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Determining the Adoption and Implementation of Nutrition Policies at Food Pantries Across the United States

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DETERMINING THE ADOPTION AND IMPLEMENTATION OF NUTRITION POLICIES AT FOOD PANTRIES ACROSS THE UNITED STATES

by

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Abstract

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Food insecurity occurs when there is a lack of access to enough food to live an active, healthy life. Current efforts to address food insecurity include developing and implementing policies, programs, and practices at the federal, state, and local levels. Specifically, local efforts target decreasing food insecurity through emergency food networks including food banks and food pantries. Over the last several years, many food banks and food pantries have worked to improve the nutritional quality of the foods they offer. However, food pantries are smaller and less formal organizations than food banks. Thus, they have limited resources to develop and adopt policies or strategies to improve the quality of food offered. There is limited information available about the potential impact on the nutritional quality of food at pantries if food pantries adopt specific policies to guide food donations and distributions.

This dissertation consisted of three studies that sought to better understand the role of nutrition policies at food pantries. The first study was a cross-sectional survey distributed to food pantry directors across the United States that allowed for a better understanding of the adoption of nutrition policies at food pantries. The second study aimed to determine the strength and comprehensiveness of the formal nutrition policies submitted by food pantries during the survey. The final study included interviews with food pantries to determine the degree to which nutrition policies were being implemented and barriers to implementation at food pantries. All studies were guided by the RE-AIM framework.

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List of Abbreviations

95% CI	95% Confidence Interval
A1c	Glycated Hemoglobin
ANOVA	Analysis of Variance
AOR	Adjusted Odds Ratio
ARR	Adjusted Relative Risk
BMI	Body Mass Index
BRFSS	Behavioral Risk Factor Surveillance Survey
CAP	Community Action Program
CCM	Client Choice Model
CDC	Centers for Disease Control and Prevention
DGA	Dietary Guidelines for American
FA	Feeding America
FNS	Food and Nutrition Services
FPDS	Food Pantry Director Survey
FV	Fruit and Vegetable
HEI	Healthy Eating Index
HIA	Hunger in America
HIP	Healthy Incentive Pilot Program
M	Mean
MAR	Mid-Atlantic Region
MD	Mean Difference
Mean Diff.	Mean Difference
MPR	Mountain Plains Region

List of Abbreviations, continued

MWR	Midwest Region
NER	Northeast Region
NHANES	National Health and Nutrition Examination Survey
NSLP	National School Lunch Program
OR	Odds Ratio
RDN	Registered Dietitian Nutritionist
RE-AIM	Reach, Effectiveness, Adoption, Implementation, Maintenance
SBP	School Breakfast Program
SD	Standard Deviation
SER	Southeast Region
SHFPP	Safe and Healthy Food Pantry Project
SNAP	Supplemental Nutrition Assistance Program
SPSS	Statistical Package for the Social Sciences
SSB	Sugar Sweetened Beverages
SWR	Southwest Region
U.S.	United States
USDA	United States Department of Agriculture
WIC	Supplemental Nutrition Program for Women, Infants, and Children
WR	West Region
χ^2	Chi-square

Introduction

Food insecurity remains a persistent problem for many households in the United States.

Nearly 16 million households in the United States were food insecure at some point in 2016.

Individuals who suffer from food insecurity do not have consistent access to enough food to live

a healthy, active life. Food insecurity has been associated with chronic diseases including

obesity, diabetes, and hypertension. Food insecurity has been addressed with policies,

programs, and practices at the federal, state, and local levels. Well-known examples include

federal food assistance programs like SNAP and WIC that support food purchasing for

households. At the local level, one of the most common ways to target food insecurity is

through emergency food networks like food banks and food pantries. A recent study by Feeding

America found that two in three households plan for charitable assistance such as visits to food

pantries in their monthly budget.

As individuals continue to seek out emergency food assistance, it is important that these

programs consider the role they can play in the health of their clients. Traditional food pantries

provide pre-packaged boxes or bags of food without supplement services. Recently, there has

been a shift to a client-choice food pantry model, where the clients are able to self-select the

foods they take home. However, the vast majority of food distributed by food pantries is

donated and the types of food varies widely. The donated food often includes shelf-stable

packaged dry goods and canned items. These foods tend to be higher in sodium, lower in

vitamins, and energy dense—three factors that play a role in poor diet quality. Studies have

shown that improving the nutritional quality of food at food pantries, along with health

education, has improved individual health outcomes in food insecure clients.

While food pantries may be concerned about the nutritional quality of the food they are

distributing they may have limited resources to address the issue. Food pantries often operate

as not-for-profit organizations or as part of a larger organization of volunteers (e.g. churches). They may lack the knowledge or do not have the capacity to develop and implement strategies to improve the quality of food offered. Since many food pantries rely on donations they may also be hesitant to restrict the types of foods that they accept.

There is a gap in the field to understand if food pantries adopt specific nutrition policies, the potential impact on donations, food quality, and diet quality of clients. Further, assessing the strength and comprehensiveness of those policies would inform efforts to help food pantries develop, adopt, and implement nutrition policies and interventions to improve the quality of food offered at food pantries. This dissertation, guided by the RE-AIM framework, sought to address this gap by conducting a systematic review of nutrition policies at food pantries using a nationwide sample, including assessing the strength and comprehensiveness of formal nutrition policies. Additionally, a subsample of pantries with a nutrition policy were interviewed to assess the implementation of the policies. The following literature review synthesizes the research studies related to this topic.

