LOW-INCOME OLDER ADULTS' USE OF FOOD PANTRIES AS A WAY TO COPE WITH FOOD INSECURITY

By

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The prevalence of food insecurity in the nation has become increasingly prominent, especially among older adults. In particular, Oklahoma has been found to be one of the hungriest states in the nation with 1 out of 5.9 older adults being food insecure. A survey was developed and distributed to older adults, 65 years of age and older, who obtained food from pantries in and surrounding Stillwater, Oklahoma. Food pantries included were the First United Methodist Church storehouse, Church of Christ food pantry, Lost Creek United Methodist Church food pantry, Mehan Union Church food pantry and Glencoe United Methodist Church food pantry. A total of 109 participant surveys were included in data analysis. Results indicated that nearly all participants relied on food pantries as their primary source of food assistance (98%). Self-reported intakes were below recommended intakes for all MyPlate food groups and fluids. As for food security coping strategies, participants were "often" or "sometimes" eating smaller meals (79%), skipping meals (64%) or stretching meats (86%). Participants' who wanted to have healthier food choices at the pantry, included more low fat choices (39%), low sugar food choices (46%) and low salt food choices (47%). Findings from this study imply that food pantries should increase fruits, vegetables, dairy and whole grain options; and decrease the amount of high sodium, added sugar and fat options. Further implications include educating food donors, food pantry staff, and older adult food pantry clients on nutrition and specialized food donations. Additionally, older adult food pantry clients should be educated and encouraged to take advantage of SNAP benefits, which could aide in their overall food assistance.

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CHAPTER I

INTRODUCTION

Older adult food insecurity is a serious problem facing our nation. In 2014, 15.8%, or 1 out of 6.3, older adults over the age of 60 nationwide, faced the threat of hunger (Ziliak & Gundersen, 2016). Even more concerning, is that by 2040, there will be double the number of older adults than in 2000 (Feeding America [FA], 2016b). If the rate of food insecurity increases along with the number of older adults, by 2040 the need for food assistance for older adults will dramatically increase. Hunger is a particularly serious threat facing many older Oklahomans. According to the Regional Food Bank of Oklahoma (2016), 17%, or 1 out of 5.9, older Oklahomans faced the threat of hunger. In particular, Payne County, Oklahoma is at increased risk with a food insecurity rate of 19.5% compared to a food insecurity rate of 16.8% for the state of Oklahoma (FA, 2016a).

Older adults who are food insecure may go without eating for an extended period of time. Most often, their nutritional needs are not being met, which affects their overall health and well-being. Inadequate calorie and nutrient intake can lead to increased risk of disease, and therefore higher health care costs. Food insecurity and associated health issues can also negatively impact older adults' activities of daily living such as feeding, bathing, and walking (FA and National Foundation to End Senior Hunger [NFESH], 2014).

Food insecure households often find means of coping through strategies such as, “stretching” food, prioritizing food quantity over quality, and finding sources of free food (Simmet, Depa, Tinnemann & Stroebele-Benschop, 2016). Focus group data analysis revealed food pantries were a main strategy used by lower income adults in Oklahoma to cope with food insecurity (Rainwater, 2017). Other food insecurity strategies included utilizing food assistance programs such as the Supplemental Nutrition Assistance Program (SNAP) and home delivered meals (Rainwater, 2017).

Many food banks and pantries rely on the support of organizations and food donations (FA, 2016d). The Feeding America network is an organization that collects donations, raises awareness, and supports food banks nationwide to help combat food hunger. Food banks and food pantries have become a crucial resource for those who are food insecure. Food banks are the storehouses that keep donated foods that are eventually transported to food pantries. Food pantries directly serve those in need who meet eligibility requirements (FA, 2016d).

Older adults who utilize food pantries still have barriers and setbacks that need to be overcome. Some of these issues are due to difficulty with transportation lack of nutrition education, special dietary needs, inadequate food storage, unhealthy food options, lack of food pantry access, food spoilage as well as food insecure adults not utilizing the food pantries (Rainwater, 2017). Many food pantries may also limit participants’ pantry access to once a month. This leads to adults choosing foods that will last longer compared to picking healthier fresh options that will spoil faster (Laraia, 2013).

In order to help older adults with food insecurity, progressive changes must be made to food pantries. Determining the needs and issues faced by older adults who obtain food from food pantries could provide valuable information to positively impact older adult food insecurity not only in Oklahoma, but also across the country.

Purpose:

The purpose of this project was to survey low-income older adults, who obtain food from one of the food pantries in and surrounding Stillwater, Oklahoma regarding:

a. Benefits and barriers to utilizing food pantries;
b. Types of foods available at food pantries;
c. Special dietary needs; and
d. Food and nutrition educational interests.

Implications

Insights gained from this project can help to inform:

a. Policy to improve older adults' utilization of food pantries and food resource centers;
b. Policy to improve types of foods available at food pantries and food resource centers to better meet older adults' food, dietary and situational needs (storage, preparation, waste);
c. Development of food and nutrition education programs targeting low-income older adults who utilize food pantries and food resource centers; and
d. Development of food and nutrition education for employees and volunteers who help older adults select foods at food pantries and food resource centers.

Assumptions

a. Participants will provide honest responses to survey questions.

Limitations

a. The number of older adult participants was limited.
b. Older adult participants do not represent the entire Oklahoma older adult population.
c. Response bias may be a limitation, in that older adult participants may answer survey questions based on what they feel is more appropriate.

CHAPTER II

LITERATURE REVIEW

Definition of Food Insecurity

Unsustainable access to an adequate quantity or quality of nutritious food results in food insecurity. The United States Department of Agriculture (USDA) defines food security within four levels: high food security (no limitations); marginal food security (slight to no limitation); low food security (reduced quality of food and diet); and very low food security (disrupted diet and reduced food intake) (USDA, Economic Research Service, 2016a).

Prevalence of Older Adult Food Insecurity

The older adult population (ages 65 years and older) has continued to expand in size. In addition, the prevalence of food insecurity among older adults has also increased. In 2014, for the first time in U.S. history, over 10 million older adults (1 out of 6.3) were found to be food insecure (Ziliak & Gundersen, 2016). The threat of older adult food insecurity rising is also by virtue of the nations' increasing older adult population. The baby boomer generation from 1946 to 1964 is driving the increase in the older adults' population. By 2050, estimates are the older adult population will double in size to 83.7 million (United Health Foundation, 2015).

The number of food insecure older adults in Oklahoma has paralleled the increase in the nation's older adult population. In 2013, 16% of Oklahoma older adults were food insecure. By 2016, the percentage of food insecure older adults in Oklahoma expanded to 17.1% (United Health Foundation, 2016). This leads to 1 out of 5.9 Oklahoma older adults being defined as food insecure (Regional Food Bank of Oklahoma, 2016). Oklahoma is ranked 46th in the nation on food insecurity prevalence, making it one of the hungriest states in the nation (FA, 2016c).

Influences of Older Adult Food Insecurity

The social ecological model may be used to identify influences on older adults' risk of experiencing the threat of hunger. The model's levels of influence are categorized by the following: intrapersonal, interpersonal, institutional, community or policy/social (Goldberg & Mawn, 2014). Intrapersonal influences include martial status, race, ethnicity, body mass index, depression, attitudes, knowledge, functional disability as well as others. Interpersonal areas of influence include emotional or financial need for support from family or friends. Institutional components consist of traveling time to grocery stores, insurance availability, and type of health care. Community variables incorporate areas of location such as rural areas, meals delivered from the community, and community meal centers. Policy/social structure includes whether SNAP has ever been used and when they were last used. A study sought to identify which of these areas were significant in predicting older adult food insecurity (Goldberg & Mawn, 2014). The results showed race and ethnicity were significant predictors of food insecurity; specifically those who were Hispanic or Mexican Americans as well as non-Hispanic Blacks were more likely to be food insecure. Other influences such as severe depression, low education and poverty were also commonly associated with increased food insecurity. In addition, those who lacked financial support, insurance coverage, and usage of government benefits such as SNAP were also significantly more likely to be food insecure (Goldberg & Mawn, 2014). The American

Association of Retired Persons (AARP) reported older adults who were single, living with grandchildren, disabled, had a low education level, were unemployed, and were African American or Hispanic were at a higher risk of experiencing the threat of hunger. Additionally, older adults living just above the poverty line were also vulnerable, since they were ineligible for many of the food assistance programs (AARP Foundation, 2015).

In addition, with age many older adults experience a dramatic increase in their health care costs. Higher health care expenses can decrease older adults' ability to afford adequate and healthy food (AARP Foundation, 2015). Along with medical expenses, physical mobility also plays a role in food insecurity. Older adults, who are disabled or lack physical mobility, will not be able to perform activities of daily living. Simple tasks such as shopping for foods, cooking or preparing meals may be too difficult. Furthermore, if older adults' ability to drive declines they may be less able to obtain food or seek out support (Rainwater, 2017).

Consequences of Older Adult Food Insecurity

Insufficient and/or excessive intake of energy and nutrients heightens the risk for numerous health problems. Food insecure older adults are more likely to develop chronic diseases including obesity. Obesity is associated with an increased risk of chronic diseases such as cardiovascular disease and diabetes. Based on the National Health and Nutrition Examination Survey (NHANES), food insecure older adults compared to food secure adults, were 60% more likely to experience depression, 53% more likely to have a heart attack, 52% more likely to develop asthma and 40% more likely to have heart failure (Feeding America, 2016b). Chronic diseases may be the consequence of food insecurity but may also be a cause of food insecurity. Chronic diseases often result in increased medical expenses, while decreasing overall health and well-being. As a result,

an individual may become food insecure because they are not able to make ends meet (Feeding America, 2016b).

In addition, chronic disease can interfere with activities of daily living and quality of life. Food insecure older adults who have health problems often have limited access/ability to prepare meals and are less likely to afford the right foods for their health (Wolfe, Fronjillo & Valois, 2003). Chronic stress, depression, and anxiety are often seen in food insecure older adults, which can negatively impact their everyday living. In addition, older adults who are unable to perform activities of daily living, such as eating and walking, struggle to support or feed themselves. If help is not sought out, the quality of life of these individuals will continue to worsen (FA, 2016b). For instance, frailty is a common geriatric condition seen among food insecure older adults, which begins with muscle and bone deterioration. These physical changes increase the likelihood of illness as well as impaired mobility, and can ultimately lead to mortality (Perez-Zepeda, Castrejon-Perez, Wynne-Bannister, & Garcia-Pena, 2015).

Certain health problems often lead to inadequate nutrient intake and overall, decreased quality of life. Health problems can often lead to difficulties with swallowing and chewing, swollen gums or tooth loss. Choosing softer and easy to chew foods often becomes older adults only choice, which iswhy access to special nutrient dense foods options are important. Health conditions such as heart disease and diabetes also require a specialized diet plan. Older adults may not be able to afford, prepare or understand the importance of their diet plan (Hunger Free Colorado, 2015).

Older Adult Coping Strategies

Food scarcity often results in older adults using coping strategies. Food insecure older adults often rely on inexpensive, energy dense foods that are high in fat and added sugar (Laraia, 2013). Other tactics commonly reported by food insecure older adults include skipping meals, consuming small meals or repetitively eating the same foods for an extended period of time (Laraia, 2013). Religious coping is another tactic used by older adults. In order to get through hard times, such as food scarcity, many will rely on faith and trust God to get them through (Quandt, Arcury, McDonald, Bell & Vitolins, 2001).

