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## RELATIONSHIPS OF ACCESS AND AFFORDABILITY TO HOUSEHOLD FOOD SECURITY STATUS AMONG RURAL, LOW INCOME CAREGIVERS

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RELATIONSHIPS OF ACCESS AND AFFORDABILITY TO HOUSEHOLD FOOD  
SECURITY STATUS AMONG RURAL, LOW INCOME CAREGIVERS

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DISSERTATION

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A dissertation submitted in partial fulfillment of the  
requirements for the degree of Doctor of Education in the  
College of Education at the University of Kentucky

By  
Jodi Elaine Marani

Lexington, Kentucky

Director: Dr. Melody Noland, Professor of Kinesiology and Health Promotion

Lexington, Kentucky

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## ABSTRACT OF DISSERTATION

### RELATIONSHIPS OF ACCESS AND AFFORDABILITY TO HOUSEHOLD FOOD SECURITY STATUS AMONG RURAL, LOW INCOME CAREGIVERS

Household food security status in rural areas is a significant issue facing caregivers as positive health outcomes depend on appropriate access to healthy foods necessary to lead an active life. Access and affordability of healthy foods are two mediating factors of household food security that may be improved to ultimately increase rates of food security and overall health status among rural, low income populations.

The purpose of the study was to examine the factors of access and affordability of nutritionally adequate food sources in one rural community in relation to food security status through the perspective of its caregivers. In general, populations suffering from low rates of food security report lower access to healthy foods and the inability to afford healthy foods.

The study utilized a primarily qualitative approach; however, thirty-one participants were initially categorized by levels of food security by the US Household Food Security Survey Core Module as a quantitative measure. Twelve participants who were classified as food insecure and were caregivers to children under the age of 18 responded to an in-depth interview focusing on the factors of access and affordability.

Twenty-six (84%) of the thirty-one food pantry clients who completed the initial survey were classified as food insecure. Open-ended interviews of participant perceptions of access and affordability to health foods in relation to food security revealed several major themes titled transportation and physical ability challenges, key issues in store choice, cost barriers in food shopping, strategies to maximize food dollars, and factors involved in food choice.

The results of this study, while they must be interpreted with caution, suggested there were multiple systems interacting that mediated the problem of food insecurity in this rural area through the perception of low income caregivers. The data can be used to improve health promotion programs and inform public health policies that can have a positive impact on overall health in rural areas.

KEYWORDS: Food Security, Access, Affordability, Rural, Caregivers

Jodi E. Marani  
Student's Signature

June 18, 2012  
Date

RELATIONSHIPS OF ACCESS AND AFFORDABILITY TO HOUSEHOLD FOOD  
SECURITY STATUS AMONG RURAL, LOW INCOME CAREGIVERS

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This dissertation is dedicated to all those, here and above, who have supported me in this journey.

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## CHAPTER ONE

### Introduction

Health promotion research demonstrates that having enough to eat is integral to overall health and well-being. Food security is one of the most challenging social justice issues with which families struggle on a daily basis. The USDA defines food security as “access by all people at all times to enough food for an active, healthy life” (Bickel, Nord, Hamilton, & Cook, 2000, p.6). According to the USDA, seventeen million households (14.6 %) were food insecure in 2008 (USDA, 2008). About one in five children reside in food insecure households and these rates significantly increase as families fall further below the poverty line (Gunderson, Garasky, & Lohman, 2009).

Food security research in rural areas is gaining more popularity as the nutritional needs of these communities have become apparent with increases in obesity, diabetes and other chronic diseases affecting rural populations. Understanding the associations between food security in these areas and its mediating factors will enable health promotion specialists to plan and implement effective multi-dimensional programs to increase rates of food security in high-risk areas such as rural Appalachia. Among the most influential of these factors are access and affordability relating to nutritionally adequate food sources such as fruits, vegetables, low fat dairy products, lean meat and whole grains.

This study examines these aforementioned factors through qualitative responses that will aid in developing social justice policies to improve accessibility and affordability of foods in rural, low income areas. In addition to the creation of public health policies, understanding the individual perspectives of food insecure caregivers will

give health promotion specialists enhanced opportunities to direct programs and interventions specific to this unique population.

This chapter presents an overview of the research project, current literature about food security and the underlying variables of access and affordability. An outline of the research design is presented and research questions with accompanying hypotheses are also introduced.

### *Study Overview*

#### *Statement of the Problem*

The problem being investigated in the study is how access to healthy food and its affordability affects food security status among low income, rural families. If healthy food is easier to access and is available at cheaper costs, would those suffering from food insecurity become more food secure? This is an important problem because rates of household food insecurity in Appalachia are higher than in other parts of the United States and public health professionals need to adopt innovative ways to combat food insecurity in these areas.

#### *Summary of the Literature*

##### *Explaining Food Security*

The USDA definition of food security at a minimum includes readily available foods that are nutritionally adequate and safe for consumption and an assured ability to acquire acceptable foods in socially acceptable ways. In other words, people who are food secure have the confidence that they will not have to resort to emergency food supplies, scavenging, stealing, or other coping strategies to obtain their next meal (Bickel et al., 2000). Conversely, food insecurity means “limited or uncertain availability of

nutritionally adequate and safe foods or limited or uncertain ability to acquire acceptable foods in socially acceptable ways” (Bickel et al., 2000, p.6). Those who are identified as food insecure often visit food pantries or shelters to get their next meal or resort to other methods such as stealing food or selling items or services to get money for food. In more severe cases of food insecurity, family members intentionally cut the size of their meals or go without food for periods of time to provide more resources for younger children or family members in poorer health.

Researchers in the field have identified several factors that increase food insecurity such as low income households, lower levels of education, single-parent, female-headed homes, minority families and larger households. It has also been shown that lower levels of accessibility to healthy food options and less availability of such foods plays a significant role by decreasing levels of food security in areas where these factors exist. These findings point to the vast societal costs of nutritional deprivation that negatively impact not only individual health but family and community health (Franklin et al., 2011).

#### *Access and Affordability*

Food access and affordability are two of the major mediating variables related to household food security status. Families must be able to gain access to nutrient-dense, low calorie foods and also be able to pay for these foods comfortably within the constraints of their budget in order to improve or maintain their health. The idea that food resources are accessible means that they need to be located near neighborhoods, especially in low income or rural areas or with transportation available. Within the confines of this research, access includes not only physical access to retail food outlets

but also access to healthy options within stores (Sharkey, 2009; Anderson, Dewar, Marshall, Cummins, Taylor, Dawson, & Sparks, 2007). The affordability of food means that high quality food is reasonably priced within the particular community food environment (Sharkey, 2009).

#### *Relationship of Access and Affordability to Food Security*

Families who are unable to access healthful, nutrient-dense foods because of the lack of retail food outlets available within their community or the lack of transportation to these outlets have a greater risk of becoming food insecure. Further, families need to be able to comfortably afford health-promoting foods within their financial means if these foods are accessible within the community food environment. When food access is low or transportation cannot be relied upon and healthy foods are offered at premium or limiting prices, families begin to question when they will have their next well-balanced meal and if they will be able to feed their families in an appropriate way that will sustain healthy, active lifestyles. Thus, gaining access to and being able to pay for healthy foods become the cornerstones of low-income, rural families developing and maintaining food secure households. This study attempts to investigate this in a rural sample of low income caregivers in a specific Appalachian county.

#### *Gaps in Literature*

The connection of access and affordability to food security status in rural, low income families with young children has received little consideration in health promotion literature. Further, little qualitative research has been conducted among this population exploring the mediating factors of food insecurity and why the problem persists.

### *Purpose and Significance*

The objective of this research is to examine the relationship between food security and access to and affordability of nutritionally adequate food sources in one rural, underserved area through the perspective of its low income caregivers. The significance of this research is rooted in its potential to guide health promotion programmers to develop interventions targeted towards low income caregivers suffering from food insecurity. Health promotion specialists will have the opportunity to tailor programs to this population that focus on improving access and affordability to nutritionally adequate food sources in similar rural communities with low income populations. Furthermore, this research will help to inform the developers of public health policies and procedures that have the ability to provide better access and cheaper alternatives for low income populations to improve nutrition and thus overall well-being. For example, local store owners in similar rural counties may use the information gained from this research to make greater strides to offer more variety of nutritionally sound food choices. Similarly, public health policies can be implemented that focus on lowering the cost of fruits, vegetables, whole grain sources, lean cuts of meat and low fat dairy options so that people in lower income areas have more of an opportunity to choose them. Food stamps being accepted at many farmers markets and subsidies being given to farmers so they can sell produce at lower costs to the public are examples of public health policies in this realm.

### *Overview of Research Design and Sample*

This research utilizes predominantly qualitative methods of data collection in the form of face to face open ended interview questions, although a brief quantitative survey



was used to classify participants. Surveys were administered to caregivers, a parent or guardian responsible for the care of a child less than 18 years old, at a local food pantry and a subset of those completing the survey was asked to complete the qualitative interview. Low income caregivers in a rural community were the target population because of the prevalence of food insecurity in this group and the increased developmental risk of food insecurity to young children (Rosales, Reznick & Zeisel, 2009). Data were analyzed through a thorough examination of recurrent themes and similar patterns that emerged from open ended responses.

### *Research Questions and Hypotheses*

1. What is the relationship between access (proximity) to nutritionally adequate food sources and household food security status in rural, Appalachian communities?

Hypothesis: If household food security is low, then access to nutritionally adequate food sources is low.

2. What is the relationship between affordability of nutritionally adequate food sources and household food security status in rural, Appalachian communities?

Hypothesis: If household food security is low, then households have difficulty affording nutritionally adequate food sources.

3. What are the individual-level factors that affect access and affordability of nutritionally adequate food sources that can lead to household food insecurity in rural, Appalachian communities?

Hypothesis: There are multiple systems interacting to create food insecure communities.

## *Limitations and Delimitations*

### *Limitations*

The investigation encountered minor difficulties within the process and implementation realms of the research; however the researcher tried to minimize the effect of these. In order to minimize the potential for a lack of community engagement, rapport was established with the community prior to the research being conducted and strong support was gained from community leaders by visiting the area and having several conversations with members about the study and the potential benefits the data could bring. Also, sufficient recruitment of participants was an integral part of the research and several more trips were made to the area than originally planned in order to collect sufficient data. This helped to avoid the issue of lack of applicability to similar rural areas if participation was low and not sufficient. Despite these efforts, more data could have been gathered if additional funding had been available to provide more incentives for participants and researcher travel expenses to the area. Missing demographic data, particularly age of participants, also creates a weakness in the data. The restriction of this research to a particular geographic area of Kentucky created a limitation because food security relating to access and affordability varies greatly among rural communities. Therefore the results of this research may not be generalizable to other regions of the United States or other countries. Lastly, the primary method of data collection is self-report and if participants were not honest with their responses this could potentially introduce false data into the results.

The adaptation of the interview instrument by the researcher may have created some inconsistencies in the data because the original instrument was not validated or

used in any other capacity except for the intended project. Its development in a foreign country (Australia) may have made questions more difficult to understand as it was adapted to American vernacular. Lastly, researcher bias and individual characteristics have the potential to indirectly impact data collection and need to be taken into consideration when reporting data and making inferences as to not compromise the quality of the data and analysis procedures.

### *Delimitations*

The specific factors related to food security that are being studied were a delimitation of the research because these potentially represent only a small part of the complex interplay of variables that affect food security. To keep the interviews as brief as possible to increase response rates, the researcher chose a small, core group of factors about which to ask detailed questions. Countless other factors are relevant to this field of health promotion research; however it was not possible to include every factor within the time and feasibility constraints of this study.

### *Conclusion*

This chapter presented the problem of access and affordability to nutritionally adequate food sources and examined the potential impact of these variables in relation to household food insecurity. Support was provided to propose that low access to healthy foods and not being able to afford those foods may negatively contribute to household food security in rural populations, especially with low income caregivers. The research design and corresponding hypotheses were presented that will help elucidate the relationship of access and affordability to food security among low income caregivers in a rural community.

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## CHAPTER TWO

### Literature Review

#### *Introduction*

World food output has nearly tripled in the last half-century, yet hunger still persists (Struble & Aomari, 2003). Food security, the availability of food and an individual's access to it, plays a significant role in public health in order to decrease rates of hunger. Developing community food security ensures "all residents obtain a safe, culturally acceptable, nutritionally adequate diet through a sustainable food system that maximizes community self-reliance and social justice" (Hamm & Bellows, 2003, p.37). This research project illuminates the extent of food insecurity in a particular Appalachian community and provides implications for further research and intervention.

This chapter begins by presenting support for the theoretical background of the study design and research related to food security and the rural food environment. A discussion of the study sample group and existing food resources in the area follows as well as research findings in similar populations related to food security. Finally, the variables of access and affordability will be presented as related to the research and why a qualitative approach was chosen for the project.

#### *Theoretical Background*

The relationship of access and affordability of healthy food to food security status relies heavily on the complex interplay of forces between the external environment and the individual or families. The Social Ecological Model (SEM) provides the supporting framework for this research as it can be utilized to analyze these reciprocal forces acting on the relationship among food security and access and affordability. The SEM analyzes

the various environments or systems surrounding individuals (or families or communities) that have an influence on the health of individuals (Green, Richard & Potvin, 1996).

