what types of foods were purchased, prepared, and eaten in the households. Participants reported being more selective of food purchases when using personal cash versus federal aid (i.e., Food

Stamps). The participants that received federal funded aid reported that when using their cash they were more aware and selective to only purchase needed households foods. With the federal funded aid, participants reported being able to purchase extra items such as snacks (i.e., candy, potato chips, juice, and pop) for their household members.

One participant stated:

> With my cash I am limited to only purchasing foods that are needed in my house. When I have extra funding sources, I let all of my kids pick at least one snack from the store.

As mentioned previously, all study participants were solely responsible for making decisions around purchasing and preparing food for their household. Participants in this study sample were not only able to purchase food that was within their biweekly or monthly income budget, but also what was made available and accessible to them.

Availability of food

In this study sample, all participants consistently traveled to purchase fresh foods because of the lack of availability in the area. When participants shopped for food, they had to travel at least 15-20 minutes to the nearest grocery store. The participants noted that when they traveled to grocery stores, they made sure to purchase foods that would last over a longer length of time (i.e. meals that last for 2-3 days). Participants were also asked whether or not foods were stored in the home and if so what types of foods did they keep. All participants reported storing food inside their kitchen pantry. Inside the home, most participants stored canned and dry goods in their food pantry such as canned beans, vegetables, rice, pasta, and other grains. Most participants often stored meals that could be used in times of food or financial emergencies. During times of financial need, most participants reported being embarrassed or prideful to ask others for help with food. In one case a participant reported that she starved for almost one month before she told a family member that she needed help with food. She stated:

> I ate noodles for a whole month before I confided and told my aunt what was going on. I tried to work with what I had inside my home before asking for help.

Outside of the home, all participants reported a lack of available healthy groceries stores within their community. Participants did agree that there were local corner food stores in the community, but did not shop in those venues due to the lack of fresh foods. All participants reported more fast food restaurants available within their neighborhoods. Most participants reported a lack of healthy options available in the fast food restaurants. One participant stated:

> It's ridiculous that I have to pay more in these restaurants just to eat healthy.

Another participant stated:

> Eating out just makes me feel unhealthy. You know the food is prepared in an unhealthy way, but that's what we're stuck to eat-unhealthy foods. You can travel to richer neighborhoods and see they have healthier options available even in the fast food restaurants, but you come to my neighborhood and you just don't see that.

During the interview, participants were asked in a scenario what type of foods they would purchase for one meal to feed their household if they only had ten dollars. All participants included at least one vegetable and meat in the meal. In fact, all participants knew the exact pricing, and were conscious of the money spent on their household food items. One participant stated:

> I would go to Save-A-Lot and buy one box of macaroni and cheese for $1.50, jiffy corn bread mix for$1.28, frozen string beans $1,00, and small package of chicken $4.50, and fruit cups for $1.50.

Another participant stated:

> I would buy something that's cheap, quick, and would stretch. I would get a pack of ground beef, seasoning mix, lettuce, and bread.

Taste

Taste was a determining factor when purchasing and preparing family meals for all study participants. This theme was consisted in all 10 interviews. Even if the participant was aware that the food was healthy for them, they were less likely to purchase or prepare the food if it was not tasteful. One participant stated:

> I only cook food that taste appealing to me. If I don't like, 9 times out of 10 you won't find it in my house or find me preparing it for my family.

Participants were also asked in their opinion what makes a food healthy or unhealthy. All study participants were aware and conscious of healthy and unhealthy foods. Unhealthy foods were most often described as foods that alter your health such as greasy and fried foods. Healthy foods were described most often as foods that benefit your health and increase longevity such as fresh vegetables and fruits. However, in all cases availability, accessibility, and affordability determined whether the participants were able to purchase and prepare healthy meals. In all cases, there was a lack of available fresh produce in the living area.

Mode of transport

The most common mode of transportation to grocery stores was by car vehicles. Some of the participants used the city public transportation system or rode along with a relative or friend. All participants reported that there were no available food stores in walking distance that sold fresh foods. Participants reported that even if grocery stores were within walking distances they would still use transportation because of traffic and personal safety concerns. With traffic concerns, participants reported busy streets and lack of sidewalks in communities. With personal safety issues, participants reported fear of victimization. One participant stated:

> There is no way that I would even walk to grocery store if it was in my neighborhood. I would be so worried about my personal safety.