Another study identified coping strategies among food insecure adults aged 19-67 years old. A total of 65-food acquisition and 30-food management coping strategies were recognized (Kempson, Keenan, Sadani, & Adler, 2003). Some areas of food acquisition included participating in federal food assistance programs, attending events that provided food, using support system members, exchanging resources as well as many others. Community food gifts from neighbors, family or church members may be randomly given to food insecure older adults. Older adults' pride can get in the way of seeking help but food gifts are often times seen as "socially acceptable" (Quandt et al., 2001). Food management coping skills involved strategic food preparation, rationing household food supply, preserving food, and a cycling monthly eating pattern as well as other skills (Kempson et al., 2003).

State and Community Food Pantry Strategies

Multiple national, state and community strategies are needed to decrease the prevalence of food insecurity among older adults. This includes educating older adults in areas such as meal planning,

shopping economically, food preparation particularly for one or two and for foods provided, food storage, food safety, and healthy lifestyle changes. Another vital step is to increase food pantry locations and access. This will especially help older adults who live in rural areas (Hunger Free Colorado, 2015). Food pantries should provide specific days and times for older adults to visit. This allows volunteers to assist and ease the minds of older adults who may feel overwhelmed by crowds or lack of ability to shop alone due to physical impairments. It is vital that food pantries are wheel chair accessible, by having the aisles, "a minimum of 48 inches wide with doorways and entryways at least 36 inches wide" (Hunger Free Colorado, 2015). Food pantries should stock essential and nutrient dense foods as well as keeping them at an easy access to reach.

Older Adult Food Assistance Programs

A number of food assistance programs are available to help food insecure older adults.

The Older Americans Act Nutrition Program. In 1965, the Older Americans Act was established to help older adults by expanding opportunities for social services, community programs, and research development. The Older Americans Act (OAA) authorized the OAA Nutrition Program to target food insecure adults 60 years and up (Administration for Community Living [ACL], 2016). The OAA Nutrition Programs seeks to "reduce hunger and food insecurity among older individuals, promote socialization of older individuals, promote the health and well-being of older individuals, and delay adverse health conditions" (ACL, 2016). Specifically, the Congregate Nutrition Program offers meals and services in a group setting to those who need assistance. One of the main drawbacks of congregate meals is that transportation is required. Congregate meals are just one of many food opportunities for older adults through OAA.

Supplemental Nutrition Assistance Program (SNAP). One of the largest and well-known food assistance programs is SNAP, which is administered by the USDA Food and Nutrition Services (USDA FNS, 2017). SNAP benefits allow older adults to be able to afford more meals. On average, an older adult who lives alone will receive $119/month from the program. In order for individuals to participate in SNAP, they must first meet the eligibility requirements (National Council On Aging, 2012). These requirements are generally based on household income but have specific considerations for older adults and those who are disabled. Even though the majority of food insecure older adults qualify for SNAP benefits, only 1 out of 3 food insecure older adults report using SNAP. Some of the reasons are due to the stigma of welfare programs, lack of transportation as well as challenges with technology (NCOA, 2012).

Food Distribution Program on Indian Reservations. The Food Distribution Program on Indian Reservations (FDPIR) is provided through the USDA and seeks to supply low-income families with healthy foods in the tribal communities (USDA, 2016). Eligibility requirements entail low-income households that have at least one family member who is a part of an American Indian Tribe or American Native Village. Those who are eligible for both FDPIR and SNAP must choose only one program to utilize (USDA, 2016).

Home Delivered Meals. Home delivered meals (HDM) such as Meals on Wheels, are programs designed to deliver ready prepared meals to older adults who may not be able to travel due to chronic disease or disabilities. Forms of the meals include hot, cold, dried, frozen, and canned (Sahyoun & Vaudin, 2014). Those who are a part of HDM program usually acquire 1 meal per day, 5 days a week. These meals are usually the only source of food an older adult receives, which is why each meal must provide at least one-third of the daily Recommended Dietary

Allowances (Sahyoun & Vaudin, 2014). Despite the positive implications, only 5% of older Americans receive these meals (Campbell, Godfryd, Buys & Locher 2015). Rural areas as well as high crime areas are difficult and sometimes impossible to access. Other problems include the program relying on volunteers and the long waiting list of participants (Campbell, Godfryd, Buys & Locher 2015).

Senior Farmers' Market Program. The Seniors Farmers' Market Nutrition Program offers awards to states and counties that provide coupons for food insecure older adults to swap for food at farmers markets. These coupons are recognized at farmer markets and exchanged for healthy grown foods (USDA FNS, 2016). However, a few obstacles are that older adults may lack transportation; farmer markets are opened set times/seasons and only provide seasonal fruits/vegetables (ASAP Local Food Research Center, 2012).

Food Banks and Pantries. The Feeding America network's main purpose is to distribute food to the needy. Last year, a total of 200 food banks and 600 food pantries allocated 4 billion meals nationwide (FA, 2016d). This nonprofit program relies on food donations to help fight against hunger. Those who have been using food pantries for an extended period of time tend to be those who are Social Security recipients. Government programs such as SNAP and Social Security are still not providing enough food for those that are in need. Therefore, many rely on nonprofit organizations' food assistance (Berner, Ozer & Paynter, 2008).

Oklahoma has two food banks that supply food pantries across the state, the Regional Food Bank of Oklahoma and the Community Food Bank of Eastern Oklahoma. In 2016, "the Regional Food

Bank distributed 52 million pounds of food through a network of 1,300 charitable feeding programs and schools in 53 central and western Oklahoma counties" (Regional Food Bank of Oklahoma, 2016). The Community Food Bank of Eastern Oklahoma supplies the rest of the 24 counties of eastern Oklahoma. In 2016, the Regional Food Bank of Oklahoma and Community Food Bank of Eastern Oklahoma allocated 61% of the food served in pantries amongst Oklahoma counties (Regional Food Bank of Oklahoma, 2016).

Stillwater, Oklahoma has four food pantries, which include First United Methodist Church, Stillwater Church of Christ, Lost Creek United Methodist Church, and The Salvation Army (Our Daily Bread, 2015). Each location is opened at different times and days of the week to optimize accessibility. These food pantries, excluding Salvation Army, are combining to form one larger non-profit food resource center, "Our Daily Bread." Our Daily Bread will receive and distribute food from the Regional Food Bank of Oklahoma and community donations and foods gleaned from local grocery stores. A few positive aspects of the new food resource center include: grocery store resemblance, assistance for shoppers, healthy food choice options, nutrition education and other resources for low-income individuals (Our Daily Bread, 2015).

Other Community Programs. In addition to local food pantries, other community food assistance programs offer beneficial resources for older adults. These programs include different areas of the community that may provide meals, such as faith-based organizations. In some cases, faith-based programs may offer free transportation, a food pantry and clothes. Greenberg, Greenberg and Mazza (2010) reported "3,000 providers served the homeless in America, 53% of them church affiliated." For example, the Church of Christ in New Brunswick, New Jersey, manages its own food pantry and serves up to 2,500–3,000 people a month (Greenberg,

Greenberg, & Mazza 2010). These organizations may offer services a few times a week to once a month. In most cases, they require no eligibility form to fill out but do require transportation to access the food. Oklahoma faith based organizations that are available to food insecure older adults in Payne County include: First United Methodist Church Stillwater, Oak Grove Baptist Church, Yale Assemble of God, Church of Christ, First Presbyterian as well as many others (Community Services Directory, 2015).

Food Pantry Concerns and Older Adults

Many food insecure older adults rely heavily on food pantries to provide them with food for meals. However, older adults have a multitude of barriers to overcome related to food pantries. For instance, food pantries rely solely on food donations as well as volunteers (Our Daily Bread, 2015). Due to this, donations are often nonperishables, which are likely to not be nutrient dense. Another limitation to food pantries relying on volunteers is due to the fact they may not be educated to help a food pantry clients make healthy food choices, especially if they have a disease. Most food pantries, such as Our Daily Bread, will allow members to access the pantry once a month and provide food that is expected to last 6-8 days (Our Daily Bread, 2015). Numerous food insecure older adults try to stretch food they receive in order to make it last until the next monthly visit (Kempson, Keenan, Sadani, & Adler, 2003). Another concern is that older adults most likely need extra time as well as additional assistance at food pantries. If the facility is crowded and volunteers are few, older adults will be left unattended, and unable to get what they need (Hunger Free Colorado, 2015).

Results from a systematic review of Food Banks using 24-hour dietary recalls found that majority of the participants are consuming less than the recommended amounts of fruit, vegetable, milk

and meat products (Bazerghi, Fiona, & Dunn, 2016). This review also identified that participants wanted a greater selection of foods, particularly fruits, vegetables, dairy and meats. Since pantries are based on food donations, it is difficult to receive healthy food donations consistently. Three major areas of concern this study identified were, "the number of food bank clients is increasing, donations are not increasing with demand, or donations received are not appropriate and food bank staffs are not highly trained around nutrition to provide advice and education to clients" (Bazerghi, Fiona, & Dunn, 2016, p. 738).

These concerns lead to the awareness of food pantry changes that need to be implemented for older adults. One area of change would be setting specific days and times for older adults to come to the food pantry (Hunger Free Colorado, 2015). This would allow volunteers to give their undivided attention to older adults. Research has indicated that participants want healthier diverse food options. Food pantries need to provide nutrient dense meal options for these older adults, which would benefit their overall health and well-being.

Food pantry members and staff are lacking in nutrition education (Bazerghi, Fiona, & Dunn, 2016). Supplying nutrition education for both the food pantry staff and participants is key to helping older adults' select nutrient dense foods. One study in particular focused on nutrition education interventions for both food bank clients and staff members (Dave et al., 2016). Education was provided by pamphlets and nutrition related classes. Major findings were that clients wanted to learn how to cook for their health conditions, such as those with diabetes or heart disease. Despite the food bank clients enjoying most of the food they received from the pantry, most stated that it is difficult to consume a healthy diet when they are given limited food resources. Due to these findings, researchers suggested improving "healthful lifestyle, increasing

nutrition knowledge and skills in menu planning, grocery shopping, and food preparation" (Dave et al., 2016). Overall, the collaboration of these efforts to modify food pantries will not only improve the food pantry experience but it will optimize food resources for older adults.

In summary, there has been research investigating food insecurity and food pantries. However, there is limited research on older adult needs and desires regarding food pantries. This survey focused solely on food insecure older adults' use of food pantries in Payne County. Through this research we hope to gain a better understanding for what adjustments can be made to improve the lives of food insecure older adults.

CHAPTER III

METHODS

The purpose of this project was to survey low-income older adults who obtained food from food pantries in and surrounding Stillwater, Oklahoma, regarding:

a. Benefits and barriers to utilizing food pantries;
b. Types of foods available at food pantries;
c. Special dietary needs; and
d. Food and nutrition educational interests.

Survey Development

A survey was developed by the research team and included sections on demographics, food security, health status, dietary, food pantry concerns, and food and nutrition education interests. The demographics section included questions on age, gender, ethnicity, race, education, employment, income and living situation, and the use of food assistance programs. The food security section included the USDA Economic Research Service six-item food security short form (USDA ERS, 2016b).

The health status section included questions pertaining to height, weight, recent weight change, and health status. The dietary section included questions pertaining over current food intake and

special dietary needs. Additional dietary questions were included related to ability to grocery shop, prepare foods, and consume foods. The food pantry concerns section included questions related to food options available and food pantry use. This area also included questions on participants' food storage and food preparation skills and equipment. Lastly, the food and nutrition education section included questions to investigate participants' education interests such as disease conditions, stretching food dollar, food safety, cooking for one or two, and reducing food waste. To inform survey question development the researchers evaluated other older adult food intake and food pantry instruments and recommendations including Our Daily Bread Food and Resource Center Client Survey (McAdams, 2016), Factors Affecting Older SNAP Participants' Ability to Grocery Shop, Prepare Food and Eat (Korlagunta, 2011), POMP: Congregate Meals Survey (Administration on Aging, 2016), Understanding Food Insecurity in Elders (Wolfe et al., 2003), and Detailed Foods to Encourage (Feeding American, 2015).