In this research, there are several external systems that affect the household food security status of low income, rural families. Among these systems are food environments such as work or school food environments, the community environment, the family environment, the built environment or physical structure of the area and many other environments that are specific to each family. The understanding and application of the SEM contributes to collecting and analyzing data related to the mediating factors of access and affordability on household food security so that this research can have a meaningful impact on this community and on more comprehensive public health policies in the future.

The construct of social norms within the socio-ecological framework also plays a role in food security and the relative associations to access and affordability. Social norms are part of the interpersonal level of the socio-ecological theory and are those standards of acceptable behavior or attitudes of a group or community. The qualitative methods of data collection and analysis allow for further development of these social norms by comparison of the open ended responses and analysis of patterns of behavior in the community as it relates to food security and its mediating factors (Sallis & Owen, 1999).

Social Cognitive Learning Theory (SCLT) also provided a foundation for the research of food security and access and affordability of healthy foods. The theory asserts that human functioning is determined by individual characteristics, behavior and

environmental influences. The construct of self-efficacy is a major part of the theory that refers to an individual's feelings of his or her own competency to successfully perform certain behaviors (Bandura, 1998). One's belief in his or her own ability to make and sustain health behavior change is strongly imbedded in the research project. Before household food security status can be improved, individual caregivers or families would need to have confidence that they can become more food secure in the event that access and affordability can be increased. If individuals do not believe that they have the capacity or skills to become food secure, it will be nearly impossible for them to accomplish this goal and improve their overall health and well-being.

The major tenets of SCLT have been applied to the research project starting with the argument that observation is the main source of learned behaviors in populations. Learning these behaviors is a process that can lead to behavior change but does not always. In addition, the behavior is goal-oriented and self-regulated by individuals who have responsibility for that behavior and can be taught how to control it. Lastly, behavior can be influenced positively and negatively through reward and punishment systems (Bandura, 1998). Food insecurity develops from a vast array of factors but individual decisions are a valuable part of the process of families becoming food secure so this theory was heavily rooted in the research design and implementation.

SCLT also includes the construct of reciprocal determinism that is similar to the SEM discussion of systems of relating health behavior choices to the individual and the environment. It takes the SEM one step further and asserts that there are multi-directional interactions between an individual, the behavior and the environment. The individual is not only influenced by the environment but the environment is

simultaneously influenced by the individual (Bandura, 1998). This can inform issues of food security in a small, rural community because the food environment exists only in cooperation with the individuals who sustain it therefore in order to improve it efforts need to be focused on both systems. It is not enough to influence personal behaviors because they do not exist in isolation and health promotion needs to take a multi-dimensional approach in order to decrease food insecurity.

### *The Rural Food Environment and Food Security*

Food insecurity has a profound impact on people in rural areas where obstacles to reduce hunger are particularly troublesome (Struble & Aomari, 2003). “Although personal factors impact eating behavior for rural people, it is the physical and social environments that place constraints on food access, even in civically engaged communities” (Smith & Morton, 2009, p.176). According to Sharkey (2009), “recognition is growing that in order for individuals to make health-promoting food choices, low-calorie, nutrient-dense food resources need to be *accessible* (located near neighborhoods, especially low-income or rural areas, or with transportation available); *available* (including a variety of low-fat and nutrient-dense options in local stores); and *affordable* (reasonably priced)” (Sharkey, 2009, p.S151).

Food sources are usually not evenly distributed in rural communities as there are areas where food stores are concentrated and there are areas where few or no grocery stores exist. Systematic changes in the food environment are increasingly affecting rural communities in adverse ways because the retail food industry is consolidating resulting in fewer, but larger stores. Further, increased transportation costs, higher food prices, less variety and lower food quality leave rural areas at a disadvantage (Sharkey, 2009). “The

loss of small-town grocery stores, which increases the distances that rural residents must travel to obtain food, is particularly critical for low income families who face continued threats to food access and food security” (Sharkey, 2009, S152). Low-income families in rural areas have less access to personal vehicles or public transportation, struggle with income limitations leading to less frequent shopping trips and must expend greater resources to obtain food through normal sources (Tsang, Ndung’u, Coveney, & O’Dwyer, 2007; Morton, Biddo, Oakland, & Sand, 2005).

*Rationale for Using Clay County, KY Food Pantries and Food Security*

*Food Pantry Clients*

Attention has been focused on the perceptions of the environment in which food pantry clients access food and their levels of food insecurity. These are often the most vulnerable households in a community because they lack financial resources and social support structures that can help them solve problems related to food acquisition. Trying to understand the circumstances and mediating factors under which these families are trying to meet their nutritional needs is vital to identifying the problems of food insecurity in many Appalachian and other rural communities (Garasky, Morton & Greder, 2004).

According to one study, rural food pantry clients were significantly more likely than urban or suburban clients to perceive their community as having an inadequate number of grocery stores or supermarkets. Transportation concerns were also greatest in food pantry clients residing in rural areas. Further, lack of financial resources left many food insecure households to turn to secondary food sources such as the Food Stamp Program, the Special Supplemental Nutrition Program for Women, Infants and Children



(commonly known as WIC), and community programs such as neighborhood and school gardening, group meal sites and food pantries (Garasky, Morton & Greder, 2004).

### *Importance of Studying Clay County, KY Families*

One out of three residents in Clay County, KY is considered food insecure and has difficulty accessing or affording sufficient food resources (Blanchard & Lyson, 2006). This Appalachian community in Eastern Kentucky has been identified as a “food desert” in national reports on hunger (Blanchard & Lyson, 2006). Residents are often not able to readily obtain adequate food supplies or do not have the financial capital necessary to acquire them. Currently about 750 Clay County residents are in need of emergency food assistance each week. It is ranked 14th among the poorest counties in the nation and over one third of the population lives below the national poverty line (God’s Pantry Food Bank, 2008).

Research has shown that children who do not have enough food or do not have access to health-promoting foods often suffer from negative effects on cognitive development, growth and health. Growth impairment can potentially be detrimental to a child’s overall health, learning abilities, future achievement potential, and creates the risk for chronic disease development later in life (Struble & Aomari, 2003). Empowering Clay County families to become more food secure will lessen the impact of these negative effects on developing children.

The USDA Economic Research Service and the Farm Foundation, in partnership with the Southern Rural Development Center, found that over 70% of the population in Clay County are “classified as having low access to a supermarket, supercenter or wholesale club” (Blanchard & Lyson, 2006). The report identified Clay County as a

“food desert” defined as a disadvantaged area with relatively little access to healthy and affordable food. Level of access was measured by people traveling over ten miles to the nearest large food retailer and was made if 50% or more of the population experiences low access (Blanchard & Lyson, 2006). This distinction is a helpful guide for identifying areas struggling with food access especially since we know that larger food stores often provide the most variety of healthy foods at the lowest cost (Giang, Karpyn, Lausison, Hillier & Perry, 2008). However, communities that have several small, family owned grocery stores instead of one large supercenter are not accurately represented according to the food desert definition. Families with access to such food resources may be as food secure as those who live in close proximity to larger stores. The food desert distinction also does not account for people who do their food shopping during their commute to and from work where they may have greater access and variety.

This research project complements existing research by providing further macro-level data about the proximity of food outlets and the barriers to food access in this community and affordability of food. The data will be used to illustrate food access and shopping patterns to highlight the deeper mechanisms mediating food insecurity in the community and inform health promotion activities to improve the health and well-being of Clay County families.

The Clay community struggles with socioeconomic barriers similar to those faced by the Appalachian region that impact access to and affordability of appropriate food resources. These are often a result of high cost and low availability, or lack of time, transportation or social support (Atkinson, Billing, Desmond, Gold, & Tournas-Hardt, 2007). Research has shown that the availability of healthy foods in this area of the

country plays an integral part in people's dietary habits and the development of chronic disease (Giang et al., 2008). The rural and mountainous location adds transportation obstacles for families trying to access food sources and also limits the variety of food choices available.

Further, the area is no longer driven by agriculture as a result of economic progress strongly related to the growing mining industry over the centuries (Moye, 1983). Most residents are not able to grow their own crops and are forced to rely on outside sources of fruits, vegetables and meat. Low levels of education also contribute to the food insecurity problem since more than half of the adults in Clay do not hold a high school diploma (City-data.com, 2008) and the rural location makes accessing educational opportunities and advancement very difficult.

Lastly, residents in rural Appalachian communities are often emotionally detached as well as physically isolated leading to a lack of social support. Social capital, a measure of perceived social trust and community reciprocity, has been negatively correlated with food insecurity meaning that people with stronger social structures tend to be more food secure (Walker, Holben, Kropf, Holcomb & Anderson, 2007). Socioeconomic barriers have been implicated in identifying Clay County as a food desert and an area where research is necessary to improve food security in similar rural areas of Appalachia.

#### *Existing Food Resources in Clay County*

Community resources to increase hunger and food security in Clay County have been developed in light of the strong socioeconomic barriers. God's Pantry Food Bank in Lexington provides essential food products to several facilities in the Clay community.

The Community Outreach Center and the Red Bird Missionary Conference are two pantries serviced by God's Pantry as well as the Clay County Old-timers Seniors Center and Ryan's Hope substance abuse treatment center. Food is donated from growers, wholesalers, manufacturers and other food retailers directly to the God's Pantry locations and is distributed to agencies who serve Kentucky citizens. Caregivers have come to rely on this organization to feed their families when all other food options have been exhausted and money is scarce (God's Pantry Food Bank, 2008).

Also, the County Extension Service and the Extended Food and Nutrition Education Program (EFNEP) have maintained a pivotal presence in Clay. County agents organize the Community Farmer's Market and involve as many farmers as possible in the process. Membership is offered for free to growers who specialize in vegetables and are able to bring fresher, nutritious produce to the community. The food offered through the Farmer's Market is often cheaper and more nutritious than that found in the small groceries or convenience stores, thus providing a more cost-effective and healthful option for families struggling with food insecurity. The county extension service also organizes several programs throughout the year that focus on improving overall health and nutrition (Cooperative Extension Service, 2008).

Schools have also become involved in assisting families who are struggling with access or financial obstacles to obtaining food. The school district provides balanced meals daily to almost four thousand students through the Federal School Breakfast and Lunch Programs. Approximately 76% of Clay County Public School students qualify for free or reduced lunch through this program (Clay County Public Schools, 2008). These students may not have the opportunity for nutritious and fulfilling meals otherwise and

students perform better and are absent from school less because of this program (Wojcicki & Heyman, 2006).

### *Relationships of Food Security Factors in Similar Populations*

Janet Fitchen (1997) conducted significant ethnographic work with hunger and malnutrition in a similar rural area of New York. Her work illuminated the vast inequalities of poverty-related hunger present in American society through various methods of data collection and analysis. She examined eating patterns among low income, rural populations and examined the dominant cultural values among the participants. She was able to gain insight into the native perspective of these populations which illuminated mediating factors of food security such as access and affordability (Fitchen, 1997).

Studies have also analyzed social determinants of health, socioeconomic gradients in diet, food security and the sociology of food. These projects relied on participant observation, in-depth interviews, focus groups and life histories to enhance the social underpinnings of food related problems as well as inform public health prevention efforts (Kaufman & Karpati, 2007; Power, 2005; Kaplan, 2000).

Research has also found that poorer households spend a greater percentage of household income on food and are left to supplement their food supply with noncash sources such as fishing or hunting, vegetable gardening, gathering wild fruits, raising animals as well as the participation in the food stamp and school lunch programs and other forms of food assistance (Atkinson et al., 2007; Fitchen, 1997). It has also been illustrated that mothers dealing with inadequate access to food chose to satisfy their children's hunger in the present even if it increases the risk of malnutrition in the future.

Further, children's awareness of food buying practices in rural, low income homes such as going to the grocery store at the beginning of the month when the food stamp allotment was received became evident through in-home observation and interaction with families (Fitchen, 1997).

In addition, a strong reliance on social ties and fostering meaningful community networks appear to be critical to the development of household food security in similar rural areas. These interpersonal connections were most evident in women, often heads of low income households, and empowerment techniques had a significant impact on women's self-efficacy to become food secure (Lemke, Vorster, Jansen van Rensburg & Ziche, 2003). Efforts to identify cross-cultural commonalities have been undertaken in one study and confirmed that "insufficient food quantity, inadequate food quality, and uncertainty and worry about food were a significant part of the food insecurity experience in all sampled cultures" (Coates, Frongillo, Rogers, Webb, Wilde, & Houser, 2006, p.1438S). These authors also found that concerns about the social unacceptability of food security were evident in many accounts (Coates et al, 2006).