Economic circumstances

During the interviews, participants constantly discussed their struggle with purchasing healthy foods due to the high pricing. Therefore, many participants would purchase canned vegetables, fruits, and meats instead of spending more money to purchase fresh produce. Many of these women were shopping for households of at least 3 relatives, and with yearly incomes less than $49,999. One participant discussed staggering the household bills in order to supply her family with food:

> One time I had just enough money to pay my rent and a little left for food. So I had to put off paying my water bill until the middle of the next month. I was able to go grocery shopping for two big family meals that stretched for a whole week.

Most of the participants worked full time positions, and in many cases were single-parent households. All of the financial responsibilities for the household were left to the women with few helpful resources. During times of financial circumstances, many of the participants reported "reinventing meals." This meant creating multiple meals from one original meal. For instance, one of the participants discussed cooking chicken and rice on Sunday for her household. By Tuesday that same meal was changed to smothered chicken, with rice and gravy.

Health scares

Participants were asked to describe the general health of the members in their household. All of the participants reported at least one member suffering from a chronic health condition. The participants reported different health issues such as diabetes, hypertension, arthritis, renal disease, lupus, and cardiovascular disease. Participants were also asked for their overall opinion on African Americans diets. Most participants believed that African Americans did not eat healthy which resulted to the high rates of obesity, cancer, diabetes, and hypertension. Interestingly, most participants believed that the only way for African Americans to change their unhealthy diet is by having a health scare. Most participants reported that the only reason they started to eat healthier or considered changed their diet was because a physician diagnosed them with a health issue. Even deeper into the interviews, participants reported purchasing and preparing foods that should be limited in their diets such as fried chicken, French fries, pork, beef, and chips. Participants reported having no other option than eating what was made available and affordable to them, which resulted to eating unhealthy foods that contained high contents of sodium and fats. Participants believed that having health scares will increase the motivation level for more African Americans to not only eat healthier but also engage in regular physical activity. One participant stated:

> It will take having a serious illness or near to death experience for African Americans to adopt healthier diets.

Another participant stated:

> We eat unhealthy foods because that's what is available in our communities so yes we are the population with higher rates of illness. I believe that if more healthy places were available and affordable than we could eat and prepare healthier meals for our families.

Another participant stated:

> Living in our society, we have to be more concerned with just putting food on the table. It's a struggle to even buy healthy foods. Besides the cost, they are rarely available in our community. It's no surprise that African Americans have higher rates of health issues. Just look in our communities and see what's made available to us. If they provide us with healthy options that are affordable, I'm sure that more African Americans would eat healthier.

Another participant stated:

> When the doctor diagnosed me with type 2 diabetes I wanted to change my diet and start exercising more. However it was more of a challenge to change my negative lifestyle in a community that lacks the needed resources to live healthy lifestyles.

Discussion Section

This study suggests that the food management strategies (i.e. food purchasing, preparing, and storing) among the 10 households were determined by availability, affordability, and accessibility of food. Physical, social, cultural, and material factors all contributed to the dietary practices and patterns among the 10 households.

Availability

All participants reported a lack of available fresh fruits, vegetables, and meats within their community. Similar to previous literature on food deserts in low-income communities, all participants reported a lack of available food stores within their community. In fact, regardless of their income, all participants had to travel at least 15-20 minutes to shop for fresh food at the grocery store of choice. Canvassing the neighborhood, there were low numbers of available food stores within the community, but a vast majority of fast food restaurants. There were 69 food stores within the community, in which the majority were local corner stores or convenient stores (i.e., gas stations, Min Marts). Most food stores available in the community were located blocks

away from participant's homes, or located in poor and dangerous neighborhoods. For the food stores available in the community which were mostly corner food stores, they did not provide fresh food items (i.e. vegetables, fruit, and meat) and were higher priced. Specifically, many of the food items were canned goods and some were even out-dated. In this case, for the participants without individual transportation, they purchased food from local corner stores or fast food restaurants for their household members, which resulted in spending more money towards food and staggering the monthly household bills. In this study, 50% of the meals for the households were from fast food restaurants. Participants were more likely to purchase fast food for their household members because of availability and convenience. For many of the working women in this study, after working eight hour shifts, it was more convenient to purchase fast food for their household members.