Due to characteristics of older learners, the survey was designed to be short, use large print, and be written at the fourth grade reading level (Higgins and Barkley, 2003). Expert face validity was conducted on the survey content using a panel of three experts in the Department of Nutritional Science at Oklahoma State University. The survey was revised based on expert input. Indigenous face validity was conducted to evaluate the comprehension and acceptance of the revised survey using a panel of six older adult (65 years of age and older) food pantry clients. The final survey was revised based on indigenous input (Appendix A).

Oklahoma State University Institutional Review Board Approval

The survey (Appendix A), introductory script (Appendix B), participant informed consent (Appendix C), and study procedure were submitted and approved by the Oklahoma State University Institutional Review Board for Human Subjects prior to data collection (Appendix D).

Participants

Participants in this study consisted of a convenience sample of adults, 65 years of age and older, who obtained food from food pantries in and surrounding Stillwater, Oklahoma. Prior to soliciting older adult participants to complete the survey, permission was obtained to conduct the survey from the director of each of the pantries. Currently, the food pantries in and surrounding Stillwater, Oklahoma serve approximately 500 households each month and the Regional Food Bank of Oklahoma anticipates this number will double in a relatively short time (Hermann, personal communication). Based on a 2016 survey, 25% of Stillwater, Oklahoma food pantry participants were 65 years of age or above (McAdams, 2016). Therefore the goal for this study was 125 older adult participants.

Procedure

As clients entered the food pantry, they were asked if they are 65 years of age or older. Clients who were 65 years of age or older were read an introductory script describing the purpose of the survey and asked if they would be interested in completing the survey. Older adults who were willing to complete the survey were provided with and read a participant information form. Participants were advised that completion of the survey was voluntary. Researchers were

available to assist older adults who needed help in completing the survey. Older adults who completed the survey were provided with $20.00 cash.

Data Analysis

Food security status was determined using the coding and raw score cut offs developed for the USDA ERS six-item food security survey (USDA ERS, 2016b). A raw score of 0-1 indicates high or marginal food security, raw score of 2-4 indicates low food security, and a raw score of 5-6 indicates very low food security.

Participants' self-reported fluid intakes were compared to the Dietary Reference Intake for water (National Academy of Science, 2005). The adequate intake (AI) for total water, including water from food and beverages, is 3.7 liters per day for males, ages 51 years and above and 2.7 liters per day for females, ages 51 years of age and above. Because 20 percent of total water comes from food and 80 percent of total water comes from fluids the Dietary Reference Intake recommends males consume approximately 13 cups of water per day from beverages and drinking water and females consume approximately 9 cups of water per day from beverages and drinking water (National Academy of Science, 2005).

Participants' self-reported MyPlate food group dietary intakes were compared to the ranges recommended for the MyPlate food groups by the USDA MyPlate Daily Checklist by gender, for adults 61 years of age and above, and across physical activity levels, (USDA, 2017). The estimated calorie needs for males, 61 year of age and above, across physical activity levels ranged from 2,000 to 2,600 calories per day. The estimated calorie needs for females, 61 years of age and

above, across physical activity levels ranged from 1,600 to 2,000 calories per day. The ranges recommended for the MyPlate food groups across these calorie ranges are presented in Table 1.

Table 1. USDA MyPlate Daily Checklist for Different Calorie Levels.*

Calorie Levels	1,600	1,800	2,000	2,200	2,400	2,600
Food Groups						
Grains (oz)	5	6	6	7	8	9
Vegetables (cups)	2	2 ½	2 ½	3	3	3 ½
Fruits (cups)	1 ½	1 ½	2	2	2	2
Dairy (cups)	3	3	3	3	3	3
Protein foods (oz)	5	5	5 ½	6	6 ½	6 ½

*USDA MyPlate Daily Check list recommended amounts from the MyPlate food group www.choosemyplate.gov

Body Mass Index (BMI) was calculated using the self-reported height and weight data entries. Body Mass Index (BMI) is a person's weight in kilograms divided by the square of height in meters (weight kg/ height m^2) Underweight was defined as a BMI less than 18.5 kg/m^2. Normal weight was defined as a BMI between 18.5 kg/m^2 and less than 25 kg/m^2, overweight was defined as a BMI between 25 kg/m^2 and less than 30 kg/m^2. Obesity was identified by a BMI greater than or equal to 30 kg/m^2 (Centers for Disease and Control, 2015).

Survey data were analyzed using the frequency procedure using PC SAS for Windows, Version 9.4 (SAS Institute, Cary, NC).

CHAPTER IV

FINDINGS

Older adult food panty guests, 65 years of age and older were asked to complete the food pantry survey at five food pantries in and surrounding Stillwater, Oklahoma including the First United Methodist Church storehouse, Church of Christ food pantry, Lost Creek United Methodist Church food pantry, Mehan Union Church food pantry and Glencoe United Methodist Church food pantry during April, 2017. The Church of Christ food pantry, Lost Creek United Methodist Church food pantry, Mehan Union Church food pantry and Glencoe United Methodist Church food pantry were open one day a month and data was collected on the day the food pantries were open. The First United Methodist Church storehouse was open one day a week; however, food pantry guests are only allowed to come once a month. As a result, data was collected at the First United Methodist Church storehouse the day the food pantry was open on four consecutive weeks.

A food pantry survey was defined as being incomplete if two or more pages of the survey were not completed. One hundred and twenty-one individuals turned in surveys; however, of those six individuals turned in incomplete surveys and six individuals were less than 65 years of age. Surveys that were incomplete or completed by individuals less than 65 years of age were not included in the data analysis.

The participants' demographic characteristics are presented in Table 2. The participants' mean age was 72±0.64. The majority of the participants were 65-74 years of age (74%), female (69%), Caucasian (77%), and non-Hispanic (98%). Most participants lived in Stillwater, Oklahoma (63%) in an apartment, house, or mobile home (94%). The majority of participants had a high school education or less (63%), annual incomes of $16,000 or less (84%), and were unemployed (95%). The leading food assistance programs utilized by participants were food pantries (98%), community/church meals (37%), and the Supplemental Nutrition Assistance Program (SNAP) (22%). Most participants lived alone (33%) or with one other adult (41%); and 83% reported not living with children under 18 years of age. The majority of participants stated they had very few or no (78%) family or friends living nearby who could help them.

In regards to participants' pantry participation (Table 3), the majority of participants reported that the food they received from the food pantry helped them continue to live at home (99%). The majority of participants reported they got to the food pantry by driving themselves (68%) or riding with others (21%); however an additional 5% reported they did a combination of driving themselves and riding with others. Fifty-seven percent of participants reported they visited food pantries once a month, while 36% reported they visited food pantries more than once a month. In addition, the majority of participants reported one (28%) or two people (29%) ate the food they received from the food pantry.

Table 2. Demographic characteristics.*

Demographic Characteristic	n (%)
Age	
65 to <75 Years	81 (74)
75 to <85 Years	20 (18)
85+ Years	8 (7)
Gender	
Male	33 (31)
Female	74 (69)
Hispanic	
Yes	2 (2)
No	99 (98)
Race	
African American	15 (14)
Asian American	1 (1)
Caucasian	81 (77)
Native American	8 (8)
Education	
Some Elementary School	1 (1)
Some High School	16 (15)
High School Graduate	49 (47)
Some College/Associates Degree	33 (31)
Bachelor's Degree	3 (3)
Some Graduate School or Higher	3 (3)
Income	
Less than $12,000	56 (53)
$12,000 - $16,000	33 (31)
$16,001 - $20,000	10 (9)
$20,001 - $24,000	5 (5)
$24,001 - $28,000	2 (2)
Over $28,000	0 (0)
City	
Cushing	7 (7)
Glencoe	9 (8)
Perkins	9 (8)
Ripley	2 (2)
Stillwater	67 (63)
Yale	5 (5)
Other**	7 (7)

Table 2. Demographic characteristics (continued).*

Demographic Characteristic	n (%)
Living Situation	
Apartment/House/Mobile Home	98 (94)
Homeless	2 (2)
Shelter	0 (0)
Retirement Center	0 (0)
Roxie Weber	0 (0)
Other***	4 (4)
Employment	
No	101 (95)
Yes, Part Time	3 (3)
Yes, Full Time	2 (2)
Food Assistance Programs	
Food Pantries	107 (98)
Community/Church Meals	40 (37)
Food Stamps/SNAP	24 (22)
Senior Meals	6 (6)
Home Delivered Meals	3 (3)
Senior Farmers Market	1 (1)
Food Distribution Program on Indian Reservations	5 (5)
Other****	2 (2)
Adults That Live With You	
Zero	34 (33)
One	42 (41)
Two	14 (14)
Three or More	13 (13)
Children That Live With You	
Zero	75 (83)
One	11 (12)
Two	1 (1)
Three	2 (2)
Four	1 (1)
Family or Friends Nearby That Can Help	
None	19 (18)
Very Few	63 (60)
Many	23 (22)

*Columns may not add to zero due to rounding.
**Perry, Langston, Morrison, Pawnee.
***Recreational vehicle, living with friend soon to be homeless.
****Salvation Army, dumpster

Table 3. Food pantry participation.*

Does the food pantry food help you to continue to live at home?	**n (%)**
Yes	107 (99)
No	0 (0)
Do not know	1 (1)
How do you get to the food pantry?	
I drive myself	73 (68)
I ride with others	23 (21)
I ride the bus	1 (1)
I drive myself & I ride with others	5 (5)
Other**	6 (6)
How often do you go to food pantries?	
More than once a month	39 (36)
Once a month	61 (57)
A few times a year	7 (7)
How many people eat the food you get from the food pantry?	
One person	25 (28)
Two people	26 (29)
Three people	17 (19)
Four people	12 (13)
Five people	9 (10)

*Columns may not add to zero due to rounding.
**Participants did not specify what "other" was.

Participants' views about the food pantries are reported in Table 4. Although 50% of participants stated they would not ride a bus if it came to the food pantry, the other 50% of participants' indicated they would "often" or "sometimes" ride a bus if it came to the food pantry. Thirty-two percent of participants reported the food they received from the food pantry "often" lasted until their next visit; however, 41% reported the food "sometimes" lasted until their next visit, and 27% reported that the food did not last until their next visit. Fifty-eight percent of the participants indicated that the food they received from the food pantry did not spoil. However, 69% reported they "often" or "sometimes" received dented cans and 56% reported they "often" or "sometimes" received expired foods. As for the food pantry, the majority reported that the food pantry was not too crowded (59%), they could reach the food items on the shelves (67%) and that there was enough space to move around at the food pantry (73%). Eighty-one percent of participants indicated that they did not need assistance choosing food at the pantry; however, the majority of

did report they "often or "sometimes" need assistance carrying food at the pantry (75%). Additionally, participants indicated that they liked the food they received at the food pantry (72%) and believed the food they received was healthy (75%). Furthermore, the majority of participants indicated they were not embarrassed (78%) and did not feel people looked down on them for (72%) going to food pantries.