Research has also been done in rural populations dealing with protective factors against and contributing to food insecurity. One sample included 316 rural low-income families from 24 counties in 14 states that were asked questions pertaining to the categories of chronic health conditions, food and financial skills, knowledge of community resources, and participation in the Food Stamp Program. These four categories were chosen by the researchers as strong predictors of food insecurity. It was noted that many rural families reject aid from the Food Stamp Program because they have a negative perception towards it combined with a lack of information about it. They also

found that human capital is less in rural areas compared to urbanized locations which are associated with higher levels of depressive symptoms that were also evident in those who are affected by food insecurity (Olson, 2004).

Further, these researchers found that not only location plays a major role in food security because of limited access to supermarkets but highlighted other contributors or characteristics that are common with families struggling with food insecurity such as lower levels of food and financial skills held by the caregiver, higher levels of depressive symptoms, difficulty paying for medical care, less than a high school education among non-White participants, and renting a home instead of owning one (Olson, 2004).

Another study of populations in rural Appalachia highlighted individual perceptions of food security and noted the increased rates of food insecurity in rural areas as compared to urban and metropolitan locations (Pheley, 2002). Researchers surveyed over a thousand participants and found an association between being categorized as food insecure and increased physical illness, greater psychological effects, and social and family problems. It was noted that a lack of nutrients is expected to contribute to poorer health outcomes, however psychological issues can be just as prevalent a consequence. Relying on others for food can cause stress and a lack of independence as well as the pain of not being able to feed one's children (Pheley, 2002).

#### *Relationships of Access and Affordability to Food Security*

Recent emphasis has been placed on accessibility and affordability of food in socioeconomically disadvantaged populations. Researchers have focused on the potential contribution of the physical, structural and material environment on these communities and suggest that they have poorer access to affordable healthy foods (Ball, Timperio &

Crawford, 2009). Low income households are at greater risk of hunger and poor nutritional outcomes if they are unable to access the normal food system because of store locations and income constraints leaving them with significant difficulties meeting their basic food needs (Garasky, Morton & Greder, 2004).

One major focus of food environment research is spatial access to food or the access from the home to food stores or food-service places (Sharkey, 2009). Several dimensions of accessibility to food resources have been identified that will be considered within the confines of the research. *Proximity* is the distance to the nearest food outlet, *variety* is the number of food outlets within a certain distance, *food/price variety* is the average distance to the three closest different chain-name supermarkets and *density* is the proportion of food outlets per county, census tract, or census block group or population. Research within these dimensions has shown that without easy spatial access to food outlets, families have to pay higher travel costs to reach a supermarket or grocery store or are only able to shop at local convenience stores or small grocery stores that charge higher prices (affordability) for limited selections of food products. However, little of the published work on inequalities of spatial access to food has emphasized rural areas (Sharkey, 2009).

“Ensuring that basic healthful foods are available at affordable prices, in acceptable forms (eg fresh as well as frozen), with sufficient variety in local retail facilities, is considered an important part of promoting healthy food choices. Understanding food access at local and national levels is therefore important...A national, independent, systematic study of retail provision and data on accessibility and



affordability to generate an evidence base for action on retail policy is overdue” (Anderson et al., 2007, p. 1441,1444).

### *Rationale of Qualitative Approach*

This research utilized mainly qualitative approaches to elicit more detailed responses to the factors of access and affordability related to food security. This placed greater emphasis on the community perspective of the food culture in Clay County rather than solely the perceived viewpoint of the researcher. A brief quantitative survey was conducted to classify participants as either food secure or food insecure.

Research has shifted from a focus on individual and behavioral factors impacting food choices to emphasizing contextual, structural and environmental factors to explain differences in perceptions of the community food environment. Geographic and numerical methods have been relied upon in similar studies of food security to explain these differences yet qualitative experiences of people are equally important to document (Coveney & O’Dwyer, 2009). Further, there is a lack of reliable and valid measures to assess access and affordability of food in rural areas so qualitative measures will provide more detailed information about native perceptions regarding food access and affordability with relation to food security (Freedman & Bell, 2009).

Qualitative research suggests that living in a food desert is more than just a minor inconvenience. Data collected through interpersonal methods reveals issues of affording quality branded foods as opposed to budget lines, obtaining easily prepared foods for those with limited time or help and caregivers accessing stores with young children. Respondents assert that issues such as these have a considerable impact on quality of daily life in food deserts and other underprivileged communities (Anderson et al., 2007).

New trends in qualitative research around food systems continue to emerge. “Research in nutritional anthropology has long been guided by a biocultural approach, one that recognizes that cultural ideologies and social and ecological circumstances come together to shape food-related behaviors and consequent nutritional status” (Crooks, 2003, p. 184). This theory of nutritional anthropology is organized around a combination of four lines of inquiry including dietary survey studies, food habits and pathways, cognitive aspects and meanings of food, and ecological theory. Fitchen (1997) affirms that “dominant American culture not only influences the foods poor people eat; it also influences the way nonpoor think about eating, about poverty, and about what the poor should eat” (p. 395). We know that cultural and societal attitudes about poverty shape ideas about what poor people should eat (Fitchen, 1997) and qualitative research methods have the ability to illuminate these perceptions and identify areas necessary for designing multi-dimensional interventions.

Many studies highlight food security factors in densely populated urban areas, however this multi-dimensional research project focused on a specific low income, Appalachian county and examined the mediating factors unique to this community using a combination of quantitative and interpersonal methods. Similar research methods have been successful at providing valuable information about the cultural dimensions of hunger among low income populations that examine food preferences, practices and patterns of eating as well as the distribution of food within households, attitudes about foods, and social interactions associated with food (Fitchen, 1997). The permutation of research methods created a stronger foundation that will hopefully guide future projects

and public health intervention strategies to successfully decrease rates of food insecurity in similar populations.

### *Conclusion*

“The eradication of hunger necessitates a more systemic approach—one that embraces agriculture, but that also integrates the development of human capital and infrastructure” (Struble & Aomari, 2003, p.1047). A concentrated effort to increase rates of food security has the overwhelming potential to benefit not only individuals, cities and nations but have a positive impact on the world community itself (Struble & Aomari, 2003). No single approach will suffice to reduce food insecurity thus policymakers will need to develop multi-dimensional strategies to reduce barriers to food security and put interventions and resources in place to prevent food insecurity. In the long term, public health officials need to create more “equitable distribution of wealth and resources and more sustainable, people-centered development” (Struble & Aomari, 2003, p.1051) in order to achieve the health promotion goal of empowering people to improve their health.

## CHAPTER THREE

### Methodology

#### *Introduction*

The purpose of the research study was to use qualitative research methods to explore the relationship between food security and access to and affordability of nutritionally adequate food sources in one rural, underserved area through the perspective of its low income caregivers. This chapter will describe the research methodology that was used including the design, sample selection procedures, pilot testing and data collection methods, instrument details, and theme analyses. The research hypotheses will also be reviewed.

#### *Restatement of Research Questions and Hypotheses*

1. What is the relationship between access (proximity) to nutritionally adequate food sources and household food security status in rural, Appalachian communities?

Hypothesis: If household food security is low, then access to nutritionally adequate food sources is low.

2. What is the relationship between affordability of nutritionally adequate food sources and household food security status in rural, Appalachian communities?

Hypothesis: If household food security is low, then households have difficulty affording nutritionally adequate food sources.

3. What are the individual-level factors that affect access and affordability of nutritionally adequate food sources that can lead to household food insecurity in rural, Appalachian communities?

Hypothesis: There are multiple systems interacting to create food insecure communities.

#### *Study Design and Sample Selection*

This research followed a primarily qualitative approach using open ended interview questions to identify specific trends, patterns and perceptions of food accessibility and affordability in food insecure families. A brief survey was utilized to initially classify participants according to household food security status.

Participants were low income caregivers in Clay County, KY who were recruited through the God's Pantry Food Bank satellite location in Manchester, KY that provides essential food products to those in need in Clay County. This particular site was chosen as a convenience method to access low income caregivers in this community who would potentially utilize this food resource. Other methods of accessing low income populations would have been more invasive and would have required more detailed financial information from caregivers. This research operated under the assumption that families utilizing the food pantry were those who could also be considered low income. Site administrators were contacted in advance to ensure smooth data collection and to establish rapport with the agency.

## *Instrumentation*

The US Household Food Security Survey Core Module has been the most widely used scale to assess household food security in recent years. It was developed by the federal inter-agency Food Security Measurement Project to assess the prevalence of food insecurity at several measurable levels of severity among US households within the preceding twelve months (Keenan, 2001). This 18-item core module includes questions that focus on the financial stability of the caregiver to meet its basic food needs and if the caregiver feels there is enough food to feed the family (Bickel et al., 2000).

In response to the need for a comprehensive measure of food security, federal agencies, academic researchers and private commercial and nonprofit organizations reviewed existing research and made recommendations for the assessment. The US Census Bureau carried out field and cognitive testing on the instruments and administered it as a supplement to the Current Population Survey (CPS) in 1995. This data was then analyzed and completed subsequently with the CPS again in 1996 and 1997. These findings established the stability of the measure over those three cycles. The Economic Research Service (ERS) in collaboration with Mathematica Policy Research, Inc (MPR) and USDA's Food and Nutrition Service (FNS) developed and standardized procedures for this measurement to calculate household food security status. They collected and analyzed two additional years of data (1998 and 1999) and confirmed that the scale continued to remain stable. Therefore the US Household Food Security Survey Core Module has been shown to be a stable, robust, and reliable measurement tool (United States Department of Agriculture Economic Research Service, 2012).

For households with children, the survey has a reliability coefficient of 0.81 and 0.74 for those without children. Validity has been indicated by significantly related measures of poverty-income ratio, weekly food expenditures and the USDA food sufficiency question that yield similar responses. Independent research has also demonstrated strong associations between this measure of food security and other variables such as nutrient intake and severe hunger (Keenan, 2001).

To measure accessibility and affordability with relation to food security, an adapted version of the Space, Place and Access to Food Interview Schedule (Coveney & O'Dwyer, 2009) was completed for the subset of those caregivers classified as food insecure. This instrument was re-named the Access and Affordability Interview for the purposes of this research project. It was developed to address several factors including what food outlets participants patronized, how far they had to travel to these food outlets and how often they went, any social or family factors affecting access to food outlets, any help they required with food shopping and what the participants views are of food availability and quality in their area (Coveney & O'Dwyer, 2009).

The Access and Affordability Interview also included specific demographic information at the conclusion of the interview. Participants were asked to choose their education level from the categories of “no formal schooling”, “elementary school”, “middle school”, “high school/GED”, “some college”, “Bachelor’s degree” or “Master’s degree or higher”. They were also asked in what country they were born in. In addition, participants were asked what choice best describes their relationship status when given the options of “single, never married”, “married”, “divorced”, “separated”, or “widowed”. The employment status of participants was measured by asking if they were

currently working and if yes, they were asked if their employment was “full time, part time, or casual” and what their job was. To assess the participants’ financial situation they were asked how they were managing financially at the moment and given the choices of “living very comfortably”, “living quite comfortably”, “getting by”, “finding it quite difficult” or “finding it very difficult”. Lastly, participants were asked if they own or rent their property. These results were analyzed using percentages and descriptive measures.

The researcher adapted this instrument into the Access and Affordability Interview for the purposes of this study to incorporate more relevant topics about access and affordability in the Clay County area. The language of the instrument was also adapted in cases where words would not be clearly understood by participants as a result of the instrument being originally developed in Australia.

#### *Pilot Testing*

Institutional Review Board approval was obtained from the University of Kentucky prior to any data collection. The US Household Food Security Survey Core Module (Bickel et al., 2000) and the Access and Affordability Interview (Coveney & O’Dwyer, 2009) were pilot tested with four low income caregivers in Fayette County at the God’s Pantry Main Office in Lexington, KY. God’s Pantry is a network of food banks that serves every county in Kentucky but focuses a large amount of resources on the lower income areas in Eastern Kentucky. Their mission is to create a hunger-free America by distributing grocery products and food to people who need it while also emphasizing public awareness of hunger and influencing public health policies (God’s Pantry Food Bank, 2008).



This site was chosen because it is the main office and serves a large number of people in Fayette County (Lexington Metro Area), would not compromise the Clay County sampling frame and was in close proximity to the university. This site is similar to Clay County in that people utilizing the food pantry are those struggling to meet their food needs and looking for some outside assistance. The largest difference between the pilot site and the Clay County site is that Fayette County is an urban location and Clay County is a rural location. The problems that a rural population faces with regard to hunger such as accessibility to food outlets and the variety of food options can be very different from those an urban population faces. Another difference in the pilot testing sample was that many participants in the pilot study were single unit families rather than multi-level families that are more common in rural areas.

Participants were recruited as they entered the food pantry by the researcher who was sitting at a table outside the facility. They were told that this was a pilot test for a research project looking at how access and affordability of food are related to food security and was completely voluntary. They were explained the informed consent process and told that they would receive a \$10 Wal-Mart gift card in appreciation for their time completing the survey that would take about twenty minutes. If they agreed, they were taken into a private office inside the pantry where the US Household Food Security Survey Core Module was administered to determine the level of food security. Regardless of the outcome of this instrument, the participants were administered the Accessibility and Affordability Interview since this was part of the pilot testing and the researcher wanted to get as much feedback as possible on the instruments and procedures.