Chapter 1: Review of the Literature
Food Insecurity

In 2016, 12.3% of households (15.6 million) in the United States reported some level of food insecurity.[1] Food insecurity is defined as the "lack of access to enough food for all members of a household, at all times, to lead an active, healthy lifestyle".[1] Uncertainty around having or obtaining enough food to meet the needs of the members of a household due to insufficient resources often leads to food insecurity. The prevalence of food insecurity varies among different populations within the United States. Food insecurity is significantly higher in households with children and households headed by single females (16.5% and 31.6%, respectively).[1] Prevalence is also higher among some ethnic groups and racial groups, with 22.5% of Black, non-Hispanic households and 18.5% of Hispanic households reporting food insecurity.[1] Additionally, low-income households with incomes below 185% of the federal poverty line are disproportionately affected (31.6%) by food insecurity.[1] This is important because the eligibility in most states for government nutrition assistance (e.g. SNAP) is generally 130% of the federal poverty line and these programs main goal is to improve food security among low-income Americans.[2] Geographically, prevalence is higher in rural households (15.0%) and among households in the south (13.5%).[1] However, food insecurity is widespread, and a survey by Feeding America found that food insecurity exists in every county in the United States.[2] Importantly, the survey documents a higher burden in rural counties, in that more than half of the counties with the highest prevalence of food insecurity were designated as rural.[2]

National food security is typically measured through surveillance efforts by the United States Department of Agriculture (USDA). The USDA developed the U.S. Household Food Security Module, which measures food insecurity at two different levels—low food security and very low food security.[1] Previously, these two levels were classified as without or with hunger,

respectively. The survey module includes three questions about food conditions of the household as a whole and seven questions about food conditions of adults in the household. If there are children in the household, an additional eight questions are asked about their food conditions. The survey is administered every year in December, since 1995 as part of the Current Population Survey. The results associated with the survey should be interpreted carefully because within a food insecure household, each member may be affected differently by the household's food insecurity. Some members—particularly young children—may experience only minor effects or none at all, while adults are more severely affected.[1] However, it is the best national measure for food security currently and provides valuable information regarding the prevalence of the problem in the United States.

Health Consequences of Food Insecurity

Individuals that are food insecure often suffer from poorer health outcomes than those that are food secure.[3] Several studies have explored the relationship between food insecurity and chronic diseases such as obesity and diabetes. The relationship between food insecurity and obesity has been characterized as a paradox because it is counterintuitive that those without enough food could also be obese—a condition due to excess caloric intake. This paradox was first proposed by Dietz in 1995 where he examined a case of a young black, obese girl, whose family was on food stamps, and whose parents were also obese and relatives who suffered from type two diabetes.[4] Dietz suggested two possible explanations for the association of hunger and obesity within the same person—the increased fat content of food eaten to prevent hunger at times when the family lacked money to buy food or an adaptive response to episodic food insufficiency. Dietz concluded that the first explanation was more likely due to an understanding of the physiologic response of restrained dieters who binge eat.[4]

A more recent review by Dinour and colleagues found that food insecure individuals had a higher BMI than those that were food secure.[5] More specifically, the review found four studies where gender and four studies where race/ethnicity could be possible moderating variables in the relationship between weight status and food insecurity.[5] Additionally, the review identified similar mechanisms to Dietz that could explain the relationship between food insecurity and obesity. One mechanism is a feast-famine cycle, closely tied to monthly income or nutrition assistance benefits (e.g. SNAP). A feast-famine cycle occurs when there is enough food for the first three weeks of a month when funds and benefits are available, but an insufficient amount of food during the last week of the month when the funds or benefits are depleted. Individuals overeat during the period when there is enough food and limit their food intake during the week when there is not enough food.[5] Dinour and colleagues hypothesized that the cycle was related to a federal nutrition assistance program (i.e. Supplemental Nutrition Assistance Program (SNAP), formerly Food Stamps) and mirrored when individuals would have benefits available (feast) to when they would run out before the end of the month (famine). Six cross-sectional studies reviewed by Dinour supported this mechanism.[6–11] Included in those studies was Townsend and colleagues, who specifically examined the food insecurity-obesity paradox and found that receiving food stamps was a significant predictor of overweight status in women after controlling for potential confounders.[6]

Another possible mechanism is that inexpensive calorie-dense, nutrient poor, shelf-stable options may be chosen over expensive nutrient-dense and perishable foods.[12,13] Kendall and collaborators administered a questionnaire and a 24-hour diet recall to 193 women in rural New York and found a significant decrease in the frequency of consumption of fruits and vegetables among food insecure respondents.[12] In a study conducted by Leung et al using data from NHANES 1999-2008, low-income food insecure adults reported higher consumption of

high-fat dairy products and salty snacks compared to low-income food secure adults.[13] In the same study, food insecurity was also significantly associated with consumption of more sugar-sweetened beverages (SSB), red meat/processed meats, and fewer vegetables.[13] Nackers and Appelhans evaluated the presence and accessibility of healthful and less healthful foods in homes with varying levels of food security—food insecure households reported significantly more obesity-promoting foods including more microwavable or quick cooked frozen meals.[14]

In support of the evidence within the Dinour review, Franklin et al's review identified a strong association between food insecurity and obesity among women.[15] Specifically, Franklin and colleagues reviewed ten studies that examined food insecurity and obesity in adults, including four that specifically examined the relationship in women.[15] This review concluded that both previously proposed mechanisms for the food insecurity-obesity paradox continue to accumulate supportive evidence.[15] An additional review by Larson and Story examined 13 cross-sectional and four longitudinal studies examining women and the relationship between food insecurity and weight status. In their review, seven of the cross-sectional studies found that women who were food insecure were more likely to be obese compared to food secure women.[16] However, two of the longitudinal studies reviewed found no evidence to suggest there is an association between household food insecurity and weight gain in women, and one study found that women who were chronically food insecure gained less weight over time.[16]

Existing evidence supports race and ethnicity serving as a moderating variable in the food insecurity-obesity paradox as well. A study by Adams and colleagues evaluated California Women's Health Survey data from 1998-1999 and found increased odds of obesity in food insecure Asian, Black, and Hispanic women (OR: 2.81).[17] In a study by Pan et al using 2009 Behavioral Risk Factor Surveillance System (BRFSS) data from 12 states, food insecure non-Hispanic black adults had a significantly increased prevalence of obesity compared with adults of

the same race and ethnicity who were food secure.[18] Kaiser and colleagues found that the most

severe form of food insecurity was associated with a higher prevalence of obesity in low-income

Latino mothers.[7] While these association studies were conducted using cross-sectional data,

they demonstrate the negative impact food insecurity may have on vulnerable populations.