Affordability

The average household income was less than $49,999 per year, and in some cases this amount was even lower-less than $9,999. The study participant's household income correlates to previous literature on the disparity of median incomes for African Americans within Indiana, specifically $17,000 less than Whites. In this study, household income was a determining factor for what foods participants could purchase for their household members. Therefore, to no surprise, higher-price foods were less often purchased. In this community, healthier-fresh foods were not only more likely to be higher-price, but also scarce. When traveling 15-20 minutes outside of their community, participants found grocery stores that offered better quality food products, lower-priced food items, and fresh produce and fruits.

Some of the participants used shopping list to not only stay within their budget but also keep track of what foods to purchase. For the participants that used shopping list, food items were selected based on sales. When income permitted, many participants shopped for a month at a time by purchasing food in bulks.

Due to the high price of healthy foods, many participants purchased more canned and frozen meals for their household. They purchased foods that could last over longer periods of time. These meals were more likely to contain higher contents of sodium, fat, and carbohydrates. In all cases, participants had health conditions and were instructed by their physician to limit certain foods from their diet. However, participants were only able eat and prepare foods in which they could afford for their household. Based on their income, some participants were more likely to purchase fast foods for their household members. Fast food restaurants were both-affordable and available within the community.

Accessibility

Participants were only able to purchase foods that were accessible, and in many cases this resulted in unhealthy food items. Ultimately participants relied on the foods that were stored within the home, and what was stored in home was determined by what was accessible. What was made accessible within the community were food stores that were high priced and lack quality foods. Fast food restaurants which lacked a variety of healthy food options were readily accessible in the community. Participants stated that the foods made accessible in their community were not healthy, but based on their income level these were the foods that were most often purchased for their household. Similar to previous literature, lower-income communities or communities that are predominately black are often overcrowded with unhealthy fast food restaurants and lower numbers of grocery stores.

It is important to note that all study participants had the desire to purchase and prepare healthy meals for their household, but fresh foods were not available, affordable, or accessible. A study that was conducted by Sandra Barnes (2005) showed similar results in that some of the food stores offered within the Gary community did not provide any fresh fruits or vegetables, and rarely any fresh meats. In fact, these stores sold more food items such as sugar, flour, and

corn flakes. Similar to the current study results, Barnes study discovered that stores outside of the Gary community offered fresh produce, fruits, goods, and services.

This study is one of the few that provide insights about food management strategies among African American households and how they feel about their experiences with availability, affordability, and accessibility of healthy foods within their community. However, the findings of this study should be considered within the following limitations: 1) there was only one participant per household; therefore no information was collected from other household members, and 2) generalizability of the study findings due to the use of convenience sampling. Despite the limitations, this study allowed all study participants to not only share their personal experiences but also make recommendations for cultural based interventions and programs within the community as well as policy change to improve economic and social conditions within Gary, Indiana.

It is important to note that in one snapshot we can't conclude that this is the African American diet. However, we can conclude that participants purchased and consumed diverse foods that either promoted their health or were detrimental to their health.

Conclusion

This study examined the food management strategies among African American households in Gary, Indiana. Gary is an urban community that is disproportionately burdened with higher rates of diet-related diseases such as obesity, diabetes, and hypertension. However, making healthy dietary choices are not always feasible in a community that lacks availability, affordability, and accessibility to grocery stores or healthy food items. Grocery stores are indeed scarce within this community; therefore, many of the Gary residents often struggled to purchase and prepare healthy meals for their families. Results of this study showed that Gary residents tend to not only spend more to purchase healthy food items but also must travel out-of the community in order to meet dietary recommendations. Due to the economic cost for Gray

residents, many tend to have fewer resources to purchasing and preparing healthy food items for their household members. Observing outside of the Gary community, there are more grocery stores that provide better quality and quantity of fresh produce and fresh fruits, more name-brand food items, lower-priced food items, and better services. These findings illustrate the existence of racial inequities and segregation.