Four individuals completed the pilot testing that included both the US Household Food Security Core Module and Accessibility and Affordability Interview. The scores from the US Household Food Security Core Module categorized two of the individuals as having low food security and the other two as having very low food security. Therefore all four pilot test participants were categorized as food insecure.

Once testing was complete, the participants were encouraged to ask questions about both of the survey and bring up any concerns about particular items or clarifications that needed to be made. They were also given the gift card for participating in the pilot testing. The researcher used the feedback from the pilot test participants to make small changes to the Access and Affordability Interview prior to the data collection in Clay County. Those changes included combining questions that were redundant, adding clarification to questions that participants thought seemed too vague and changing some of the choices in the demographics sections to relate better to the school system structure in this area such as using “elementary and middle school” instead of “primary and secondary school”. No changes were made to the US Household Food Security Core Module so that the reliability and validity of this quantitative instrument were preserved.

### *Research Procedures in Clay County*

#### *Clay County Description*

Clay County, KY was chosen as the site for data collection because the researcher had done previous work in the area and it fit the criteria for a low-income county in Eastern Kentucky. The racial breakdown of the county is 94.5% White, Non-Hispanic, 4.1% Black, Non-Hispanic and 0.7% Hispanic or Latino. The median resident age of the county is 34.6 years and 52.8% of the population is male and 47.2% is female. The

average household size is 2.6 people and the median household income is \$19,363. Data from 2009 shows 39.7% of the residents in Clay County live below the poverty level with 14.9% of those having an income below 50% of the poverty level. Approximately 3,717 residents in Clay County receive Supplemental Security Income (SSI). In April 2010, unemployment rates in this county were 15.1%. For those who are employed, the mean travel time to work is 31.2 minutes. Lastly, more than half of the adults in Clay do not hold a high school diploma (City-data.com, 2008).

In terms of the food and health environment in Clay County, there are four grocery stores, two convenient stores, 14 gas stations with convenience stores, and three full-service restaurants. There are 11.4% of adults diagnosed with diabetes, 31% of adults classified as obese and 22.1% of children falling into the low income preschool obesity rate.

Additionally, one out of three residents residing in this county is considered food insecure and has difficulty accessing or affording sufficient food resources (Blanchard & Lyson, 2006). This Appalachian community in Eastern Kentucky has been identified as a “food desert” in national reports on hunger (Blanchard & Lyson, 2006). Residents are often not able to readily obtain adequate food supplies or do not have the financial capital necessary to acquire them. Currently about 750 Clay County residents are in need of emergency food assistance each week. It is ranked 14th among the poorest counties in the nation and over one third of the population lives below the national poverty line (God’s Pantry Food Bank, 2008).

The USDA Economic Research Service and the Farm Foundation, in partnership with the Southern Rural Development Center, found that over 70% of the population in

Clay County are “classified as having low access to a supermarket, supercenter or wholesale club” (Blanchard & Lyson, 2006). The report identified Clay County as a “food desert” defined as a disadvantaged area with relatively little access to healthy and affordable food. Level of access was measured by people traveling over ten miles to the nearest large food retailer and was made if 50% or more of the population experiences low access (Blanchard & Lyson, 2006).

Additionally, the site was chosen because this community struggles with socioeconomic barriers similar to those faced by the Appalachian region that impact access to and affordability of appropriate food resources. These are often a result of high cost and low availability, lack of time, transportation or social support (Atkinson, Billing, Desmond, Gold, & Tournas-Hardt, 2007). The rural and mountainous location adds transportation obstacles for families trying to access food sources and also limits the variety of food choices available.

#### *Data Collection*

The researcher contacted the manager of the God’s Pantry facility in Manchester, KY to explain the purpose of the research and asked about any requirements necessary to conduct the research there. The manager was provided with an outline of the research and copies of the instruments that were being used. She explained that Monday, Wednesday and Friday mornings are typically the busiest times of the week and towards the beginning and end of the month tend to also yield larger numbers of clients. The researcher and the pantry manager agreed on three dates in the month of April 2011 to conduct the research. The researcher was present at the pantry for the entire time period that it was open which was 9am-2pm on each of the three days.

The researcher arrived at the pantry prior to opening and was met by the pantry manager as well as other employees. The researcher explained the purpose of the project again to those employees who were not familiar with it and walked through the pantry with the manager to determine the most convenient and private place to conduct the interviews.

Upon opening, every client that entered the facility was approached individually. If the researcher was approaching one client, the employees would direct further clients to her during their shopping or ask them to wait to speak with her if they were willing. The researcher introduced herself to the client and told them that this was a study through the University of Kentucky about how they get food in this area and how affordable food is. She also added that she was not from the area and was from Boston in order to make the participants comfortable to ask questions and know a little more about her. They were told that it would take about twenty minutes to answer the questions, was completely voluntary and they would receive a \$10 Wal-Mart gift card for their participation. Wal-Mart was chosen for the gift card after the suggestion was made by the food pantry manager that there was one close by that many of the clients utilized. If they agreed to participate in the study, the researcher directed them to sit at a table in a private room off the main entrance of the pantry where the interview took place.

The survey packet included three parts: 1) Informed Consent form, 2) US Household Food Security Survey Core Module, and 3) Accessibility and Affordability Interview. The full survey packet can be found in Appendix A. The packets each contained all three parts, however those classified as food secure did not answer the Accessibility and Affordability Interview.

The consent form, approved by the Institutional Review Board at the University of Kentucky, was read to the potential participants and served to introduce them to the purpose of the research and explain the nature of their participation and their rights as human subjects in research. Participants were encouraged to ask any questions and a signature was required from each caregiver confirming their consent to participate in the study. The US Household Food Security Survey Core Module was administered by the researcher reading each question to the participant to avoid problems with literacy. Participants were told they had the choice not to answer any question and compensation was not dependent on completion of the survey. Upon completion of the survey, the researcher calculated the raw score to determine if the client was classified as food insecure and therefore eligible to complete the Access and Affordability Interview.

Those participants who were determined to be food insecure were eligible for the second part of the assessment and were asked to continue with the interview. As part of the qualitative process of generating explanations to food insecurity rather than testing hypotheses, an in-depth interview was then conducted requiring participants to answer open-ended questions about their experience with accessibility and affordability of food in their area. The Access and Affordability Interview was administered in the same private room to the small subset of caregivers who were classified as food insecure according to the US Household Food Security Survey Core Module.

The researcher identified thirteen caregivers who were classified as food insecure and had children in the household less than 18 years of age who were eligible to complete the Access and Affordability Interview. Twelve of those completed the Access and Affordability Interview. Seven completed assessments were conducted on the first date

(April 15, 2011), five on the second date (April 19, 2011) and zero on the final date (April 26, 2011). Several clients who came into the pantry on the subsequent dates had previously completed the assessment on the initial date and therefore were not eligible to participate again. Additionally, many clients completed the initial US Household Food Security Core Module but either were food secure or did not have children under the age of 18 so were not eligible to complete the Access and Affordability Interview.

#### *Data Entry and Coding*

Responses from the US Household Food Security Survey Core Module were coded and household security status assessed according to the guidelines of the instrument. Survey responses were entered into a Microsoft Excel database. Responses of “yes,” “often,” “sometimes,” “almost every month,” and “some months but not every month” were coded as affirmative. The sum of affirmative responses to a specified set of items is referred to as the household’s raw score on the scale comprising those items. Specification of food security status depends on raw score.

For households with one or more children:

- Raw score zero—High food security
- Raw score 1-2—Marginal food security
- Raw score 3-7—Low food security
- Raw score 8-18—Very low food security

Households with high or marginal food security were classified as food secure. Those with low or very low food security were classified as food insecure. Since this was an interviewer-administered survey, DK (“don’t know”) and “Refused” are blind

responses that were not presented as response options but marked if volunteered by the respondent.

The two levels of screening for adult-referenced questions and one level for child-referenced questions are provided for surveys in which it is considered important to reduce respondent burden. In pilot surveys intended to validate the module in a new context with low income caregivers in Lexington, screening was avoided if possible and all questions were administered to all respondents.

### *Data Analysis*

Demographic characteristics of the sample consisting of education level, country of origin, relationship status, employment status, financial situation and housing status were analyzed using percentages and descriptive measures. The US Household Food Security Survey responses were converted into a data set needed for applying the measurement model using the core-module questionnaire for this instrument. This model was then applied to the data to determine the food security status level of each household. For those households that showed evidence of food insecurity, the severity level of the condition experienced was established as low or very low food insecurity. (Bickel et al., 2000). Results of the US Household Food Security Survey were compiled into an excel spreadsheet. Each question was included along with a corresponding percentage of responses.

The Access and Affordability Interviews were recorded and transcribed so that responses could be analyzed according to common themes, patterns and perceptions among the participants and categorized into similar and outlying responses. The researcher tabulated the responses to each question and performed a question by question



analysis of each respondent's answers. This made it easier to see similar responses and to identify those that were different or inconclusive.

### *Conclusion*

This chapter presented an overview of the study design, data collection process, instrumentation, data entry, coding and analysis procedures. This qualitative research project of low income caregivers in rural Kentucky focused on the hypothesis that access and affordability compound the issue of household food insecurity. The results of the data analysis will be presented in Chapter 4.

## CHAPTER FOUR

### Results

#### *Introduction*

The results of the research will begin with a description of participant data, including the percentages of responses for the quantitative measure, the US Household Food Security Survey. It is the most widely used scale to assess household food security by asking participants a variety of questions about their food situation and confidence about accessing enough food to feed themselves and their families. Responses to this instrument were converted into the data set needed for applying the measurement model using the core-module guidelines provided for this instrument. These data were analyzed by raw scores to determine the food security status level of each household. The categories for making this classification were “high food security”, “marginal food security”, “low food security” and “very low food security” (Bickel et al., 2000). Households classified in the “low food security” or “very low food security” were considered food insecure for the purposes of this research.

The Access and Affordability Interview was given to participants who were classified in the manner above as having “low” or “very low food security”. This instrument was utilized to identify some of the deeper mediating factors of food security within this population that could not be gained from a quantitative instrument. The researcher was seeking more in depth responses about the specific systemic issues that exist in this geographic area and within these families that influence the problem of food insecurity. The qualitative data were analyzed according to common themes, patterns

and perceptions among the participants and categorized into similar responses because this data were more descriptive in nature.

*Descriptive Statistics*

*Participants*

Participants were low income caregivers who were recruited through the God’s Pantry Food Bank satellite location in Manchester, KY. A total of 31 food pantry clients, seven male and 24 female, agreed to complete the US Household Food Security Survey Core Module. Twenty-six of those surveyed were considered food insecure with eight of those specifically classified as having “low food security” and 18 classified as having “very low food security”. Fifteen of those 26 food insecure participants had children living in the household under the age of 18.

Table 4.1  
Household Food Security Status

	High Food Security	Marginal Food Security	Low Food Security	Very Low Food Security
N=31	3	2	8	18
Percentage	9.68%	6.45%	25.81%	58.06%
Combined Percentage	16.13%		83.87%	
Classification	Food Secure		Food Insecure	

Thirteen participants, 11 female and two male, were classified as food insecure and had children living in the household under the age of 18 making them eligible to complete the Access and Affordability Interview which asked more in depth questions related to how participants obtained food and their perceptions on the affordability of it.

Eligibility included being classified as having “low food security” or “very low food security” via the US Household Food Security Survey Core Module Interviews and being a caregiver to any child under the age of 18 residing in the household. These criteria were required because the researcher was interested in the mediating factors of food insecurity among low income caregivers. Twelve of the 13 eligible participants agreed to be interviewed.

*Demographic Characteristics*

Demographic data were available for 23 of the 31 participants who completed the US Household Food Security Survey Core Module. The first few participants who were classified as food secure were not asked the demographic questions due to researcher error. Also, several participants did not have time to respond to the demographics questions since they were asked at the end of the interview. Tables 4.2 through 4.7 display participants’ level of formal education, country of origin, relationship status, employment status, financial status, and housing status, respectively.

Table 4.2  
Level of Education

	Elementary School	Middle School	High School/GED	Some College	Masters Degree
Highest Level of Education	2/23	5/23	11/23	4/23	1/23
Percentage	8.69%	21.74%	47.83%	17.39%	4.35%

Table 4.3  
Country of Origin

	USA
Country of Origin	23/23
Percentage	100%

Table 4.4  
Relationship Status

	Single, Never married	Married	Divorced	Widowed
Relationship Status	2/23	14/23	4/23	3/23
Percentage	8.69%	60.87%	17.39%	13.04%

Table 4.5  
Employment Status

	Employed	Unemployed	Disabled/SSI
Employment Status	3/23	14/23	6/23
Percentage	13.04%	60.87%	26.09%

Table 4.6  
Financial Status

	Living very comfortably	Living quite comfortably	Getting by	Finding it quite difficult
Financial Status	1/23	1/23	16/23	5/23
Percentage	4.35%	4.35%	69.56%	21.74%

Table 4.7  
Housing Status

	Own	Rent	Neither
Housing Status	12/23	9/23	2/23
Percentage	52.17%	39.13%	8.69%

### *Quantitative Results*

Thirty-one food pantry participants completed the US Household Food Security Survey Core Module. Seven of those were male (22.58%) and 24 were female (77.42%). Twenty-six (83.87%) participants were classified as food insecure. This was consistent with the expectations of the researcher since the data were collected from a food pantry in an economically poor county and this value suggests that most of those utilizing the food pantry were from food insecure households.

