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# Thinking Inside the Food Pantry Box

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# Thinking Inside the Food Pantry Box

by

Elizabeth L. Shoaf

A project submitted to the faculty of
Gardner-Webb University (GWU) Hunt School of Nursing (HSON)
in partial fulfillment of the requirements for the degree of
Doctor of Nursing Practice

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## Approval Page

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## Abstract

**Background:** Prior research has indicated a varying relationship between food security and obesity risk. Food insecurity is a known complication of men and women's underlying health issues, such as hypertension and diabetes, because of altered food choices.

**Objective:** Provide healthier food options to the food insecure within the facility's food distribution boxes, as available, for the two most common health issues (diabetes and high blood pressure).

**Methods:** Clients at a local food pantry were interviewed individually to learn more about food insecurity and complicating health issues, such as obesity, diabetes, and high blood pressure (hypertension) while simultaneously offering alternative food box options.

**Results:** Over half of the participants self-reported being previously told by a health care professional they should lose weight, have hypertension, and/or have diabetes. Fifty-two percent of the project participants choose a customized food box for hypertension or diabetes.

**Conclusion:** A need exists in this population for food based on the chronic health issues of diabetes and hypertension. In the future, ensuring the nutritional quality of donated food is an important consideration to build the needed boxes for the population served.

*Keywords:* food insecurity, food pantry, obesity, diabetes, hypertension

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Lastly, because this project and everything I have learned through this program would not have been possible without my professors and clinical mentors, I thank each one of you (especially Dr. Cindy Miller who planted the inspirational seed with county health rankings)!

## Dedication

I dedicate this work to those who have influenced my past and present and those who will hopefully benefit from it in the future. As to my past, it is with profound appreciation to my first “nursing” teacher, Mrs. Beth Harris, that I dedicate my work. You nurtured my body, mind, and spirit. You modeled love, hard work, sacrifice, and caring for others. Additionally, I am most grateful to all the nursing legends who taught me and colleagues who have sustained me. To the past, present, AND future, I dedicate my work to my wonderfully supportive husband, Phillip Shoaf! You are the one who made my doctoral studies possible in many ways. Phillip and my stepson, Maddox, (who I hope has seen the positive modeling of continuous learning) have been extremely patient during this journey. Thank you for everything!

To those with food insecurity, I applaud your strength and bravery! As I have researched, I have learned about your struggles. Your unmet needs propel me; they must become visible in society to be understood. So, this project is dedicated to you and the nurses/volunteers who care for you. In the future, may your needs be better met and your suffering is less. There is always more to learn.

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## Introduction

Nutritional intake is an important aspect of overall health and wellness. A major public health problem is food insecurity ("Health Care Provider Training," 2021). Taylor et al. (2021) define food security as the "access by all people at all times to enough food for an active, healthy life" (p.1). Food insecurity is defined as not having the resources to obtain adequate food to survive (Testa & Jackson, 2019) and being frequently or occasionally hungry (Gregg, 2014). Those with food insecurity face problems with their health and wellness (Gregory & Coleman-Jensen, 2017). A primary health concern is obesity, which is a "growing burden" (Farrell et al., 2017, p. 824).

Obesity is defined as excess body fat (Dossey & Keegan, 2016), is considered preventable (Farrell et al., 2017, p. 5), and is measured by a body mass index (BMI) greater than 30 kg/$m^2$. Obesity is prevalent in the country, the United States (US), within each state, and locally within the various counties. To track the prevalence of obesity across a county, health rankings are calculated. Each county's health rankings depict a population's health through data and provide a guide to assess a need within a community. Over the last decade, the 2020 Health Rankings data for the US, North Carolina (NC), and Davidson County show adult obesity as trending upwards. In 2021, 36% of adults, over the age of 20, were reported as obese in Davidson County, NC ("How healthy is your county?", 2020). Obesity, "an unhealthy body weight, has numerous physical health consequences" including diabetes and high blood pressure (O'Quinn, 2012, p.14). According to the *Dietary Guidelines for Americans,* about 45% of

adults have hypertension and 11% of adults have diabetes ("U.S. Department of Agriculture and U.S. Department of Health and Human Services," 2020).

**Problem Recognition**

Studies have depicted a relationship between food insecurity, BMI, and "poor diet quality among men and women in food deserts" (Taylor et al., 2021, p.2); which are "geographic areas where residents do not have access to supermarkets or grocery stores" (Testa & Jackson, 2019, p. 445). Davidson county is 47.4% rural, whereas NC overall is 33.9% rural ("How healthy is your county?" 2020). In Davidson County, "less than half of the zip codes" (O'Quinn, 2012, p. 35) do not have access to healthy food outlets and are considered food deserts – a barren area. Food pantries are established by public and private organizations to decrease food insecurity (Martin et al., 2013). A food pantry is a site where community members can obtain food supplies at no cost (Martin et al., 2013). Originally food pantries were established for emergency food aid; however, now they serve clients on a more routine basis (Wetherill et al., 2019, p. 50). The local food pantry, located in Lexington, NC, is a non-profit organization created to serve low-income individuals by providing monthly allocations of groceries. To be eligible for this allocation, a household with an adult member, 18 or older, must have a monthly gross income at or below 130% of the federal poverty guideline (this would be at or below $2,839 a month for a family of four in the US) (Harris, 2021).

Typically, food insecurity would be linked with under-nutrition (Farrell et al., 2017); however, the relationship tends to be the opposite. Individuals experiencing food insecurity "alternate between a state of hunger and a state of consumption of low-cost,

high-calorie, nutrient-poor foods in order to avoid hunger" (Testa & Jackson, 2019, p. 445). Limitations to the access to food and the quality of food have devastating consequences on population health and many negative outcomes across the life course (Robaina & Martin, 2013). In 2021, 14% of the population was documented as food insecure in Davidson County, NC ("How healthy is your county?" 2020) – higher than the United States at 9% and the same as NC's overall at 14%.

The supply of food at food pantries is based on donations and is typically over-processed, highly refined, and high in sodium (Gregg, 2014). Optimal nutrition is difficult for those with limited or no access to a stable food source of healthy foods and fresh produce (O'Quinn, 2012). Individual health and wellbeing are shaped by diets, lifestyles, location, and economic prospects. These conditions impact health and the ability to make healthy choices. The obesity problem will need to be addressed holistically (Dossey & Keegan, 2016).

**Problem Statement**

The food pantry has served over 3,000 households since its establishment in 2008 (Lexington Food Assistance, 2021). The food inventory at the food pantry "contains excess foods and beverages that are both nutritionally empty and energy-dense;" leading to a "lack of healthful caloric intake and adequate nutrition" (Handforth et al., 2013, p. 411). Within the local food pantry's electronic record system, Link2Feed, there is inconsistent documentation of the health and dietary restrictions of each client. Household food insecurity results in health issues such as obesity, diabetes, and hypertension due to a lack of nutritional food; therefore, the importance of the health and

dietary documentation to dictate special food distribution and potentially provide customized health education. Food pantries are known to "serve populations with higher rates of nutrition-related chronic disease" (Wetherill et al., 2019, p. 50). These health issues (obesity, diabetes, and hypertension) are well-documented and relevant problems in Davidson County. The magnitude of not addressing these problems could result in complicating the health and wellness of the food insecure population by not providing appropriate food based on the client's self-reported health issues. Roman (2017) states that to truly serve a community, a food pantry "must-see food as the chief tool to prevent diabetes and heart disease" (p. 61)

## Literature Review and Synthesis

Many sources and databases were used to conduct a literature review, such as Bulldog OneSearch, Science Direct by Elsevier, and ProQuest Central. The keyword search was focused on the main concepts of the research, including food insecurity, obesity, and food pantry. Only English language papers were included. This literature review was completed to provide a foundation of knowledge on the topic of food insecurity, the possible association to obesity in adults, and the relationship of these findings to food pantries. The sources and databases were used to identify peer-reviewed journal articles that studied the relationship between food insecurity and obesity and the importance of proper food selection for clients with self-reported diabetes and hypertension.

The review generated 23 peer-reviewed articles which added theoretical insight to the potential associations between food insecurity and obesity in adults, published

between 2012 and 2021. Of the reported studies, all discussed a positive or neutral association between food insecurity and obesity; none listed negative associations. A variety of methods were used to measure food insecurity and obesity, from written surveys and direct physical measurements to verbal interviews with self-reporting. Limitations expressed as a potential barrier were the fears of decreased food donations if screening is established for quality (Roman, 2017).

**Association**

Dhurandhar (2016) conducted research to explore the associative relationship between food insecurity and obesity and concluded that "fattening is a physiologically regulated response to a threatened food supply" (p. 88). Farrell et al. (2017) published a "realist review" (p. 812) analyzing 13 different studies that focused on potential factors which could cause an insecure population to be obese or not. Testa and Jackson (2019) also investigated the association and used a waist-to-height ratio as their obesity measuring metric. After looking at all the associations, the researchers concluded the need for a further in-depth review to deepen the understanding of the complex association between measuring the food access and obesity relationship.

Nguyen et al. (2015) and Courtemanche et al. (2019) both conducted studies to analyze the possible connection of government assistance to diet quality. Each study explored the role food plays in health. Programs are established for the food insecure "to obtain a healthier diet and better weight" (Nguyen et al., 2015, p. 1453). The researchers from both publications were not able to provide concrete conclusions and deemed more research needed in the area. Courtemanche et al. (2019) reviewed many details of data

collection and the mixed results that are documented as "imperfect administrative measures" (p. 202). Unknown bias could be presented as the research by Courtemanche et al. (2019) was supported by a U.S. Department of Agriculture grant.

