Finding Food: Characterizing Food Coping Strategies Among Food Pantry Clients in the High Country

By

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Abstract

Though starvation seldom occurs in the United States, many individuals do suffer from food insecurity, which exists when access to adequate and safe food is limited or uncertain, or when such food cannot be accessed in socially acceptable ways (Ramaduria, Sharf, & Sharkey, 2012). Previous research has identified that food insecurity is exacerbated for rural residents, as they are 12–15% more likely to be food insecure (Ramaduria, Sharf, & Sharkey, 2012). To combat the hardships caused by food insecurity, individuals may turn to a multitude of practices or behaviors to maintain an adequate food supply for themselves and their households, also known as food coping strategies. This research is necessary due to the gaps in the literature that do not address rural food coping strategies, and the fact that food insecurity is a major public health concern. In 2010, 86% of all health care spending was being used for people with one or more chronic medical conditions, with obesity alone costing the United States 147 billion dollars in 2008 (Centers for Disease Control and Prevention, 2016). Interventions are needed to address food access, insecurity, and coping strategies among low-income populations to help relieve these problems.

Keywords: food insecurity, food access, coping strategies, poverty, social equity

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Literature Review

Introduction

Social justice is defined as, “an equitable distribution of fundamental resources and respect for human dignity and diversity, such that no minority’s life interests and struggles are undermined and that forms of political interaction enable all groups to voice their concerns for change’’ (Basok, Illican, & Noonan, 2006). So, in the most basic sense, social justice is the pursuit of equity in terms of the distribution of wealth, opportunities, and privileges within a society. Yet, when there are income-related inequalities, most notably in the ownership of capital and other assets, which has lead to a disparity in the access to a variety of services and benefits, and in the personal security that money can buy (United Nations, 2006).

There is also greater inequity in the distribution of opportunities for employment, with deteriorating unemployment in various parts of the world affecting a great number of people at the lower end of the socioeconomic spectrum. The widening of the wage gap has made it to where “the rich get richer and the poor get poorer” leading the people with a lower socioeconomic status have higher discrepancies in their access to goods and services to meet their basic human needs (United Nations, 2006). The global-industrial food system, which is characterized by privatization, deregulation, and trade liberalization, renders food a ‘‘commodity’’, and although the right to food was declared ‘‘binding international law’’ through the International Covenant on Economic, Social and Cultural Rights, policymakers continue to isolate trade rules from human rights when addressing food security (Carney, 2012).

Food security means that food can be access by all members of a household at all times and that there is to enough food for an active, healthy life (United States Department of Agriculture Economic Research Service, 2016). Food security includes, at minimum, the ready availability of nutritionally adequate and safe foods, and an assured ability to acquire acceptable foods in socially acceptable ways (that is, without resorting to emergency food supplies, scavenging, stealing, or other coping strategies). However, food insecurity is defined as the limited availability of nutritionally adequate and safe foods or the limited ability to acquire foods in socially acceptable ways. One of the main contributors to food insecurity is poverty. The definition of poverty is roughly based on historical estimates of the portion of an average household's income required to purchase a minimally nutritious diet, based on the Thrifty Food Plan, which often ignores American eating habits and lack diversity (Cook & Frank, 2008). In 2013, the average poverty threshold for a family of four was $23,834, a family of nine or more people the threshold was $48,065, and for one person, it was $11,888 (United States Bureau of Labor Statistics, 2015). According to the U.S. Census Bureau (2015), roughly 45.3 million people, or 14.5 percent of the nation's population live below the official poverty level, and according to data from the Bureau of Labor Statistics (2015), 10.5 million individuals were among the "working poor" in 2013. The working poor consist of people who spent 27 weeks or more in a year working or looking for work but whose incomes fall below the poverty level (USBLS, 2015). Even those these individuals work they are still unable to provide nutritious diets for their household, but may not meet the threshold for federal aid.

Poverty thresholds, traditionally set at three times the amount necessary to buy a nutritionally comprehensive diet, is the basis that the federal government uses to estimate the

approximate levels of "necessity" for families (Cook & Frank, 2008). These numbers are updated annually for inflation by using the Consumer Price Index. However, the cost of living varies widely from state to state, and poverty thresholds do not vary geographically to match these discrepancies. Both the definition of poverty and poverty thresholds have been criticized on the grounds that they do not accurately reflect a family's' financial status or the amount of money that families need to truly be economically self-sufficient (Cook & Frank 2008). This disparity has exasperated the gap between what families need to maintain that self-sufficiency and what they can legitimately afford.

Food insecurity prevalence.

Food insecurity, defined as the limited availability of nutritionally adequate and safe foods or the limited ability to acquire foods in socially acceptable ways, is on the rise in the U.S. Food insecurity has increased from 10.5 percent in 2000 to nearly 12 percent in 2004, declined to 11 percent in 2005-07, then increased in 2008 to 14.6 percent, and has remained essentially unchanged (Morton, Bitto, Oakland, & Sand, 2008; Coleman-Jensen, Rabbitt, Gregory, and Singh, 2015). During 2014, an average of 14.0 percent, or 17.4 million, U.S. households were food insecure at some point during the year (ERS, 2016). Of the 17.4 million food insecure households, 5.6% were classified as having a very low food security. Households having very low food security are defined as being food insecure to the extent that the eating patterns of one or more household members were disrupted and their food intake reduced, at least once some time during the year, because they could not afford food (ERS, 2016). North Carolina is documented above the U.S. household food insecurity average at 16.7 ($\pm$1.55) percent and has one the highest percentages of children under 18 years of age who are food insecure on a regular basis, at 26.1 percent (ERS, 2016).

Factors Influencing Food Insecurity

Sociodemographic factors.

Besides a household's financial status, a number of factors can contribute to higher prevalence of food insecurity. For example, food insecurity is more prevalent among households whose adult members have not attained a higher education as well as households working part-time, multiple jobs, or have varied hour employment. Also, households headed by a single mother more likely to be food insecure than those who are married (Coleman-Jensen, 2012). Race, able-body status, and age can also play a part in the food security status of a household. Minorities, such as African American and Hispanic populations, have a higher likelihood of being at risk for food insecurity. As well as individuals with disabilities, physical or mental, the elderly, or children have an increased risk for food insecurity. This lack of food can lead to interference with cognition and mental performance and development, immunosuppression, infection, and some mental health issues (Gany, Lee, Ramirez, Massie, Moran, Crist, McNish, Winkel, & Leng, 2014)

Geographic location and food access.