The food management strategies among the households included the following: using shopping list to stay within monthly budget, storing food items in kitchen pantry, traveling outside of the community to purchase healthy foods, purchasing food items in bulks, purchasing canned foods or ready-to-eat meals, skipping meals, purchasing household meals from fast-food restaurants, and preparing meals according to family traditions or culture. Results of this study show that it in order to fully understand food management strategies among African Americans households, it is important to take into consideration the environmental, social, historical, and cultural factors; as these factors contribute to the variation in dietary practices and patterns.

Previous research suggests the importance of using behavioral approaches for improving African Americans diets. However, based on the results from this study, a systems approach is imperative in order to address historical, environmental, and structural issues. Systems change versus program change is a major issue in current research studies. In research, we always see downstream programming interventions, which are important. However, in order to deal with the history and structural problems within the African American community, we need system changes that will address these upstream root causes. Understanding these root causes requires cultural competency as well as better understanding the role of slavery and racism and how it influences consumption and purchasing practices. This is can be done by involving the African American community (i.e., having role models in education as well as awareness in the community). In addition, it is essential to engage with the African American churches. The African American church is deeply integrated into the African American culture. Thus,

improving the ability to engage with the church is integral. This will enable researchers to talk openly about family histories and how slavery and poor eating habits are connected. Additionally, there are also opportunities for the church to heal and be proactive about solutions. Therefore, understanding the African American food system and determining what they feel researchers should do about it is indeed a mechanism for systems change.

Future Implications

These findings have implications for practice at the individual, community, and policy level. Specifically, culturally appropriate and generalizable public health interventions around food management strategies are needed in order to reduce diet-related overweight and obesity within the African American community. Local health agencies and health educators could integrate nutrition-health promotion programs in their local community centers and provide information sessions on purchasing and preparing lower-priced nutritious meals. At the individual level, health educators can educate on the perceptions of healthy foods (i.e., changing the perception of taste). Local health agencies and health educators could also coordinate services with local churches, food banks, soup kitchens to ensure that all families have access to adequate resources to maintaining healthy nutritious meals.

The findings of this research also suggest a need for research to advance the understandings of racial and socio-economic inequalities by increasing recognition of the impact of food environments and race and class-based food management strategies. Future research should also focus on informing policies (i.e., community land-use, zoning, etc.) to improve social and economic conditions in disadvantaged communities. In addition, as health educators there is a need for us to listen to our community member's possible solutions to addressing and improving food management strategies. By listening to our community members, we can help identify food management strategies that will engender positive changes in African American households, especially during financially difficult times.

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Table 1.

Characteristics of the participants (n=10) in Gary, Indiana, 2009

Characteristic	Number	Percentage
Location Urban	10	100
Ethnicity African American	10	100
Gender Female	10	100
Age 20-39 40-59 60+	 4 4 2	 40 40 20
Education High School Graduate or GED College 1 year to 3 years(some college or technical school) College 4 years or more (college graduate)	 3 5 2	 30 50 20
Living Status Household of less than 3 Household of 3 to 6 Household of more than 6 Individuals living within household Relatives Non-relatives Relatives and non-relatives	 4 6 0 10 0 0	 40 60 0 100 0 0
Income Less than $9,999 $10,000 to $24,999 $25,000 to $49,999 $50,000 to $74,999 $75,000 to $99,999 $100,000 or more	 1 4 1 3 1 0	 10 40 10 30 10 0
Participation in services Food Stamps	 3	 30

Instruments

Appendix 1: Recruitment Form

PARTICIPANTS NEEDED FOR
RESEARCH ON
PURCHASING/CHOICES, EATING BEHAVIORS & THE ENVIRONMENT

We are looking for volunteers to take part in a study on
food purchasing/choices, eating behaviors and the environment.

As a participant in this study, you would be asked to participate in 2 interviews, each of which will take 60-90 minutes and take a photograph of your refrigerator (camera provided).

In appreciation for your time, you will receive
two $20 gift cards (1 card per interview).