**Methods to Measure**

Kaur et al. (2015) conducted a study looking at elementary-age children and concluded that food insecurity increases the risk of childhood obesity. Taylor et al. (2021) conducted a study examining gender disparity; concluding that mothers are more likely to compromise their diets for their children than the child's father. Gregory and Coleman-Jensen (2017) conducted a study looking at working-age adults and concluded a strong correlation between food security and chronic health conditions. Smith et al. (2016) conducted a study looking at low-income Hispanic communities living in California and concluded a need to examine broader influences within the Hispanic communities. Smith et al. (2017) looked at a community in California to establish a screening and referral program for food insecurity. Testa and Jackson (2019) investigated the association of food insecurity, living in a food desert, and waist-to-height ratios to sex and race/ethnicity. No matter the location or group, the literature identified food insecurity, and obesity as a "complex relationship" (Nguyen et al., 2015, p. 1458).

Many of the researchers identified interviews as the golden standard for data collection. Handforth et al. (2013) utilized the verbal interview approach across 20 different food bank locations; this data collection process was time-consuming, and the possibility of misreporting was a concern. The food insecure population presents hurdles to properly capturing information in a credible way due to "recall-bias, education-level,

literacy barriers," and the possible shame associated with the answers (Smith et al., 2017, p. 138). The other researchers used direct methods: observations, direct physical measurements, or paper surveys. The paper surveys and computer-generated report methods are helpful in that a staffing model is not needed to allow for constant data.

### Limitations

Many researchers found limitations within their findings. The food insecure population is considered a vulnerable population and most data collected was self-reported which "may reflect an individual's own perception rather than the actual situation" (Nguyen, 2015, p. 1457). The food insecure population may answer questions to avoid potential judgement by the interviewer. Another limitation surrounds the food distributed at food pantries. Food banks and food pantries worry that donations will decline "if they screen donations for quality" (Roman, 2017, p.62).

In summary, the peer-reviewed articles had a similar target: empowering diet-related health while simultaneously addressing hunger (Roman, 2017). The observations of the studies concluded with a universal perception that there is a "powerful link between food and health" (Roman, 2017, p. 61). The need for nutritious food in food pantries is evident as noted within this literature review.

## Needs Assessment

### Research Question

The PICOT framework provides an ideal model for assessing the population by developing a clinical question. PICOT is an acronym that refers to population, intervention, comparison, outcome, and timeframe (Zaccagnini & Pechacek, 2021,

p.210). PICOT: How does offering specialty food boxes based on the popular health issues of the client population compared to the documented health and dietary restrictions for the food pantry clients for the next 60 days? The interest level could lead to the future development of a specialty box program. For households, there will be three options: the regular box, the diabetic box, and the hypertension box. Many "food pantry programs have historically prioritized food quantity (i.e., pounds or bags of food) over nutritional quality with a primary aim to provide foods as a means for ministry or hunger relief" rather than creating a tailored food distribution program based on underlying health issues (Wetherill et al., 2019, p. 50). Without documented health and dietary restrictions, the food pantry would not be prepared with the necessary food items for the health needs of the clients.

**Sponsors and Stakeholders**

Partnering with many sponsors will be needed to develop a plan and achieve desired outcomes. Sponsors will include the local food pantry and the local food bank. Collaboration with a broad base of stakeholders will be needed to make data-driven decisions to improve adult obesity metrics and support the self-reported client health issues of diabetes and hypertension. Stakeholders include the Executive Director of the local food pantry, the Board of Directors of the local food pantry, volunteers at the local food pantry, the Regional Partnership Manager of the local food bank, local high school medical science teachers, and local churches.

## Organizational SWOT Analysis

A strengths, weaknesses, opportunities, and threats (SWOT) analysis is "a powerful and simple tool" (Zaccagnini & Pechacek, 2021, p.362). The analysis will identify positive and negative factors and conditions of the food pantry. The information will provide important input to the design of the project to facilitate success.

### *Strengths*

The food pantry has a positive community image and an excellent reputation. The food pantry has a loyal board of directors and committed volunteers who are dedicated, engaged, and respectful to the population served. Additionally, there are strong relationships with the local churches, civic clubs, and surrounding schools within the community. The group of regular volunteers showcase strong leadership qualities and appear open to change or new ideas to increase efficiency and effectiveness.

The population living in the surrounding area of the facility is close in proximity within an approximate six-mile radius of the facility to utilize the services. Since the initial establishment of the food pantry, resources and access have been expanded resulting in "mini" pantries scattered within the vicinity. The mini pantries are utilized by clients during the food pantry's closed hours. The food pantry also has a weekend backpack feeding program for elementary school students who have been identified by the local schools as food insecure.

### *Weaknesses*

The food pantry is a non-profit organization with a limited budget for expenses and restrictions on food storage due to space. The food pantry receives weekly donations

of fresh food that are near or past expiration dates from a local grocery store; therefore, the fresh food shelf life is short no matter the storage conditions. The food pantry has several refrigerators and freezers to maintain appropriate food temperatures; however, the dependability of their functioning and continuous power could be problematic due to the age of the building and the building only being accessed twice a week.

Current educational curriculums for healthcare providers have little to no content on nutrition (Smith et al., 2017). The potential lack of content places new providers at a disadvantage when entering the practice setting post-graduation and negatively impacts patients with “nutrition-related chronic conditions, including diabetes, hypertension, and obesity” (Wetherill et al., 2019, p. 50) who need nutrition-focused education. Additionally, there are limited local clinicians who support the local food pantry.

***Opportunities***

In the future, the facility has many opportunities that could benefit the surrounding community participants. Recently, new technology has been introduced to track client pick-ups; however, not all components of the documentation are being captured. For example, the food allergies and the underlying health conditions of everyone in the household are areas not being captured. To ensure the monthly allocation of food meets each client’s health and specific dietary needs, the documentation should be completed on each record. The food pantry tracks monthly metrics on the number of individuals and households served, pounds of food bought, and pounds of food donated. With the new technology software, data can be easily converted into specific reports and shared for greater awareness of the pantry’s impact on the community.

Resources are limited at the food pantry, such as health educators and healthy food options. Creating a stronger connection between healthcare and healthy food access in the community can address this limitation. With this connection, certain foods can be encouraged by the health educators and meal examples can be recommended for clients with complex illnesses. Collaborating with local farmers could increase fresh food donations. Relationships with local policy leaders could enhance local funding and investments.

The county's health department publishes a "State of the County Health Report" yearly. In 2019, the report identified obesity as a high-priority health issue (Davidson County Health Department, 2019). If the health department's priorities are aligned and united with the food pantry, greater success could be achieved across the county. The food pantry typically provides non-perishable food items to clients and has limitations in fresh food donations. To increase the fresh food supply, a vegetable garden could be created on the food pantry property in conjunction with indoor hydroponic tower garden systems for year-long harvesting. Additionally, the food pantry could improve education and awareness for its clients by leveraging local education systems and offering nutrition and cooking classes.

### ***Threats***

The food pantry system faces many obstacles that present concern. There is currently a risk of a possible economic recession combined with the effects of the COVID-19 pandemic. The food pantry relies heavily on the new Link2Feed software to document and reference household information when clients arrive in the drive-thru, a

technology failure or poor internet access would devastate this process and affect the documentation. Donated food is a large source of what is given to clients. Most food that is donated is "high fat, high-sugar, and salty foods as opposed to fresh produce, lean meats, and whole grains" (Martin et al., 2020, p. 422). Other threats include potential changes in public policy funding, an increase in population longevity, the possible future changes within the local volunteer pool regarding quality and quantity, and the uncertainty of local future financial support.

**Available Resources**

To support the current project, the Link2Feed technology system will be utilized to document the health and dietary considerations within each household. This system will be able to export reports indicating positive progress on health and dietary restrictions documentation and project needed dietary items for future regular and specialty food box distribution. The overseeing food bank of the local food pantry, Second Harvest, has a formal Food and Nutrition Program. Due to the local county's high adult obesity metric, the local health department will also be a strong resource.

**Desired/Expected Outcomes**

The outcomes of this project are targeted to (1) establish a relationship exists between food insecurity and adult obesity/BMI in vulnerable populations (adult food pantry clients) and (2) provide healthier food options within a food pantry's food distribution boxes, as available, for the two highest health problems (diabetes and high blood pressure).

## Team Selection

The Project Committee members include the Executive Director at the local food pantry and the Regional Partnership Manager of Second Harvest Food Bank of Northwest North Carolina (NWNC). Additionally, the project topic calls for a nurse as a practice partner – this role will be filled by a local registered nurse. Nurses play a vital role in identifying high-risk populations and leading improvements in health outcomes (Bemker & Ralyea, 2018). Knight (2015) states that nurses cannot "help an entire population without the right data" (p. 145). Nurses within communities can use data as a tool to improve outcomes, by establishing the issues that need attention and promoting healthier living (Bemker & Ralyea, 2018). Additionally, "with food insecurity as such a strong indicator of chronic health issues," it is vital that nurses be a component of the project (Martin et al., 2020, p. 422). This team will evaluate previous research on the food insecurity topic and explore plans to bridge the health gaps.

## Cost/Benefit Analysis

The average cost of the food supplies within each food distribution box for a household is approximately $50.79 per box, per month depending on the quantity and type of items the food pantry receives in donations (Appendix A). All food supply costs are covered by the food pantry and supported by donations. The cost of the specialty boxes should not raise or lower the cost – it will be the same food types, just with nutrition labels that support the lower sodium or lower sugar needs of the food pantry clients with diabetes and high blood pressure.