The use of federal food assistance programs and diet quality among food insecure

individuals has also been explored as a possible moderating variable. The same review by Larson

and Story identified four cross-sectional and four longitudinal studies that sought to determine

the relationship between SNAP and weight status among men and found limited evidence to

suggest that recipients of SNAP benefits had an increased risk of obesity.[16] Particularly, six

studies found no evidence to support the relationship between SNAP benefits and weight

status. Yet, two found an association of receipt of benefits and a higher BMI.[16] However, one of

these studies only found the association with long-term (e.g. greater than two years) use of

SNAP benefits. Despite the mixed findings for men, the review found much stronger evidence

that female recipients of SNAP had a strong association of obesity.[16] Eleven studies were

reviewed, five cross-sectional and six longitudinal, and all but one study reported evidence of an

association between SNAP benefits and an increased risk of obesity.[16] One study found that the

BMI of a typical woman participating in SNAP was more than one unit higher than the BMI of

someone with the same socioeconomic characteristics who was not in the program.[16] Larson

and Story also concluded that the results of the studies indicated that duration of participation

had a cumulative impact on BMI—with long-term participation being associated with greater

increases in BMI.[16]

Leung et al used NHANES data from 1999-2008 and found that poorer diet quality was

associated with food insecurity in low-income participants.[13] Prior to Leung and colleagues'

study, Kendall and colleagues as well as Frongillo and colleagues found that fruit and vegetable

consumption decreased as food security status worsened in a sample population in New York.[12,19] Most recently, Nguyen and colleagues used NHANES data from 2003-2010 to examine whether SNAP participation changes the association between food insecurity status, dietary quality, and weight among U.S. adults and found that there was a significant difference between food security status and weight status among SNAP participants.[20] Those that were food insecure were significantly more obese than those that were food secure in their sample population. In a smaller study conducted in rural Appalachian Ohio, BMI was found to be higher among individuals in a food insecure household, especially among women, compared with those in food secure households.[21]

While there is growing evidence to support an association between food insecurity and obesity, the exact mechanisms remain unclear. Most of the studies reviewed to date have been cross-sectional studies, limiting the ability to infer cause-effect. And the studies that have been longitudinal, have been in specific populations (e.g. women, low-income, SNAP recipients), limiting the ability to generalize the findings to other food insecure individuals. The contributing factors to food insecurity—low income, gender, race and/or ethnicity are also associated with higher weight status. To further test the proposed mechanisms more generalizable longitudinal studies that track food insecurity and weight status need to be performed, controlling for many of the proposed moderating variables.

Beyond the obesity paradox, food insecurity has an association with other diet related chronic diseases. Most of the studies to date have focused on diabetes. The development of type two diabetes has been closely tied with obesity and an increased prevalence of the two chronic diseases affect many of the same groups that are impacted by food insecurity.[21] A series of studies by Seligman and colleagues have focused on the relationship between diabetes and food insecurity.[22–25] In 2007, Seligman identified that food insecure individuals were more likely

to have diabetes than those without food insecurity after adjusting for socio-demographics, physical activity level, and BMI using NHANES data.[22] Additionally, in 2010, they found that among low-income NHANES participants, clinically diagnosed diabetes prevalence, but not self-reported, was higher among low-income food insecure individuals than low-income food secure individuals (ARR:2.42, 95% CI 1.44-4.08).[24] Also, in 2010, Seligman and Schillinger supported the feast-famine cycle proposed previously, but expanded it to include other diet related chronic diseases (e.g. diabetes, hypertension).[23] In 2012, Seligman and colleagues performed chart reviews and a cross-sectional survey of 711 patients with diabetes and found that food insecure participants were significantly more likely than food secure participants to have poor glycemic control (AOR:1.48, 95% CI 1.07-2.04), difficulty affording a diabetic diet (p<0.001), and lower diabetes-specific self-efficacy (p<0.001).[25] In support of that finding, a longitudinal study by Lyles and colleagues found that participants experiencing food insecurity had poorer diabetes related measures at baseline, but made significant improvement after an educational intervention tailored toward diabetes self-management.[26] Separate from the Seligman group, Terrell and Vargas found that food insecurity is associated with a higher likelihood of diabetes when examining NHANES data from 1999-2004 (AOR: 1.42, 95% CI 1.04-1.92).[27]

A handful of studies have also focused on food insecurity and hypertension in addition to diabetes as another diet-related chronic disease. Using BRFSS data from 12 states, Irving and partners found that for adults over age 35, hypertension was more common in individuals reporting food insecurity after adjusting for socio-economic factors (AOR: 1.27, 95% CI 1.19-1.36).[28] In the 2010 study by Seligman and colleagues, they also looked at self-reported and clinically diagnosed hypertension among food insecure individuals and found that among the low-income NHANES participants, food insecurity was associated with both self-reported and clinically diagnosed hypertension (ARR: 1.20, 95% CI 1.04-1.38; ARR: 1.21, 95% CI 1.04-1.41,

respectively).[24] Both of these studies used national data and found that hypertension was

increased in both populations of food insecure individuals.