For more information about this study, or to volunteer for this study, please contact:

Jylana L. Sheats (Indianapolis) or Darleesa Gates (Gary)
Indiana University- Bloomington
School of Health, Physical Education and Recreation
Department of Applied Health Science
519-888-4567 Ext. xxxx or
Email: *jlsheats@umail.iu.edu* or *dmgates@umail.iu.edu*

This study has been reviewed by, and received ethics clearance through, the Office of Research Administration, Indiana University.

Appendix 2: Informed Consent Statement

IRB Study #0904000249

INDIANA UNIVERSITY BLOOMINGTON

INFORMED CONSENT STATEMENT

A STUDY OF FOOD ENVIRONMENTS AND FOOD MANAGEMENT STRATEGIES AMONG AFRICAN AMERICAN HOUSEHOLDS

You are invited to participate in a research study of food selection and management. You were selected as a possible subject because you are African-American/Black, 25 years of age or older, and live in either Indianapolis or Gary, Indiana. We ask that you read this form and ask any questions you may have before agreeing to be in the study.

The study is being conducted by Dr. Fernando Ona, Jylana L. Sheats, MPH, and Darleesa Gates, BS—who are affiliated with Indiana University's Department of Applied Health Science in the School of Health, Physical Education and Recreation.

STUDY PURPOSE

The purpose of this study is to explore how and what foods are selected, purchased, and consumed by individuals Indianapolis and Gary households, while also examining factors in the environment—such as the location of grocery stores.

NUMBER OF PEOPLE TAKING PART IN THE STUDY:

If you agree to participate, you will be 1 of 100 subjects who will be participating in this research study.

PROCEDURES FOR THE STUDY:

If you agree to be in the study, you will do the following things:

- Complete a questionnaire.
- Participate in one 2-hour interview that will be recorded (audio only).
- Participate in one 1-hour interview that will be recorded (audio only).

RISKS OF TAKING PART IN THE STUDY:

While participating in the study, the risks are very minimal, but may include:

- Being uncomfortable answering the questions
- Possible loss of confidentiality

Note that you will not be forced to answer any question(s) that you feel uncomfortable discussing. Therefore, while completing the survey and interview you can tell the interviewer that you feel uncomfortable or do not care to answer a particular question. Efforts will be made to keep your personal information confidential and are described below in the "confidentiality" section.

BENEFITS OF TAKING PART IN THE STUDY:

There is no direct benefit of the individual for participation in the study. However, information obtained from study participants has the potential to impact society—and the participant's community as a whole via policy (i.e. zoning and community land-use) and health education programming/interventions related to health.

ALTERNATIVES TO TAKING PART IN THE STUDY:
An alternative to participating in the study is attending a "town hall meeting" where you will be provided with the study results and researchers will explain what they mean for your community.

CONFIDENTIALITY

Efforts will be made to keep your personal information confidential. We cannot guarantee absolute confidentiality. Your personal information may be disclosed if required by law. Your identity will be held in confidence in reports in which the study may be published and databases in which results may be stored. Audio tape recordings will be used for educational purposes only and will be destroyed. The study's principal investigator, co-investigators, research assistant(s) and transcriber will have access to the audio tapes.

Organizations that may inspect and/or copy your research records for quality assurance and data analysis include groups such as the study investigator and his/her research associates, the IUB Institutional Review Board or its designees, the study sponsor, and (as allowed by law) state or federal agencies, specifically the Office for Human Research Protections (OHRP) and the Food and Drug Administration (FDA), if applicable,, the National Institutes of Health (NIH) [for research funded or supported by NIH], etc., who may need to access your medical and/or research records.

COSTS

Taking part in this study may lead to added costs to you. You will be responsible for these study-specific costs:

- Transportation to interview site.

PAYMENT

You will receive payment in the form a $50 gift card to Kroger for taking part in this study. The gift card will be given to participants *after* the completion of the questionnaire and 2 interviews.

CONTACTS FOR QUESTIONS OR PROBLEMS

For questions about the study or a research-related injury, contact:

- **Indianapolis:** Jylana L. Sheats at 812. 856.0704 or jlsheats@umail.iu.edu.
- **Gary, Indiana:** Darleesa Gates at 812. 856.0704 or dmgates@umail.iu.edu

For questions about your rights as a research participant or to discuss problems, complaints or concerns about a research study, or to obtain information, or offer input, contact the IUB Human Subjects office, 530 E Kirkwood Ave, Carmichael Center, L03, Bloomington IN 47408, 812-855-3067 or by email at iub_hsc@indiana.edu.