Table 4. Food pantry views.*

What do you think…	Yes, Often n (%)	Yes, Sometimes n (%)	No n (%)
If a bus came to the food pantry would you ride it?	22 (21)	31 (29)	54 (50)
Does the food you get from the food pantry last until your next visit?	35 (32)	45 (41)	29 (27)
Does the food you get from the food pantry ever spoil?	4 (4)	41 (38)	62 (58)
Have you received expired food from the food pantry?	16 (16)	39 (40)	43 (44)
Have you received dented food cans from the food pantry?	21 (20)	52 (49)	33 (31)
Are there too many people at the food pantry?	16 (15)	27 (25)	63 (59)
Can you reach the food items on the shelves at the food pantry?	70 (67)	28 (27)	6 (6)
Is there enough space for you to get around in the food pantry?	77 (73)	21 (20)	7 (7)
Do you need assistance choosing the food at the food pantry?	12 (11)	8 (8)	85 (81)
Do you need assistance carrying the food at the food pantry?	54 (50)	27 (25)	27 (25)
Do you like the food choices at the food pantry?	77 (72)	28 (26)	2 (2)
Do you feel the food pantry has healthy food choices?	80 (75)	21 (20)	5 (5)
Do you get to choose the foods you want at the food pantry?	66 (64)	29 (28)	8 (8)
Do you ever feel embarrassed about going to the food pantry?	7 (6)	17 (16)	84 (78)
Do you think people think less of you since you go to food pantry?	9 (8)	21 (20)	77 (72)

*Rows may not add to zero due to rounding.

Participants' food pantry desires are presented in Table 5. The majority of participants reported they would like to go to the pantry more often (62%), for pantries to be open more days (58%) and that pantries be open longer hours (44%). Participants' responses were fairly split between "yes" versus "no" regarding desiring more low fat (39% vs. 44%, respectively), low sugar (46% vs. 44%, respectively) and low salt (47% vs. 43%, respectively) food choices. The majority of the participants reported wanting more canned (81%), fresh (88%), and frozen (86%) fruit and vegetable choices at the food pantry. In addition, participants' desired to have more whole grain (63%), dairy (83%), fresh meat (88%), canned meat (78%), and microwave (60%) food choices. In terms of food package sizes, 53% of participants indicated that they would not like smaller food package sizes and 50% indicated that they would like larger package sizes. Lastly, 54% of participants indicated they would like recipes using the foods they receive at the food pantry.

Table 5. Food pantry desires.*

Would you like….	**Yes n (%)**	**No n (%)**	**Do Not Know n (%)**
To go to the food pantry more often?	64 (62)	27 (26)	13 (13)
The food pantry to be open more days of the week?	59 (58)	25 (25)	17 (17)
The food pantry to be open longer hours?	44 (44)	33 (33)	23 (23)
At the food pantry, would you like to have…			
More low fat food choices?	41 (39)	46 (44)	17 (16)
More low sugar food choices?	49 (46)	47 (44)	10 (9)
More low salt food choices?	47 (47)	43 (43)	11 (11)
More whole grain food choices? (bread, cereal, pasta)	62 (63)	27 (27)	10 (10)
More canned fruit and vegetable choices	84 (81)	13 (13)	7 (7)
More fresh fruit and vegetable choices?	91 (88)	8 (8)	4 (4)
More frozen fruit and vegetable choices?	88 (86)	12 (12)	2 (2)
More dairy food choices?	85 (83)	9 (9)	9 (9)
More fresh meat choices?	94 (88)	9 (8)	4 (4)
More canned meat choices?	76 (78)	16 (16)	6 (6)
More microwave food choices?	61 (60)	31 (30)	10 (10)
Smaller food package sizes?	39 (38)	54 (53)	9 (9)
Larger food package sizes?	49 (50)	38 (39)	11 (11)
Recipes using the foods you receive at the food pantry?	52 (54)	37 (38)	8 (8)

*Rows may not add to zero due to rounding.

Participants' general food security is reported in Table 6. The majority of participants reported that "often" or "sometimes" the food they bought did not last and they did not have money to buy more (63%) and that "often" or "sometimes" they could not afford to eat balanced meals (57%). Participants' responses were fairly split between "yes" (41%) and "no" (59%) for having to cut meal sizes or skip meals due to not having enough money. For those who did report cutting the size or skipping meals, over the past 12 months, 32% reported this happening almost every month, 48% report it happened some months but not every month, and 11% reported it only happened 1 or 2 months.

Although the majority of participants reported they did not eat less than they felt they should (57%) or were hungry but did not eat because there was not enough money for food (66%); however, 52% did report that they were unable to eat the right food for their health because there was not enough money for food (Table 6). The majority of participants also did not report eating less than they felt they should (72%), being hungry but not eating (80%), or being unable to eat the right food for their health (68%) because they could not get food even though they had money for food. In addition, the majority of participants did not report not eating less than they felt they should (78%), being hungry but not eating (70%), or being unable to eat the right food for their health (75%) because they were unable to prepare a meal even though they had food in the house. However, the majority of participants did report eating less than they felt they should (53%), being hungry but not eating (53%), and being unable to eat the right food for their health (51%) because they did not feel up to cooking (Table 5).

Table 6. General food security.*

In the last 12 months…	Often True n (%)	Sometimes True n (%)	Never True n (%)	Do Not Know n (%)
The food I bought just didn't last, and I didn't have money to buy more	18 (17)	47 (46)	34 (33)	4 (4)
I couldn't afford to eat balanced meals	19 (19)	38 (38)	40 (40)	2 (2)

In the last 12 months…	Yes (answer next question) n (%)	No (skip next question) n (%)
Did you ever cut the size of your meals or skip meals because there wasn't enough money for food?	37 (41)	53 (59)

If the previous question was answered "yes"	Almost Every Month n (%)	Some Months, but Not Every Month n (%)	Only 1 or 2 Months n (%)	Do Not Know n (%)
How often did this happen?	14 (32)	21 (48)	5 (11)	4 (9)

In the last 12 months…	Yes n (%)	No n (%)	Do Not Know n (%)
Did you ever eat less than you felt you should because there wasn't enough money for food?	41 (39)	59 (57)	4 (4)
Were you ever hungry but didn't eat because there wasn't enough money for food?	27 (26)	69 (66)	8 (8)
Were you ever unable to eat the right food for your health because there wasn't enough money for food?	54 (52)	45 (44)	4 (4)
Did you ever eat less than you felt you should because you couldn't get the food you needed even though you had money for food?	26 (25)	75 (72)	3 (3)
Were you ever hungry but didn't eat because you couldn't get the food you needed even though you had money for food?	15 (14)	83 (80)	6 (6)
Were you ever unable to eat the right food for your health because you couldn't get the food you needed even though you had money for food?	26 (25)	70 (68)	7 (7)

*Rows may not add to zero due to rounding.

Table 6. General food security (continued).*

In the last 12 months…	Yes n (%)	No n (%)	Do Not Know n (%)
Did you ever eat less than you felt you should because you were unable to prepare a meal even though you had food in the house?	17 (16)	81 (78)	6 (6)
Were you ever hungry but didn't eat because you were unable to prepare a meal even though you had food in the house?	24 (24)	71 (70)	7 (7)
Were you ever unable to eat the right food for your health because you were unable to prepare a meal even though you had food in the house?	20 (19)	78 (75)	6 (6)
Did you ever eat less than you felt you should because you didn't feel up to cooking?	54 (53)	43 (42)	5 (5)
Were you ever hungry but didn't eat because you didn't feel up to cooking?	55 (53)	45 (44)	3 (3)
Were you ever unable to eat the right food for your health because you didn't feel up to cooking?	53 (51)	43 (42)	7 (7)

*Rows may not add to zero due to rounding.

Participants' food security status, determined using the U.S household food security survey: six-item short form is presented in Table 7 (USDA ERS, 2016b). Forty-five percent of participants' were classified as having marginal or high food security, 32% were classified as having low food security, and 23% were classified as having very low food security.

Table 7. Food security status*.

Food Security Status	n (%)
High or marginal food security	49 (45)
Low food security	35 (32)
Very low food security	25 (23)

*Determined using the U.S. household food security survey: six-item short form.

Participants' food insecurity coping strategies are reported in Table 8. The majority of the participants reported they "often" or "sometimes" ate smaller meals (79%), skipped meals (64%) or stretched meats (86%) if they did not have enough food. However, the majority reported that

they did not eat expired foods (60%), eat food that may have been stored too long (71%), eat community meals (54%), or get help with food from family or friends (64%). In addition, most participants reported not having to choose between buying food and paying rent/utilities (65%), medicine (63%), feeding a pet (80%), or selling or pawning items (77%). Three participants did report that they used other coping strategies including going to loan companies, losing telephone service, and looking for food in dumpsters.

Table 8. Food insecurity coping strategies.*

If you do not have enough food, do you ever…	**Yes, Often n (%)**	**Yes, Sometimes n (%)**	**No n (%)**
Eat smaller meals?	27 (26)	55 (53)	21 (20)
Skip meals?	20 (20)	44 (44)	37 (37)
Stretch meats? (make soups or casseroles; add rice or noodles)	38 (39)	46 (47)	14 (14)
Eat expired foods?	17 (17)	23 (23)	61 (60)
Eat foods that may have been stored too long?	14 (14)	15 (15)	70 (71)
Eat community meals provided by local churches?	24 (23)	23 (22)	56 (54)
Get help with food from family or friends?	7 (7)	29 (29)	65 (64)
Have to choose between eating and paying rent or utilities	15 (15)	20 (20)	66 (65)
Have to choose between eating and buying medicine?	12 (12)	25 (25)	63 (63)
Have to choose between eating and feeding a pet?	5 (5)	14 (14)	78 (80)
Sell or pawn items?	9 (10)	12 (13)	72 (77)

*Rows may not add to zero due to rounding.

Participants' dietary patterns and support are presented in Table 9. The majority of participants indicated that on "most days" they ate breakfast (53%), lunch (69%) and dinner (84%). In addition, the majority reported that on "most days" they prepared food at home (79%), had the food they needed to make healthy foods (58%), and "seldom, if ever" ate fast food meals (59%). Many participants ate meals alone on "most days" (41%), while eating with others varied between "seldom if ever" (30%), "some days" (36%), to "most days" (31%). Furthermore, the

majority of participants reported they "seldom, if ever" received assistance from friends and family with rides (59%), shopping for food (64%) and preparing meals (71%).

Table 9. Dietary patterns and support.*

How often do you…	Seldom, If Ever n (%)	Some Days n (%)	Most Days n (%)	Do Not Know n (%)
Eat breakfast?	15 (14)	34 (32)	57 (53)	1 (1)
Eat lunch?	7 (7)	24 (23)	72 (69)	1 (1)
Eat dinner?	3 (3)	12 (11)	88 (84)	2 (2)
Prepare meals at home?	8 (8)	12 (12)	82 (79)	2 (2)
Have the food you need to make healthy meals?	8 (8)	33 (31)	61 (58)	3 (3)
Eat fast food?	60 (59)	31 (31)	5 (5)	5 (5)
Eat meals alone?	34 (33)	22 (21)	43 (41)	5 (5)
Eat meals with others?	31 (30)	37 (36)	32 (31)	4 (4)
Get rides from family or friends?	60 (59)	20 (20)	16 (16)	5 (5)
Get help shopping for food from family or friends?	65 (64)	18 (18)	14 (14)	4 (4)
Get help preparing meals from family or friends?	72 (71)	19 (18)	5 (5)	6 (6)

*Rows may not add to zero due to rounding.

Factors influencing participants' dietary intake are reported in Table 10. The majority reported that they felt comfortable reading and understanding food labels (70%), planning menus (61%), writing a shopping list (71%), and selecting healthy foods at the grocery store (70%). However, participants' had varied responses to having problems grocery shopping, with 26% indicating they "often" had problems," 30% reporting they "sometimes" had problems, and 44% reporting they did not have problems. In addition, the majority of participants indicated that they did not have problems preparing meals (58%), eating (65%), or tasting or smelling (72%). The majority of participants reported they had a car (76%); however the participant responses varied for having enough money for gas or car insurance with 22% reporting they did not have enough money, 39%

reporting they "sometimes" had enough money, and 39% reporting they "often" had enough money.