Thirty-one participants answered the Household Stage 1 questions. The responses are displayed in Table 4.8. Twenty-eight participants responded affirmatively, “often true” or “never true”, to one or more of the Household Stage 1 questions. Those participants were then asked the Adult Stage 2 questions. Results from Adult Stage 2 questions are displayed in Table 4.9. Twenty-three of those twenty-eight participants responded affirmatively, “often true” or “never true”, to one or more of the Adult Stage 2 questions. Those participants were then asked the Adult Stage 3 question. Results from the Adult Stage 3 question are displayed in Table 4.10.

Fifteen participants had children living in the home under the age of 18 and completed the Child Stage 1 questions. Those responses are displayed in Table 4.11. Thirteen participants responded affirmatively, “often true” or “never true”, to one or more of the Child Stage 1 questions. Those participants were then asked the Child Stage 2 questions. Results from Child Stage 2 questions are displayed in Table 4.12.

Table 4.8  
Household Stage 1

Household Stage 1 Questions HH2-HH4	N	Often True	Sometimes true	Never true	DK or Refused
We worried whether food would run out before we got money to buy more.	N=31	10	16	5	0
The food we bought just didn't last and we didn't have the money to get more.	N=31	8	16	7	0
We couldn't afford to eat balanced meals.	N=31	11	11	9	0

Table 4.9  
Adult Stage 2

Adult Stage 2 Questions AD1-AD4	N	Yes	No	DK
In the last twelve months, did you ever cut the size of your meals or skip meals because there wasn't enough money for food?	N=28	20	8	0
In the last twelve months, did you ever eat less than you felt you should because there wasn't enough money for food?	N=28	20	8	0
In the last twelve months, were you ever hungry but didn't eat because there wasn't enough money for food?	N=28	11	17	0
In the last twelve months, did you ever lose weight because there wasn't enough money for food?	N=28	9	19	0

Table 4.10  
Adult Stage 3

Adult Stage 3 Questions AD5	N	Yes	No	DK
In the last twelve months, did you ever not eat for a whole day because there wasn't enough money for food?	N=23	10	13	0

Table 4.11  
Child Stage 1

Child Stage 1 Questions CH1-CH3	N	Often True	Sometimes true	Never true	DK or Refused
We relied on only a few kinds of low-cost food to feed the children because we were running out of money to buy food.	N=15	4	7	4	0
We couldn't feed the children a balanced meal because we couldn't afford that.	N=15	4	7	4	0
The children were not eating enough because we just couldn't afford enough food.	N=15	1	4	10	0

Table 4.12  
Child Stage 2

Child Stage 2 Questions CH4-CH7	N	Yes	No	DK
In the last twelve months, did you ever cut the size of any of your children's meals or skip meals because there wasn't enough money for food?	N=13	4	9	0
In the last twelve months, did the children ever skip meals because there wasn't enough money for food?	N=13	1	12	0
In the last twelve months, were the children ever hungry but you just couldn't afford more food?	N=13	2	11	0
In the last twelve months, did any of the children ever not eat for a whole day because there wasn't enough money for food?	N=13	0	13	0



### *Qualitative Results*

Several themes were visible in the analysis of the qualitative data from the Access and Affordability Interview conducted with the participants. The researcher read through the transcript of each interview several times and wrote down recurring patterns or comments. The themes were constructed and labeled transportation and physical ability challenges, key issues in store choice, cost barriers in food shopping, strategies to maximize food dollars, and factors involved in food choice. A presentation of these themes and examples of respondent comments is presented below followed by a discussion of these themes and the relation to food insecurity.

Participants were asked first where they usually got their food in the Clay County, KY area. At the time that research was conducted, there were four grocery stores, two convenient stores, and 14 gas stations with convenience stores in the county. The nearest Super Center, a large retail store that sells groceries as well as clothing and household items, was 28 miles from the center of the county. The majority of responses were split between those who shopped at Save-A-Lot and those who shopped at IGA; however, several patronized both for different reasons that will be explored later. One caregiver responded that she usually grocery shops at both the local non-Super Center Wal-Mart and Save-A-Lot but that she “goes to Wal-Mart more often.” Clay County food outlets were between one mile and 12 miles from their home, with one responding that it “depends on the day and time”.

#### *Transportation and Physical Ability Challenges*

Several questions were asked regarding transportation and how participants usually got to the food store of their choice. Most respondents said they drove a car to

the store, however, one person stated that she “pays someone, a neighbor or friend, to drive me or I call the community action center and they help me get there.”

Reliability of transportation to and from the places that they wanted to shop at was a concern for some participants. One respondent indicated reliability of transportation was a regular issue that her family struggled with while another said “sometimes because we only have one car and my husband has to take it to work”.

Other aspects of transportation also posed challenges to some participants. Two respondents specifically stated gas as a difficulty for getting to the food outlet of their choice saying “I don’t have enough money for gas” or “I need gas money to get there”. When probed, it became evident that the gas consideration was for them to get to one of the supercenters located in London, KY, 28 miles away. Others stated a lack of transportation as a difficulty saying “I don’t have a vehicle so I need to depend on others because there are no stores close to home” or “we only have one vehicle” indicating that they did not have the freedom to get to and from the food store of their choice when necessary. In terms of physical impairments that affected their access to food, several participants answered affirmatively when asked if they needed help with the grocery shopping. Another participant said “yes, some stuff is up high and I can’t reach it from my wheelchair so I will ask a worker to help me” while someone else responded “yes, if I’m getting a lot, but no if I’m not getting too much”.

#### *Key Issues in Food Store Choice*

Participants were asked several questions relating to how they chose what food outlet to utilize and some common themes emerged through their responses. The most frequent theme was that of the financial gain of choosing one store over another. One

caregiver responded that she does not go to any food outlet on a regular schedule but only goes “when I have money”. Many responses included something about the cost of one store versus another with specific like “it’s cheaper”, or “they’re the cheapest”.

Additionally, respondents mentioned the availability of “generic brands” in their response to the lower cost of food at a particular food outlet highlighted the reality of generic brand foods being cheaper than name brand foods.

In addition to cost, others indicated that convenience and habit were reasons they chose a particular store over another. Participants said specifically “I’ve just always gone there since they opened” and another said simply “it’s more convenient than any of the others for me to get to”. Lastly, in addition to cost, convenience and habit, one participant said that she shopped at one food outlet because they “have a lot of what we want, especially a better selection of meat and I can buy in bulk and freeze things for later”. This was the only response that indicated choice and quality of food for the reason they shopped at a particular food outlet.

Respondents stated that they wanted more choice in the food outlets where they could shop at and were interested in other food chains coming into the area. Many stated “Wal-Mart supercenter”, “Meijer supercenter” or “other supercenter” would be something they would like to see. They also named “Kroger” and “Food City” as stores they would like to see in Clay County.

#### *Food Shopping Cost Barriers*

Another common theme that was evident throughout the responses was the cost of food in this geographic area. When participants were asked if they were able to afford all the items they needed, several answered negatively that they could not afford all the

items that they needed with one adding “it depends on prices”. The most common response to specific items that they could not afford was meat products. One said, “I’d like to buy different cuts of meat but I usually end up fixing ground beef because it’s the cheapest”. Another participant said “I cannot afford any meats so I get other cheap stuff”. Others mentioned “milk” as something they cannot afford with one adding “bread and potatoes” as items she cannot buy because they cost too much. Generic brand products were brought up in this theme as well with one respondent stating that she cannot afford “miracle whip and JIF peanut butter” adding that her kids ask for it. She said “they know it’s a special day when they find JIF in the cupboard and not the Wal-Mart stuff”.

Respondents overwhelmingly said that the cost of food in their area is too high. Specifically, one caregiver stated “it’s outrageous” while another said “high cost, everything keeps going up and up”. Others said food is “much higher here”, or “way too high”. One participant remarked that food in Clay County is “too high with no choice” with another saying “it[cost] doesn’t compare to the quality”. A final comment from a respondent blamed the high cost of food for why “people eat totally different in this area”. With regard to specific food outlets that have higher prices, most respondents said “IGA” as the store that charges the most for food products.

#### *Strategies to Maximize Food Dollars*

In conjunction with the high cost of food that participants noted, many discussed the strategies that they utilized to get the most out of their food budget. Responses to what percentage of their net monthly income they actually spent on food every month were varied with some saying “about a third” (33%) and others saying “50%” to “80%”.

One respondent said “I shop the sales” indicating that they compare prices on similar items at different stores and make their choices accordingly. Similarly, another said she uses “both IGA and Save-A-Lot equally and it depends on the sales that week”.

In addition to using sales, one participant noted that buying in bulk was something he did to make his food money last longer. He said “we buy green beans or hamburger meat in bulk when it’s cheap and then we freeze it”. Others noted that they chose “cheaper cuts of meat when we are trying to make money stretch”. It was remarked above that buying generic brands was another method people in this area have adopted to not deplete their food budget as quickly.

Lastly, utilizing the food pantry was stated as a method of maximizing a food budget. One participant said “that’s why I’m here because it’s the middle of the month” indicating that her food money runs low towards the middle and end of the month.

#### *Factors Involved in Food Choice*

A final recurring theme evident in the qualitative data was that of food choice and why people chose certain foods over others. Specifically participants were asked if they chose foods based on nutrition or cost and two responded that they chose based on nutrition. One noted “a little of both [cost and nutrition] because my husband and I are diabetic”. Several responded that cost was the primary factor in their decision on which foods they purchased. One participant said “Yes, I choose cheaper things” while another said “Yes, I choose based on cost”. Others responded with “Yes, we buy the cheapest we can” or “I go for cheapest price on everything”.

There were also specific items that participants mentioned in terms of choosing based on cost rather than nutrition. One response was “I don’t buy frozen chicken and

green beans, but buy macaroni and cheese instead”. Another stated “meats” as something she buys cheaper varieties of because of the high cost of more nutritional varieties while another caregiver said she buys “lower cost varieties of all foods but especially eggs and biscuits”. One respondent said she “buys cheap cheese” as something she chooses based on cost rather than nutrition while another answered “meats, milk, juices” to the same question.

In addition, respondents were asked what food items they would buy if they had extra money. Many mentioned meat in their responses with one stating specifically “different meats” and another saying she would buy “pork chops” if she had extra money. Others mentioned produce in their responses with one saying “fresh fruit” and one clarifying “apples and oranges” as the fresh fruit she would purchase with extra money. Others responded that they would purchase snacks, cakes and/or candy if they had extra money with one saying specifically “chocolate cake is my favorite”. Specifically milk and eggs were also stated in several responses as items that would be bought with extra money. One participant mentioned that “certain kinds of bread are not available”. Lastly, one caregiver talked about “cereal, coffee and flour” that she “only gets when they’re on sale”.

#### *Restatement of Research Questions and Hypotheses*

1. What is the relationship between access (proximity) to nutritionally adequate food sources and household food security status in rural, Appalachian communities?

Hypothesis: If household food security is low, then access to nutritionally adequate food sources is low.

2. What is the relationship between affordability of nutritionally adequate food sources and household food security status in rural, Appalachian communities?

Hypothesis: If household food security is low, then households have difficulty affording nutritionally adequate food sources.

3. What are the individual-level factors that affect access and affordability of nutritionally adequate food sources that can lead to household food insecurity in rural, Appalachian communities?

Hypothesis: There are multiple systems interacting to create food insecure communities.

### *Discussion*

Overall, much of the qualitative data collected and analyzed was similar to findings from current research with similar populations with regard to food security. A more in depth discussion of each of the emerging themes presented above follows.

#### *Transportation and Physical Ability Challenges*

The data were consistent with other research on food deserts (Blanchard, 2006) with regard to participants living farther from larger food outlets such as supercenters that offer more variety and lower cost. There were smaller grocery stores in relatively close proximity (within the city limits) that participants reported were within five to ten minutes of their home. It was noted, however, that the majority of the participants did have access to transportation and did not report this as a major problem even though other literature indicates that a lack of a car exacerbates food insecurity problems (Morton, 2005; Tsang, 2007). However, it was found that the reliability or cost of that transportation was an issue. Of those who did not have reliable transportation, some of

the challenges presented were not owning a vehicle to get to the store or having to share a vehicle with other family members as well as the cost of gas money to get back and forth to the store. These findings are similar to other research findings that overcoming such challenges are direct mediators of food insecurity because food insecurity creates the uncertainty of being able to provide healthy, balanced meals to a family (Morton, 2005; Sharkey, 2009; Tsang, 2007).

Another aspect that may have influenced responses regarding transportation issues was the time of year that the data was collected. The fact that it was late Spring when the questions were being answered suggests there was little inclement weather to contend with in terms of grocery shopping and getting to food outlets. However, if data was collected during the winter months there may have been more difficulties reported accessing food outlets.