Additional project costs include labor and research-related materials. The project will require the data collector's time, which would be at least 6 hours a week. Additional project costs include tangible materials paper, ink, computer, printer, clipboards, and pens.

The benefits of solving the problems with this vulnerable population are worth the added expense. Post-project, the food pantry will need educated volunteers to continue supporting the population's health needs by ensuring the health and dietary documentation and overseeing nutrition guidelines for each of the specialty boxes. The volunteers will assemble boxes and make food selections for the regular, diabetic, and high blood pressure boxes based on the food pantry's nutrition guidelines.

**Scope of Project**

The project will collect data via questionnaires to facilitate efforts to provide healthier food box options to food pantry clients based on the highest documented, self-reported health issues. The project will collaborate with local resources to offer low and/or no sugar and reduced and/or low sodium options to food pantry clients. The project will not require participation and will not impact the amount of food distributed to those who do or do not participate. Participation in this study will be voluntary and participants will have the right to withdraw or not participate at any time without penalty. They will also have the right to refuse to answer any question, for any reason. If they choose to withdraw during the data collection process, they can request any data that has been collected be destroyed. There will be no identifying data to link the participant to the questionnaire. Participants will be informed that upon submission of data, after

completing the questionnaire, they cannot withdraw from the study due to data being de-identified in the DNP student's data. However, the Executive Director can modify information in the food pantry's software program at any time. Only the primary investigator will have access to the questionnaire data.

Participants will be notified of the option to participate or not participate without prejudice. Education regarding the purpose of the research, the collection method, and the use of data received will be shared. Each subject will be provided informed consent (Appendix B) prior to the pre-questionnaire (Appendix C). The project will gather participants from clients who frequent the food pantry during a 60-day period.

## Goals, Objectives, and Mission Statement

### Goals

The overall goal of this project was to examine how many customized food boxes are needed at a food pantry related to the food insecurity and obesity association within a sample of low-income adults. Population health is important; the population's health goal should be to create "a society in which all people live long, healthy lives" (Dossey & Keegan, 2016, p. 77). Health promotion will be a focus for the entire food pantry population. Following the gathering of information in the Pre-Questionnaire, project participants will be provided with the self-selected food box; with hopes of considering their existing health and dietary restrictions. A solution to the access to healthy food in association with underlying dietary needs and restrictions can provide resolution on many fronts such as diabetes and high blood pressure (hypertension).

**Objectives**

The overall objective of the project was to study a sample of low-income adults who visit the food pantry during the data collection period with the purpose of discovering health problems (diabetes, high blood pressure, etc.) and offering custom food boxes. Research shows the connection of this population, the food insecure, with obesity; therefore, the aim of serving this population with foods that correlate with their health needs is imperative. As a result of this project, healthier food options will be available at the food pantry for clients with special diet and health needs. Additionally, the questionnaire data can facilitate the forecasting of the needed food for the population severed in relation to self-reported dietary and health considerations.

Clients at the food pantry were asked questions from a questionnaire to collect data. Health and dietary considerations are a specific section on the new food pantry client application forms (Appendix D); however, this information is consistently not electronically documented or referenced by the food pantry volunteers before assembling a food box. Therefore, implementing future collection is sensible. Project progress will be measured by the number of questionnaires administered and the number of specialty boxes chosen. The data were collected twice a week during the food pantry's open hours on the clients that visit for their monthly allotment of food. No identifying information was collected about the clients for the purpose of this project. The information gathered will help with potential future educational materials and in-person educational experiences that can be shared with clients on individual food pick-up days. Additionally, the information provided guidance on the number of clients needing low-sodium or

sugar-free food options; therefore, allowing the food pantry volunteers to obtain the food options prior to pick-ups.

**Mission Statement**

The short-term mission of this project was to provide healthier food options within the food pantry's food distribution boxes, as available, based on reported client health problems (diabetes, high blood pressure, etc.) with the long-term aim of reducing the county's adult obesity ranking. The food items that the food pantry distributes should be customized based on the client and household's health and dietary considerations. This project will provide insight and direction on addressing the health issues most associated with the food insecure population.

## Theory

It is difficult to provide food pantry clients the opportunity to listen, learn, and lean on the volunteers when interactions are impaired due to time restrictions and communication differences. Dialog helps to bring people together; however, biases, education levels, literacy barriers, shame, and privacy can dictate conversations (Smith et al., 2017). Food pantry clients should be treated with dignity and respect regardless of differences and Jean Watson's Theory of Human Caring is a great resource. Fostering a connection (Dossey & Keegan, 2016) between food pantry clients and food pantry volunteers is vital to "help strengthen meaningful and supportive bonds" (Dossey & Keegan, 2016, p. 158) so that the services provided meet the client's needs.

Trotter (2016) acknowledges that obesity carries a visible stigma. When a person is overweight, it is visible and puts a label on the individual according to today's current

culture (Bemker & Ralyea, 2018). Whenever a person is overweight, their size and potential limitations (e.g., on activities or pace of work) lead to discrimination (Bemker & Ralyea, 2018).

Jean Watson's Theory of Human Caring (Watson, 2008) was selected as the theoretical basis for this project (Appendix E). The food pantry clients may have varying levels of literacy and are likely of the lower economical class. Due to literacy concerns, the participants will have the pre-questionnaire and post-questionnaire read to them. The application of the theory will help in gaining insight into the values of the food insecure population and will facilitate empathy and compassion. The goal of leveraging Watson's theory is so that the clients receive appropriate communication during the limited monthly interactions showcasing Watson's Caritas which represents compassion and generosity of spirit (Watson, 2008).

Kabat-Zinn (1990) states "mindfulness is moment-to-moment awareness. It is cultivated by purposefully paying attention to things we ordinarily never give a moment's thought to. It is a systematic approach to developing new kinds of control and wisdom in our lives" (p. 2). The Human Caring Theory (Watson, 2012) guides one to act creatively and with an open mind to possibilities. Incorporating Watson's caring theory into the development of the questions included in the questionnaires will make a positive difference in the information the food pantry clients provide as answers. Ensuring caring attributes so that the food pantry clients feel safe and free from embarrassment is a priority.

## Planning

An overview of the project planning outline is outlined in Appendix F. The project tasks and activities were broken down into milestones; therefore, creating smaller subprojects or steps, that could be systematically identified and easily monitored (Zaccagnini & Pechacek, 2021). The major milestones of the project are designing, planning, implementing, monitoring, and evaluating. These milestones are captured within nine steps:

1. problem recognition
2. needs assessment
3. goals, objectives, and mission statement
4. theoretical underpinnings
5. work planning
6. implementation
7. interpretation of data
8. utilization
9. reporting of results

The project budget was expected to be approximately $9,590. The budget includes direct costs that are associated with conducting the research for the project; indirect costs are projected to be minimal. The main expenses of the project involve labor and materials. The DNP student was expected to provide over 150 hours to the project with an approximate cost of $9,360. There was an estimated cost of approximately $220 for materials. Indirect costs such as telephone and internet were not itemized due to their

minimal need for data collection. The items included in the budget were estimates and might not include unknown incidentals. The budget breakdown is available in Table 1.

**Table 1**

*Budget Breakdown*

| Cost Category | Detail | Cost |
|---|---|---|
| Direct costs | Labor: 1 DNP student for 6 hours a week @ $60/hour (for 6 months) | $9,360 |
| Direct costs | Materials (paper, ink) | $20 |
| Direct costs | Travel/Gas to research location by DNP student (624 miles in 6 months, $0.32/mile) | $200 |
| Total | | $9,580 |

## Evaluation

A logic model (Appendix G) has been constructed that summarizes the evaluation. The logic model depicts relationships that, if implemented as hypothesized will lead to the desired outcomes. The four sections within the logic model are linked together. The inputs within the logic model include resources and constraints. The activity task list includes specific tasks that need to happen to achieve the objectives of the research and the needs of the food pantry client population. The outputs are the deliverables of the project which are to occur because of the activities. The outcomes contain the impacts and changes associated with the outputs. The outcomes are short,

medium, and long-term in nature ranging from a short-term of 3 months to a long-term of 10 years.

An Excel pivot table will be created to assess the number of participants who have selected each specialty box which is question #1 on the pre-questionnaire (Appendix C). To identify the effectiveness of the implemented project the number of specialty boxes (high blood pressure and diabetic options) distributed will be totaled monthly. A Post-Resource Follow-up Questionnaire (Appendix H) will be administered to participants after 30 days to evaluate the client value of the food pantry box, specifically a specialty box.

## Implementation

The quality improvement project was approved by the Institutional Review Board (IRB) on January 27th, 2022, to ensure that participants would be protected, provided informed consent, ensured privacy issues were properly addressed, and collected data would be secured at all times. After approval, implementation began with data collection on February 3rd, 2022. Data were collected until May 3rd, 2022.

### Threats and Barriers

Many threats and barriers exist that can jeopardize the project's success. Foreseeable threats are those that are the known potential barriers at the beginning of project planning (Zaccagnini & Pechacek, 2021). Within the planning phase, the SWOT analysis identified possible obstacles; an economic recession, effects of the COVID-19 pandemic, technology failures, funding, population longevity, volunteer pool changes, and the uncertainty of financial support. No unforeseen threats were experienced.