Table 10. Factors influencing dietary intake.*

Do you…	Yes, Often n (%)	Yes, Sometimes n (%)	No n (%)
Feel comfortable reading and understanding food labels?	74 (70)	22 (21)	10 (9)
Feel comfortable planning menus?	65 (61)	27 (25)	14 (13)
Feel comfortable writing a shopping list?	75 (71)	18 (17)	12 (11)
Feel comfortable selecting healthy foods at the grocery store?	75 (70)	25 (23)	7 (7)
Have problems grocery shopping (energy, driving, seeing, walking, and carrying groceries)?	28 (26)	32 (30)	47 (44)
Have problems preparing meals (energy, seeing, standing, walking, strength, and using your hands)?	17 (16)	28 (27)	61 (58)
Have problems eating (chewing, swallowing, using your hands)?	16 (15)	22 (20)	70 (65)
Have problems with taste or smell?	9 (9)	19 (19)	73 (72)
Have a car?	78 (76)	10 (10)	14 (14)
Have enough money for gas and car insurance?	40 (39)	40 (39)	22 (22)
Have electricity?	83 (80)	16 (15)	5 (5)

*Rows may not add to zero due to rounding.

Participants' food preparation equipment and resources are presented in Table 11. In terms of food preparation equipment, over 90% of participants reported they did have running water (98%), a refrigerator (99%), an oven (91%), a microwave (92%), and the tools to prepare meals (97%); however, although still a majority, fewer participants reported having a freezer (72%) and a crock pot (77%). In terms of food preparation space over 90% of participants reported they had enough space for refrigerated food (97%) and dry food (94%); however, although still a majority, fewer participants indicated that they had enough space to store frozen food (83%), which may be reflective of the lower percentage that reported they had a freezer (72%). Lastly, 98% of participants indicated that they had the cooking skills to prepare meals at home.

Table 11. Food preparation equipment and resources.*

Do you...	Yes n (%)	No n (%)
Have running water?	105 (98)	2 (2)
Have a refrigerator?	106 (99)	1 (1)
Have a freezer?	76 (72)	29 (28)
Have an oven?	96 (91)	10 (10)
Have a microwave?	98 (92)	8 (8)
Have a crock pot?	81 (77)	24 (23)
Have an electric skillet?	60 (57)	45 (43)
Have the right tools to prepare meals at home?	102 (97)	3 (3)
Have enough space to store frozen food?	89 (83)	18 (17)
Have enough space to store refrigerated food?	103 (97)	3 (3)
Have enough space to store dry food?	101 (94)	6 (6)
Have the cooking skills to prepare meals at home?	104 (98)	2 (2)

*Rows may not add to zero due to rounding.

Participants' common food choices are reported in Table 12. The top three types of fruit consumed were bananas (88%), peaches (70%), and grapes (69%) and the leading three vegetables were green beans (86%), potatoes (86%) and corn (70%). The leading three types of grains consumed were bread (87%), crackers (76%) and cereal (75%) and the leading three dairy choices were cheese (93%), milk (90%), and yogurt (55%). The three main fluids consumed were water (84%), milk (75%), and coffee (65%). Preferred forms of fruits and vegetables were similar; canned (84% vs. 90%, respectively), fresh (81% vs. 82%, respectively), and frozen (48% vs. 64%, respectively); however 47% commonly chose fruit juice compared to 28% commonly choosing vegetable juice. Regarding special dietary needs, 35% of participants indicated low sugar, 29% low sodium, and 19% low fat. Five percent of participants indicated there were foods they did not eat because of their culture or faith, with pork being specifically identified.

Table 12. Common food choices.

What are the common *types* of fruits you eat?	**n (%)**
Apples	64 (59)
Bananas	96 (88)
Grapes	75 (69)
Melons	55 (50)
Oranges	63 (58)
Peaches	76 (70)
Pears	59 (54)
Strawberries	73 (67)
Other*	19 (17)
What are the common *types* of vegetables you eat?	
Carrots	75 (69)
Corn	86 (79)
Broccoli	73 (67)
Green beans	94 (86)
Leafy greens	54 (50)
Peas	70 (64)
Squash	51 (47)
Potatoes	94 (86)
Other**	11 (10)
What are the common *types* of grains you eat?	
Bread	95 (87)
Cereal	82 (75)
Crackers	83 (76)
Pasta	54 (50)
Rice	64 (59)
Tortillas	46 (42)
Other***	6 (6)
What are the common *types* of dairy you eat?	
Milk	98 (90)
Fortified soy milk	12 (11)
Yogurt	60 (55)
Cheese	101 (93)
Other****	9 (8)

What are the common *types* of fluid you drink?	**n (%)**
Milk	82 (75)
100% fruit juice	66 (61)
Coffee	71 (65)
Tea	74 (68)
Water	92 (84)
Soda, regular	30 (28)
Soda, diet	20 (18)
Other[#]	6 (6)
What are the common *forms* of fruit you eat?	
Fresh	88 (81)
Canned	92 (84)
Frozen	52 (48)
Juice	51 (47)
Dried	28 (26)
What are the common *forms* of vegetables you eat?	
Fresh	89 (82)
Canned	98 (90)
Frozen	70 (64)
Juice	31 (28)
Dried	21 (19)
Do you have any special dietary needs?	
Low fat	21 (19)
Low sodium	32 (29)
Low sugar	38 (35)
Other[##]	5 (5)
Are there any foods you do not eat because of your culture or faith?	
No	98 (95)
Yes[###]	5 (5)

*Mangos, blueberries, pineapple, grapefruit, watermelon, blackberries, kiwi, guava, papaya, **Cauliflower, tomatoes, beans, okra, sauerkraut, beets, Brussel sprouts, ***Oats, ****Cottage cheese, ice cream, buttermilk, almond milk, [#]Power Ade, Gatorade, vegetable juice., [##]Diabetes, [###]Pork

Participants' self-reported fluid and MyPlate food group dietary intakes by gender are presented in Table 13. All males (100%) reported consuming less than 13 cups of fluid a day and all females (100%) reported consuming less than 9 cups of fluid per day. The majority of males reported consuming less than 2 cups of fruit a day (60%) and the majority of females reported consuming less than 1 ½ cups of fruit a day (55%). In addition, the majority of males reported consuming less than 2 ½ cups of vegetables per day (74%) and the majority of females reported consuming less than 2 cups of vegetables per day (51%). Furthermore, the majority of males indicated they consumed less than 6 ounces of grains per day (86%) and the majority of females reported consuming less than 5 ounces of grains per day (88%). The majority of males also indicated they consumed less than 5 ½ ounces of protein a day (69%), and the majority of females reported they consumed less than 5 ounces of protein a day (68%). Lastly, the majority of both males and females reported consuming less than 3 cups of dairy per day (71% and 79%, respectively).

Participants' mean self-reported fluid and MyPlate food group dietary intakes are reported in Table 14. The mean fluid intake, in cups, for males and females was 7.0±0.9 and 7.2±0.5, respectively. The mean fruit intake, in cups, for males and females was 1.7±0.2 and 1.6±0.1, respectively. In addition, the mean vegetable intake, in cups, for males and females was 2.0±0.2 and 1.9±0.1, respectively. Moreover the mean grain intake, in ounces, for males and females was 3.5±0.5 and 2.7±0.2, respectively. The mean protein intake, in ounces, for males and females was 5.1±0.9 and 4.4±0.4, respectively. Lastly, the mean dairy intake, in cups, for males and females was 2.1±0.2 and 2.2±0.3, respectively.

Table 13. Self-reported dietary intakes.*

Males		Females	
How many…	**n (%)**	**How many…**	
Cups of fluid do you drink in a normal day?		**Cups of fluid do you drink in a normal day?**	
≥13 cups	0 (0)	≥9 cups	0 (0)
< 13 cups	35 (100)	< 9 cups	76 (100)
Cups of fruit do you eat in a normal day?		**Cups of fruit do you eat in a normal day?**	
< 2 cups	21 (60)	< 1 ½ cup	42 (55)
2 cups	6 (17)	1 ½ - 2 cups	18 (24)
> 2 cups	8 (23)	> 2 cups	16 (21)
Cups of vegetables do you eat in a normal day?		**Cups of vegetables do you eat in a normal day?**	**n (%)**
< 2 ½ cups	26 (74)	< 2 cups	39 (51)
2 ½ - 3 ½ cups	5 (14)	2 – 2 ½ cups	19 (25)
> 3 ½ cups	4 (11)	> 2 ½ cups	18 (24)
Ounces of grain do you eat in a normal day?		**Ounces of grain do you eat in a normal day?**	
< 6 ounces	30 (86)	< 5 ounces	67 (88)
6 - 9 ounces	2 (6)	5 - 6 ounces	4 (5)
> 9 ounces	3 (9)	> 6 ounces	5 (7)
Ounces of protein do you eat in a normal day?		**Ounces of protein do you eat in a normal day?**	
< 5 ½ ounces	24 (69)	< 5 ounces	52 (68)
5 ½ - 6 ½ ounces	4 (11)	5 – 5 ½ ounces	4 (5)
> 6 ½ ounces	7 (20)	> 5 ½ ounces	20 (26)
Cups of dairy do you eat in a normal day?		**Cups of dairy do you eat in a normal day?**	
< 3 cups	25 (71)	< 3 cup	60 (79)
3 cups	5 (14)	3 cups	9 (12)
> 3 cups	5 (14)	> 3 cups	7 (9)

*Columns may not add to zero due to rounding.

Table 14. Mean self-reported dietary intakes.

Males		Females	
How many…	**Mean ± S.E.**	**How many…**	**Mean ± S.E.**
Cups of fluid do you drink in a normal day?	7.0±0.9	Cups of fluid do you drink in a normal day?	7.2±0.5
Cups of fruit do you eat in a normal day?	1.7±0.2	Cups of fruit do you eat in a normal day?	1.6±0.1
Cups of vegetables do you eat in a normal day?	2.0±0.2	Cups of vegetables do you eat in a normal day?	1.9±0.1
Ounces of grain do you eat in a normal day?	3.5±0.5	Ounces of grain do you eat in a normal day?	2.7±0.2
Ounces of protein do you eat in a normal day?	5.1±0.9	Ounces of protein do you eat in a normal day?	4.4±0.4
Cups of dairy do you eat in a normal day?	2.1±0.2	Cups of dairy do you eat in a normal day?	2.2±0.3

Participants' self-reported appetite and weight changes are presented in Table 15. Although the majority of participants' reported that their food intake and weight had not changed over the past three months (50% and 59%, respectively), it is important to note that 34% of participants did report that they food intake had decreased over the past three months and 26% reported that their weight had decreased over the past three months.

Table 15. Self-reported appetite and weight change.*

Without wanting to…	**No n(%)**	**Yes, Decreased n (%)**	**Yes, Increased n(%)**	**Do Not Know n (%)**
Has your food intake changed over the past 3 months?	52 (50)	35 (34)	13 (13)	4 (4)
Has your weight changed over the past 3 months?	61 (59)	27 (26)	6 (6)	10 (10)

*Rows may not add to zero due to rounding.

Participants self-reported physical activity is reported in Table 16. In terms of a normal week, 21% of participants reported they did activity long enough to work up a sweat "often," 48% reported this occurred "sometimes" and 31% reported this happened rarely or never.

Table 16. Self-reported physical activity.*

In a normal week (7 days) how often do you do activity long enough to work up a sweat (heart beats rapidly)?	n (%)
Often	21 (21)
Sometimes	49 (48)
Rarely or Never	32 (31)

*Column may not add to zero due to rounding.

Participants' body mass index based on self-reported height and weight is presented in Table 17. Thirty-six percent of males and 42% of females were classified as "obese" and 33% of males and 26% of females were classified as "overweight." Although the majority of both males and females were classified as "overweight" or "obese" it is important to note that 15% of males and 11% of females were classified as "underweight."