Similar to the food-insecurity obesity relationship, the studies done to date do not allow

for identification of a causal relationship, but do demonstrate an association between food

insecurity and diabetes and hypertension. There is still a gap in the literature to fully understand

the causal pathway between diabetes or hypertension and food insecurity. While the above

studies used previously existing data (e.g. BRFSS, NHANES), a longitudinal study to establish a

causal relationship does not exist. Importantly, these studies have also demonstrated that

dietary quality may be another important factor in establishing a causal relationship. In the

study by Seligman and colleagues in 2007, after adjusting for socio-demographics, adults living

with the most severe levels of food insecurity had two times higher odds of diabetes than adults

who had ready access to healthful foods (AOR: 2.1, 95% CI 1.1-4.0).[22] Moreover, in one study in

2010, they showed where a dietary pattern of reduced fruit and vegetable consumption was

linked to the development of chronic diseases, including both diabetes and hypertension.[24]

These findings, coupled with what is already known about how diet affects an individual's

health, highlight the need to improve diet quality among food insecure individuals.

Food Insecurity and Diet Quality

A previously mentioned proposed pathway to obesity is the nutritional quality of food

among food secure individuals. These dietary factors include fruit and vegetable (FV)

consumption, sugar-sweetened beverage (SSB) consumption, and overall caloric intake.

Individuals that encounter food insecurity are more likely to purchase or be given shelf-stable

food products.[29] These products are often energy dense and lack nutritional value compared to

more fresh foods such as fresh fruits and vegetables, lean meat, and low-fat dairy products.[30]

According to the Centers for Disease Control and Prevention (CDC), few Americans eat the

recommended amount of fruits (32.5%) and vegetables (26.3%).[31] Previously, Kendall and

colleagues found that as food insecurity worsened (e.g. moving from marginal food security to

low food security to very low food security) the consumption of fruits and vegetables

decreased.[12] They also found that higher consumption of FV increased protective factors against

chronic diseases like diabetes and obesity.[12] Furthermore, in a national report using the

Consumer Expenditure Survey from the Bureau of Labor and Statistics from 1991-2000, Blisard

and colleagues reported that low-income individuals reported eating less healthy diets and

spent less on FV than people with higher incomes.[32] Mello et al conducted a telephone survey

and found that food insecure individuals had a higher intake of fruit, but that it was fruit juice

that accounted for this increase, and when fruit juice was removed, there was no difference in

fruit intake by food security status.[30] Additionally, food insecure individuals were less likely to

engage in fat-lowering dietary behaviors because of an increase in food cost.[30] Mello concluded

from that study little was known about the association between food insecurity and other

dietary behaviors, in particular, food choices.

However, since then, a systematic review was conducted by Andreyeva, Tripp, and

Schwartz that examined dietary quality, operationalized by the Healthy Eating Index (HEI),

among SNAP participants and non-SNAP participants, both income eligible and non-eligible. The

HEI is a measure of diet quality that assesses how well an individual's diet aligns with the Dietary

Guidelines for Americans (DGA), a lower score means poorer alignment with the DGA compared

with a higher score. Scores are on a scale of 0-100. The review findings concluded that SNAP

participants were meeting the dietary guidelines less than those not participating in SNAP.[33]

Specifically, SNAP participating adults had significant lower HEI scores than income eligible non-

participants in two national studies and one age-specific sample, but not in an assessment based

on the 1999-2008 NHANES.[33] Leung and colleagues used NHANES data to assess diet quality

among the different levels of food security and found that as food insecurity worsened diet quality decreased.[13] In particular, those with more severe food insecurity consumed higher amounts of high-fat dairy products, sugar sweetened beverages, and salty snacks. The same group also consumed significantly lower amounts of vegetables.[13]

Food insecure households may obtain food from a variety of resources including food pantries, food banks, or federal food assistance programs to supplement their food budget. The food provided from food emergency networks in particular may influence overall diet quality. Robaina and Martin conducted a sample of food pantry clients in Connecticut and found that food secure participants were twice as likely as food insecure users to consume fruits, vegetables, and fiber.[34] More recently, a systematic review by Simmet and collaborators found that diet quality among food pantry users was low, as reflected by the inadequate consumption of energy, fruits, vegetables, low-fat dairy products, and calcium.[35] A major limitation to the review was the inclusion of only cross-sectional data. However, there were very few longitudinal studies in this population at the time of the review.[35]

The diet of food insecure individuals plays a role in their overall health, including their risk of developing diet-related chronic diseases. Studies have shown that food insecure individuals often have worse diets than food secure individuals. Additionally, food insecure households are likely getting their food from multiple places, including emergency food networks. A recent study found that two in three households rely on charitable assistance in their monthly budget.[36] An important factor to consider in trying to understand how to improve access to healthful foods, improve diet quality, and reduce diet-related chronic diseases is the role emergency food assistance networks play, including what types of food being served to their clients.

Emergency Food Networks

In an effort to reduce food insecurity and improve the nation's health, the federal government runs 15 food and nutrition programs through the United States Department of Agriculture (USDA). The most recognized and utilized programs include the Supplemental Nutrition Assistance Program (SNAP), Supplemental Nutrition Assistance Program for Women, Infants, and Children (WIC), National School Lunch Program (NSLP), and School Breakfast Program (SBP). The USDA has also taken steps to expand access to healthful foods and beverages specifically for SNAP participants through two initiatives—Healthy Incentive Pilot Program (HIP) and Double Up Food Bucks program.[37,38] These programs aim to increase access and availability of fresh fruits and vegetables and reduce the financial barriers for participants to purchase fresh fruits and vegetables at grocery stores and farmers' markets.