Barriers to project implementation existed within the local volunteer pool. Initial volunteer interest and enthusiasm were high in the early project phases; however, the "long gap between discovery of new knowledge and implementation of that knowledge" (Zaccagnini & Pechacek, 2021, p. 385) seemed to diminish awareness and energy. Early project planning began in May of 2021 and implementation began in February 2022; the extended period between idea creation and follow-through resulted in "reduced interest over time" (Zaccagnini & Pechacek, 2021, p. 384) for the food pantry volunteers. The implementation phase involved tweaks to the food pantry client check-in process and volunteer role changes. Due to volunteers doing things the same way for a long period of time, change is hard, and resistance was verbalized and observed in non-verbal cues. An example of resistance includes volunteers asking questionnaire questions to the clients impromptu prior to informed consent and without the DNP project leader present. When this would occur, the DNP project leader would have private conversations with the volunteer to ensure the validity of the study. Another negativistic example of the resistance to the project's implementation was volunteers delivering food to the client's vehicle prior to allowing the DNP project leader to ask clients about participating in the project. When this occurred, the client was educated on the potential of participating in the questionnaire upon their next return to the food pantry. After a few occurrences, a streamlined check-in process emerged.

The relationships with the food pantry volunteers are key. It is important for all food pantry volunteers to understand and support the DNP project. Time had to be set aside to inform and train all pantry volunteers on the DNP project's purpose and goals.

The DNP Project was not just about changing items in the distribution box, it was more holistic about the pantry environment. To have a positive impact on the community, the pantry environment should be supportive of learning, conversation, and feel welcoming.

The barriers led to the development of different implementation strategies. The check-in process was initially adapted to allow for the long-standing volunteers to maintain their normal responsibilities, but with the data collection barriers, creativity was inserted to bypass the resistance. To ensure adequate data collection, the volunteers supportive of the DNP project were utilized to ensure the check-in process was followed with proper visit verification prior to the clients being approached for potential inclusion in the project. The supportive volunteers ensured that no food was taken to the client's vehicles until confirmation of the client’s box type was provided by the DNP project leader. This sequence of events was ideal but highly dependent on the quality and quantity of the volunteer pool that was present.

Other hurdles of implementation surrounded the privacy of the participants. Data collection consisted of 12 questions that took approximately 5 minutes to complete; however, the food pantry volunteers created frequent interruptions which disrupted the participant’s focus and creates an environment where answers may not be credible due to the lack of confidentially. Though the threats and barriers provide added stress, the DNP project leader cannot relinquish the leadership role or show diminished enthusiasm.
Not only was the DNP Project focused on creating healthy food box options for clients, but the project was also ensuring healthy food was in abundance at the pantry. Strategies

for increasing this were utilized through the food pantry's social media platforms. Some items needed within the established guidelines were hard to locate and required special buying efforts.

**Monitoring of Implementation**

The DNP project leader monitored every step of implementation and measured progress throughout. Executing the project began with the DNP project leader approaching a food pantry client's vehicle in the food pantry's drive-thru line. A script (Appendix I) was read verbatim to inquire about participating in the DNP project. If a food pantry client was interested, the Informed Consent (Appendix B) was read to them. Consent was considered given if the food pantry client agrees to participate in the DNP project. A paper-formatted questionnaire titled a Pre-Questionnaire is utilized to collect data. The Pre-Questionnaire has multiple choice questions and was developed by the DNP project leader and reviewed for face validity by the DNP project chair, the Executive Director of the food pantry, and the IRB Committee. The questionnaire offers alternative food boxes for the clients with questions designed to collect information on the client's eating habits, food challenges, and current underlying health issues. Participants had the Pre-Questionnaire read to them verbatim due to the potential of limited reading abilities and unknown literacy levels. The questionnaire took place in or near the participants' vehicle with no other participants or food pantry staff present to protect the participant's privacy. Participants were able to skip any question that caused discomfort and could stop answering the Pre-Questionnaire at any time.

Based on the answer to question one – a regular food box, a high blood pressure box, or a diabetic box was delivered to the participant's vehicle. The high blood pressure and diabetic boxes were chosen as specialty box options for the clients based on the food pantry's highest documented, self-reported health problems, heart disease and hypertension at 31% and diabetes at 23% (Appendix J). Specialty boxes were prepared by the food pantry volunteers in advance, just like the regular boxes. The individual box components and constructed boxes are stored on shelves anticipating client arrivals.

**Project Closure**

Within the food pantry's software, Link2Feed, which was password-protected, the "alert" note feature was utilized to document each client visit. If a client agreed to participate in the DNP project, their food box selection was included within the visit "alert" documentation. The alert was displayed at the top of their record and was referenced upon their next food pantry visit.

Upon their next return visit to the food pantry, approximately 30 days after the pre-questionnaire, participants were contacted while in the drive-thru line utilizing a script (Appendix K) to complete the Post-Resource Follow-Up Questionnaire (Appendix H). The questions within this tool were created by the DNP project leader and reviewed by the DNP project chair, the Executive Director of the food pantry, and the IRB Committee. The tool has four multiple-choice questions and assessed satisfaction with the specialty box. Participants had this questionnaire read to them verbatim.

## Interpretation of Data

After 60 continuous days of collecting Pre-Questionnaire data and then conducting Post-Resource Follow-Up Questionnaires for another 30 days, information was analyzed. Participant answers for both tools were documented via paper and pen and then transferred into a Microsoft Excel document for analysis. The first question of the Pre-Questionnaire was based on which box the client would prefer. Twenty-one participants selected “regular box”, 12 selected “diabetic box”, and 11 selected “high blood pressure box.” These results were encouraging since 52% of those who participated selected a customized food box based on their health needs. Results are shown in Table 2.

**Table 2**

*Responses to Question #1 on Pre-Questionnaire*

| Box Type | Quantity | Percentage |
|---|---|---|
| Regular | 21 | 48% |
| High Blood Pressure | 11 | 25% |
| Diabetic | 12 | 27% |

Another question, #9, on the Pre-Questionnaire was “Has a doctor, nurse, or other health care professional ever said that you: should lose weight? Have hypertension, also called high blood pressure? Have diabetes, sugar disease, including borderline diabetes or pre-diabetes?” These results (Table 3) were discouraging as the results indicated that not all with diabetes and high blood pressure chose the corresponding box. Twenty-seven percent of participants self-reported obesity, hypertension, and diabetes. Eighteen percent self-reported no to obesity,

hypertension, and diabetes. Whereas 25% self-reported only hypertension and 14% only diabetes.

**Table 3**

*Responses to Question #9 on Pre-Questionnaire*

| | Yes | | No | |
|---|---|---|---|---|
| Questions | Number of Participants Answered | Percent of Participants Answered | Number of Participants Answered | Percent of Participants Answered |
| Has a health care professional ever said that you should lose weight? | 23 | 52% | 21 | 48% |
| Has a health care professional ever said that you have hypertension? | 26 | 59% | 18 | 41% |
| Has a health care professional ever said that you have diabetes? | 21 | 48% | 23 | 52% |

Of the 44 participants who completed the pre-questionnaire, only 12 completed the post-questionnaire. Determining who needed to complete the post-questionnaire was difficult due to the strong degree of blindness that existed on the pre-questionnaire. Once this challenge was discovered, documentation became stronger in the Link2Feed "alerts" to help with knowing the client's previous month's box selection to determine their need for future visits.

The post questionnaire results did not accurately reflect a client return rate. The food pantry's client rotation is 3 months of access followed by 3 months of no access. This rotation rationale is because this resource is to help a client/household through hardship or emergency, designed to be a supplemental food source, not to serve as a permanent or primary food supply. With this rotation schedule, clients could have only been at the food pantry once during the 90-day data collection window; therefore, not completing the post questionnaire.

**Process Improvement Data**

The outcomes of this project were targeted to (1) establish a relationship exists between food insecurity and adult obesity/BMI in vulnerable populations (adult food pantry clients) and (2) provide healthier food options within a food pantry's food distribution boxes, as available, for the two highest health problems (diabetes and high blood pressure).

The outcomes for this project were short, medium, and long-term in nature ranging from a short-term of 3 months to a long-term of 10 years. As a result of this project, the food pantry has established a system for clients to select the type of box they would prefer upon arrival with visuals that depict the custom foods within each box (Appendix L). Additionally, prior to the DNP Project planning and implementation in May 2021 only 61% of the food pantry's electronic documentation had dietary considerations noted. By May 2022, 64% of documentation was entered. In the long term, as this process disseminates to other food pantries within Davidson County, the outcome would be to see a decrease in the county's adult obesity metric.

***Changes***

The food pantry rents three buildings on the corner of an intersection of two major roads. The traffic within the intersection is controlled by a stoplight. Figure 1 depicts the landscape of the entire food pantry site, with all facilities.

The floorplan of the food pantry building was revised to accommodate the storage of the new food items and additional space for the creation of two new boxes to be built and stored. Figure 2 showcases the original floorplan prior to the DNP Project. Figure 3 demonstrates the first transition of space (highlighted in yellow), and Figure 4 showcases the final floorplan (highlighted in yellow) of the food pantry at the conclusion of the DNP project implementation.