Table 17. Body mass index based on self-reported height and weight.*

Body Mass Index	Males n (%)	Females n (%)
Underweight (> 18.5)	5 (15)	8 (11)
Normal (18.5 - 24.9)	5 (15)	16 (22)
Overweight (25 - 29.9)	11 (33)	19 (26)
Obese (> 30)	12 (36)	31 (42)

*Columns may not add to zero due to rounding.

Participants' relevant health conditions are reported in Table 18. The most prevalent health conditions reported by participants were high blood pressure (67%), arthritis (56%), and diabetes (38%). It is also important to note that fatigue and depression were reported by 33% and 28% of participants, respectively. Lastly, food allergies were reported by 11% of participants.

Table 18. Relevant health conditions.

Do you have any of the following conditions?	n (%)
High blood pressure	73 (67)
Arthritis	61 (56)
Diabetes	41 (38)
Fatigue	36 (33)
Heart Disease	34 (31)
Depression	31 (28)
Osteoporosis	18 (17)
Food allergies*	12 (11)

*Shellfish, almonds, tomatoes, bananas, avocados.

Participants' food and nutrition education interests are presented in Table 19. The leading education interested reported by 39% of participants was "stretching your food dollar." Closely following; however, participants were interested in learning about healthy eating (35%), particularly in terms of weight management (38%), diabetes management (37%), heart health (37%), and lowering blood pressure (34%), which are reflective of participants' reported health conditions. Interestingly, one response to "other topics" was a participant wanting to learn how to be more involved in the food pantry.

Table 19. Food and nutrition education interests.

Would you like to learn about:	n (%)
Stretching your food dollar	43 (39)
Weight management	41 (38)
Diabetes management	40 (37)
Heart health	40 (37)
Healthy eating	38 (35)
Lowering blood pressure	37 (34)
Cooking for one or two	33 (30)
How to cook foods you get from the food pantry	25 (23)
Increasing physical activity	22 (20)
Cooking with less salt	18 (17)
Cooking with less sugar	19 (17)
Meal planning	17 (16)
How to reduce food waste	17 (16)
Cooking with less fat	15 (14)
How to prepare and store foods safely	14 (13)
Reading food labels	11 (10)
Other topics*	3 (3)

*How to be more involved in the food pantry.

CHAPTER V

DISCUSSION

This project sought to identify the needs of low-income older adults who obtained food from food pantries in and surrounding Stillwater, Oklahoma. The following discussion will elaborate on particular findings from the survey results, while comparing related literature. As an important side note, literature pertaining specifically to older adults' use of food pantries was limited, so literature regarding food pantry clients of all ages was often used.

The demographic section identified current living situations and conditions among participants. The majority of participants reported they had a high school education or less (63%), annual income of $16,000 or less (84%), and were unemployed (95%). As a result of the participants' low income it was not surprising that participants selected "stretching your food dollar" as their top nutrition education interest (39%). The significant number of unemployed older adults may very well be due to the participants' age and low education level. The spiral effect of low employment and low income can ultimately lead to food insecurity. These results reflect the findings of a study that found individuals who were at greater food insecurity risk also had a low education and a lack of financial support (Goldberg & Mawn, 2014). As for food assistance programs, participants reported they primarily relied on food pantries (98%), which helped them to continue to live at home (99%). One study found that food pantries were often used by

older adults rather than food stamps because it is perceived as more "socially acceptable" by neighbors and friends (Wolfe, Olson, Kendall & Frongillo, 1996). In addition, participants primarily reported living alone (33%) or with one other person (41%). Also, 27% lived with 3 or more adults and 16% lived with children. However, forty-two percent did report sharing food they received from the pantry with three or more people, which is most likely due to food exchanges. Food exchanges among friends, family or neighbors are consistent with other findings that found food sharing was a common way to cope with food insecurity (Kempson, Keenan, Sadani, & Adler, 2003; Rainwater, 2017).

Transportation needs among participants did not seem to be much of a concern. This is likely because 68% of participants drove themselves to the pantries and 76% of participants had access to their own car. However, money for gas and car insurance seemed to be more of a problem since 22% reported that they did not have enough money and 39% reported they only "sometimes" had money for gas and car insurance. As for transit system, reported answers were equally split between interests towards using a bus to access the food pantry and not using the bus. The transit system in Stillwater did not offer transportation to the food pantry sites investigated at the time of this study; however, the transit system does currently offer transportation to Our Daily Bread. With the transit system now offering rides to and from the pantry, the probability of participants' interest in using the transit system will most likely increase.

The frequency of food pantry visits among participants was most commonly reported to be once a month (57%). Ultimately, this affects how long food lasts until the next food pantry visit. For instance, the majority of participants' reported the food they received would "sometimes" last

(41%) or would not last until the next food pantry visit (27%). In particular, the food pantry, Our Daily Bread, intends to provide food to clients that will last only 6-8 days (Our Daily Bread, 2015). This is extremely concerning, since most of the participants relied on food pantries as their primary source of food assistance. As a result, participants wanted to increase their food pantry visits (62%), have the pantry opened more days (58%) and have the pantry open longer hours (44%).

As for food received at the pantry, participants' interests and concerns were quite varied. Participants reported that the food they received from the pantry was "often" or "sometimes" dented (69%) and "often" or "sometimes" expired (56%). However, most of the participants seemed to enjoy the pantries food choices (72%) and believed the food choices were healthy (75%). These results are similar to a study that found food pantry clients believed the food at the pantry was nutritious, despite most of the options being processed and nonperishables (Jackelen, 2013). Overall, this indicates that participants may lack nutrition knowledge and have an altered perception of what they perceive as healthy food. It is evident that participants were less concerned with having healthy food choices and more concerned about the quantity of their food choices. This is shown by a large percent of participants not wanting healthy food options such as low fat (44%), low sugar (44%), or low salt (43%), and 50% of participants wanting larger size packages. Another reason participants' may want larger food package sizes could be due to the fact that food provided is expected to last 6 to 8 days. However, participants reported a desire for more canned (81%), fresh (88%), and frozen (86%) fruit and vegetable choices at the food pantry. However, an increase in frozen food options may pose as a problem since a number of participants' households did not have a freezer (24%). In addition, participants were interested in having more whole grain (63%), dairy (83%), fresh meat (88%), canned meat (78%), and microwave (60%) food choices. According to one study, foods received from food banks were

not meeting clients' dietary needs (Gany, Bari, Crist, Moran, Rastogi, & Leng, 2012). Due to food banks not meeting clients' dietary needs, there were also a high prevalence of reported unemployment; participants lack the proper income as well as food assistance to meet adequate nutrition needs.

Participants reported various strategies to cope with food insecurity. For instance, if there was not enough food, participants reported "often" or "sometimes" eating smaller meals (79%), skipping meals (64%) or stretching meats (86%). These results are consistent with another study that indicated food insecure older adults reported consuming smaller meals and skipping meals (Laraia, 2013). In another study, older adults admitted it was not an unusual strategy to skip and eat smaller meals, since many of them experienced much worse and similar times during the Great Depression (Wolfe et al., 1996). Despite this, a majority of the participants did not have to choose between buying food and paying rent/utilities (65%), medicine (63%), feeding a pet (80%), or selling or pawning items (77%).

One particularly concerning result was that the majority of participants relied on themselves for everyday tasks. Many participants did not receive assistance from family or friends. Participants reported to "seldom, if ever" receive assistance from friends and family with rides (59%), shopping for food (64%) and preparing meals (71%). In addition, the majority of participants reported eating their meals at their home alone "most days" (58%). However, the majority of participants reported having the food they needed to make a healthy meal (58%), but this may be difficult to justify since participants may have an altered view of what is considered a healthy meal. Participants did not seem to be concerned with needing assistance with reading and understanding food labels, planning meals or selecting health food options. In addition, the majority of participants did not seem to have problems with preparing meals (58%), eating (65%),

or tasting or smelling (72%). However, there were mixed reports for participants having problems grocery shopping with 26% indicating they "often" had problems and 30% reporting they "sometimes" had problems, and 44% reporting they did not have problems. Similar findings were found related to food pantry concerns with the majority of older adults indicating they needed assistance carrying foods at the food pantry (50%). This most likely correlates to needing assistance at grocery stores, specifically with carrying food items (75%). Since the majority of participants relied on themselves, pride in self-sufficiency may be getting in the way for many of these older adults from seeking help. This particular coping strategy is consistent with the findings from one study, which found pride to be an issue for the majority of the food insecure older adults since they would not take full advantage of food assistance programs (Quandt, Arcury, McDonald, Bell, & Vitolins, 2001).

Participants' responses to common food choices were difficult to interpret. This may be due to the fact that participants may not have understood the question, and instead of checking their "most common" food choices they checked foods they would "like to consume," which was nearly all the food choices. Based on the results, conclusions on common food choices were difficult to determine. As for the forms of fruits and vegetables, participants reported they preferred canned (84% vs. 90%, respectively), fresh (81% vs. 82%, respectively), and frozen (48% vs. 64%). Canned food items were most likely the preferred choice due to their longer shelf life. Unfortunately, from personal observation at the food pantries, many of the canned foods items available were not low sodium or low sugar.

Participants' special dietary needs and prevalent health conditions were closely related. As for special dietary needs, 35% indicated following low sugar, 29% low sodium, and 19% low fat

diets; while, 38% had diabetes and 67% reported having high blood pressure. This also helps to explain why many of the participants were interested in nutrition education on diabetes management (37%), lowering blood pressure (34%), and heart health (37%). Individuals may have difficulty following specialized diet plans. This may be due to the fact that a majority of individuals did not understand the importance of following their diet, and were unable to afford the right foods for their health, and are unable to properly prepare the foods (Hunger Free Colorado, 2015). As for other related health conditions, 56% of participants reported having arthritis, 33% fatigue and 28% depression. These specific health conditions often times coincide with the health condition of frailty. A major finding from one study was that adults 60 years of age and older who experienced frailty were also likely to be food insufficient (Smit, Winters-stone, Loprinzi, Tang, & Crespo, 2013). Frailty and other related health conditions such as arthritis, fatigue, and depression, result in impaired mobility and declined activities of daily living. In addition, chronic disease can contribute to food insecurity by increased medical costs, limited access to food/ability to prepare food, and increased need for foods that pertain to health problems (Wolfe, Fronjillo & Valois, 2003). If older adults' needs are not met, stress and anxiety can increase leading to a greater health decline (Wolfe et al., 2003).

As a possible result of chronic health conditions, many participants reported that they often did not feel up to cooking. Studies have found that older adults tend to have lack of motivation when it comes to preparing a meal, which is often linked to depression (Wolfe, Frongillo & Valois, 2008). Depression, stress and anxiety most often coincide with one another to negatively influence an older adults' physical and mental ability to cook. Due to this, majority of participants reported eating less (53%), not choosing the right foods for their health (51%) and being hungry but not eating (53%). Another leading concern reported by participants was not being unable to eat the right foods for their health due to not having enough money (52%). This also may be in

relation to higher health care expenses, which then decreases older adults' ability to afford adequate food for their health (AARP Foundation, 2015). Using the U.S. household food security survey: six-item short form (USDA ERS, 2016b) 23% of participants were classified as very low food insecurity, 32% were classified as low food security, while 45% were classified as marginal or high food security.