Beyond federal nutrition assistance programs, several other programs aim to reduce food insecurity and improve the health of those experiencing food insecurity. In particular, emergency food networks play a vital role in reducing food insecurity. Emergency food networks often include food banks, food pantries, and other programs. Food banks are typically used as a storage and distribution center that distributes food to local food pantries. Food pantries are often smaller, less formal programs that commonly operate within a larger organization (e.g. faith-based institutions, community center). In the 1970s, Feeding America (FA), previously known as America's Second Harvest, was established as a national network of food banks in the United States.[36] The goal was to respond to the hunger crisis in the United States by providing food to people in need through a nationwide network.[36] Currently, through the Feeding America Network, 46 million people are fed each year.[36] FA food banks are large regionally located organizations that serve a network of smaller pantries and other feeding programs. In most cases, the food banks do not directly distribute the food to households or individuals. Food

pantries receive the food from food banks and distribute it to their clients. However, most food pantries also accept food donations directly from the community.

Food pantries can distribute food to their clients in a variety of different ways. Until recently, the most common way was through traditional food boxes, where clients would be given a predetermined amount of food without the ability to select what types of food they received. This traditional model provided food for the clients, but often times it did not meet the need of the clients—both health and personal.[39] The traditional model often costs pantries more money because of the associated food waste and limited ability to select food from the food banks that clients prefer.[39] There has been a recent movement over the past few years to shift food pantries from the traditional model to the client choice model. The client choice model allows clients to select their food instead of receiving a pre-packed box of groceries. Clients are not required to take items they already have, do not like, or cannot eat for health or personal reasons.[39] A client choice pantry can be set up in a variety of ways—supermarket model, table model, window model, or the inventory list model.[39] In the supermarket model, the food is set up on shelves by food groups. Similar to how you shop in a grocery store, clients walk through the pantry and take food off the shelves according the pantry's guidelines. This model allows for the clients to handle the food and look at the labels to determine which food they would like to select. This is the most client-friendly model.[39] The table model organizes food on different tables by food groups. Clients walk by each table to choose and pack their food. This model allows for multiple clients to be served at one time and still allows for clients to physically handle the food as if they were shopping at a store.[39] The window model allows clients to select their food by pointing to the food on the shelf, and then pantry workers pack the selected food according to the clients' choice and family size. Food is still organized similarly to the previous two models, but is often used when the pantry has limited space.[39] Finally, the inventory list

model is when a list of available foods is given to clients and they choose from the list. Pantry workers then pack the selected food and distribute it to the clients. This model is most useful when the clients, the pantry is serving has limited mobility.[39] While the execution of the client choice model may vary by pantry, the overall goal is still the same—to provide clients choice in the food they are receiving to help them eat a more healthful diet.

Two studies by Remley and colleagues, found that pantry clients overwhelmingly preferred the client-choice model to the traditional food pantry and that the feasibility to switch models was doable at the local level.[40,41] Additionally, in 2016 Wilson and colleagues found that a client choice model improved the uptake of targeted foods.[42] However, the specific targeted foods were not identified. In addition to those studies, two studies were recently conducted that aimed to better understand pantry clients' food preferences.[36,43] Both found that clients preferred to receive healthful foods, including fruits, vegetables, and lean proteins. Less healthful foods, were ranked lowest by clients on the list of preferred foods.[36,43] Specifically, the Hunger in America 2014 study found that more than half of food pantry clients surveyed identified fresh fruits and vegetables as the most desired items not received, followed by protein food items, and dairy products.[36] Most recently, Simmet and group's systematic review also found that food pantries have a strong influence on client's diets, but were mostly unable to support healthy diets.[29] They suggest that the distribution of more perishable foods would increase the diet quality of food pantry users.[29]

The research indicates that client-choice model pantries are preferred by the clients and supports a stated preference for higher quality and fresh food—but there is limited research to determine if client-choice models improve diet quality and chronic disease outcomes. Seligman and colleagues piloted a diabetic friendly model with 687 diabetic food pantry users in three states. The six-month intervention provided the diabetic pantry users with diabetes-appropriate

food, blood sugar monitoring, primary care referral, and self-management support.[44] They

found that hemoglobin A1c decreased from 8.11 to 7.96 over the six months (p<0.01) and fruit

and vegetable intake increased from 2.8 to 3.1 servings a day (p<0.01).[44] This study suggests that

food pantries, although not the traditional setting for health promotion interventions, may be

effective in supporting these interventions for vulnerable populations.

Additionally, Martin et al conducted a study comparing the two types of food pantries,

traditional and client choice. A control group received the traditional, pre-packaged food, while

the intervention group participated in a client-choice model that included monthly meetings

with a project manager that included motivational interviewing and targeted referrals to

community services.[45,46] Client-choice model participants were less than half as likely as the

traditional pantry to experience very low food security (OR: 0.42, 95% CI 0.24-0.72) after

controlling for gender, age, household size, income, children in the home, and their food

security status at baseline.[45] There were also significant increases in fruit and vegetable

consumption in the client-choice model compared with the traditional pantry.[45] By allowing

clients to select the food they receive from food pantries, they are able to better identify foods

that fit with their specific health needs. These two studies demonstrate that it is feasible to

make these disease-specific changes within a food pantry setting, leading to positive outcomes

for the population they serve.