VOLUNTARY NATURE OF STUDY

Taking part in this study is voluntary. You may choose not to take part or may leave the study at any time. Leaving the study will not result in any penalty or loss of benefits to which you are entitled. Your decision whether or not to participate in this study will not affect your current or future relations with the investigator(s).

SUBJECT'S CONSENT

In consideration of all of the above, I give my consent to participate in this research study.

I will be given a copy of this informed consent document to keep for my records. I agree to take part in this study.

Subject's Printed Name:_____

Subject's Signature:_____**Date**:_____

(must be dated by the subject)

Printed Name of Person Obtaining Consent:_____

Signature of Person Obtaining Consent:_____**Date**:_____

Appendix 3: Semi-Structured Interview Guide

Subject ID Number: __ __ __ __

City: Indianapolis or Gary

Community Center: YWCA

Enter Date: __ __/ __ __ /2009

Interviewer Name: _____

PARTICIPANT INFORMATION

1. What is your age? __ __ YEARS

2. Indicate your sex. 1 MALE
   2 FEMALE

3. Which one of these groups would you say best represents your race? (Choose one)
   1 AFRICAN-AMERICAN
   2 AFRO- CARIBBEAN
   3 AFRICAN
   4 MULTI-RACIAL
   5 OTHER _____
   7 REFUSED
   9 DON'T KNOW

4. What is the highest grade level or year of school that you completed in you completed? (Choose one)
   1 NEVER ATTENDED SCHOOL OR ONLY KINDERGARTEN
   2 GRADES 1 - 8 (ELEMENTARY)
   3 GRADES 9 - 11 (SOME HIGH SCHOOL)
   4 GRADE 12 OR GED (HIGH SCHOOL GRADUATE)
   5 COLLEGE 1 YEAR TO 3 YEARS (SOME COLLEGE OR TECHNICAL SCHOOL)
   6 COLLEGE 4 YEARS OR MORE (COLLEGE GRADUATE)

HOUSEHOLD QUESTIONS

5. How many individuals live in your household? **(insert actual number here _____)**

1 LESS THAN 3
2 3 TO 6
3 MORE THAN 6

6. How many individuals under 18 years of age live in your household?**(insert actual number here ____)**

1 NONE
2 1 TO 2
3 3 TO 4
4 MORE THAN 4
7 REFUSED
9 DON'T KNOW

7. Who lives in your household?

1 RELATIVES
2 NON-RELATIVES
3 RELATIVES AND NON-RELATIVES
4 N/A

8. What is the approximate combined household income from wages and salaries Social Security or retirement benefits, help from relatives and so forth from the last calendar year? This means all sources of income from everyone in your household. **Be sure to read the RANGES out loud as opposed to waiting for them to give an exact number. They may not be honest about an exact number, so a range might be better. Income can be a sensitive issue. You can also have them look at the options and point to the range too.**

1 LESS THAN $9, 999
2 $10,000 TO $24,999
3 $25,000 TO $49,999
4 $50,000 TO $74,999
5 $75,000 TO $99,999
6 $100,000 OR MORE
7 REFUSED
9 DON'T KNOW

9. How would you describe the general health of the members in your household? *Probes:* Have you been told by your doctor or a health care professional that you have any diseases or conditions, such as high blood pressure, diabetes, etc.

HOUSEHOLD CONSUMER/FOOD PURCHASING BEHAVOR

10. Tell me about your responsibilities around the house. *Probes:* How does this compare to others in your home?

11. Who in your home is responsible for buying the food in your household? How do you decide who buys the food?

12. Do they use a list? Is it helpful?

13. Who in your household decides what food items are on the list or purchased?

14. What or who influences what food is bought? Are the food requests of other individuals in the household considered when selecting food at food stores? How do you find out what food items they want or need?

15. Who or what influences what is eaten [at meals] in your household? Is input from others considered? *Probe:* Provide examples of influences to get them a sample of the variety of responses that are possible, children, spouse, other family members, availability, accessibility, family traditions, culture, seasons (summer vs. winter), pricing, etc.)?