Based on the USDA MyPlate Daily Checklist for adults 60 years and older, participants' self-reported dietary intakes for fluids and all food groups were below recommended intakes for both females and males. Both male and female participants reported drinking less than 6 cups of fluid a day (69% and 54%, respectively). Fruit intake was also low; 60% of males reported consuming less than 2 cups a day and 55% of females consuming less than 1 ½ cups a day. As for vegetable intake, 74% of males reported consuming less than 2 ½ cups a day and 51% of females reported consuming less than 2 cups a day. In addition, 86% of males reported consuming less than 6 ounces of grains per day and 88% of females reported consuming less than 5 ounces of grains per day. As for protein intake, 69% of males reported consuming less than 5 ½ ounces a day and 68% of females reported consuming consumed less than 5 ounces of protein a day. Lastly, the majority of both males and females reported consuming less than 3 cups of dairy per day (71% and 79%, respectively). Furthermore, 34% of participants reported that their food intake had decreased over the past three months and 26% reported that their weight had decreased over the past three months. In comparison, an assessment from Feeding America National Foundation to End Senior Hunger (2014) found older adults who were food insecure had a lower intake of calories as well as 10 key nutrients than compared to those who were food secure. Nutrients consumed in limited amounts included: vitamin C, vitamin A, vitamin B6, thiamin, magnesium, iron, riboflavin, protein, phosphorous, and calcium. Of particular importance, food insecure older adults reported protein intake that was 12% lower compared to food secure older adults (FANFESH, 2014).

Decreased food intake can lead to inadequate nutrient intake, and if it continues, this cannot only affect participants' nutritional status but can also affect their overall health and well-being.

Despite most of the participants reporting the amount they consumed from the MyPlate food groups was below the food group amounts recommended by the USDA MyPlate Daily Checklist, the majority of participants were found to be overweight or obese. Based on participants' self-reported height and weight, body mass index was calculated. Thirty-six percent of males and 42% of females were classified as "obese," while 33% of males and 26% of females were classified as "overweight." However, 15% of males and 11% of females classified as "underweight." Similarly, one study reported food insecure older adults were likely to be overweight and depressed (Kim & Frongillo, 2007). The negative impact food insecurity has on an individual can result in stress, which will often cause individuals to excessively consume foods and will likely cause a decrease in physical activity (Kim & Frongillo, 2007). In addition, another study found as food insecurity increased among food pantry users, intake of nutritious food, specifically fruit and vegetable intake declined (Robaina & Martin, 2013). Food pantry users were likely choosing foods that were cheap or energy dense, which could result in excessive weight gain (Robaina & Martin, 2013). Participants' low level of reported physical activity may also be a factor in their weight status. Only 21% of participants reported they "often" did an activity long enough to work up a sweat, 48% reported this happened "sometimes" and 31% reported this happened "rarely or never." The high rate of obesity and overweight also helps to explain why one of the top nutrition education interests among participants was weight management (38%).

CHAPTER VI

CONCLUSION

In order to improve the dietary intake of older adult food pantry participants, there must be an increase in nutrient dense food options at the pantry. Specifically, food pantries should focus on increasing fruits, vegetables, dairy and whole grain options; while decreasing the amount of high sodium, sugar and fat options. Multiple approaches can be made to promote this plan of action. One proposal would be for food banks to request food items that are nutrient dense, while providing them in sufficient quantities to food pantry clients (Akobundu, Cohen, Laus, Schulte, & Soussloff, 2004). This can be achieved by educating donors on the importance of nutritious food donations and how these food items can affect the quality of life of older adult participants (Jackelen, 2013). In addition, nutrition education should also be provided to food pantry participants and staff, which can be accomplished through educational classes and handouts. Providing nutrition education to older adults will help them be able to optimize the food they receive from the pantry. In addition, providing nutrition education to food pantry staff can enable them to help older adults make healthy food choices. As for storage needs, food pantries can benefit from increasing their refrigerator storage, which will improve storage of fresh foods (Akobundu et al., 2004).

It is evident that a large percentage of older adults rely on food pantries as their main source of food assistance. In order to improve the dietary intake of food insecure older adults, food pantries must make alterations to their accessibility. This can be executed by increasing the frequency of food pantry visits and hours. In addition, it is vital that older adults start taking advantage of other food assistance programs such as SNAP. Research has shown older adults are less likely than younger adults to participate in SNAP (Geiger, Wilks & Livermore, 2014). There are numerous reasons why older adults are choosing to not use SNAP, for instance, "social stigma, expectation of lower benefits, receipt of other nutrition programs, complex SNAP application and geographical barriers" (Geiger, Wilks & Livermore, 2014). Increasing the number of older adult SNAP participation starts by breaking the stigmatism of food stamps through outreach and society education (Fuller-Thompson & Redmond, 2008). Outreach programs could consist of creating an easy accessibility to food stamp offices through mobile vehicles, while making them distinctly different from welfare offices (Robaina & Martin, 2013). These combined implications could encourage older adults to become more willing to utilize SNAP benefits.

There are a multitude of factors that impact an older adults' food security. These factors consist of a wide range of levels such as, intrapersonal, interpersonal, institutional, community or policy/social (Goldberg & Mawn, 2014). Working to make improvement in levels that may affect older adults, along with modifications to food pantries and SNAP, could benefit the lives of many older adults and result in a dramatic decrease in older adult food insecurity.

As for future research, one important area to study would be the new food pantry, *Our Daily Bread* in Stillwater, OK. This new food pantry is much more resourceful than the other food pantries that were studied. Comparing results of both this current study with evaluation of *Our*

Daily Bread would provide insight into whether improvements have been made and how it is overall impacting older adults.

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APPENDICES

APPENDIX A

Survey of Food Pantry Guests, 65 Years of Age and Older

I. Food Pantry:

1. Do you think the food pantry food helps you to continue to live at home?
   _____ Yes
   _____ No
   _____ Do not know

2. How do you get to the food pantry?
   _____ I drive myself
   _____ I ride with others
   _____ I ride the bus
   _____ Other _____

3. How often do you go to food pantries?
   _____ More than once a month
   _____ Once a month
   _____ A few times a year

4. How many people eat the food you get from the food pantry? _____

5. What do you think...	Yes, Often	Yes, Sometimes	No
If a bus came to the food pantry would you ride it?			
Does the food you get from the food pantry last until your next visit?			
Does the food you get from the food pantry ever spoil?			
Have you received expired food from the food pantry?			
Have you received dented food cans from the food pantry?			
Are there too many people at the food pantry?			
Can you reach the food items on the shelves at the food pantry?			
Is there enough space for you to get around in the food pantry?			
Do you need assistance choosing the food at the food pantry?			
Do you need assistance carrying the food at the food pantry?			
Do you like the food choices at the food pantry?			
Do you feel the food pantry has healthy food choices?			
Do you get to choose the foods you want at the food pantry?			
Do you ever feel embarrassed about going to the food pantry?			
Do you think people think less of you since you go to food pantry?			

6. Would you like....	Yes	No	Do Not Know
To go to the food pantry more often?			
The food pantry to be open more days of the week?			
The food pantry to be open longer hours?			

7. At the food pantry, would you like to have...	Yes	No	Do Not Know
More low fat food choices?			
More low sugar food choices?			
More low salt food choices?			
More whole grain food choices? (whole grain bread, cereal, pasta)			
More canned fruit and vegetable choices			
More fresh fruit and vegetable choices?			
More frozen fruit and vegetable choices?			
More dairy food choices?			
More fresh meat choices?			
More canned meat choices?			
More microwave food choices?			
Smaller food package sizes?			
Larger food package sizes?			
Recipes using the foods you receive at the food pantry?			

II. Food and Nutrition Education Interests:

1. Would you like to learn about: [Check the top **five** topics you would most like to learn about]:
_____ Healthy eating
_____ Diabetes management
_____ Weight management
_____ Lowering blood pressure
_____ Heart health
_____ Meal planning
_____ Stretching your food dollar
_____ Cooking with less fat
_____ Cooking with less salt
_____ Cooking with less sugar
_____ Cooking for one or two
_____ How to cook foods you get from the food pantry
_____ How to reduce food waste
_____ How to prepare and store foods safely
_____ Reading food labels
_____ Increasing physical activity
_____ Other topics (Please list):

III. Dietary:

1. What are the common ***types*** of fruits you eat? [Check all]
   _____ Apples
   _____ Bananas
   _____ Grapes
   _____ Melons
   _____ Oranges
   _____ Peaches
   _____ Pears
   _____ Strawberries
   _____ Other _____

2. What are the common ***types*** of vegetables you eat? [Check all]
   _____ Carrots
   _____ Corn
   _____ Broccoli
   _____ Green beans
   _____ Leafy greens
   _____ Peas
   _____ Squash
   _____ Potatoes
   _____ Other _____

3. What are the common ***types*** of grains you eat? [Check all]
   _____ Bread
   _____ Cereal
   _____ Crackers
   _____ Pasta
   _____ Rice
   _____ Tortillas
   _____ Other _____

4. What are the common ***types*** of dairy you eat? [Check all]
   _____ Milk
   _____ Fortified soy milk
   _____ Yogurt
   _____ Cheese
   _____ Other _____

5. What are the common ***types*** of fluid you drink? [Check all]
   _____ Milk
   _____ 100% fruit juice
   _____ Coffee
   _____ Tea
   _____ Water
   _____ Soda, regular
   _____ Soda, diet
   _____ Other _____

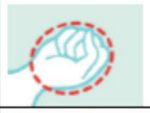
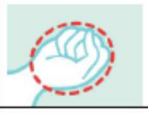
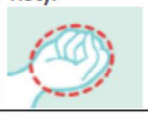
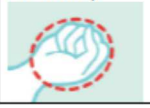
6. How man cups of fluid do you drink in a normal day?_____

7. What are the common ***forms*** of fruit you eat? [Check all]
   _____ Fresh
   _____ Canned
   _____ Frozen
   _____ Juice
   _____ Dried

8. What are the common ***forms*** of vegetables you eat? [Check all]
   _____ Fresh
   _____ Canned
   _____ Frozen
   _____ Juice
   _____ Dried

9. Do you have any special dietary needs? [Check all]
   _____ Low fat
   _____ Low sodium
   _____ Low sugar
   _____ Food allergy _____
   _____ Other _____

10. Are there any foods you do not eat because of your culture or faith?
    _____ No
    _____ Yes_____

11. How many....			
Cups of fruit do you eat in a normal day? _____	1 cup of raw or cooked fruit counts as 1 cup fruit (about the size of a fist). 	1 cup of 100% fruit juice counts as 1 cup juice (about the size of a fist) 	½ cup dried fruit counts as 1 cup fruit (about the size of a cupped handful). 
Cups of vegetables do you eat in a normal day? _____	1 cup of raw or cooked vegetable counts as 1 cup vegetable (about the size of a fist). 	2 cups raw leafy vegetable counts as 1 cup vegetable (about the size of two fists). 	1 cup of vegetable juice counts as 1 cup vegetable (about the size of a fist). 
Ounces of grain do you eat in a normal day? _____	1 slice of bread counts as 1 ounce of grain	1 cup of ready-to-eat cereal counts as 1 ounce grain (about the size of a fist). 	½ cup cooked pasta, rice or cereal counts as 1 ounce grain (about the size of a cupped hand). 
Ounces of protein do you eat in a normal day? _____	3 ounces of meat, fish, chicken or pork counts as 3 ounces protein (about the size of the palm of your hand). 	1 egg counts as 1 ounce protein. 1 tablespoon peanut better counts as 1 ounce protein (about the size of your thumb) 	¼ cup cooked beans counts as 1 ounce protein (about the size of an egg) ½ ounce nuts or seeds counts as 1 ounce program (about the size of a cupped hand) 
Cups of dairy do you eat in normal day? _____	1 cup milk, yogurt or soymilk counts as 1 cup of dairy (about the size of a fist) 	1 ½ ounces of natural cheese counts as 1 cup dairy (about the size of 1 ½ thumbs) 	2 ounces of processed cheese counts as 1 cup dairy (about the size of 2 thumbs) 

12. How often do you...	Seldom, If Ever	Some Days	Most Days	Do Not Know
Eat breakfast?				
Eat lunch?				
Eat dinner?				
Prepare meals at home?				
Have the food you need to make healthy meals?				
Eat meals alone?				
Eat meals with others?				
Eat fast food?				
Get rides from family or friends?				
Get help shopping for food from family or friends?				
Get help preparing meals from family or friends?				