Nutrition Policies at Emergency Food Networks

An increased concern for obesity and chronic diseases among food insecure individuals

has led to questions about the nutritional quality of the foods at food banks.[47] Feeding America

has collected data on various categories of food distributed by their member food banks, but

details of the nutritional composition and quality have yet to be systematically documented. In

the early 2000s, some food banks began to assess their inventory systems to monitor food

acquisition to improve the nutritional quality of their donations and distributions. In particular,
the Food Bank of Central New York, developed and adopted a "No Soda and No Candy" policy
and the Greater Pittsburgh Food Bank developed a nutrition rating system for donated foods
received by the food bank.[48,49] Additionally, Feeding America developed guidelines called "Foods
to Encourage" which provides nutrition guidance to food banks within their network to help
them identify and select healthful foods.[36] The recommendations within the "Foods to
Encourage" were developed from the Dietary Guidelines for Americans and MyPlate, which
focus on increasing fruit, vegetable, and whole grain consumption and including lean proteins
and low-fat dairy products.[50]

A nationwide survey of food bank directors found that most were supportive of a
nutritional emphasis in food banking practices and indicated they intended to improve the
nutritional quality of the food they distribute.[51] One example of this shift towards improving the
nutritional quality of food at food banks was in California where an analysis of food inventory at
six food banks over a four-year period found that there was a significant increase in fresh fruits
and vegetables both acquired and distributed, along with a decrease in the amount of sugar-
sweetened beverages and snack foods acquired.[52] In order to better understand the extent to
which food banks were making these nutritional changes, Handforth et al conducted semi-
structured interviews at 20 Feeding America food banks.[53] The study assessed whether food
banks had a nutrition policy or a nutritional profiling system which suggested how often foods
should be consumed (e.g. regularly, moderately, occasionally). The results from the study found
that 40% had no nutrition policy or profiling system, 15% had both a policy or a nutritional
profiling system, and 20% were in the planning stages for either a policy or profiling system.[53]

These studies provide insight into nutrition policies among food banks, but how those
policies trickle down to food pantries in the food bank's network is less understood. A recent

study found that even when food banks had nutrition policies (e.g. Foods to Encourage), food

pantries were often unaware of the nutrition policy's existence.[51] It is imperative that food

pantries, who are responsible for the direct delivery of food to clients, are aware and capable of

implementing a nutrition policy or guidelines that their parent food bank adopts. Yet, because

food pantries often operate as not-for-profit or even less formal organizations with volunteer

staff and informal policies and practices, the workers may lack the knowledge or capacity to

develop or implement policies to improve the quality of food offered to their clients.[53] Since

many pantries also rely on donations to supplement the food they receive from food banks, they

may be hesitant to restrict or prohibit certain types of food donations.

To help with the development and adoption of nutrition policies at both the food bank

and food pantry level, several organizations have compiled guides. In particular, University of

California Berkeley's Center for Weight and Health developed a "Guide to Drafting a Food Bank

Nutrition Policy" which includes sections on policy rationale and benefits to clients, food

inventory covered by the policy, foods to prioritize, and how to implement the policy at the food

bank.[47] The University of Wisconsin's Extension Agency developed the Safe and Healthy Food

Pantry Project (SHFPP) which is focused on food pantries conducting self-assessments to

improve both the safety and nutritional quality of the food they distribute.[54] The SHFPP includes

a guide to developing a nutrition policy at the pantry level, as well as how to implement, review,

and revise the policy.[54] Most recently, the Regional Nutrition Education and Obesity Prevention

Centers of Excellence West, developed the Healthy Food Pantry Assessment Toolkit to be used

by food pantries to improve the health of low-income Americans that access their pantry.[55]

These guides, for both food banks and pantries, focus on improving the nutritional quality of

food distributed to food insecure individuals. However, it remains unclear how many food

pantries are using a nutrition policy to guide their food donations and distributions. Specifically,

there is a gap in the literature to understand at the food pantry level if the adoption and implementation of nutrition policies will improve the food donation and distribution, and in the long term, improve health outcomes of the clients they serve.

Health Policies and the RE-AIM Framework

Health policies are defined as "laws, regulations, formal and informal rules, and understandings that are adopted on a collective basis to guide individual and collective behavior" and can be broad in scope (e.g. nutrition labels) or involve smaller organizational practices (e.g. nutrition policy at a food pantry).[56,57] Specifically, health policies are intended to make meaningful improvements in population-based health, most often with limited resources.[56,57] To improve health outcomes of food insecure individuals, evidence-based policies should be developed through a continuous process that uses the best available quantitative and qualitative research.[57,58] Schmid et al conceptualized policy at three levels—formal written codes or regulations, written standards that guide choices, and unwritten social norms that influence behavior.[59] Additionally, policies can differ in scale, from international to local, or an even smaller level of employees at a worksite.[59] The potential public health impact of policies can be evaluated using the RE-AIM framework.

The RE-AIM Framework is intended to improve the process of translating policies into practice. The dimensions of the framework include Reach, Effectiveness, Adoption, Implementation, and Maintenance.[60] *Reach* is defined as the absolute number, proportion, and representativeness of individuals who are willing to participate in a given initiative, intervention, or program. *Effectiveness* is defined as the impact of an intervention on important outcomes, including potential negative effects, quality of life, and economic outcomes. *Adoption* is defined as the absolute number, proportion, and representativeness of settings and intervention agents (people who deliver the program) who are willing to initiate a program. *Implementation* is

defined as the intervention agents' fidelity to the various elements of an intervention's protocol, including consistency of delivery as intended and the time and cost of the intervention and the clients' use of the intervention strategies. Finally, *maintenance* is defined as the extent to which a program becomes institutionalized or part of the routine organizational practices and policies as well as the long-term effects of a program on outcomes on the individual level[60]. The RE-AIM framework has been applied to a wide range of topics in the evaluation of behavior change programs.[61–63]