Previous research has identified that food insecurity is typically exacerbated for rural residents, as they are 12–15% more likely to be food insecure than metropolitan residents (Ramaduria et al., 2012). Efforts to reduce food insecurity, like food banks, are important, but their capacity to serve widely differs within and across states. When food assistance groups provide programs such as food pantries, soup kitchens, and utility assistance, residents are less likely to experience food insecurity. However, emergency food assistance programs may have different characteristics across the country, and not all locations have access to the same resources (Coleman-Jensen, 2012).

For example, urban emergency food systems tend to be more formalized due to their increased access to more funding and stronger links to federal food assistance programs than rural emergency food programs. This can result in urban clients' having a greater likelihood of receiving referrals to other resources. Furthermore, rural food pantries often serve larger areas, which can require rural residents to travel greater distances to access services (Coleman-Jensen, 2012). It has been found that rural low-income households are less likely than urban low-income households to access food pantries and meal programs (Coleman-Jensen, 2012).

Residents of rural communities potentially face challenges such as a lack of access to supermarkets and grocery stores, higher food prices, and lower-quality produce and meat when compared to their urban counterparts. Reliable food access is a critical component in addressing problems of food insecurity (McEntee, 2011). Food access is defined as having the ability to make informed choices throughout the food acquisition experience, "not only at the level of informational choice, like adequate nutritional and cooking knowledge, but including economic and physical choices as well having enough money and the physical ability to get and prepare food." (McEntee, 2011).

North Carolina has 349 food deserts in 80 counties across the state (Support Center 1). Food deserts do not have a supermarket within one mile in urban areas or 10 miles in rural areas. Thirty-one of the counties with food deserts are designated as "Tier 1" counties, and these are among the most economically distressed counties in the state (Support Center). Additionally, the healthy food retailers in North Carolina are greatly outnumbered by less healthy, more convenient food suppliers (Support Center 1). Individuals living within these communities are at a severe disadvantage when trying to purchase fresh and healthy foods,

such as fruits and vegetables within their own communities, and must travel elsewhere to feed their families a nutritious diet.

This means that rural households in North Carolina either have to pay higher prices at local stores, if possible, or incur greater traveling expenses to be able to purchase goods at lower prices in larger retail stores (Coleman-Jensen, 2012). The further a household must travel to a grocery store, the higher their likelihood of food insecurity because the money needed for food goes towards gasoline instead groceries. This effect is further exacerbated for households without a car as they must rely on the generosity of others or public transportation to reach food retailers, and since rural food deserts are often characterized by their inadequate public transportation infrastructure that makes accessing these retailers nearly impossible which is why these individuals turn to different, and sometimes dangerous, coping strategies (Coleman-Jensen, 2012).

Coping strategies in accessing food.

To combat the hardships caused by food insecurity, individuals may turn to a multitude of practices or behaviors to maintain an adequate food supply for themselves and their household, which is also known as food coping strategies or "food acquisition practices" (Anater, McWilliams, & Latkin, 2011). Strategies can include behaviors used to stretch the food supply or any other number of strategies used when a household's food supply runs out. Many of the coping strategies already in place for addressing food access generally fall into three categories: federal or state supplemental nutrition assistance programs which can increase the consistency and nutritional quality of meals made by vulnerable populations; the emergency or charitable food system which is used to meet the needs of the population in crisis by providing food through food banks and other similar

organizations; and local community-based food security projects that focus on building communities' capacities to feed themselves through job training, food and nutrition education, and infrastructure development (Schattman, Nickerson, & Berlin, 2013). However, the current body of literature does not address the prevalence of food acquisition practices to determine whether any of them constitute a significant public health concern, what their usage means for the distressed populations, unfortunately the current body of literature does not explore potential sociodemographic influences of food acquisition practices.

Some of the common coping strategies have been documented as going to visit a food pantry, make meals with low-cost foods, the purchase of food items because they were on sale, purchasing food just because it was inexpensive, buying food at dollar stores, avoided buying expensive foods like fresh fruits or meat, and using coupons to help purchase food (Anater, Latkin, & McWilliams 2011). The need to use food coping strategies demonstrates that there are gaps between the supplemental benefits received and the food requirements of a household (Anater, Latkin, & McWilliams 2011). Furthermore, the more extreme the food coping strategy that is utilized as the consequence of this gap in coverage tends to highlight the severity of the client's need.

As discussed, one such coping strategy that individuals may turn to when resources are limited, is to buy less nutritious items. Households instead purchase more calorically dense foods, such as refined grains, sugars, and fats, that are cheaper than meals comprised of lean meats, fresh fruits, and vegetables (Ramaduria et al., 2012). Low consumption of fresh produce and lean meats and instead consuming processed high-energy foods in a diet is reflected by the "Western diet". The "Western diet" is broadly defined by an excessive

intake of refined carbohydrates, processed foods, sugars, fats, and animal-sourced foods. Data available from low- and middle-income countries document an increasing trend in the adaptation of the "Western Diet" in all urban areas and increasingly so in rural areas (Popkin, Adair, & Ng, 2012). Alongside the need for basic foods, like fruits and vegetables, for the poor, the marketing, desirability, and availability of other empty-calorie foods have encouraged poorer individuals to consume lower-quality foods that are considered to be obesogenic (Popkin et al., 2012). Obesogenic foods, or foods that have a tendency to cause weight gain, are widely believed to be the cheaper more heavily processed foods (Popkin et al., 2012).