16. What types of foods do you keep in your kitchen cabinets/pantry? *Probes:* Why do you keep these foods?

17. What types of food stores are available in your community/neighborhood? *Probe:* Where do you purchase food from?

18. Do spend money on **food** at stores **other** than grocery stores? Please do not include stores that you have already told me about. Do you use the convenience store? *Probes*: Here are some examples of stores where you might buy food-- farmers market, convenience store, corner store, liquor store, etc. See hand cards. How often? What do you buy there?

19. What is your mode of transport to the food store(s) you most often shop? *Probe:* Are food stores within walking distance or do you drive? If you drive, why?

20. Where do you eat most often—in home/outside of home? When you eat away from the home where is it most often? *Probes:* Do you tend to eat more foods prepared/cooked in the home or eat foods that have been prepared/cooked away from home?

21. You don't have much money and you are almost out of food. What would you do in this situation? *Probes:* What do you and other family members eat at such times?

22. You have $10 in your pocket and you need to buy food for your family for 1 meal, what would you buy? *Probes:* What made you decide to buy that?

23. Do you receive food stamps? *Probes:* How do you decide what to buy when you get food stamps? What food items do you buy with cash?

24. In your opinion, what makes a food healthy or unhealthy*?* Overall, would you say that you eat healthy or unhealthy foods? Do you eat certain foods just because they are healthy? Or is it more about how the food taste?

25. What factors in your life make it difficult/easy for you to eat a healthy diet? *Probe: What about when you eat out? What about at home? What about at work?*

26. Are there any foods that you try to limit in your diet? Why? *Probe: Do these foods have special meaning to you? What about foods for African Americans? Do they have special meanings?*

27. In your opinion, do AAs eat a healthy or unhealthy diet? Why? Do you think they are interested in eating a healthy diet? Motivations?

28. How often does you/your family purchase or eat "ready to eat" foods from the grocery store?

29. How often do you eat fast foods?

30. Are fruits and vegetables available in your neighborhood or community? What types of fruits and veggies do you have in your household? If so, do you buy it?

FRUITS

Apple

Banana

Grapes

Orange

Peach

Pineapple

Plum

Strawberry

GREEN LEAFY VEGETABLES

Bok Choy

Broccoli

Collard greens

Kale

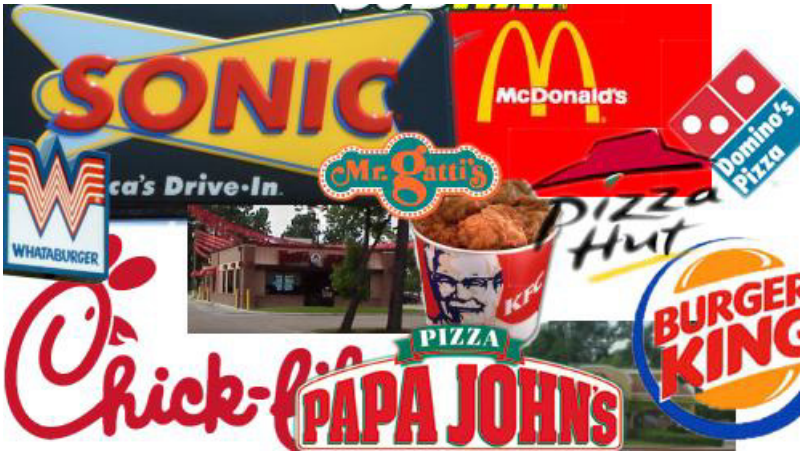
Mustard greens

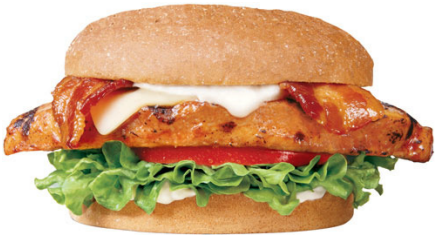
Romaine lettuce

Turnip greens

Spinach

Examples of Fast Food Restaurant Items





EXAMPLES OF PLACES OTHER THAN GROCERY STORES

- Convenience Stores (7-11, Mini Mart, gas stations)
- Wholesale Stores (Costco, Sam's Club, BJ's)
- Liquor Stores
- Drug Stores (Walgreens, CVS)
- Target/ Wal-Mart/ Kmart
- Dollar Store
- Bakeries
- Meat Markets
- Vegetable stands
- Farmer's Markets
- Food Bank/Food Pantry