Jilcott and colleagues applied RE-AIM to health policies and proposed constitute definitions of the RE-AIM components applied to policy.[56] As applied to health policy, *reach* is the absolute number, percentage, and representativeness of those affected by the policy, or those whose health is to be improved as a result of policy. Reach can be affected by policy adoption, enforcement, and compliance rates.[56] *Effectiveness* is the change in the proximal outcomes and any adverse impacts. Economic issues, including cost of the policy development (e.g. monetary and time) are important outcomes to identify.[56] *Adoption* is defined as the absolute number, percentage, and representativeness of organizations, institutions, or governing bodies that pass or decide to implement a policy and includes the allocation of resources for enforcement. Adoption refers to the organization that enacts the policy, rather than to the individuals impacted by the policy.[56] *Implementation* is defined as applying the policy as planned, adequately enforcing it, and ensuring ongoing and consistent compliance with the core components of the policy. Implementation is different than adoption, because it consists of multiple acts repeated over time to enforce the policy.[56] Finally, *maintenance*, which is addressed on two levels, individual and organizational, is defined as the compliance with the policy and resulting health outcomes that occur over time and continued enforcement of and compliance with the policy over time. Maintenance of a policy at the individual level might not

be seen for a substantial amount of time (e.g. reduction in chronic diseases), however, the

organization's willingness to integrate the policy into their operation's manual and continuing to

enforce the policy can be seen in a relative short amount of time (e.g. 6 months-1 year).[56]

A benefit of policy is that it should impact all individuals associated with the policy. For

example, if a nutrition policy is enacted at a food pantry, the policy should impact all the clients

served at the food pantry. However, identification of the representativeness of those affected

by the policy should be identified to ensure the policy is reaching those it is intended to reach.[56]

Additionally, when discussing effectiveness, while the long-term goal of the nutrition policy

might be to improve the diet quality and reduce the prevalence of chronic disease among pantry

clients, this is not a proximal outcome, which is more likely to improve the food donations and

distributions at the food pantry. Possible negative outcomes should also be identified when

evaluating effectiveness. This could include possible donors deciding not to donate, or an

increased burden on staff and volunteers related to the new policy.

The adoption of a nutrition policy is different than implementation of a policy. Adoption

is the initial decision (e.g. one time act) to enact a policy, whereas implementation is multiple

actions carried out over a time period. Adoption of a nutrition policy at a food pantry is likely to

depend on the cost (e.g. initial, ongoing) and complexity of the policy. Implementation of a

nutrition policy at a food pantry hinges on the consistency in which the policy is enforced. This is

why training the staff and volunteers on the policy before it is implemented is critical to

improving implementation—everyone should be able to implement the policy in the same

manner at all times. Maintenance at the organization (e.g. food pantry) level is often dependent

on how well implemented the policy was. If the policy was poorly implemented and adherence

was low, then the likelihood of the organization maintaining the policy is low. However, most

policy interventions are strong in three areas of RE-AIM compared with individually-based

health promotion efforts: policies generally have extensive *reach*, can be *implemented* very consistently at relatively low cost, and once *adopted,* may be easier to *maintain* compared to individual-based changes.[56] The goal of the RE-AIM framework is to understand policy delivery, so that researchers can better understand the likelihood of a policy being adopted, implemented, and maintained within a food pantry.

Summary of the Literature Review

Food insecurity has rippled effects for households. Food insecurity has been associated with obesity and other diet-related chronic diseases. Emergency food networks are a key source of food for food insecure households. The potential for interventions through emergency food networks to reduce food insecurity and improve diet-related diseases shows promise in the studies to date. However, much of the work to date is focused on food banks instead of food pantries[44,45]. Recognizing the need to improve the quality of food provided to clients, food banks have moved to develop, adopt, and implement nutrition policies. However, there is limited information regarding the degree to which food pantries are also adopting and implementing nutrition policies. Information regarding policies guiding donations and the type and strength of those policies could help inform efforts to design and implement interventions aimed at food pantries.

The overarching goal of this dissertation was to explore the topic of adoption and implementation of nutrition policies at the level of food pantries, which is not well represented in the current literature. This dissertation was conceptualized as three studies focused on the following aims:

Study 1: To determine the number and overall proportion of food pantries that have policies regarding the nutritional quality of the food distributed through their organization.

Study 2: Of the food pantries that did have a nutrition policy, we sought to determine the strength and comprehensiveness of the policy through objective coding, examination, and review of the policies.

Study 3: To explore the degree to which a nutrition policy was being implemented and barriers to implementation through interviews with food pantries.

Chapter 2: Utilizing the RE-AIM framework to understand adoption of nutrition policies at food pantries across the United States

Introduction

Emergency food networks across the United States (U.S.) play a vital role in helping to reduce food insecurity among low-income households. Emergency food networks consist of food banks, food pantries, and other feeding programs.[51] Food banks are larger distribution warehouses, that often are tasked with getting food to smaller programs throughout their region.[51] Most food banks do not distribute food directly to clients. Food pantries however, are responsible for the direct distribution of food to low-income populations. Food pantries receive their food from a variety of sources, including food banks, businesses, and community donations.[36] As individuals continue to seek out emergency food assistance, it is important that the programs within this network consider the role they can play in the health of the clients they serve. In recent years, food banks have made intentional efforts to improve the nutritional quality of the food they distribute.[52,53,64] However, at the food pantry level, the degree to which food pantries are working to improve nutritional quality of the food they distribute is relatively unknown.