Ever since Dietz proposed a relationship between hunger and obesity in 1995, there has been increased interest regarding the correlation between weight status and food insecurity. Such an association seems paradoxical; whereas food insecurity results from inadequate economic resources to purchase food, obesity tends to result from overconsumption (Dinour, Bergen, & Yeh, 2007). Overconsumption can happen to those who experience a "feast or famine" situation. "Feast or famine" occurs when households are eating less or skipping meals to stretch food budgets, since SNAP benefits are generally used up by the third week, and may result in overeating when food does become available ((Dinour, Bergen, & Yeh, 2007; Food Research and Action Center, 2015). This results in chronic ups and downs in food intake that can contribute to weight gain (FRAC, 2015). Since the majority of food-insecure households receive assistance from one or more federal food assistance programs, there has been speculation that these programs, specifically that the Supplemental Nutrition Assistance Program, SNAP, may play a role in this obesity–food

insecurity paradox due to its perpetuation of the "feast or famine" cycle and unintentional support of calorically-dense foods (Dinour et al., 2007, FRAC, 2015).

Food Assistance Programs

Many food coping strategies fall into the two categories of redistribution or reciprocity. Redistribution is the reallocation of resources within a society, which is evidenced by the formally organized systems within government and charity groups. Reallocation can occur when a society authorizes their government and/or organizations they answer to collect money (in the form of taxes or donations) and other resources from the society and redistribute those resources based on a predetermined criterion of need (Morton et al., 2008). While reciprocity is the sharing of resources and information between community members, and are often characterized by informal exchanges, such of garden produce, meat, knowledge, ect. (Morton et al., 2008).

Redistribution and reciprocity are two noneconomic mechanisms that are used to provide food and resources to those who are unable to fully participate in market-based economies. Redistribution is the dominant, formal response of governments and is a commonly viewed in modern life as public welfare services, such as federal assistance, private charity initiatives, and public/private institutional combinations (Morton et al., 2008).

So, to alleviate some of the symptoms of food-insecurity 66% of all food-insecure households participated in one or more of the Federal assistance programs (Wood, Shultz, Butkus, & Ballejos, 2009). Some examples of the federal assistance programs that are utilized are the Supplemental Nutrition Assistance Program (SNAP), Special Supplemental Nutrition Program for Women, Infants and Children (WIC), The Emergency Food Assistance Program (TEFAP), National School Lunch Program (NSLP), and Summer Food Service

Programs (SFSP).The most commonly used program in North Carolina is SNAP, a federally funded entitlement program for low-income individuals that provides electronic benefit cards (EBT cards) to be used for the purchase of food items, with 1,575,676 people participating in the program and receiving $126.06 monthly (United States Department of Agriculture, 2015). To be eligible for food stamps, a household without an elderly or disabled member must have a monthly gross income at or below 130% of the federal poverty guideline (Dinour et al., 2007).

In Santa Barbara County, SBC, 62.3% of Latinos live at 200% or below the federal poverty level, which is $44,000 (Carney, 2012). The California Health Interview Survey estimated that, 68.9% of the Latino population in SBC was overweight or obese, and that Latinos accounted for more than half of county residents that have been diagnosed with Type II diabetes (Carney, 2012). Few studies have investigated the consequences for household and community food security resulting from the sudden eminence of the economic crisis of 2008. During the time, rising unemployment, inflation of food prices, plummeting wages, and burgeoning costs of fuel, and housing have contributed to the increased prevalence of food insecurity since food expenditures are often the most flexible item in a household budget. Thus, the coping strategies demonstrated by the households and communities may serve not only to alleviate food insecurity in the short-term but also to build long-term resilience.

The role of food banks and pantries.

Aside from food assistance and referrals, a number of other social safety nets exist in the form of community food banks. When local food assistance groups provide programs such as food pantries and soup kitchens, residents are less likely to experience food

insecurity due to the aid they received from these services making this a common coping strategy for many food insecure individuals. However, emergency food assistance programs have different characteristics across the United States, and not all programs have access to sufficient resources to meet their household's needs, which is why they turn to food coping strategies. The role of various structures and programs in rural communities, such as churches, stores, and food banks, are investigated as well as how they both constrain and enable food acquisition and choice. Rural communities are so insecure that not being able to afford three meals a day is a relatively common occurrence. It has been found that namely, grocery stores, government programs and nongovernmental organizations, and churches both assist with and contribute to some of the problems experienced by rural residents (Ramaduria et al., 2012). However, they do not exist without problems and continued resource limitations are often evidenced by poor diet quality and food insecurity. While local organizations do help, some are unable to provide fresh fruits and vegetables, items that participants continuously struggle to buy. Meaning that this supply of food is both a blessing to community members who rely on the church for a regular meal and a curse in terms of the dietary value (Ramaduria et al., 2012).

With only a few studies with in depth examinations of rural food coping strategies available in the literature, especially ones that involve minority populations, Carney's study (2012) offered some valuable insight into what this population goes through. Due to the repercussions of economic recession, Latino households of Santa Barbra County were observed as having a high prevalence of unemployment, price volatility of food, limited or inadequate transportation, increased consumption of fast foods, and limited or inadequate food and nutrition knowledge. A study participant from Eastside Downtown Santa Barbara,

explained their situation as, ‘‘Ya no podemos vivir,’’ (We already cannot survive), ‘‘We haven’t started going hungry, yet,’’ and from Goleta, ‘‘Sure we have email! High speed Internet? We got that! Cell phones, fine! Food? We’re starving.’’ (Carney, 2012). A common description of the diets of low-income households in California would be energy-dense but nutrient-poor diets, mostly devoid of whole fruits, vegetables and high-quality lean protein, reflective of the “Western diet” As articulated by low-income households, being able to afford certain technologies but not an adequate food supply seems revealing of the gap between the priorities of policymakers and the needs of impoverished areas both within and outside of the United States.

Participants of this study struggled with the costs of fruits, vegetables, and meats, and characterized their food environments as costly and unaffordable. In several of the rural communities, convenience stores were noted as the only places to purchase food items. Thus, participants’ food dollars are not only spent on food items but also for traveling costs to obtain reasonably priced food. To bridge the gap in access to fresh produce many of the participants noted that they had or knew someone with a garden making comments such as, “A lot of people have gardens. That’s what really you have to do unless you want to drive somewhere and get something. Most people around here grow a spring garden.” (Ramaduria et al., 2012). Unfortunately, many participants reported that the water necessary to maintain those gardens were unaffordable on their budgets.