**Figure 1**

*Landscape of Entire Site*

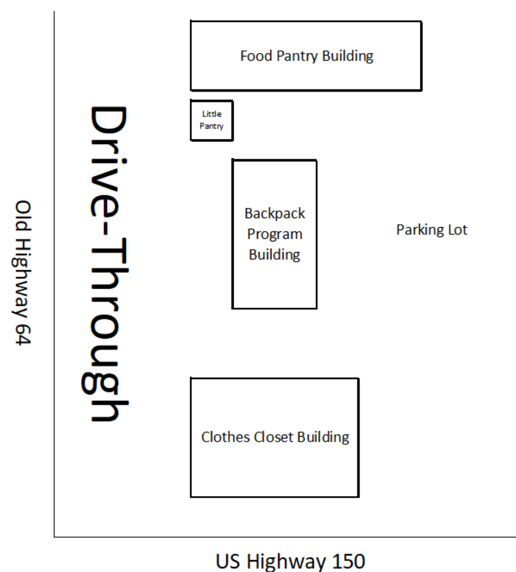


**Figure 2**

*Original Floorplan*

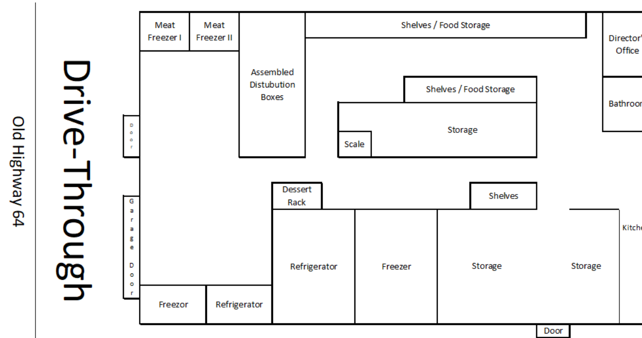



**Figure 3**

*First Transition of Space*

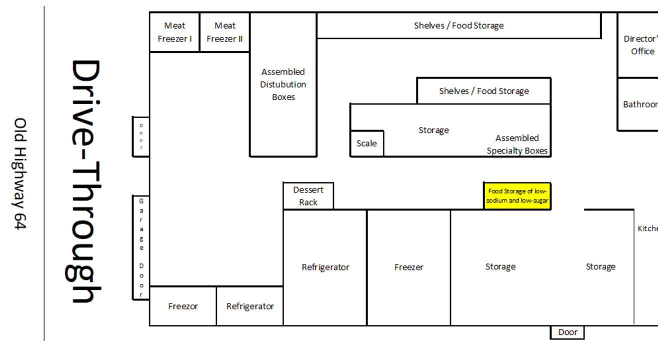
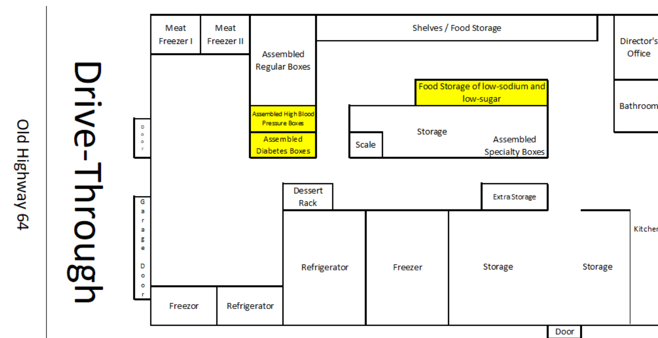



**Figure 4**

*Final Floorplan*



Additionally, changes evolved with the check-in process between the clients and the volunteers. The initial appraisal of the check-in process confirmed an opportunity. Many volunteers interacted with the client upon arrival with an extreme overlap of tasks and a barrage of questions that appeared to be chaotic. The disorganized efforts seemed to be rooted in unclear roles and responsibilities. A checklist tool was created for a volunteer to easily seek the needed information upon initial client arrival. The check-in process progressed to be more inclusive upon the first client – volunteer interaction with complete information gleaned and created a more efficient process. This allowed for satisfactory customer service and an organized flow of next steps.

### ***Impact***

All 12 participants who completed the post questionnaire, responded with "yes" on their desire to continue receiving the specialty box. This showcases the positive impact of the implemented project. The pantry's impact with the creation of the specialty box has created positive energy within the community they serve and those who support the pantry.

## Qualitative Data

Qualitative data was also collected. Participant comments were both positive and negative. Positive qualitative results were seen in the following responses:

- "This food pantry has much healthier choices."
- "The sugar substitute was a lifesaver."
- Can I request "education on how to read nutrition labels?"

- I would be open to "low sugar options."
- I would "like sugar-free options."
- I would be open to "low sodium options."
- There is another pantry in the county that "loads you up with sweets," I do not like going there.

Unfortunately, not all clients desired healthier options; conflicts in self-reported health issues and food choices were expected. Disappointingly, the pre-questionnaire was completed with a participant drinking a regular soda and answering "yes" to diabetes. Undesirable qualitative results seen in quotes from participants were:

- "I can't change my jelly to sugar-free"
- "I don't like the taste of low sugar options"
- "I don't add salt to food" (justification for not selecting a high blood pressure box)
- "I have diabetes, but it is not bad."

Additionally, a misconception was discovered among participants about pharmaceuticals intended to manage and support diabetes or high blood pressure. Many participants made comments that conveyed a delusion that their medications eradicated their diseases and there was no need to alter their diets.

***Sustainability***

The project was sustained by the DNP student, the Executive Director of the local food pantry, the Board of Directors of the local food pantry, volunteers at the local food pantry, the Regional Partnership Manager of the local food bank, local high school medical science teachers, and local churches. In the future, the food pantry would like to examine the need for more customized food boxes as the population served changes. Additionally, further collaboration with the volunteer shoppers is needed to expand the donation of healthy items which further improves the ability to offer customized health boxes.

Local high school medical science teachers have committed to adapting their future curriculums to assign their students to the development of educational materials for food pantry clients. The materials would consist of recipe cards and brochures on how to eat based on their underlying health issue. This established relationship creates multiple benefits: students and teachers are afforded a real-world opportunity for creatively completing a required course assignment and the food pantry gains additional educational materials for their clients.

In parallel, a proposal for a scholarship fund will be presented to the food pantry's board of directors for consideration. The scholarship will be offered to high school seniors each Spring. An eligibility requirement will include a threshold of food pantry volunteer hours and the pursuit of a health-related college degree. This will allow workers with health and nutritional expertise to sustain the specialty box program, participate in future research initiatives, and help accomplish the strategic goals of the

food pantry. Volunteering at the food pantry provides students with opportunities to learn and use a broad set of skill sets. This scholarship opportunity will motivate students to promote their local community and learn more about population health while assisting the food pantry.

The Second Harvest Food Bank of Northwest, NC has nutrition educators who serve large areas of the state. The food pantry is in a service area of seven counties (Appendix M) that includes a total of 88 overall food pantries, as shown in Table 4. To further support and maintain the needs of the food pantry, consideration for more than one nutrition educator for seven counties and 88 food pantries should be discussed to ensure continuous improvement of the services provided to the food pantry clients.

**Table 4**

*Distribution of Food Pantries Across the Northwest, NC Region*

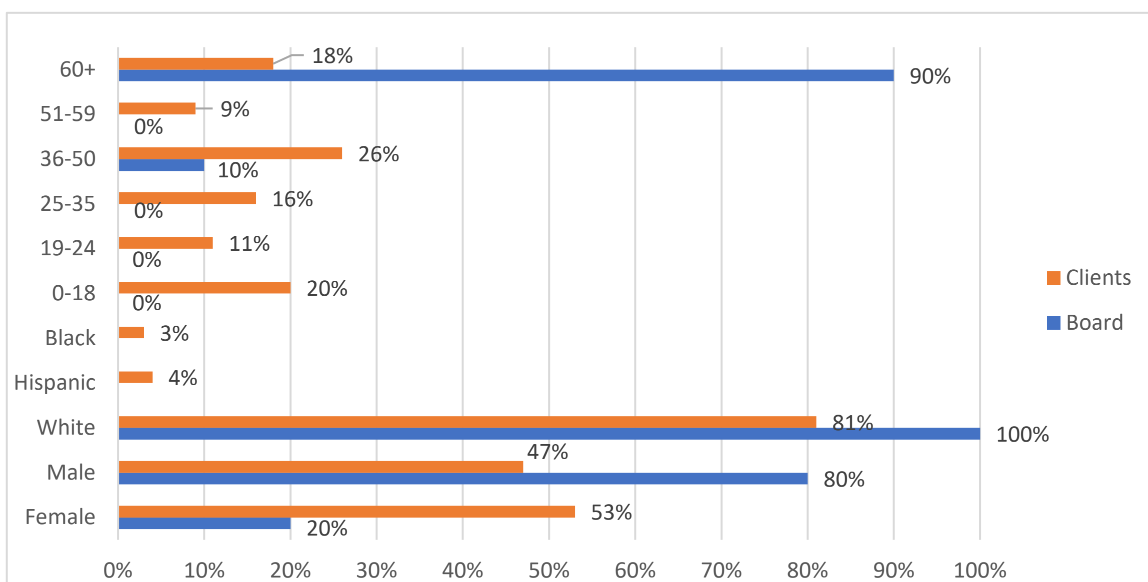
| County | Davie | Yadkin | Stokes | Surry | Iredell | Davidson | Forsyth | TOTAL |
|---|---|---|---|---|---|---|---|---|
| Food Pantries | 3 | 3 | 4 | 7 | 11 | 17 | 43 | 88 |

The food pantry is governed by a board of directors with 10 seats. This does not include the Executive Director who manages the food pantry. A board of directors is most efficient when professional and social diversities exist in its makeup (Beji et al., 2021). The composition of the board of directors and the food pantry client population is noted in Figure 5. There is an opportunity to change the composition of the board to better represent the population they represent. Currently, there is not a rotation plan or term to service limitations, as most board members have been in their positions since the

food pantry's establishment in 2008. Creating a policy for the food pantry's board of directors would be optimal and could generate continuous positive energy, creativity, and ensure diversity.

**Figure 5**

*Diversity of Food Pantry Board of Directors and Food Pantry Clients*




**Recommendations for Future Research**

In the future, there are many things that could be measured and collected at the food pantry. It would be optimal to expand the educational offering for the food pantry's clients. Surveys could be generated to determine if the local food pantry clients would be interested in healthy food preparation demonstrations and determine interest in health screenings (measuring BMIs, checking blood pressures, etc.). A deep dive project could look at offering health education to the vulnerable population and the impact/results in

reduced weights, reduction in blood pressure measurements, and/or a documented increase in dietary knowledge related to their health in a post-implementation survey.