IRB clearance and documentation

Appendix 4: IRB Approval

INDIANA UNIVERSITY

OFFICE OF RESEARCH ADMINISTRATION

To: Fernando F. Ona
Applied Health Science

From: IUB Human Subjects Office
Office of Research Administration – Indiana University

Date: June 5, 2009

RE: **PROTOCOL APPROVAL – EXPEDITED – 6 & 7**
Protocol Title: A Study of Food Environments and Food Management Strategies among African American Households
Protocol #: 0904000249
Sponsor: N/A

The above-referenced protocol was reviewed by the IRB. The protocol meets the requirements for expedited review pursuant to §46.110, Category 6, & 7. The protocol is approved for a period of **June 3, 2009** through **June 2, 2010**. This approval does not replace any departmental or other approvals that may be required.

If you submitted and/or are required to provide participants with an informed consent document, study information sheet, or other documentation, **a copy of the approved stamped document is enclosed and must be used**.

As the principal investigator (or faculty sponsor in the case of a student protocol) of this study, you assume the following responsibilities:

1. **CONTINUING REVIEW:** Federal regulations require that all research be reviewed at least annually. You may receive a "Continuation Renewal Reminder" approximately two months prior to the expiration date; however, it is the Principal Investigator's responsibility to obtain continued approval from the IRB ***before*** **June 3, 2010**. If the IRB does not grant continued approval by this date, the study will automatically expire, requiring all research activities, including enrollment of new participants, interaction and intervention with current participants, and analysis of identified data to stop.

2. **AMENDMENTS:** **Any** proposed changes to the research study must be reported to the IRB prior to implementation. Only after approval has been granted by the IRB can these changes be implemented. An amendment form can be obtained at http://researchadmin.iu.edu/HumanSubjects/IUB/hs_forms.html.

3. **ADVERTISEMENTS:** Only IRB-approved advertisements may be used to recruit participants for the study. If you submitted an advertisement with your study submission, an approved stamped copy is provided with the approval. To request approval of an advertisement in the future, please submit an amendment, explaining the mode of communication and information to be contained in the advertisement.

4. **COMPLETION:** Prompt notification must be made to the IRB when the study is completed (i.e. there is no further subject enrollment, no further interaction or intervention with current participants, including follow-up, and no further analysis of identified data). To notify the IRB of study closure, please obtain a close-out form at http://researchadmin.iu.edu/HumanSubjects/IUB/hs_forms.html.

5. **LEAVING THE INSTITUTION:** The IRB must be notified of the disposition of the study when the principal investigator (or faculty sponsor in the case of a student project] leaves the institution.

6. **VULNERABLE POPULATIONS:** Please note that there are special requirements for the inclusion of vulnerable populations (i.e. children and minors, prisoners, pregnant women and human fetuses, and cognitively impaired) in research. You may not enroll or otherwise include an individual who is or becomes a member of a vulnerable population while enrolled in the research if that vulnerable population has not already been approved by the IRB for enrollment. For additional information on the requirements for including vulnerable populations in research, please refer to http://research.iu.edu/rschcomp/hmpg.html.

Note: SOPs exist covering a variety of topics that may be relevant to the conduct of your research. For more information on the relevant policies and procedures, go to http://research.iu.edu/rschcomp/hmpg.html.

You should retain a copy of this letter and any associated approved study documents (e.g. informed consent or advertisements) for your records. All documentation related to this study must be maintained in your files for audit purposes for at least three years after closure of the research; however, please note that research studies subject to HIPAA may have different requirements regarding file storage after closure. Please refer to the project title and number in future correspondence with our office. Additional information is available on our website at http://researchadmin.iu.edu/HumanSubjects/IUB/hs_home.html. Please contact our office if you have questions or need further assistance.

Thank you.