Just as household assets such as transportation may affect a family’s capability to cope with food insecurity, inadequate sources of basic household products may also have deleterious effects on their finances (Fiese, Koester, & Waxman, 2014). Examining how families with limited sources of food and money also procure basic household products that

are necessary for daily living (such as soap, personal hygiene products, laundry detergent, etc.) is imperative when studying a household's food security (Fiese et al., 2014). In food insecure households the top four expenses that participants identified as necessary were rent, electricity/gas, water, and transportation. Participants also consistently identified four products essential for survival to be soap, toilet paper, personal hygiene products (tampons, diapers, etc.), and oral healthcare products (toothpaste, toothbrushes, etc.) (Fiese et al., 2014). So instead of cooking, sandwiches would be made as the main meal because they would not require the products needed for clean up, and in this regard families were limited in what foods they could serve. The use of these products was also intertwined with the participants self-perception of what consisted good parenting practices and being the head of the household (Fiese et al., 2014). For individuals accessing food pantries several barriers were noted when trying to make adequate use of food provided by pantries. These barriers included a lack of ‘‘kid friendly’’ meals, limited availability of ethnically diverse foods, and having to juggle the needs of multiple family members including toddlers and older children while at the pantry (Fiese et al., 2014). The consequences of inadequate sources of the basic household products would include worry, stress, feelings of personal degradation, and potentially compromised health (Fiese et al., 2014). The primary coping strategies developed to avoid these consequences would include making things stretch, substitutions, and buying in bulk, which made these strategies very similar to the strategies used to make food last throughout the month (Fiese et al., 2014). With these strategies they are able to save money for food and are able to translate the coping strategies to making their food dollars last longer as well.

Food insecurity is an especially compelling problem for the medically ill, who may be forced to choose between food and necessary medical treatment. Inadequate nutrition is associated with immunosuppression, infection, and impaired post-operative wound healing, and interference with cognition and mental performance (Gany et al.,2014). Food-insecure individuals and patients have significantly higher levels of nutritional risk, depression, financial strain, and low quality of life than food-secure patients (Gany et al., 2014). Food insecurity is also associated with non-adherence to treatment protocols with many studies report that food-insecure patients are more likely to postpone medical care and often cannot afford prescribed medication(s) (Gany et al., 2014; Ramaduria et al., 2012For optimal physiological, cognitive, and emotional development to occur in both children and adults they require access to food of adequate quality and quantity at all stages of life (Cook & Frank, 2008) Lack of access to nutritionally adequate food due to constrained socioeconomic resources has been measured by questions that assess “hunger,” “risk of hunger,” “food insufficiency,” and “food insecurity” (Cook & Frank, 2008). Overall, the less expensive filling foods are calorically dense and nutrient sparse, whereas nutrient dense, energy sparse foods are more expensive. This inverse relationship between food prices and food quality has lead to implications for micronutrient deficiencies for people at all ages. Recently, it has been suggested as a potential factor in the widespread emergence of overweight and obese adults and children that can lead to chronic diseases over time.

The study that follows this literature review is valuable to the community at large because it helps to bridge the gap that has arisen from the lack of study on food coping strategies. There is already a dearth of studies that involve food insecurity but there is an even smaller body of literature that covers food coping strategies among pantry clients.

Food Coping Strategies Research

Introduction

Food insecurity is defined as the limited availability of nutritionally adequate and safe foods or the limited ability to acquire foods in socially acceptable ways (Ramaduria et al., 2012). Food insecurity is on the rise in the United States. Food insecurity has increased from 11 percent in 2005-07 to 14.6 percent in 2008, and has remained essentially unchanged ever since then (Morton et al., 2008; Coleman-Jensen et al., 2015). During 2014, an average of 14.0 percent, or 17.4 million, U.S. households were food insecure at some point during the year (ERS, 2016). Of the 17.4 million food insecure households, 5.6% were classified as having a very low food security. Households having very low food security are classified as being food insecure to the extent that eating patterns of one or more household members are disrupted and their food intake reduced at least once some time during the year, because they could not afford food (ERS, 2016). North Carolina is documented above the U.S. household food insecurity average at 16.7 ($\pm$1.55) percent and has one of the highest percentages of children under 18 years of age who are food insecure on a regular basis, at 26.1 percent (North Carolina Association of Feeding America Food Banks, 2015; ERS, 2016).

One of the main contributors to food insecurity is poverty. The definition of poverty is roughly based on historical estimates of the portion of an average household's income required to purchase a minimally nutritious diet, based on the Thrifty Food Plan, which often ignores American eating habits and lacks diversity (Cook & Frank, 2008). In 2013, the average poverty threshold for a family of four was $23,834, a family of nine or more people

the threshold was $48,065, and for one person, it was $11,888 (USBLS, 2015). According to the U.S. Census Bureau, roughly 45.3 million people, or 14.5 percent of the nation's population live below the official poverty level, and according to data from the Bureau of Labor Statistics (2015), 10.5 million individuals were among the "working poor" in 2013, which consist of people who spent 27 weeks or more in a year either working or looking for work but whose incomes fall below the poverty level.

Impoverished residents in rural communities face additional challenges when trying to gain access to food and supplemental resources. Typically, residents of rural communities potentially face challenges such as a lack of access to supermarkets and grocery stores, higher food prices, and lower-quality produce and meat when compared to their urban counterparts. Reliable food access is a critical component in addressing problems of food insecurity (McEntee, 2011). Food access is defined as having the ability to make informed choices throughout the food acquisition experience, "not only at the level of informational choice which include adequate nutritional and cooking knowledge, but including economic and physical choices, as well as having enough money and the physical ability to get and prepare food" (McEntee, 2011).

North Carolina has 349 food deserts in 80 counties across the state (Support Center 1). Food deserts do not have a supermarket within one mile in urban areas or 10 miles in rural areas. Thirty-one of the counties with food deserts are designated as "Tier 1" counties, and these are among the most economically distressed counties in the state (Support Center). Additionally, the healthy food retailers in North Carolina are greatly outnumbered by less healthy, more convenient food options (Support Center 1). Individuals living within these communities are at a severe disadvantage when trying to purchase fresh and healthy foods,

such as fruits and vegetables in their own communities, and must travel elsewhere to feed their families a nutritious diet.