Regarding access to reliable transportation, the participants who did not own a vehicle or had to share vehicles reported having to rely on others to get to the grocery store. One person who did not own a vehicle stated that she had to ask neighbors for a ride or go to the grocery store when a friend was going so she could have a ride to and from. The same is true of those who own one vehicle per family and priority goes to the person who needs the vehicle to get to and from their place of employment. They have to use the few resources they have to meet all their needs and often grocery shopping falls to the bottom of the list because it is less important than their livelihood or how they bring income to the family. These participants reported having to make special arrangements to go to the store and this was usually at a time when no one else needed the vehicle. Both of these situations create the additional burden of having to modify a schedule in



order to get to the store as well as the loss of choice in food outlet because someone else is making the decision. Another challenge related to transportation was the issue of the cost of putting gas in the vehicle. Whether this was in one's own vehicle or giving gas money to others who were taking you, it presented another barrier to getting to the grocery store or to getting to a grocery store that might have cheaper prices but that is further away. This was especially apparent in those who shared that they preferred to shop at a supercenter in London, KY but the twenty miles additional driving time and the cost of gas often prohibited that.

Additionally, participants discussed the physical constrictions on being able to grocery shop and the problems that these issues posed that relate to food security. Participants reported that they needed help with grocery shopping but few elaborated on what exactly that help entailed. However, one participant did say that she was handicapped and required a wheelchair to get around so she had to ask a store employee to help her reach things on top shelves because she did not have family or friends who go to the store with her. Participants also reported they needed help with grocery shopping if they were getting large amounts of food. This perhaps implied that they were not able to buy all that they might need during each shopping trip and had to go to the store more frequently thus spending more money and had to overcome transportation barriers more often to get to the food outlets. Having the physical capabilities to grocery shop was directly related to food insecurity in the same way that transportation issues were related because of the uncertainty of not being able to get all that is needed in order to support a family's food needs. Research has found transportation and physical ability issues to be factors of food insecurity in food desert areas (Coveney & O'Dwyer, 2009).

### *Key Issues in Store Choice*

The data suggested several key issues that impacted where participants chose to do the majority of their grocery shopping and the food outlets that they most often visited. It has been noted in the literature regarding food deserts similar to this geographical area that food outlets that are often the closest in proximity are typically those that offer less variety at a higher cost than larger supermarkets or supercenters (Blanchard & Lyson, 2006; Giang, 2008; Sharkey, 2009). The participants in this study provided comments that suggested that this is true in this area as well.

Cost was one of the most prevalent factors that was mentioned as a determining factor in where people did their grocery shopping. Most participants noted specifically that IGA was the most expensive grocery store in the area and several added that it had the highest quality products. Participants recognized that they would get better quality at IGA but most were not willing to pay the extra cost to shop there when they could go to Save-A-Lot and spend much less on the items they needed. They noted that if they had extra money on a given day they would shop at IGA but typically they shopped where they could get the most value at the lowest cost. This theme speaks to the issue that many families suffering from low food security will make compromises to choose lower cost foods over those that are higher cost and often healthier because they need to put food on the table and provide meals to keep their families full (Atkinson, et al, 2007).

In addition to cost, proximity was also a factor that many participants noted as a criterion for choosing where to grocery shop, even though there are few grocery stores to choose from in this community. This goes along with the discussion of transportation issues because often participants need to go where they can easily get to and the one that

takes the shortest time because they are relying on others or sharing vehicles. The cost of gas is related to this theme as well because they could have saved money if they went to the closest food outlet even though that place might not have had the highest quality food or be the cheapest. Recent literature has highlighted some similar complications in choice of food outlet within food deserts and rural areas with low income populations that could lead to lower levels of food security (Sharkey, 2009; Struble & Aomari, 2003).

The last factor that was mentioned in terms of choosing where to grocery shop was habit and the fact that they have always gone to the same store so they continued to shop there. Little research exists on habit being a large determining factor in choice of food outlet (Coveney & O'Dwyer, 2009). However, small Appalachian communities often contain multi-generational families living in the same area which could influence shopping habits (Butler, Hedgecock, Record, Derifield, McGinn, Murray, & Hahn, 2012).

#### *Food Shopping Cost Barriers*

Research with food insecurity suggests that the overall cost of food is at the forefront of the problem and people in rural areas are not able to afford enough food to feed their families healthy and balanced meals (Garasky, Morton & Greder, 2004). The data from this study are congruent with findings from previous studies as most participants responded affirmatively that cost was an issue for them as discussed above when it comes to transportation to food outlets, choice of where they do their grocery shopping, and food choices that will be discussed later.

Responses to how much they spent on food every month varied considerably among the participants with some saying thirty percent of their monthly income went

towards food and others reporting closer to eighty percent. For most people, about half of what they earned they reportedly spent on food.

As much as the cost of food was noted as being high in this area according to participants, it was interesting that many who were classified as having low or very low food security on the US Household Food Security Survey Core Module still answered “yes” when asked if they could afford all the food they needed. Literature suggests that this might be the result of this being a culture that has strong senses of pride and tight-knit social networks (Butler et al., 2012) thus participants may be less likely to admit that they need help. It may also be a concern that if they answered yes and have young children that this could be used against them to say they are not providing for their children.

#### *Strategies to Maximize Food Dollars*

Along the same lines as the perceived high cost of food in this area, many participants reported ways that they made the most out of their food budget and tactics they used to stretch their resources. Many of these patterns and behaviors are documented in the literature among food insecure families (Atkinson et al, 2007; Garasky, 2004).

The lower frequency of food shopping trips was noted by many participants and implied a cost-saving measure of going to the grocery store the least amount of times possible per month. This was also consistent with what other researchers have found that rural populations, especially those living in areas classified as food deserts, grocery shop less frequently than those who live in urban areas.

While the frequency of grocery shopping trips was consistent with research on food insecurity, the timing of those trips did not follow a specific pattern such as the first of fifteenth of every month. The researcher hypothesized that participants would shop at specific times correlating with government or state assistance money disbursements. Participants did not remark on this when asked about their grocery shopping practices. This could be attributed to the fact that they either do not receive assistance which was why they were utilizing the food pantry or that they did not feel comfortable sharing that information since it was not explicitly asked as part of the interview.

Another tactic that was mentioned in terms of cost saving measures was buying generic brands rather than name brand foods. Several participants noted specific brand names of items that they did not buy because they could not afford them and consequently those same brand name items that they would purchase if they had extra money on a given occasion. It was interesting to note that some participants even said their children asked specifically for brand name foods, such as JIF peanut butter, and preferred those over the lower cost generic brands of peanut butter. Fitchen (1997) found similar results working with rural populations that exhibited strong themes of brand identity with certain foods and spoke specifically about generic brands not being as highly regarded as certain brand name products.

It was also evident that participants were acutely aware of sales at local food outlets and check what sales were happening every week so they could get the most out of the money they have. They mentioned buying in bulk when there were good sales and freezing things so they would not go bad before they had a chance to eat them. Specifically meat was mentioned as something that is often too high priced for them to

buy fresh so they either bought items such as frozen chicken or they bought meat in bulk when it went on sale and froze it themselves. This highlights another cost-saving measure of buying cheaper meats pre-frozen or not buying meats at all in order to stretch their food dollars.

### *Factors Involved in Food Choice*

The final theme that emerged from the qualitative data of participants' responses was that of common factors involved in food choices while at the grocery store. Many of these choices were made in terms of what was cheaper, as discussed above. Meat was something that kept being repeated throughout many participants' responses as something that they needed but typically were not able to afford. Participants remarked that they would like to see higher quality meats and better cuts of meat in local food outlets at a lower cost.

Another specific food choice that was mentioned in several responses was fresh produce and the additional obstacle of being able to find it even if they could afford it. Participants talked about their desire to buy specific fruits such as apples and oranges if they had extra money but on a regular basis they do not purchase these items because of the high cost and the fact that they go bad often before they have had a chance to eat them. The lack of availability of these types of produce poses the question of whether the more expensive types of fruits and vegetables were accessible in this area. Research has found that fresh produce is lacking in these areas so the remarks of the participants were consistent with what others have found regarding lack of availability and affordability (Anderson, 2007; Crooks, 2003; Freedman & Bell, 2009; Garasky, Morton & Greder, 2004). It was also interesting to note that while participants were unhappy with the fresh

produce they found in stores, none of the participants reported that they grow their own produce.

When asked about foods they needed but could not afford, participants also reported that they could not afford foods like cakes, candies and snacks. It was interesting to note that these highly processed foods were classified as dietary needs rather than things they may have wanted but could not afford. Qualitative research with food security has shown that populations suffering from food insecurity often confuse “needs” and “wants” (Fitchen, 1997).

Further issues relating to food choice and food security that were mentioned had to do with specific staple products that were lacking in variety in the stores in Clay County. Participants mentioned specifically that certain kinds of bread were not available at local stores. This theme is consistent with previous research that suggests healthier varieties of foods are not as widely available in rural areas (Anderson, 2007; Blanchard & Lyson, 2006; Garasky, Morton & Greder, 2004).

It was also interesting to note that participants identified milk, eggs, cheese, cereal, flour, coffee and fruit juices as things they would choose to buy if they had extra money. These items are considered staples in many food secure households, however, with this population they were looked upon more as luxury items rather than necessities.

With regard to food choices in relation to nutrition, the majority of participants reported that they chose foods based on cost rather than nutrition which was expected considering previous responses and the reliance of value over quality. One participant noted that she did spend the extra money to buy healthier foods because she and her

husband were diabetic and therefore needed to improve their health by eating a more balanced diet.

The data surrounding food choice brings up the question of whether or not members of this community who are food insecure know what a healthy, balanced meal should look like. The cultural dimension of the food environment in rural Appalachia focuses on foods that are often prepared in ways that are less healthy such as fried or breaded. Southern meals tend to have more emphasis on meat and starch and less on fruits and vegetables. Along the same lines, the heavy reliance on churches in these areas adds another element to this discussion because meals provided by churches are not typically healthy or well-balanced. Cultural factors such as these may be negatively reinforcing poor food choices among food insecure families (Williams, Glanz, Kegler & Davis, 2009).

#### *Uniqueness of Rural Sample*

The rural community setting was unique to this research because of the specific challenges faced by this population that are different from low income populations in urban areas. First, transportation needs are different in rural areas because food stores are spread out and require further travel to get to them. In urban areas, there are stores on the corners of most streets and having access to a vehicle in order to purchase food is not a necessity because stores are within walking distance (Dean & Sharkey, 2011; Larson, Story & Nelson, 2009; Smith et al., 2010; Smith & Miller, 2011).

There is greater variety of stores and types of food sold in larger cities than what is typically available in rural communities. The diverse cultural and ethnic makeup of urban areas necessitates more cultural and ethnic variety in food availability that is not



present in rural areas. Corner stores in urban areas tend to specialize in specific food items such as breads or meats in contrast to the smaller variety or convenience-type stores that are present in the sample community (Dean & Sharkey, 2011; Larson, Story & Nelson, 2009; Smith et al., 2010; Smith & Miller, 2011).

Also, this research suggests that the food preferences of rural populations are different from those of urban populations. Urban areas have many different cultures and ethnicities represented that differentiate their food environment whereas rural areas have less diversity and have a stronger focus on pre-packaged, processed foods as items they choose as part of their diet. This may also suggest an education gap between rural poor and urban poor populations where those in rural areas are less informed on the health benefits of certain foods than those in urban areas (Gittlesohn, Rowan, & Gadhoke, 2012).

Food cost also differs from rural to urban areas. One study found that contrary to what one would assume, there is no consistent evidence that the same products are sold for lower prices in rural areas as opposed to in urban areas. In other words, food costs are not necessarily cheaper in rural areas (Zimmerman, Ham, & Frank, 2008). According to the participants in this sample, food costs are at a premium in the smaller grocery stores closer to home than at those located in the more populated areas. This may be a result of the cost of transporting the food on trucks into these rural areas which has a larger expense for gas and also less frequent deliveries of foods (Dean & Sharkey, 2011; Larson, Story & Nelson, 2009; Smith et al., 2010; Smith & Miller, 2011).

Lastly, the multi-generational family dynamics that influence the rural food environment differ from those in urban populations. This community relied on similar

shopping practices that have been passed down from previous generations and, where available, shopped at the same food stores as their extended family members. While research is lacking in the literature about family dynamics and shopping preferences in urban populations, these communities tend to be made up of more transient populations who have come from other areas and have not been raised in that same urban area. More research is necessary to provide further evidence of the differences between urban populations and rural populations in terms of food environments; however, the data suggests some unique characteristics of this rural area with respect to food security.

### *Conclusion*

This chapter presented the results of the study along with a discussion of how the data related to the issues of accessibility and affordability in conjunction with food security. Thirty-one food pantry clients were given the US Household Food Security Survey Core Module and twelve of those participants met eligibility requirements of being classified as food insecure and having children living in the home who were under 18 and were willing to complete the Access and Affordability Interview. Analysis of the qualitative data from this instrument revealed several common themes labeled transportation and physical ability challenges, key issues in store choice, cost barriers in food shopping, strategies to maximize food dollars and factors involved in food choice. Much of the data were consistent with current research and confirmed that low income caregivers in rural areas reported considerable challenges to food security.