13. Do you...	Yes, Often	Yes, sometimes	No
Feel comfortable reading and understanding food labels?			
Feel comfortable planning menus?			
Feel comfortable writing a shopping list?			
Feel comfortable selecting healthy foods at the grocery store?			
Have problems grocery shopping (energy, driving, seeing, walking, and carrying groceries)?			
Have problems preparing meals (energy, seeing, standing, walking, strength, and using your hands)?			
Have problems eating (chewing, swallowing, using your hands)?			
Have problems with taste or smell?			
Have a car?			
Have enough money for gas and car insurance?			
Have electricity?			

14. Do you...	Yes	No
Have running water?		
Have a refrigerator?		
Have a freezer?		
Have an oven?		
Have a microwave?		
Have a crock pot?		
Have an electric skillet?		
Have enough space to store frozen food?		
Have enough space to store refrigerated food?		
Have enough space to store dry food?		
Have the right tools to prepare meals at home?		
Have the cooking skills to prepare meals at home?		

15. If you do not have enough food, do you ever…	Yes, Often	Yes, Sometimes	No
Eat smaller meals?			
Skip meals?			
Stretch meats? (make soups or casseroles; add rice or noodles)			
Eat expired foods?			
Eat foods that may have been stored too long?			
Eat community meals provided by local churches?			
Get help with food from family or friends?			
Have to choose between eating and paying rent or utilities			
Have to choose between eating and buying medicine?			
Have to choose between eating and feeding a pet?			
Sell or pawn items?			
Other topics (Please list):			

IV. Health status: Mark what best describes you.

1. What is your height? _____

2. What is your weight? _____

3. Without wanting to…	No	Yes, Decreased	Yes, Increased	Do Not Know
Has your food intake changed over the past 3 months?				
Has your weight changed over the past 3 months?				

4. Do you have any of these conditions [Check all]?
   _____ Heart Disease
   _____ High blood pressure
   _____ Diabetes
   _____ Fatigue
   _____ Depression
   _____ Arthritis
   _____ Osteoporosis
   _____ Food allergies _____

5. In a normal week (7 days) how often do you do activity long enough to work up a sweat (heart beats rapidly)?
   _____ Often
   _____ Sometimes
   _____ Rarely or Never

V. Food Security: Mark what best describes you.				
In the last 12 months...	Often True	Sometimes True	Never True	Do Not Know
1. The food I bought just didn't last, and I didn't have money to get more.				
2. I couldn't afford to eat balanced meals.				

In the last 12 months...	Yes (answer question 4)	No (skip question 4)
3. Did you ever cut the size of your meals or skip meals because there wasn't enough money for food?		

Answer question 4, if you answered Yes on question 3.	Almost Every Month	Some Months, but Not Every Month	Only 1 or 2 Months	Do Not Know
4. How often did this happen?				

In the last 12 months...	Yes	No	Do Not Know
5. Did you ever ***eat less than you felt you should*** because there wasn't enough money for food?			
6. Did you ever ***eat less than you felt you should*** because you couldn't get the food you needed even though you had money for food?			
7. Did you ever ***eat less than you felt you should*** because you were unable to prepare a meal even though you had food in the house?			
8. Did you ever ***eat less than you felt you should*** because you didn't feel up to cooking?			
9. Were you ever ***hungry but didn't eat*** because there wasn't enough money for food?			
10. Were you ever ***hungry but didn't eat*** because you couldn't get the food you needed even though you had money for food?			
11. Were you ever ***hungry but didn't eat*** because you were unable to prepare a meal even though you had food in the house?			
12. Were you ever ***hungry but didn't eat*** because you didn't feel up to cooking?			
13. Were you ever unable to ***eat the right food for your health*** because you couldn't afford them			
14. Were you ever unable to ***eat the right food for your health*** because you couldn't get the food you needed even though you had money for food?			
15. Were you ever unable to ***eat the right food for your health*** because you were unable to prepare a meal even though you had food in the house?			
16. Were you ever unable to ***eat the right food for your health*** because you didn't feel up to cooking?			

VI. Demographics: Mark what best describes you.

1. What is your age? _____

2. What is your gender?
   _____ Male
   _____ Female

3. Are you Hispanic?
   _____ Yes
   _____ No

4. What is your race? [Check all]
   _____ African American (Black)
   _____ Asian American
   _____ Caucasian (White)
   _____ Native American
   _____ Other _____

5. What is your highest level of education?
   _____ Some high school
   _____ High school graduate
   _____ Some college/associates degree
   _____ Bachelor's degree
   _____ Some graduate school or higher

6. Are you currently employed?
   _____ No
   _____ Yes, part time
   _____ Yes, full time

7. What city do you consider your home?
   _____ Cushing
   _____ Glencoe
   _____ Perkins
   _____ Ripley
   _____ Stillwater
   _____ Yale
   _____ Other _____

8. What is your current living situation?
   _____ Apartment /House / Mobile home
   _____ Homeless
   _____ Local shelter
   _____ Retirement center
   _____ Roxie Weber
   _____ Other_____

9. Not including yourself, how many adults (18 years or older) live with you? _____

10. How many children (younger than 18 years) live with you? _____

11. How many family members or friends do you have nearby that can help you?
   _____ None
   _____ Very few
   _____ Many

12. What food assistance programs do you use? [Check all]
   _____ Community/Church Meals
   _____ Food Distribution Program on Indian Reservations
   _____ Food Pantries
   _____ Food Stamps/ SNAP
   _____ Home Delivered Meals
   _____ Senior Farmers Market
   _____ Senior Meals (Project Heart)
   _____ Other_____

13. What range is your annual household income?
   _____ Less than $12,000
   _____ $12,000 - $16,000
   _____ $16,001 - $20,000
   _____ $20,001 - $24,000
   _____ $24,001 - $28,000
   _____ Over $28,000

APPENDIX B

Introduction Script

Hello, my name is Hannah and I am a graduate student in Nutritional Sciences at Oklahoma State University and this is Janice, a professor at Oklahoma State University.

We are doing a project with food pantry guests, 65 years of age and older, to determine the needs and issues faced by older adults who obtain food from food pantries.

We believe this survey will provide valuable information to positively impact older adult food insecurity not only in Oklahoma, but also across the country.

Participation in this project involves completing a survey *(hold up program evaluation survey)*. We would like to point out:

- Your name is not recorded on the survey.
- You may skip any question you do not wish to answer.
- We estimate it will take you thirty minutes to complete the survey.
- There are no risks associated with this project greater than those ordinarily encountered in daily life.
- Your participation in this project is voluntary. Turning in your completed program evaluation survey in the box provided indicates your willingness to participate in this project.
- Individuals who complete the survey will be provided with $20 cash.

If you would be interested in participating in this project, please come over to (area indicated) where we will assist you in completing the survey.

APPENDIX C

PARTICIPANT INFORMATION
OKLAHOMA STATE UNIVERSITY

Title: Survey of Food Pantry Guests, 65 Years of Age and Older

Investigator(s): Hannah Robinson, B.S., Nutritional Sciences Graduate Student, Oklahoma State University; Janice Hermann, PhD, RD/LD, Professor Department of Nutritional Sciences, Oklahoma State University

Purpose: The purpose of this project is to survey older adults, who obtain food from one of the food pantries in Stillwater, Oklahoma regarding:

- Benefits and barriers to utilizing food pantries;
- Types of foods available at food pantries;
- Special dietary needs; and
- Food and nutrition educational interests.

What to Expect: Participation in this project will involve completing a survey evaluating older adults' use of food pantries. You may skip any questions you do not wish to answer. You will complete the survey one time. It should take you about 30 minutes to complete the survey.

Risks: There are no risks associated with this project which are expected to be greater than those ordinarily encountered in daily life.

Benefits: Determining the needs and issues faced by older adults who obtain food from food pantries can provide valuable information to positively impact older adult food insecurity not only in Oklahoma, but also across the country.

Compensation: You will receive $20 cash for completing the survey.

Your Rights and Confidentiality: Your participation in this project is voluntary. There is no penalty for refusal to participate, and you are free to withdraw your consent and participation in this project at any time.

Confidentiality: The records of this project will be kept private. Any written results will discuss group findings and will not include information that will identify you. Survey data will be stored on a password protected computer in a locked office and only researchers and individuals responsible for research oversight will have access to the data. Data will be destroyed three years after the project has been completed.

Contacts: You may contact any of the researchers at the following addresses and phone numbers, should you desire to discuss your participation in the project and/or request information about the results of the project: Janice Hermann, Ph.D., R.D./L.D. College of Human Sciences, Department of Nutritional Sciences, Oklahoma State University, Stillwater, OK 74078, 405-744-4601 or Hannah Robinson B.S., Nutritional Sciences Graduate Student, Oklahoma State University, Stillwater, OK 74078, 405-744-4601. If you have questions about your rights as a project volunteer, you may contact the IRB Office at 223 Scott Hall, Stillwater, OK 74078, 405-744-3377 or irb@okstate.edu

If you choose to participate: Returning your completed survey in the self-sealed envelope provided indicates your willingness to participate in this project.

APPENDIX D

Oklahoma State University Institutional Review Board

Date:	Tuesday, March 21, 2017
IRB Application No	HE1719
Proposal Title:	Survey of food pantry guests, 65 years of age and older
Reviewed and Processed as:	Exempt

Status Recommended by Reviewer(s): Approved Protocol Expires: 3/20/2020

Principal Investigator(s):

Hannah Robinson
Stillwater, OK 74078

Janice Hermann
301 HES
Stillwater, OK 74078

The IRB application referenced above has been approved. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in section 45 CFR 46.

☐ The final versions of any printed recruitment, consent and assent documents bearing the IRB approval stamp are attached to this letter. These are the versions that must be used during the study.

As Principal Investigator, it is your responsibility to do the following:

1. Conduct this study exactly as it has been approved. Any modifications to the research protocol must be submitted with the appropriate signatures for IRB approval. Protocol modifications requiring approval may include changes to the title, PI advisor, funding status or sponsor, subject population composition or size, recruitment, inclusion/exclusion criteria, research site, research procedures and consent/assent process or forms
2. Submit a request for continuation if the study extends beyond the approval period. This continuation must receive IRB review and approval before the research can continue.
3. Report any adverse events to the IRB Chair promptly. Adverse events are those which are unanticipated and impact the subjects during the course of the research; and
4. Notify the IRB office in writing when your research project is complete.

Please note that approved protocols are subject to monitoring by the IRB and that the IRB office has the authority to inspect research records associated with this protocol at any time. If you have questions about the IRB procedures or need any assistance from the Board, please contact Dawnett Watkins 219 Scott Hall (phone: 405-744-5700, dawnett.watkins@okstate.edu).

Sincerely,

Hugh Crethar, Chair
Institutional Review Board

VITA

Hannah Grace Robinson

Candidate for the Degree of

Master of Science

Thesis: Low Income Older Adults' Use of Food Pantries as a Way to Cope with Food Insecurity

Major Field: Nutritional Science

Biographical:

Education:

Completed the requirements for the Master of Science/Arts in your major at Oklahoma State University, Stillwater, Oklahoma in May, 2018.

Completed the requirements for the Bachelor of Health and Human Performance Health Promotion at Fort Hays State University, Hays, Kansas in December, 2014.

Experience:

Graduate Research Assistant, Department of Nutritional Sciences, Oklahoma State University, Stillwater, Oklahoma, 74074 from November to December, 2017.

Professional Memberships:

Member of the Academy of Nutrition and Dietetics