Opportunities for future data collection modifications exist within the previously collected data on height and weight. To calculate BMIs, gender information is needed, and would be advisable to inquire within a survey to see food pantry obesity metrics and develop trends. Calculating the BMIs of this population can help dictate if a need exists for obesity education.

Not all clients have fully furnished kitchens – some only have hot plates, crockpots, and microwaves. Collecting this information and ensuring its documentation in the Link2Feed system could help ensure that a customized food box is provided based on the food preparation and storage facilities available. This not only serves the clients better but also helps with waste reduction.

Effective approaches to change are often created by those experiencing the change. The clients are experts in their personal needs and are aware of their individual challenges. Future surveys should be created by gathering client feedback, ideas, and insights. Their needs are the food pantry's future goals.

## Conclusion

Hunger and health both provide challenges; providers and volunteers should not have a "boxed in" view; think inside the food pantry box. It takes a pantry or village partnering together to provide healthy food security to the community served. This DNP Project has concluded that the community needs and desires food choices that improve their health issues instead of leading to further complications by the selection of the

specialty food boxes. The food pantry has taken strides to make healthy choices easier for the population they serve. The value of the knowledge gained from this DNP project was incalculable and it is imperative that this knowledge be shared broadly. The food pantry has become a trailblazer on an ongoing task that will need to be a collaborative endeavor with local healthcare providers and food shoppers.

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## Appendix A

### Analysis on Monthly Food Box Cost

| | Price | Total |
|---|---|---|
| **Canned Veggies (qty: 3)** | $0.58 | $1.74 |
| **Tomato Sauce (qty: 1)** | $0.92 | $0.92 |
| **Canned Soup (qty: 2)** | $0.98 | $1.96 |
| **Cereal / Oatmeal (qty: 1)** | $1.23 | $1.23 |
| **Potato (qty: 1)** | $2.68 | $2.68 |
| **Toilet Paper (qty: 1)** | $0.99 | $0.99 |
| **Cracker (qty: 1)** | $0.77 | $0.77 |
| **Rice (qty: 1)** | $2.79 | $2.79 |
| **Spaghetti / Pasta (qty: 1)** | $0.96 | $0.96 |
| **Mac & Cheese (qty: 2)** | $0.34 | $0.68 |
| **Jelly 30oz (qty: 1)** | $1.33 | $1.33 |
| **Peanut Butter 18oz (qty: 1)** | $2.18 | $2.18 |
| **Sugar 4lb bag (qty: 1)** | $1.98 | $1.98 |
| **Canned Meat 12.5oz (qty: 2)** | $2.08 | $4.16 |
| **Misc (qty: 1)** | $1.42 | $1.42 |
| ***As available:*** | | |
| **Meat (qty: 2 packages/items)** | $10.00 | $10.00 |
| **Breads (qty: 2)** | $5.00 | $5.00 |
| **Desserts (qty: 2)** | $5.00 | $5.00 |
| **Fresh Vegetables (qty: 2)** | $5.00 | $5.00 |
| | | |
| | | **$50.79** |

# Appendix B

## Participant Informed Consent Page 1 and 2

1

**Gardner-Webb University IRB**
**Consent Form**

**Title of Study:** Thinking Inside the Food Pantry Box

**Researcher:** Elizabeth L. Shoaf, Hunt School of Nursing at Gardner-Webb University

**Purpose:** The purpose of the research study is to provide you the option of a specialty food box as a Food Pantry client. The items within each specialty box are based on nutritional guidelines.

**Procedure:** A paper pre-questionnaire and post-questionnaire will be utilized for independent completion or in conjunction with a face-to-face interview. Your answers will be collected via paper/pen questionnaire in the Food Pantry's drive-thru and stored in a locked office. A post-questionnaire will be completed during your next visit to assess the usefulness of the specialty box, if selected. You may skip any questions that cause discomfort and the questionnaire can be stopped at any time. Additionally, computer data evaluated with a statistical analysis program will be stored on a password protected computer in a locked office.

**Time Required:** It is anticipated that the study will require about 10 minutes of your time (one 12 question questionnaire and one 5 multiple-choice question questionnaire).

**Voluntary Participation:** Your participation in this study is voluntary. Participation will not affect the food distribution you currently receive if you do or do not participate. You have the right to withdraw from the study at any time without penalty. You also have the right to refuse to answer any question(s) for any reason without penalty. If you choose to withdraw, you may request that any of your data which has been collected be destroyed, unless it is in a de-identified state. If you choose to withdraw from the study, this will not impact your ability to receive food from the Food Pantry.

**Confidentiality:** Gardner-Webb University will store all original data for three years and then it will be destroyed. Your data will remain protected within the project and within the Food Pantry's documentation system. Survey data results will be maintained securely under electronic password protection with only the primary investigator having access until the presentation takes place. At this time, data will be given to Gardner-Webb University where it will be maintained for three years, then destroyed.

**Data Linked with Identifying Information:** The information that you give in the study will be handled confidentially.

**Risks:** There are no anticipated physical, psychological, professional, or personal risks and/or hazards in this study. The Institutional Review Board at Gardner-Webb University, the Gardner-Webb University Hunt School of Nursing, and the Second Harvest Food Bank has determined that participation in this study poses minimal risk to participants. Each food pantry's health issues are unknown; therefore, the direct health benefits of the food specialty boxes will be unknown and will not be measured or known.

**Benefits:** There are no other benefits associated with participation in this study. The study will lead to the utilization of nutritional guidelines to dictate the selection of food specialty boxes

with appropriate food items based on self-reported health issues. Participation does not affect less or more food distribution.

**Payment:** You will receive no payment for participating in this study.

**Right to Withdraw From Study:** You have the right to withdraw from the study at any time without penalty.

**How to Withdraw From Study:** You have the right to withdraw from the study at any time without penalty. If you choose to withdraw, you may request that any of your data which has been collected be destroyed unless it is in a de-identified state.

- If you want to withdraw from the study, tell the interviewer to stop the questionnaire/interview. There is no penalty for withdrawing.
- If you would like to withdraw after your information has been submitted, please contact a researcher.

**If you have questions about the study, contact:**

Elizabeth L. Shoaf
DNP Candidate
Hunt School of Nursing, Gardner-Webb University
Telephone: 336-247-0800
Email: ekl0115@gardner-webb.edu

Dr. Melissa McNeilly
Faculty Research Advisor
Hunt School of Nursing, Gardner-Webb University
Telephone: 704-406-2462
Email: mmcneilly1@gardner-webb.edu

**If the research design of the study necessitates that its full scope is not explained prior to participation, it will be explained to you after completion of the study. If you have concerns about your rights or how you are being treated, or if you have questions, want more information, or have suggestions, please contact the IRB Institutional Administrator:**
Dr. Sydney K. Brown
IRB Institutional Administrator
Gardner-Webb University
Telephone: 704-406-3019
Email: skbrown@gardner-webb.edu

**Voluntary Consent by Participant**
I have read the information in this consent form and fully understand the contents of this document. I have had a chance to ask any questions concerning this study and they have been answered for me. I agree to participate in this study.

# Appendix C

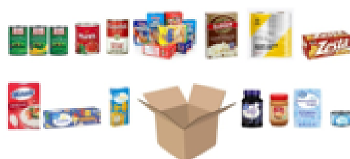
## Participant Pre-Questionnaire Page 1 and 2

1

**Gardner-Webb University**
**Pre-Questionnaire**

1. **Which food box would you like today?**

Regular Box



Diabetic Box

High Blood Pressure Box

2. **Do you know how to prepare/cook the food you get from the food pantry?**
   a. Yes
   b. No

3. **How many servings of fruits do you eat per day?**
   a. 0 to 1 cups
   b. 1 to 2 cups
   c. More than 2 cups
   d. Unsure

4. **How many servings of vegetables do you eat per day?**
   a. 0 to 1 cups
   b. 1 to 2 cups
   c. More than 2 cups
   d. Unsure

5. **How difficult is it to obtain healthy foods, such as fruits and vegetables?**
   a. Very Difficult
   b. Difficult
   c. Neutral
   d. Fairly Easy
   e. Very Easy

**6. What makes it difficult to obtain healthy foods? (Select as many as apply)**

a. Time to prepare
b. Transportation
c. No grocery store close
d. Only a corner store is close (gas station, convenience store, etc.)
e. Low variety at the closest store
f. Cost
g. I do not like fruits and vegetables
h. I do not know how to prepare fruits and vegetables
i. These foods are not a priority for me
j. Other________________________

**7. What percentage of your monthly food comes from:**

a. The Food Pantry?
   A. 5 to 25%
   B. 26 to 49%
   C. 50 to 75%
   D. More than 76%
b. Other sources? Examples: grocery store, other food pantries, farmer's markets, gardens, family/friends
   A. 0%
   B. 5 to 25%
   C. 26 to 49%
   D. 50 to 75%
   E. More than 76%

**8. What is your current estimated weight and height?**

a. Weight ____________________
b. Height ____________________

**9. Has a doctor, nurse, or other health care professional ever said that you:**

a. Should lose weight?
   A. Yes
   B. No
b. Have hypertension, also called high blood pressure?
   A. Yes
   B. No
c. Have diabetes, sugar disease, including borderline diabetes or pre-diabetes?
   A. Yes
   B. No