## CHAPTER FIVE

### Summary, Conclusions and Implications

#### *Summary*

The purpose of this research was to examine the relationship between household food security status and access to and affordability of nutritionally adequate food sources in one rural, underserved area through the perspective of its low income caregivers. The qualitative methods utilized in this study allowed for more depth and understanding of the problem and its mediating factors compared to more statistical and quantitative methods. The study findings complement recent research that suggests low access and low affordability correlate with lower rates of food security in rural populations similar to the sample population.

This research has the potential to guide health promotion programmers to develop interventions targeted towards low income caregivers suffering from food insecurity to improve overall health. Health promotion specialists could have the opportunity to create multi-dimensional programs to increase rates of food security in high-risk areas such as rural Appalachia by focusing on improving access and affordability to nutritionally adequate food sources in similar low socioeconomic status, rural communities. Furthermore, this research will help to impact the developers of public health policies and provide opportunities for better access and cheaper alternatives for low income, rural populations to improve nutrition and thus overall well-being.

### *Conclusions*

The data were consistent with current research that low income caregivers in rural areas report considerable challenges to food security. Among food pantry clients, 83.87% were found to have either low or very low food security by the US Household Food Security Survey Core Module, classifying them as food insecure for the purposes of this project. Participants who were categorized as food insecure and had children living in the household under the age of 18 reported difficulties in accessing and affording healthy food via food outlets in their area. Qualitative analysis of the data from the Access and Affordability Interview revealed several common themes such as transportation and physical ability challenges, key issues in store choice, cost barriers in food shopping, strategies to maximize food dollars, and factors involved in food choice.

Although many participants used a vehicle to get to the store, the reliability of accessing that vehicle at a convenient time either because it was borrowed or shared was an issue for some. Also, being able to afford gas to get to the grocery store, especially those supercenters over 20 miles away, was a challenge for many participants. Related to getting to the store was the problem of being able to physically do the grocery shopping. Some reported not being able to reach certain items because of being confined to a wheelchair or not being able to get as much as they needed because it was too much for them to transport home.

In terms of store choice, caregivers overwhelmingly reported choosing the local store that had the best prices (most affordable) over any other factor. In addition to cost, others indicated that proximity and habit were reasons they chose certain local stores over others. Only one food pantry client indicated variety and quality of food as a reason to

go to one store instead of another. It was evident in many responses that this community would benefit from a supercenter closer to them so they could have healthier varieties of food items at a lower cost than what they pay at the smaller, local outlets.

Most participants asserted that they could not afford all the items that they needed at the stores in this geographical area and that prices were very high compared to other areas. They reported spending anywhere from thirty to eighty percent of their net monthly income on food. Meat products were top on the list of things they could not afford and would buy if they had extra money along with milk, eggs, cheese and other staple foods. To keep food costs as low as possible, participants reported utilizing the weekly sales at different local food outlets, buying in bulk and freezing foods, choosing cheaper cuts of meat, purchasing generic brands wherever possible and using the food pantry when money was tight. In terms of food choice, most participants reported that they chose foods based on cost rather than on nutrition. Meats, dairy items, fresh fruits, coffee and snack foods were mentioned as items they would like to buy but are often cost prohibitive.

The research sought to answer the questions of how household food security status related to the access and affordability of nutritionally adequate food sources in rural, Appalachian communities as well as the individual-level factors that mediated food security status. The hypotheses were confirmed that when household food security status was low, participants reported less access to healthy foods. Further, if they could access those items, they were unable to purchase them because of the high cost. Additionally, the data confirmed the hypothesis that multiple interacting systems such as transportation and physical ability challenges, key issues in store choice, cost barriers in food shopping,

strategies to maximize food dollars and factors involved in food choice were all involved in the problem of food insecurity. Consequently, addressing the problem of food security on several of these themes and multiple levels of influence will likely improve overall health status in this community.

### *Implications*

These data point to several different implications that would ultimately improve the overall health of people in rural communities such as this one. The development and implementation of public health and government assistance policies, including land-use ordinances, as well as increased educational opportunities and skill building would be areas for health promotion specialists to focus on. This would create opportunities to change the food environment and ultimately improve the health status of this struggling population.

This research suggests that this rural community lacks adequate access to a variety of healthier food options compounded by the high cost of such items when they are available. Public health policies could improve this situation by offering additional subsidies to local farmers to sell their products in these local food outlets at a lower cost to the consumer. Additionally, incentives could be offered to farmers to sell local produce directly to the community at a Farmer's Market which not only would benefit this population but also eliminate the middle man of the store owners and give more back to local producers. Similarly, creating more opportunities for public health policies to support community gardens in these areas may also prove helpful as this would provide skill-building opportunities, social capital development and easier access to fresh, local produce. Finally, improving government assistance programs or offering additional

assistance to families in rural areas would create more resources to use towards healthier food items like leaner cuts of meat and fresh produce.

Studies looking at community-based participatory research in relation to food insecurity have suggested the development of public health policies that restrict businesses in certain districts but found greater success partnering with smaller businesses to achieve the same result. One study found that voluntary policies were more successful with small business owners in the local communities rather than strong arm policies telling businesses that they had to offer healthier options or change their current buying and selling practices (Vasquez, Lanza, Hennessy-Lavery, Facente, Halpin & Minkler, 2007). Studies have also found that intervention strategies that bring communities and store owners together for regular forum-type discussions while at the same time doing general health education and business training with store owners to also could be helpful (Gittelsohn, Rowan, & Gadhoke, 2012). Thus, policy development combined with small business networking can both be opportunities to reduce food insecurity in struggling communities.

Research has linked consumption of healthy food options with decreased rates of chronic disease and obesity and better quality of active, healthy lives (Flynn, McNeil, Maloff, Mutasingwa, Wu, Ford & Tough, 2006). Improving access and affordability of healthy foods through public health policy and government assistance has the potential to positively impact the overall health in similar rural populations that have unique food environments that set them apart from those in urban populations in terms of issues with transportation, lack of variety in types of food available, food preferences and costs, and

multi-generational family dynamics (Dean & Sharkey, 2011; Larson, Story & Nelson, 2009; Smith et al., 2010; Smith & Miller, 2011).

Another implication of this research is the educational development that is needed in this area. There are few opportunities for people to attend college or professional school in these areas that are farther away from the city. Greater educational advancement would not only increase rates of employment and subsequently income, but provides the potential to improve overall health as well. There are several distance learning programs that are available to those in rural, underserved areas, however, we may need to do a better job making these known to residents and more importantly empowering them to take advantage of such opportunities to increase self-efficacy. Research has shown that people who have higher levels of formal education have lower rates of cancer and disease than those who do not (Foraker, Rose, Chang, McNeill, Suchindran, Selvin, et al., 2011).

This research will hopefully impact health promotion specialists to focus more of their efforts on these communities struggling with food insecurity and its mediating factors. Often these programs are not implemented in smaller, rural areas because of the financial commitment required to create them, however, we need to think more creatively and be more resourceful when it comes to health promotion programming. Programs like bussing residents to a supercenter nearby so those who do not have a vehicle or the money to pay for gas will be able to take advantage of the variety and higher quality of food items at a lower cost would be very beneficial to this community. In a community with such strong faith backgrounds, this could be accomplished by working through local



churches to sponsor trips to these supercenters by providing transportation and help with the shopping process.

Additionally, more meaningful programming aimed at this population that focuses on outreach and skill building would be beneficial to similar communities struggling with food insecurity. Research has shown that residents in rural Appalachian areas are often emotionally detached as well as physically isolated leading to a lack of social capital that is negatively correlated with food insecurity. People with stronger social structures tend to be more food secure (Walker, Holben, Kropf, Holcomb & Anderson, 2007) which adds another dimension to the complications of food insecurity that go beyond the physical consequences of nutritional deficiency. The stress of not knowing where your next meal will come from or how you will provide a balanced meal for your children can cause an exorbitant amount of stress on caregivers who are food insecure. Programs that focus on stress management and coping skills would be essential to starting to reverse the cycle of food insecurity.

Other skill building programs could focus on cooking skills and how to prepare different foods with healthier items would also improve their knowledge so that when they are able to access and afford healthier items, they know how to prepare them for their families. This would provide learning opportunities for caregivers in the community to actually see what a healthy, balanced meal looks like so they can be more aware of how to provide this for their families. Additionally, programs that focus on promoting fresh produce in stores with creative signage about how to eat and prepare different varieties of fruits and vegetables along with cooking demonstrations and taste tests could be effective along with offering coupons, vouchers or cash incentives to consumers who

purchase them (Gittlesohn, Rowan, & Gadhoke, 2012 ). Health promotion programs like these would make a positive impact on these families and ultimately aid in the process of health improvement.

### *Limitations and Future Research*

The methodology of this research offered great insight into the mediating factors of food insecurity from the perception of the community; however, qualitative methods also create limitations for further use and power of the study. These methods have much smaller sample sizes than quantitative methods therefore the conclusions are not able to be replicated as easily in further research because of its subjectivity and specificity to this unique population. The small sample size of twelve participants who responded to the interview creates a limitation of the power of the data to be used in other studies and to set a precedent to impact public health policy. Lack of funding prohibited the researcher from making additional trips to the area to gather more data.

Subsequently, qualitative methods of data collection take practice in order to utilize them efficiently. The researcher lacked the skill to effectively probe when a shorter response was given which led to less detailed responses and anecdotal quotes from participants than would normally be expected with qualitative research methods. Also, the instrument used for the qualitative portion of the research was developed in Australia and only used in one previous study. Some of the wording had to be changed to make it more understandable to a rural population in the United States and that modification could have affected the validity or reliability of the instrument and comparison to the original study that it was created for.

Additionally, the convenience sampling frame of food pantry clients created a limitation because subjects were not randomly selected. The views and responses expressed by the participants may only be representative of community members who used the food pantry and not of the entire population. Also, participants might have wrongly perceived that they had to answer questions a certain way or they would not be able to continue to access the food pantry, even though this was stated in the informed consent. Also, those individuals coming into the food pantry may have been more likely to admit that they needed help and be more knowledgeable on resources than those who did not utilize the food pantry. It was noted previously that this is a strong pride-based community meaning there may be people struggling with food insecurity who would not take that step to come into the food pantry creating data that may be skewed in its perspective.

Another limitation was the lack of demographic information available for all of the participants who completed the US Household Food Security Survey Core Module. Many individuals were trying to balance busy schedules and did not have time to answer the final questions regarding demographics or were not willing to provide that information. Additionally, the quality of the demographics could have been improved by adding more of the basic questions such as age and ethnicity. These additional statistics would have been helpful to accurately represent the population and create more useful data for future research comparisons.

Despite the aforementioned limitations, this research does have the potential to influence future studies looking at food insecurity in rural populations. Further qualitative methods that focus on the compounding factors of food insecurity would be

helpful to compare with these data to see if similar themes would be evident with different sample groups. Also, research that focuses more on household income and asks specifically about government assistance would help to illustrate a clearer picture of the problem and develop better interventions to help. Such research would give more power to suggest changes in public health policy and create more resources for health promotion programs to improve the overall health of rural populations.

## Appendices

### Appendix A: US Household Food Security Survey

#### **U.S. HOUSEHOLD FOOD SECURITY SURVEY MODULE: THREE-STAGE DESIGN, WITH SCREENERS Economic Research Service, USDA July 2008**

**Revision Notes:** The food security questions are essentially unchanged from those in the original module first implemented in 1995 and described previously in this document.

***July 2008:***

- Wording of resource constraint in AD2 was corrected to, "...because there wasn't enough money for food" to be consistent with the intention of the September 2006 revision.
- Corrected errors in "Coding Responses" Section

***September 2006:***

- Minor changes were introduced to standardize wording of the resource constraint in most questions to read, "...because there wasn't enough money for food."
- Question order was changed to group the child-referenced questions following the household and adult-referenced questions. The Committee on National Statistics panel that reviewed the food security measurement methods in 2004-06 recommended this change to reduce cognitive burden on respondents. Conforming changes in screening specifications were also made. NOTE: Question numbers were revised to reflect the new question order.
- Follow up questions to the food sufficiency question (HH1) that were included in earlier versions of the module have been omitted.
- User notes following the questionnaire have been revised to be consistent with current practice and with new labels for ranges of food security and food insecurity introduced by USDA in 2006.

**Transition into Module (administered to all households):**

These next questions are about the food eaten in your household in the last 12 months, since (current month) of last year and whether you were able to afford the food you need.

**Optional USDA Food Sufficiency Question/Screeners: Question HH1 (This question is optional. It is not used to calculate any of the food security scales. It may be used in conjunction with income as a preliminary screener to reduce respondent burden for high income households).**

HH1. [IF ONE PERSON IN HOUSEHOLD, USE "I" IN PARENTHETICALS, OTHERWISE, USE "WE."]