This means that rural households in North Carolina either have to pay higher prices at local stores, if possible, or incur greater travel costs to be able to purchase goods at lower prices in larger retail stores (Coleman-Jensen, 2012). The further a household must travel to a grocery store, the higher their likelihood of food insecurity because the money needed for food goes towards travel expenses instead of groceries. This effect is further exacerbated for households without a car as they must rely on the generosity of others or public transportation to reach food retailers, and since rural food deserts are often characterized by their inadequate public transportation infrastructure individuals without this support system may turn to extreme food coping strategies to feed their household (Coleman-Jensen, 2012).

To combat the hardships caused by food insecurity, individuals may turn to a multitude of practices or behaviors to maintain an adequate food supply for themselves and their households, which is also known as food coping strategies or "food acquisition practices" (Anater, Latkin, & McWilliams, 2011). Strategies can include behaviors used to stretch the food supply or practices used when an individual runs out of food. The current body of literature does not address the prevalence of food acquisition practices to determine whether any of them constitute a significant public health concern, and the literature does not explore potential sociodemographic influences on food acquisition practices. Most of the food acquisition practices involve either the redistribution or reciprocation of food to counter the shortcomings of the food market systems.

Some of the common practices are documented as going to visit a food pantry, make meals with low-cost foods, the purchase of food items because they were on sale, purchasing

food just because it was inexpensive, buying food at dollar stores, avoided buying expensive foods like fresh produce or meat, and using coupons for food (Anater, Latkin, & McWilliams 2011). As demonstrated by the population's need to use coping strategies, there are gaps between the supplemental benefits received and the food requirements of the households (Anater, Latkin, & McWilliams 2011). Furthermore, the food acquisition behaviors that are utilized as the consequence of this gap in coverage tends to highlight the severity of the client's need, so that a client in greater need will turn to increasingly more desperate actions to ensure that they or their family is fed.

As discussed, one such coping mechanism that individuals may turn to when resources are limited, is to buy less nutritious items and instead purchase more calorically dense foods, such as refined grains, sugars, and fats, that are cheaper than meals comprised of lean meats, fresh fruits, and vegetables (Ramaduria et al., 2012). The lack of food, especially nutrient dense foods, that stems from food insecurity can lead to interference with cognition and mental performance and development, immunosuppression, infection, mental health issues, and increased weight gain which can further exacerbate preexisting health issues (Gany et al., 2014).

The overall goals of this study was to measure the prevalence of food insecurity among food pantry clients in the Watauga and Ashe counties of Boone, NC and to identify coping strategies used by these clients.

Methodology

Study setting and participants.

The study site was the Hunger and Health Coalition in Boone, NC. The Hunger and Health Coalition offers a food pantry in addition to a pharmacy, clothing bank, and other

referral service for the residents of Watauga and Ashe County. For example, in 2015, the Hunger and Health Coalition distributed 10,747 boxes of food that fed 30,794 people (HHC). The HHC Market program helped to collect 154,402 pounds of bread and produce from local venders and distributed them to clients, and the Food Recovery program provided 33,700 prepared meals from donations provided by local restaurants (HHC). To qualify for these programs clients had to be a resident of Watauga Co ty and have an income at or below 200% of the Federal Poverty Level. Approval was received from Appalachian State University's Institutional Review Board to conduct this research.

Study Design

This study utilized a self-administered questionnaire to measure the prevalence of food insecurity and assess food coping strategies used by the clients at the HHC. The survey was divided into three main sections: 1) Food Insecurity USDA Scale, 2) coping strategies in accessing food, and 3) sociodemographic, health, and other basic information. The extent of food insecurity was assessed using the U.S. Department of Agriculture's 10-item Household Food Security Survey Module, and selected correlates and coping strategies were compiled with guidance from the food security literature. The coping strategies included: sold personal possessions, used less utilities, shared rent cost, held one or more part-time/full-time jobs, sold blood, borrowed money from family/friends, attended functions where free food was available, accessed food from a federal/state/private food assistance program, stole money to buy food, stole food, bartered for food, withdrew money from savings, saved money intended for medications/medical visits, stretched groceries to make them last longer, among others.

Data collection.

The questionnaire was administered in person to clients at the HHC beginning November 2015 and continued through March 2016. In the end, a convenience sample of sixty-two (n = 62) participants were recruited in person in the from the main lobby of HHC to take the questionnaire. In order to prevent duplication, the same members of the research team were present during the data collection and were instructed to ask if a client had already completed the questionnaire. Interested participants were provided with a verbal explanation of the written consent form on page one of the questionnaire, given an opportunity to ask questions, and could complete the questionnaire in privacy. The questionnaires were completed the in the lobby or were taken and completed within the building. If needed, the questionnaire administrator was able to provide an oral administration of the questionnaire. Participants were presented with 58 questions, as seen in Appendix A, which took about 10 minutes to complete. Each participant was also given a $5 cash incentive upon questionnaire completion.

Data analysis.

Questionnaires were analyzed using Microsoft Excel. Questionnaires were coded using a binary system to record affirmative and negative responses to the questions (e.g. Yes=1 and No=0). Frequency counts and percentages were calculated for all variables. Per the USDA guidelines, each participant was assigned a food insecurity raw score between 0-10. The following categorizations were used to determine prevalence of food insecurity:

Raw score zero—High food security

Raw score 1-2—Marginal food security

Raw score 3-5—Low food security

Raw score 6-10—Very low food security

Results

Sociodemographic profile of the participants.

Of the 62 individuals surveyed at the HHC, 53% identified as male and 47% identified as female, and the majority of the population identified as Caucasian (92%, n = 57). The median age of the group was 41 years old. There were 27 positive responses for households with children and the average amount of children in each household was two. More than half of those surveyed were unemployed (61%, n = 38), and the average monthly income was $690.47. Fifty-eight percent of the participants utilized local public transportation while 45% of the participants owned a car. Only 25 participants reported having health insurance and 95.2% of those surveyed did not self-report their health in a positive light. Table 1 contains all of the sociodemographic data collected from the questionnaires.