**10. If you have high blood pressure, do you eat a low-sodium diet?**

A. Yes
B. No
C. n/a

**11. If you have high blood pressure, do you rinse your canned veggies before eating/cooking?**

A. Yes
B. No
C. n/a

**12. If you have diabetes, do you eat a low-sugar diet?**

A. Yes
B. No
C. n/a

# Appendix D

## New Food Pantry Client Application Form Page 1 and 2

**PRIMARY PERSON VISITING PANTRY**

**When did you first visit a Food Pantry for assistance?** (Estimation is ok) Date:__________________

***Last Name:** __________________ ***First Name:** __________________

**Date of Birth:** ______/______/_______(mm/dd/yyyy)

**Gender:** ◻ Female ◻ Male ◻ Transgender ◻ Undisclosed ◻ Other

**Marital Status:**
◻ Single ◻ Married ◻ Widow/widower
◻ Separated ◻ Divorced ◻Undisclosed

***Address:** __________________

**Address (Line2):** __________________ ***County:** ____________

***City:** __________________, ***State:** _NC_ ***Zip Code:** ____________

**What is your current housing type?** (Select one)
◻ Emergency Shelter, Mission, Transitional ◻ Public Housing
◻ With Family/Friends ◻ Own Home
◻ Other ◻ Undisclosed
◻ Private Rental ◻ Unhoused

**Email Address:** __________________
**Phone Number:** __________________

**What languages are spoken in your household?** (Select all that apply)
◻ English ◻ Other ________________
◻ Mandarin Chinese ◻ Undisclosed
◻ Spanish

**What is your Ethnicity/Race?** (Select all that apply)
◻ White/ ◻ Asian ◻ Other
◻ Black/African American ◻ Alaska Native/Aleut/Eskimo ◻ Undisclosed
◻ Hispanic/Latino ◻ Middle-Eastern/North-African
◻ American Indian/Native ◻ Pacific Islander

**Do you identify as any of the following?** (Select all that apply)
◻ Pregnant ◻ Disability ◻ Evacuee
◻ Postpartum ◻ New Immigrant ◻ Other
◻ Breastfeeding ◻ Veteran ◻ None
◻ Military service - active duty ◻ Mental Illness ◻ Undisclosed

**PROFILE**

**What was your highest education level completed?** (Select one)
◻ Grades 0-8 ◻ Post-Secondary (some) ◻ Master's Degree
◻ Grades 9-11 ◻ Trade School / Professional Accreditation ◻ PhD
◻ High School Diploma ◻ 2-Year Degree ◻ Undisclosed
◻ GED ◻ 4-Year Degree

**What is your current employment type?** (Select one)
◻ Post-Secondary Student ◻ Retired ◻ None
◻ Full-Time ◻ Undisclosed
◻ Part-Time ◻ Other

*SI Intake Form: Revised 10.01.20*

## INCOME

**What are your sources of income?** (Select all sources of income and list monthly amount by each)

| | | | |
|---|---|---|---|
| ◻ Full-Time Employment | $______ | ◻ Public Assistance | $______ |
| ◻ No Income | $______0 | ◻ Social Security Disability (SSDI/SSI) | $______ |
| ◻ Other | $______ | ◻ Social Security Retirement | $______ |
| ◻ Part-Time Employment | $______ | ◻ Social Security Survivor Benefit | $______ |
| ◻ Pension (from a past job) | $______ | ◻ Student Loans | $______ |

**Does your household currently receive any of the following?** (Select all that apply)

| | | |
|---|---|---|
| ◻ Children's Health Insurance Program (CHIP) | ◻ Section 8 Housing Assistance | ◻ Other |
| ◻ Free-or-reduced priced breakfast | ◻ LIHEAP (Low Income Home Energy Asst) | ◻ Free-or-reduced priced Lunch |
| ◻ Medicaid | ◻ SNAP/FNS/Food Stamps | ◻ Head Start |
| ◻ Medicare | ◻ TANF (Temp Assistance for Needy Families) | |
| ◻ WIC (Supplemental Assistance for women, infants, children) | ◻ Veterans Aid and Attendance | |

## HEALTH AND DIETARY CONSIDERATIONS

**Does anyone in your household have any Dietary Considerations?** (Select all that apply)

| | | |
|---|---|---|
| ◻ Dietary – Dairy | ◻ Dietary - Pork | ◻ Dietary – Vegan |
| ◻ Dietary - Egg | ◻ Dietary - Red Meat | ◻ Dietary – Vegetarian |
| ◻ Dietary - Gluten/Wheat | ◻ Dietary – Shellfish | ◻ Health – Diabetic |
| ◻ Dietary – Kosher | ◻ Dietary – Sodium | ◻ Health – Heart Disease |
| ◻ Dietary – Lactose | ◻ Dietary – Soy | ◻ Health - Hypertension |
| ◻ Dietary – Peanut | ◻ Dietary - Tree Nuts | ◻ Other ______ |

## SERVICES (COMPLETED BY PANTRY WORKER)

*A TEFAP form is required if client signature is not collected electronically* (store form for 5 yrs.)

Type of Visit: ◻ TEFAP Visit ◻ Pantry Visit

Date of Visit: ______ Number of Pounds Served: ______

**What are the reason(s) for this visit?**

| | | |
|---|---|---|
| ◻ Benefits/Social Assistance Changes | ◻ Benefit/Social Assistance Delays | ◻ Debt |
| ◻ Delayed Wages | ◻ Disabled | ◻ Family Breakup |
| ◻ Homeless | ◻ Low Wages/Not Enough Hours | ◻ Natural Disaster |
| ◻ Other | ◻ Relocation (immigration moving) | ◻ Retired |
| ◻ Sickness/Medical Expenses | ◻ Unemployed/Recently Lost Job | ◻ Unexpected Expenses |
| ◻ Unexpected Housing Expenses | | |

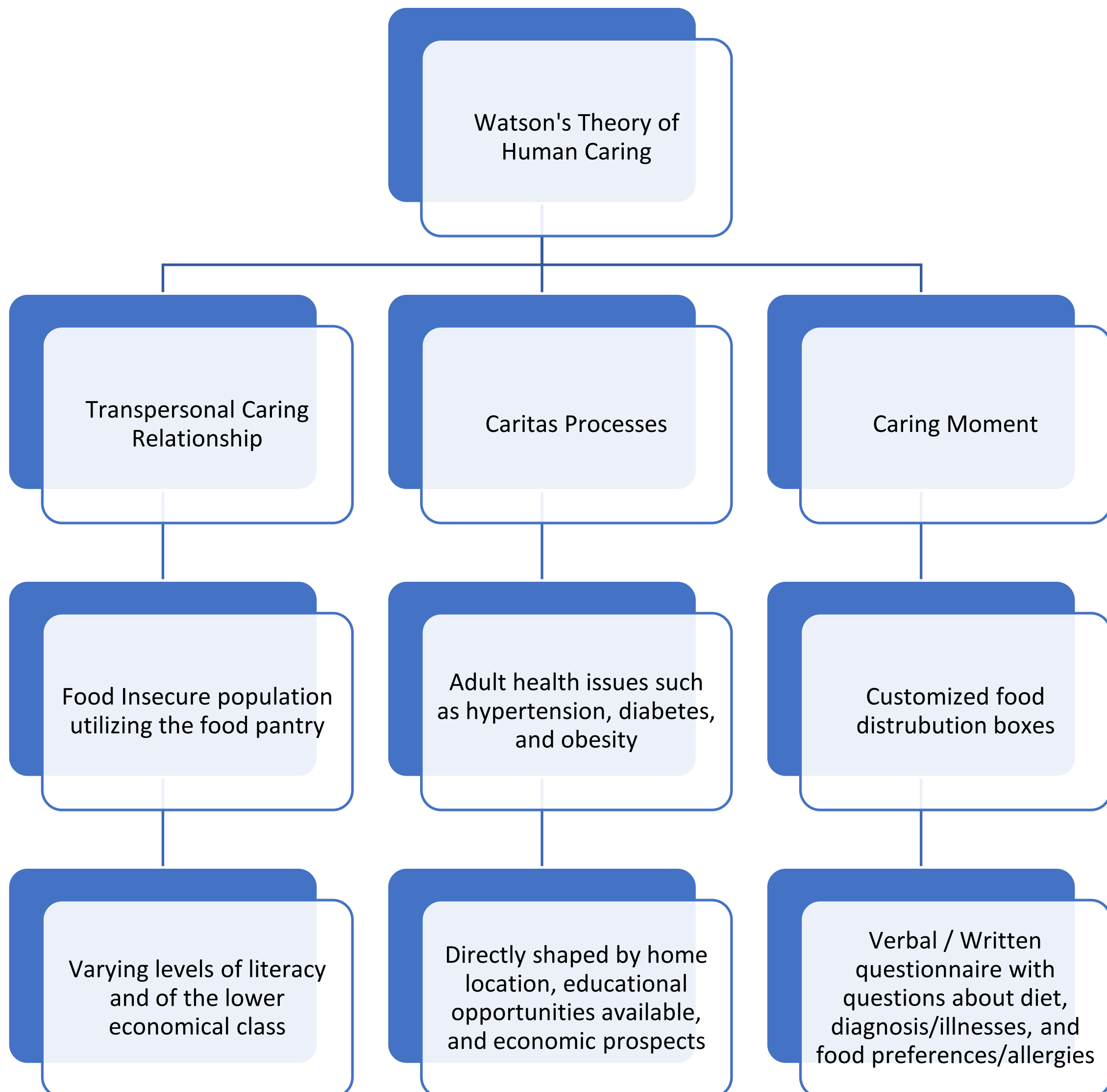
**Referrals:**

| | | | |
|---|---|---|---|
| ◻ Education | ◻ Health | ◻ Housing | ◻ Income |
| ◻ None Needed | ★ Not Asked | | |