Which of these statements best describes the food eaten in your household in the last 12 months: —enough of the kinds of food (I/we) want to eat; —enough, but not always the kinds of food (I/we) want; —sometimes not enough to eat; or, —often not enough to eat?

- [1] Enough of the kinds of food we want to eat
- [2] Enough but not always the kinds of food we want
- [3] Sometimes not enough to eat
- [4] Often not enough to eat
- [ ] DK or Refused

**Household Stage 1: Questions HH2-HH4 (asked of all households; begin scale items).**

[IF SINGLE ADULT IN HOUSEHOLD, USE "I," "MY," AND "YOU" IN PARENTHETICALS; OTHERWISE, USE "WE," "OUR," AND "YOUR HOUSEHOLD."]

HH2. Now I'm going to read you several statements that people have made about their food situation. For these statements, please tell me whether the statement was often true, sometimes true, or never true for (you/your household) in the last 12 months—that is, since last (name of current month).

The first statement is "(I/We) worried whether (my/our) food would run out before (I/we) got money to buy more." Was that often true, sometimes true, or never true for (you/your household) in the last 12 months?

- [ ] Often true
- [ ] Sometimes true
- [ ] Never true
- [ ] DK or Refused

HH3. "The food that (I/we) bought just didn't last, and (I/we) didn't have money to get more." Was that often, sometimes, or never true for (you/your household) in the last 12 months?

- [ ] Often true
- [ ] Sometimes true
- [ ] Never true
- [ ] DK or Refused

HH4. "(I/we) couldn't afford to eat balanced meals." Was that often, sometimes, or never true for (you/your household) in the last 12 months?

- Often true
- Sometimes true
- Never true
- DK or Refused

**Screener for Stage 2 Adult-Referenced Questions:** If affirmative response (i.e., "often true" or "sometimes true") to one or more of Questions HH2-HH4, OR, response [3] or [4] to question HH1 (if administered), then continue to **Adult Stage 2**; otherwise, if children under age 18 are present in the household, skip to **Child Stage 1**, otherwise skip to **End of Food Security Module**.

**NOTE:** In a sample similar to that of the general U.S. population, about 20 percent of households (45 percent of households with incomes less than 185 percent of poverty line) will pass this screen and continue to Adult Stage 2.

**Adult Stage 2: Questions AD1-AD4 (asked of households passing the screener for Stage 2 adult-referenced questions).**

AD1. In the last 12 months, since last (name of current month), did (you/you or other adults in your household) ever cut the size of your meals or skip meals because there wasn't enough money for food?

- Yes
- No (Skip AD1a)
- DK (Skip AD1a)

AD1a. [IF YES ABOVE, ASK] How often did this happen—almost every month, some months but not every month, or in only 1 or 2 months?

- Almost every month
- Some months but not every month
- Only 1 or 2 months
- DK

AD2. In the last 12 months, did you ever eat less than you felt you should because there wasn't enough money for food?

- Yes
- No
- DK

AD3. In the last 12 months, were you every hungry but didn't eat because there wasn't enough money for food?

- Yes
- No

DK

AD4. In the last 12 months, did you lose weight because there wasn't enough money for food?

Yes

No

DK

**Screener for Stage 3 Adult-Referenced Questions:** If affirmative response to one or more of questions AD1 through AD4, then continue to *Adult Stage 3*; otherwise, if children under age 18 are present in the household, skip to *Child Stage 1*, otherwise skip to *End of Food Security Module*.

**NOTE:** In a sample similar to that of the general U.S. population, about 8 percent of households (20 percent of households with incomes less than 185 percent of poverty line) will pass this screen and continue to Adult Stage 3.

**Adult Stage 3: Questions AD5-AD5a (asked of households passing screener for Stage 3 adult-referenced questions).**

AD5. In the last 12 months, did (you/you or other adults in your household) ever not eat for a whole day because there wasn't enough money for food?

Yes

No (Skip 12a)

DK (Skip 12a)

AD5a. [IF YES ABOVE, ASK] How often did this happen—almost every month, some months but not every month, or in only 1 or 2 months?

Almost every month

Some months but not every month

Only 1 or 2 months

DK

**Child Stage 1: Questions CH1-CH3 (Transitions and questions CH1 and CH2 are administered to all households with children under age 18) Households with no child under age 18, skip to *End of Food Security Module*.**

SELECT APPROPRIATE FILLS DEPENDING ON NUMBER OF ADULTS AND NUMBER OF CHILDREN IN THE HOUSEHOLD.

**Transition into Child-Referenced Questions:**

Now I'm going to read you several statements that people have made about the food situation of their children. For these statements, please tell me whether the statement was



OFTEN true, SOMETIMES true, or NEVER true in the last 12 months for (your child/children living in the household who are under 18 years old).

CH1. “(I/we) relied on only a few kinds of low-cost food to feed (my/our) child/the children) because (I was/we were) running out of money to buy food.” Was that often, sometimes, or never true for (you/your household) in the last 12 months?

- Often true
- Sometimes true
- Never true
- DK or Refused

CH2. “(I/We) couldn’t feed (my/our) child/the children) a balanced meal, because (I/we) couldn’t afford that.” Was that often, sometimes, or never true for (you/your household) in the last 12 months?

- Often true
- Sometimes true
- Never true
- DK or Refused

CH3. "(My/Our child was/The children were) not eating enough because (I/we) just couldn't afford enough food." Was that often, sometimes, or never true for (you/your household) in the last 12 months?

- Often true
- Sometimes true
- Never true
- DK or Refused

**Screener for Stage 2 Child Referenced Questions:** If affirmative response (i.e., "often true" or "sometimes true") to one or more of questions CH1-CH3, then continue to *Child Stage 2*; otherwise skip to *End of Food Security Module*.

**NOTE:** In a sample similar to that of the general U.S. population, about 16 percent of households with children (35 percent of households with children with incomes less than 185 percent of poverty line) will pass this screen and continue to Child Stage 2.

**Child Stage 2: Questions CH4-CH7 (asked of households passing the screener for stage 2 child-referenced questions).**

**NOTE:** In Current Population Survey Food Security Supplements, question CH6 precedes question CH5.

CH4. In the last 12 months, since (current month) of last year, did you ever cut the size of (your child's/any of the children's) meals because there wasn't enough money for food?

- Yes
- No
- DK

CH5. In the last 12 months, did (CHILD'S NAME/any of the children) ever skip meals because there wasn't enough money for food?

- Yes
- No (Skip CH5a)
- DK (Skip CH5a)

CH5a. [IF YES ABOVE ASK] How often did this happen—almost every month, some months but not every month, or in only 1 or 2 months?

- Almost every month
- Some months but not every month
- Only 1 or 2 months
- DK

CH6. In the last 12 months, (was your child/were the children) ever hungry but you just couldn't afford more food?

- Yes
- No
- DK

CH7. In the last 12 months, did (your child/any of the children) ever not eat for a whole day because there wasn't enough money for food?

- Yes
- No
- DK

**END OF FOOD SECURITY MODULE**

## Appendix B: Access and Affordability Interview

### Access and Affordability Interview (April 2011)

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#### Introduction to study

- This study is looking at your access to food and how affordable healthy food is in your area.
- I will ask you questions about how you get to the food stores, how often you go, where you go, and why you go there.
- When I ask you about food purchases in the interview I'll be talking about food you bought or was given to you from anywhere, including supermarkets, convenient stores, farmer's markets, food pantries, school cafeterias, fast food outlets etc.
- The information that we collect from this study will help us identify areas where there are gaps in food availability and affordability. We already know that some areas in Appalachia have more food outlets and the residents have less distance to travel than other areas.
- All the information given to me is confidential – I'm not passing information onto any agencies and I'm not using your name in my reports.

#### **Stores used for food shopping**

1. I'd like to hear about **where** you **usually** get food for your household:

#### *(Read this list aloud to participants)*

- Supermarket/supercenter
- Grocery Store
- General Store
- Liquor store
- Corner store/deli
- Convenience store/Gas station
- Farmers market
- Own garden
- Community garden
- Internet
- Farm animals
- Other

2. Which of these places do you go to most often?

#### *(For the stores used most often)*

3. I'm interested in your travel to this food outlet \_\_\_\_\_(name store)
4. How far away is this store in minutes or miles?
5. How do you usually get to this store? How do you usually get home?
6. How often do you go to this store?
7. Why do you use this particular store?
8. Are you able to afford all of the items you need in this store? If no, what are those items?
9. Are there items you would buy if you had extra money? If yes, what are those items?
10. About what percentage of your net monthly income is spent at this store?

REPEAT QUESTIONS 3-7 FOR OTHER STORES MOST USED

**Family and social factors**

11. Are there any things (about you or your family situation) that make it difficult for you to get to these or other food stores?
12. Do you need any help with your food shopping? If you need help, do you get it? If so where from?

**Accessibility of food stores**

13. Overall, what do you think about how you can get food in the Clay County area?
  - a. I'm interested in your views in Clay County of stores selling general grocery items like bread, milk, breakfast cereals, meat...things like that.  
*(use this question to get a view on core foods)*
14. Are there any food stores that are not available in Clay County which you would like?
15. Do you have reliable transportation to and from the food stores that you want to shop at?
16. Do you have any other comments about how you get food in Clay County?

**Affordability of food stores**

17. Overall, what do you think about the cost of food in Clay County?
  - a. I'm interested in your views on the affordability of general grocery items like fruits, vegetables, bread, milk, breakfast cereals, meat etc in Clay County food stores.  
*(use this question to get a view on core foods)*
18. Are there any food stores in Clay County that you do not shop at because you can't afford it?
19. Do you choose foods based on cost rather than nutritional value? If so, which ones?
20. Do you have any other comments about the cost of food in Clay County?

## DEMOGRAPHICS

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I have a few extra questions to ask you just for my administration purposes, you don't have to answer any of them and they are all confidential.

1. What is the highest level of education that you have completed (circle one)
  - No formal schooling
  - Elementary school
  - Middle school    grade left school \_\_\_\_\_
  - High school/GED
  - Some college
  - Bachelor's Degree
  - Masters degree or higher
  
2. In what country were you born? \_\_\_\_\_  
  
- if not born in US what year did you first move to US \_\_\_\_\_
  
3. What best describes your current relationship status? (circle one)
  - Single, never married
  - Married
  - Divorced
  - Separated
  - Widowed
  
4. Are you currently working? YES/ NO  
  
- if no, do you receive SSI or disability?
  
5. How would you say you are managing financially at the moment?
  - Living very comfortably
  - Living quite comfortably
  - Getting by
  - Finding it quite difficult
  - Finding it very difficult
  
6. Do you own or rent your home? OWN/RENT

MANY THANKS - GIVE GIFT

## Appendix C: Verbal Recruitment Script

### **Verbal Recruitment Script**

#### **Researcher:**

“Hi, my name is Jodi Marani and I’m a doctoral student at the University of Kentucky. I was wondering if you would mind answering a few questions for me about how you get food and how much food costs in your area. The questions will take about 15-20 minutes to complete and you will receive a \$10 gift card to a local grocery store for your participation. Your name will not be used and your responses are confidential. Your answers will be recorded using a tape recorder to ensure accuracy. Answering these questions is not related to you being able to get food from the food pantry and if you decide not to participate you will still be able to get food.”

## Appendix D: Informed Consent

### Consent to Participate in a Research Study

#### **Food Access and Affordability in Rural Kentucky**

January 2011

Dear Food Pantry Client:

Your help is needed to develop a better understanding of how you get food and how much food costs in your area. Completing this survey will help to provide valuable information about what influences the food choices you and your family make.

To the best of our knowledge, the questions you will be asked have no more risk of harm than you would experience in everyday life. Although we made every effort to minimize this, you may find some questions we ask you to be upsetting or stressful and you may choose not to answer them. However, your responses to all questions are important.

Your name will not appear on any documents and your responses to the survey are confidential. All data will be reported as a group. No names will be used in presentations and publications.

You will not get any personal benefit from taking part in this study, but you will receive a \$10 gift card to a local grocery store as a reward for your participation. If you do not want to be in the study, there are no other choices except not to take part in the study. There are no costs associated with taking part in this study.

**If you are less than 18 years of age, you are NOT permitted to participate in this research and you should not complete a survey.** Should you decide not to participate in this study for any reason, you will not be penalized in any way and your decision will have no effect on your use of the food pantry.

**Completing this survey implies your consent to participate.** You will have no other responsibilities to this study after completing the survey. Please allow 15-20 minutes to complete the survey.

If you have questions about this study, please contact Jodi Marani in the Department of Kinesiology and Health Promotion at 859-323-3547 or email [jodi.marani@uky.edu](mailto:jodi.marani@uky.edu). If you have questions about your rights as a research subject, you may call the Office of Research Integrity at the University of Kentucky at 859-257-9428 or toll free at 1-866-400-9428.

Thank you for considering participation in this important study.

Sincerely,

Jodi E. Marani  
Doctoral Candidate, Kinesiology and Health Promotion  
University of Kentucky  
Email: [jodi.marani@uky.edu](mailto:jodi.marani@uky.edu)  
Phone: 859-323-3547

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