Table 1. Demographics; where N=62

Category	Frequency
Sex	
Male	53% (*n*=33)
Female	47% (*n*=29)
Race	
Caucasian	92% (*n*=57)
African American	0
Hispanic	0
Asian	1% (*n*=1)
American Indian	6% (*n*=4)
Other	1% (*n*=1)
Average age	41
Households with children	43% (*n*=27)
Average amount of children per household	2
Transportation	
Bus	58% (*n*=36)
Car	46% (*n*=28)
Employment	
Full time	6% (*n*=4)
Part time	19% (*n*=12)
Unemployed	61% (*n*=38)
Other	13% (*n*=8)
Average Monthly Income	$690.47

Food Insecurity Prevalence

Overall, participants reported a high rate of food insecurity (74%), and of those, an alarming 58% were classified in the "Very Low Food Security with Hunger" category. This figure is much higher than the national average of 15%. Only 8% of the sample was classified as Food Secure. Figure 1 represents the breakdown by group of food insecurity prevalence per the USDA Scale.

Table 2. Food Insecurity Prevalence Data

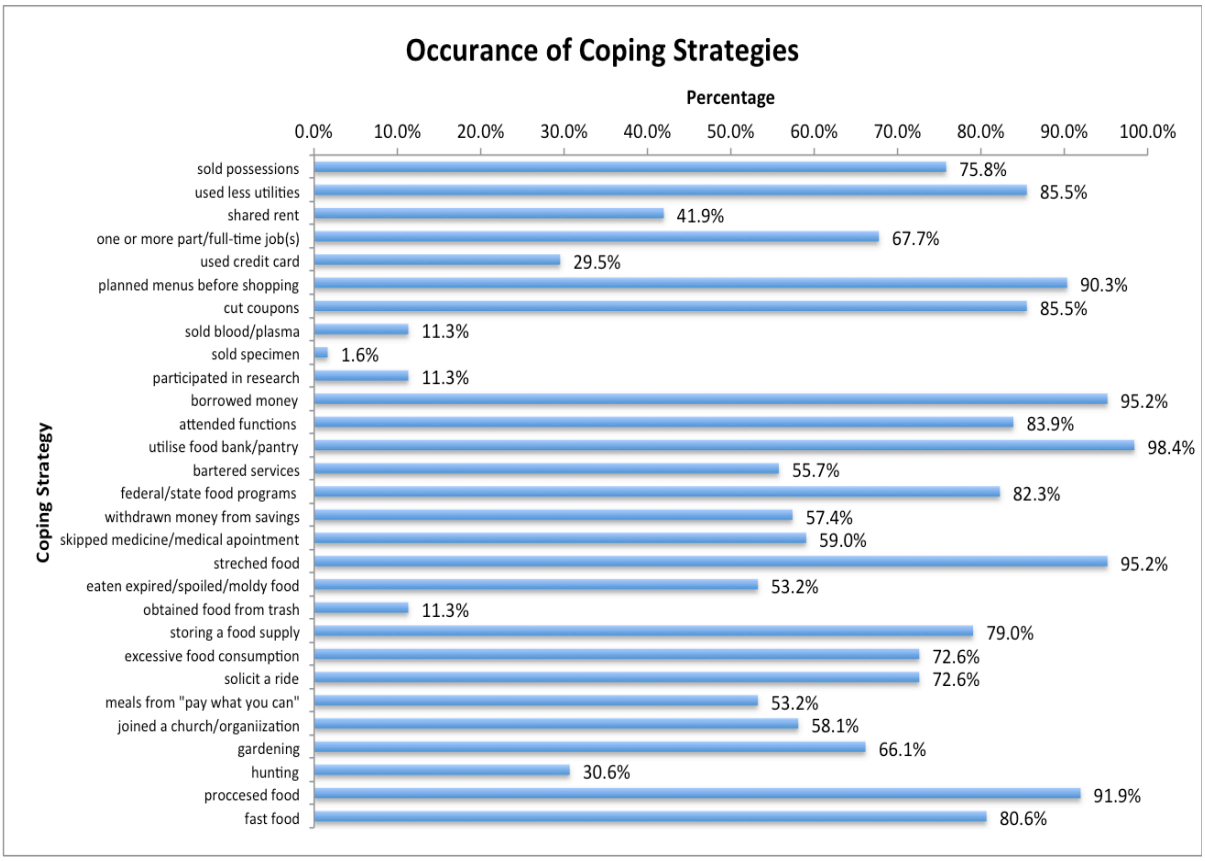
Category	Rate (%)
High Food Security	1.61
Marginal Food Security	6.45
Low Food Security	16.12
Very Low Food Security	58.16

For this population the most helpful individual to provide the participant with access to food was a parent (29%, *n* = 18). When asked how they felt about their current food situations "frustrated" and "worried" were some of the most frequently chosen options.

Food coping strategies.

When asked what money was spent on items instead of food, in the past 12 months, their responses were: utilities (87%, *n* = 54), gasoline (73%, *n* = 45), car repairs (60%, *n* = 37), public transportation (39%, *n* = 24), and pet care (37%, *n* = 23). The study found that the top ten coping strategies identified from the questionnaire that were utilized in the past 12 months were: accessing food banks (98%, *n* = 61), borrowed money to pay for food (95%, *n* = 59), stretching food supplies (95%, *n* = 59), consuming processed foods because of its availability (92%, *n* = 57), planned a menu before shopping (90%, *n* = 56), used less utilities (85%, *n* = 53), cutting coupons (85%, *n* = 53), attended community functions for free food (84%, *n* = 52), participated in a federal or state food assistance program (82%, *n* = 51), and purchasing fast food because it is inexpensive (81%, *n* = 50). All of the coping strategies are recorded in Figure 1.

Figure 1. Food Coping Strategies



Overall, the results suggest that food pantry clients experienced high rates of food insecurity as indicated not only by their USDA score, but also by the frequent use of coping strategies.