*SI Intake Form: Revised 10.01.20*

**Appendix E**

**C-T-E Diagram**



## Appendix F

## Project Management Plan

# DNP Project Planner

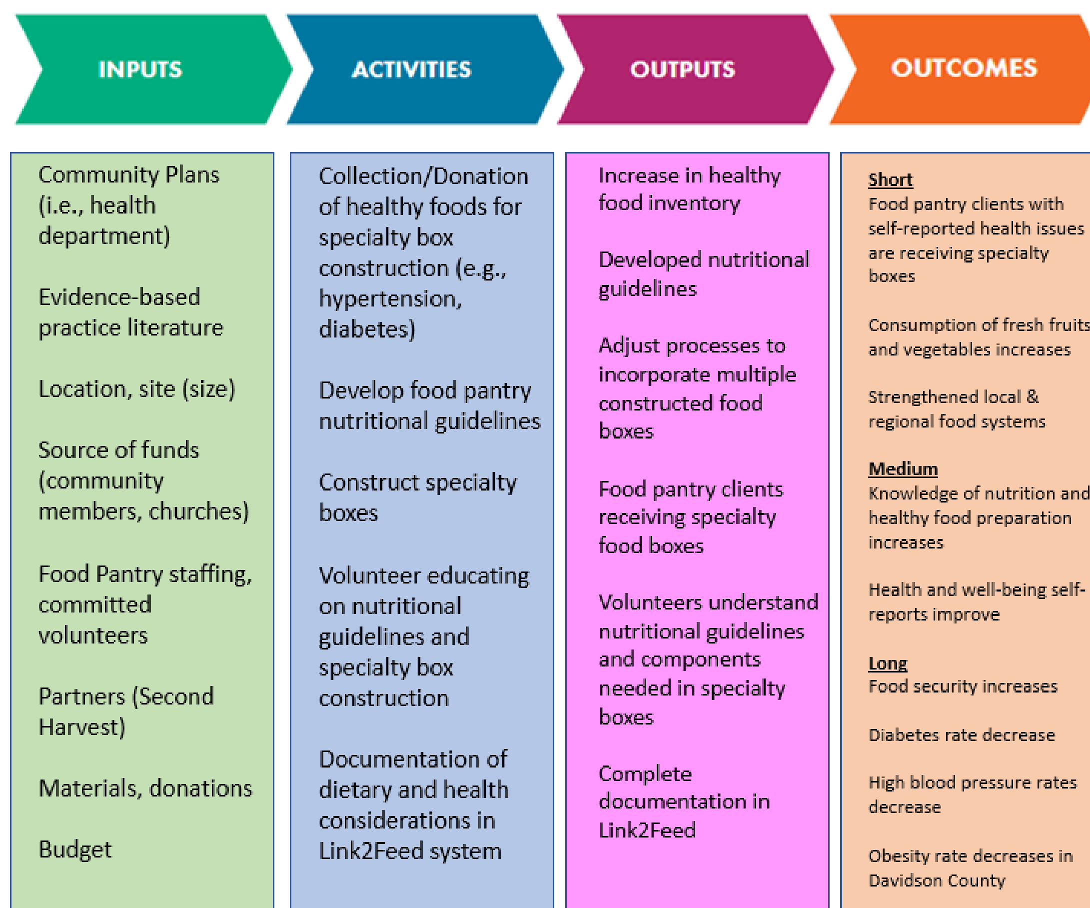
*Food Insecurity + Adult Health*

PERIODS: DATES / WEEKS

| | 5/19/21 - 5/25/21 | 5/26/21 - 6/1/21 | 6/2/21 - 6/8/21 | 6/9/21 - 6/15/21 | 6/16/21 - 6/22/21 | 6/23/21 - 6/29/21 | 6/30/21 - 7/6/21 | 7/7/21 - 7/13/21 | 7/14/21 - 7/20/21 | 7/21/21 - 7/27/21 | 7/28/21 - 8/3/21 | 8/4/21 - 8/10/21 | 8/16/21 - 8/22/21 | 8/23/21 - 8/29/21 | 8/30/21 - 9/5/21 | 9/6/21 - 9/12/21 | 9/13/21 - 9/19/21 | 9/20/21 - 9/26/21 | 9/27/21 - 10/3/21 | 10/4/21 - 10/10/2 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Step 1: Problem Recognition** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Modules | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Identify Topic | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Define Problem Statement | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Literature Review | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Step 2: Needs Assessment** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Extensive Literature Review | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Identify target population | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| stakeholders | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Assess available resources | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| outcomes | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Team Selection | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cost/Benefit Analysis | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| problem | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Step 3: Goals, Objectives, and Mission Statement** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Define project goals | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Define process/outcome | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Define mission statement | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Step 4: Theoretical Underpinnings** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Choose Theory | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Incorporation of theory to project | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Step 5: Work Planning** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| tool | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Step 6: Evaluation Planning** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Create evaluation plan | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Seek IRB approval** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Construct IRB | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| approval | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| IRB Revisions | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GWU approval | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| approval | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Step 7: Implementation** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Address threats and barriers | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Monitor implementation | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Closure | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Step 8: Interpretation of Data** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Step 9: Utilization and Reporting of Results** | | | | | | | | | | | | | | | | | | | | | | | | | | | |

# Appendix G

## Logic Model



# Appendix H

## Post-Resource Follow-Up Questionnaire

1

**Gardner-Webb University**
**Post-resource Follow-Up Questionnaire**

1. **Which food box did you receive?**
   a. Regular
   b. Diabetic
   c. Hypertension
2. **Did you find the items within the box beneficial?**
   a. Yes
   b. No
   c. Did not notice a difference
3. **Have you noticed a positive change in your health since receiving the specialty box?**
   a. Yes
   b. No
   c. Unsure
4. **Would you like to continue receiving the specialty box?**
   a. Yes
   b. No

## Appendix I

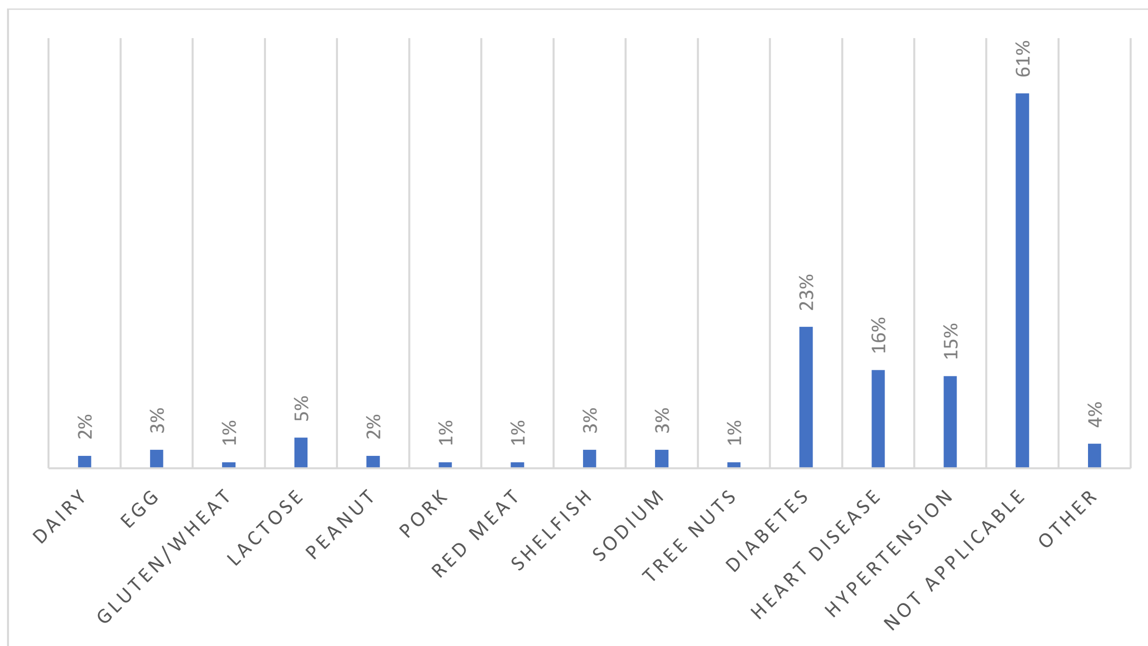
## DNP Project Recruitment Script

Hello, my name is Elizabeth Shoaf. I am a registered nurse and a graduate student at Gardner-Webb University in the Nursing Department. I am conducting a Doctor of Nursing Practice (DNP) project at this food pantry, and I am inviting you to participate because you use this food pantry's services.

Participation in this project includes answering 12 questions about your eating habits and health, which will take approximately 10 minutes and a follow-up questionnaire on your next food pantry visit, after approximately 30 days of 4 questions that will take less than 5 minutes. If you would like to participate in the project, you will need to review the Informed Consent. Here is the Informed Consent – would you like to read over it yourself or would you like me to read it to you?

# Appendix J

## Link2Feed "Dietary Considerations" Report – 1/7/2022



## Appendix K

## DNP Project Evaluation Script

Hello, my name is Elizabeth Shoaf. You participated in a DNP project questionnaire at the food pantry approximately 30 days ago.

Your previous participation included answering questions about your eating habits and health. For an evaluation, I will need you to answer 4 questions.

*Reference Post-Resource Follow-Up Questionnaire*

Thank you for your participation and time!

## Appendix L

## Visual of Box Options for Client Choice

Regular Box

Diabetic Box

High Blood Pressure Box

# Appendix M

## Food Pantry Service Areas