Discussion

This study is one of the first studies to examine the food coping strategies of the rurally food insecure occupants of Watauga and Ashe Counties. More than half of the study's participants experienced very low food security, despite the majority of the sample going to at least one food pantry while also receiving SNAP. This is particularly discouraging considering that the percentage of U.S. households with very low food security has increased nationally (ERS, 2016). The sample also had self reported that their health was less than

excellent which could be indicative of nutrition-related chronic diseases such as diabetes, high blood pressure, and obesity (Morton et al., 2008).

The study found that the majority of the coping strategies used by the clientele at the HHC involve utilizing the preexisting community resources, trying to stretch food dollars through a variety of means, and consuming less nutrient-dense food due to cost. With this information, potential areas of intervention for nutrition and nutrition education can be identified. Potential programs could be food budgeting/shopping classes, menu planning, offering more community meals, and increasing access to healthy foods at the HHC. One step that HHC is already making towards increasing access to fresh fruits and vegetables is with their garden program.

Strengths and limitations.

One strength of this study is that it is the first of its kind to examine food coping strategies among a rural population of food pantry clients. The questionnaire was adapted from a study by Ball and McArthur (2016), which was developed in partnership with a team of researchers at Southeastern Universities and pilot tested. This study also has some limitations that need to be considered when being reviewed. One main limitation is that all the data was self-reported by participants which could possibly introduce bias. Also, findings from this study are specific to the food pantry clients that reside in the High Country and may not be representative of the other rural food pantry client populations. The sample size of this study is also only descriptive of its setting and not representative of it.

Conclusions

Food pantries were created in the 1960's to treat emergency lapses in household and societal food security, and by the 1980's these food pantries, food banks, and soup kitchens

rapidly multiplied and eventually became the way most Americans accept help in response to hunger (Poppendieck, 1999). Food pantries are based on local efforts and charity from individuals whether they are donating their time, money, or resources, and do their best to cover gaps in what the government offers. Yet, the government is widening the gaps between the people that need food and their ability to receive it, which can lead to the use of food coping strategies more frequently and escalate the riskiness of those coping mechanisms.

The House Budget Committee approved a budget plan that would cut SNAP by more than $150 billion, over 20 percent, over the next ten years (2017-2026). On top of that in 2016, between 500,000 and 1 million of America's neediest citizens will be cut off from SNAP benefits, due to the return in many areas of a three-month limit on SNAP benefits for unemployed adults aged 18-49 who aren't disabled or raising minor children (Bolen, Rosenbaum, Dean, & Keith-Jennings, 2016). These individuals will lose their benefits after three months regardless of how hard they are looking for work. The impact will be felt in the 22 states that must or are choosing to reinstate the time limit in 2016, with Arkansas, Florida, Mississippi, and North Carolina being hit hardest (Bolen et al., 2016).

That is why it is imperative in this time of budget cuts that we assess the strength of the nutritional safety net we currently use to serve those in need. Even during stronger financial times, such as during the mid- to late 1990s, the prevalence of food insecurity remained high, above 10% (Poppendieck, 1999). Continuing to distribute more food without addressing the underlying causes of poverty is an approach that has failed to adequately reduce food insecurity as seen by the increased use of food coping strategies. New strategies are needed to address the underlying causes, and not just symptoms, of food insecurity, such

as unstable housing conditions, health care costs, mental health issues, underemployment, education, and the food safety nets we already have in place. Ways to help this community could be to institute disease specific nutrition education that incorporates thrifty shopping for nutrient dense foods; encourage meal planning that uses little time, money, and skill to prepare from common donations to help people ween off the processed and fast foods; or helping to improve the food donation system so that nutrient-dense foods are donated instead of the highly processed foods that are normally given. Understanding the coping strategies used by vulnerable populations can help us design nutrition interventions and determine the direction of future health and food policies for this population.

Appendix A

Greetings!

You are invited to take part in a research study about your access to food. This study is being conducted by Dr. Lanae Ball and Caitlin Parker from the Department of Nutrition and Health Care Management at Appalachian State University. If you agree to participate, we will ask for about 10 to 15 minutes of your time to complete an anonymous questionnaire that you will complete in a private space.

Your participation in this study is strictly voluntary, and you are free to stop answering questions at any time. We do not anticipate that you will experience any inconvenience from completing this questionnaire other than the time it takes to answer the questions. You will receive a $5.00 cash for your time when you finish the survey. Your participation would be very valuable to us since the answers you provide will help us to design activities about how to enhance access to nutritious food.

We assure you that the answers you give will be anonymous and that only group answers, not individual answers, will be reported in the article that we write about this research.

Thank you for considering this invitation. If you have any questions about this study, please contact Dr. Lanae Ball at the telephone number or e-mail address listed below.

Respectfully,

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Questions regarding the protection of human subjects may be addressed to the IRB Administrator, Research Protections, Appalachian State University, Boone, NC 28608 (828) 262-2692, irb@appstate.edu

The Appalachian State University Institutional Review Board (IRB) has determined that this study is exempt from IRB oversight.

Part One

Please place an X on the line next to the answer choice that BEST applies to you. All questions concern your access to food within the past 12 months.

1. Which statement best describes the food available to you in the past 12 months?

_____ A. Enough of the kinds of food I want to eat

_____ B. Enough, but not always the kinds of food I want to eat

_____ C. Sometimes not enough to eat

_____ D. Often not enough to eat

For questions 2 through 5 please circle the answer choice that BEST applies to you.

2. In the past 12 months, I worried whether my food would run out before I got money to buy more.

Often Sometimes Never

3. The food I bought just didn't last, and I didn't have money to get more.

Often Sometimes Never

4. I couldn't afford to eat balanced meals.

Often Sometimes Never

5. In the last 12 months, did you ever cut the size of your meals or skip meals because there wasn't enough money for food?

Yes No

If you answered "Yes" to question 5, please complete question 6. Otherwise, skip to question 7.

6. How often did this happen? Please check the answer choice that BEST applies to you.

_____ A. Almost every month

_____ B. Some months, but not every month

_____ C. In only one or two months

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

Yes No

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

Yes No

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

Yes No

10. In the last 12 months, did you ever not eat for a whole day because there wasn't enough money for food?

Yes No

If you answered "Yes" to question 10, please complete question 11. Otherwise, skip to question 12.

11. How often did this happen? Check your answer.

_____ A. Almost every month

_____ B. Some months, but not every month

_____ C. In only one or two months

12. During the past 12 months, about how often did you spent money on the following instead of using the money to buy food? Circle your answers.

A. Spent money on car repairs instead of using money to buy food.

Often Sometimes Never

B. Spent money on gasoline instead of using money to buy food.

Often Sometimes Never

C. Spent money on public transportation to school/work instead of using money to buy food.

Often Sometimes Never

D. Spent money on utilities (e.g. water, electricity, etc.)

Often Sometimes Never

E. Spent money on day care/child care instead of using money to buy food.

Often Sometimes Never

F. Spent money on pet care instead of using money to buy food.

Often Sometimes Never

G. Did you spend money on anything else instead of using money to buy food? Please indicate: _____

Part Two

Below is a list of behaviors that some people use to get food when their own food is low or when they have run out of food. Please circle how often you have used any of these strategies in the past 12 months to get food. Circle all that apply to you.

13. Sold personal possessions

Often Sometimes Never

14. Used less utilities (e.g. electricity, water, etc.)

Often Sometimes Never

15. Shared the rent with other people

Often Sometimes Never

16. Held one or more part-time or full-time jobs

Often Sometimes Never

17. Used a credit card to buy food

Often Sometimes Never

18. Planned menus before buying food

Often Sometimes Never

19. Cut out food coupons

Often Sometimes Never

20. Sold your blood/plasma to buy food

Often Sometimes Never

21. Sold your sperm/eggs to buy food

Often Sometimes Never

22. Participated in a research study/clinical trial to buy food

Often Sometimes Never

23. Borrowed money from family or friends

Often Sometimes Never

24. Attended community functions where there was free food

Often Sometimes Never

25. Obtained food from a food bank or food pantry

Often Sometimes Never

26. Bartered (traded) services or items to get food

Often Sometimes Never

27. Participated in a federal or state food assistance program (e.g. SNAP, WIC, etc.)

Often Sometimes Never

28. Withdrawn money from your savings account to buy food

Often Sometimes Never

29. Saved money by skipping medications or medical appointments to buy food

Often Sometimes Never

30. Stretched food to make it last longer

Often Sometimes Never

31. Eaten expired/spoiled/moldy food because it was the only food available

Often Sometimes Never

32. Obtained food from a dumpster or trash

Often Sometimes Never

33. Saved a supply of food in case of emergency

Often Sometimes Never

34. Ate more than normal when food was plentiful

Often Sometimes Never

35. Asked someone for a ride to get or buy food

Often Sometimes Never

36. Ate meals at places where you can "pay what you can" (e.g. FARM Café)

Often Sometimes Never

37. Joined a church or other organizational group where free meals are provided

Often Sometimes Never

38. Grown food to eat when your money and/or food supply was running low

Often Sometimes Never

39. Hunted animals for food when your money and/or food supply was running low

Often Sometimes Never

40. Purchased cheap, processed food (e.g. ramen noodles, frozen pizza, candy, etc.)

Often Sometimes Never

41. Purchased food at fast food restaurants because of the price (e.g. McDonald's, Wendy's, Taco Bell)

Often Sometimes Never

Part Three

These final questions ask for information about you and your lifestyle. All of your answers will be kept confidential. Please circle the answers that best apply to you, or write an X on the lines provided.

42. Your gender is: Male Female Other

43. How old are you? _____years

44. Which term best describes your marital status?

A. Not married

B. Married

45. A. Do you have any dependent children living with you? Yes No

If you answered "Yes" to question 45A, please complete the rest of this question. Otherwise, skip to question 46.

B. How many children currently live with you? _____

46. What is your race/ethnic background?

A. African-American, not of Hispanic origin

B. American Indian

C. Asian

D. Hispanic

E. White, not of Hispanic origin

F. Other: please indicate _____

47. Which term best describes your employment status?

A. Unemployed

B. One or more part-time jobs

C. One full-time job

D. Other: please indicate _____

48. Do you have a car? Yes No

49. Do you take public transportation such as the bus? Yes No

50. What is your household's average monthly income? $_____

51. Do you currently have health insurance? Yes No

52. How would you rate your current health?

Excellent Good Fair Poor

53. Generally how do you feel about your current food situation? Circle all that apply.

Satisfied	Secure	Pleased	Fine/OK	
Embarrassed	Ashamed	Guilty	Humiliated	
Anxious	Worried	Insecure	Helpless	
Angry	Resentful	Sad	Frustrated	Other: _____

54. In the **last 12 months**, who was *most helpful* in providing you with **access to food**? Circle one choice only.

Spouse	Sister/Brother	Parent	Friend
Other relative	Neighbors	Coworkers	Church member
Professionals	Don't know	Other: please indicate _____	

55. What services have you or your family received from the Health and Hunger Coalition? Circle all that apply.

Food Pantry	Food Recovery	The Market	Healthy Start
Snacks for Scholars	Backpack Program	141 Pharmacy	
Pass It On	Sharing Tree	Helping Hands Wood Lot	
Professional Dress Closet		Pharmacy Assistance Program	

56. Are you interested in learning more about money/banking, budgeting, and ways to save money?

Yes No

If you answered "Yes," what topics would you be interested in? Please circle all that apply.

How to create and follow a budget	Shopping smart at the grocery store
Ways to save money	Checking and savings accounts
Don't know	Other: please indicate _____

57. What times would be best for you to attend a class at the Hunger and Health Coalition?

Weekday mornings	Weekday afternoons	Weekend mornings
Weekend afternoons	Not interested	Other: _____

58. What would make it easier for you to attend a class at the Hunger and Health Coalition?

Childcare provided at the class	Food/meal provided at the class
Transportation to/from the class	Not interested
Other: please indicate _____	

Thank you for completing this questionnaire!

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