Traditional food pantries provide pre-packaged boxes or bags of food. Recently, there has been a shift to a client-choice food pantry model, where clients are able to self-select foods.[39] However, the vast majority of food distributed by food pantries is donated and the types and dietary quality of these foods vary widely.[29] The donated food often includes shelf-stable packaged dry goods and canned items. These foods tend to be higher in sodium, lower in vitamins, and energy dense—three factors that play a role in poor dietary quality.[29] Studies have shown that improving the nutritional quality of food at food pantries, along with nutrition education, has improved individual health outcomes in food insecure clients.[44,45]

While food pantries may be concerned about the nutritional quality of the food they are

distributing, they may have limited resources to address the issue.[35] Food pantries often operate

as not-for-profit organizations or as part of a larger organization of volunteers (e.g. faith-based

institutions). The staff or volunteers may lack the knowledge or do not have the capacity to

develop and implement policies to improve the quality of food offered. That is coupled with

reliance on donations and a potential hesitance to restrict the types of foods that they accept.[47]

Policies are defined as "laws, regulations, formal and informal rules, and understandings

that are adopted on a collective basis to guide individual and collective behavior" and can be

broad in scope (e.g. nutrition labels) or involve smaller organizational practices (e.g. nutrition

policy at a food pantry).[57] The potential public health impact of policies can be evaluated using

the RE-AIM framework. The RE-AIM framework includes the dimensions of *reach, effectiveness,*

adoption, implementation, and maintenance and has been used to evaluate a wide range of

topics within behavior change programs.[60–63] The RE-AIM framework has been applied to public

health policies, including modification of the operational definitions for each of its components

to capture aspects relevant to health policies.[56]

There is a research gap to understanding if food pantries are adopting specific nutrition

policies, and the subsequent impact on donations, food quality, and dietary quality of clients.

Guided by RE-AIM, this study sought to determine the *adoption* (e.g. number and overall

proportion) of nutrition policies at food pantries across the U.S. Adoption is defined as the

absolute number, percentage, and representativeness of the organizations, institutions, or

governing bodies that pass or decide to implement a policy. Adoption refers to the organization

(e.g. food pantry) that enacts the policy, rather than to the individuals impacted by the policy.[56]

A benefit of a policy is that it should impact all individuals associated with the policy. For

example, if a nutrition policy is adopted at a food pantry, the policy should impact all the clients

served at the food pantry. Additionally, this research examined the *representativeness* of the sampling framework to determine if the sample was generally representative of households served by food banks across the country. A secondary research question was to determine if the perceived barriers that food pantries associate with distributing healthful foods (e.g. fruits, vegetables, whole grains, low-fat dairy) at their food pantries differed among policy-adopting food pantries and those that have an informal or no policy.

Methods

This was a cross-sectional study that included an online survey distributed through Qualtrics to a national sample of food pantry directors. There was no incentive offered to respondents. The study was reviewed and approved by the University of Nebraska Medical Center's Institutional Review Board. Survey respondents were categorized by policy type and analyses were conducted to determine differences between the three groups (formal policy, informal policy, and no policy) in demographics and perceived barriers to distributing healthful foods.

Identification of Food Pantries and Sampling Frame

There is currently no public comprehensive database of food pantries in the U.S. The most complete list of food pantries is maintained by Feeding America, which is a national network of 200 food banks that assist over 60,000 food pantries across the country.[36] The researchers worked with Feeding America to identify a subsample of food pantries appropriate for our survey. The research team generated a list of all 200 food banks and contact information for food bank directors associated with the Feeding America network based on public information on their website. Food bank directors from the Feeding America network were emailed a brief description of the overall project aims, highlighting the focus on food pantries and nutrition policies. Food bank directors were then asked if they would be willing to share a list of contact information of the food pantries they currently serve or distribute the survey

directly to their food pantries. Additionally, through contact with the food banks, two other

organizations outside of Feeding America were identified and contacted to get a list of food

pantries they serve. From the list of 202 food banks and feeding organizations, 60 agreed to

either send their list of food pantries with contact information or distribute the survey directly.

Six weeks later, a follow-up email was sent to the food banks who had not responded and an

additional 25 agreed to send their list of food pantries or distribute the survey. Details about

recruitment and survey distribution are provided in Figure 1. In total, 85 food banks or feeding

organizations assisted with the survey distribution. Fifty food banks provided contact

information for the food pantries they served and 35 sent the survey directly to the food

pantries they serve. Food banks who sent the survey directly were asked to quantify the number

of contacts that received the email to assist in an accurate denominator for overall response

rate. Recruitment of the food banks took place over the summer and fall of 2017.

Representativeness of Sampling of Food Banks

To assess whether the food banks that agreed to participate were generally

representative of food banks across the U.S., researchers identified the counties served by each

food bank and compared the counties in the service area for those food banks that agreed to

participate with those food banks that did not respond on four demographic factors using the

County Health Rankings—percent food insecure, percent rural, percent minority, and median

household income.[65] We were unable to compare the representativeness of the pantries or

clients directly because that data is not publicly available. T-tests were performed to compare

between the means of the two groups for median household income and to compare between

percent food insecure, percent rural, and percent minority for the two groups.

Response Rate of Food Pantries

The 85 food banks yielded 5,500 pantry contacts in total and the Food Pantry Director

Survey (FPDS) was sent to N=5,500 pantries (see Figure 2). The FPDS was emailed to 2,919 food

pantries directly, with a brief description of the project, while another 2,581 food pantries

received the survey from a contact at the parent food bank. Survey responses were collected

over three months. An overall response rate, as well as a response rate by the USDA's Food and

Nutrition Services (FNS) Regions were calculated. The seven geographical FNS regions were used

to compare response rates since the USDA's FNS determines SNAP & WIC benefits—populations

that would be likely to also access emergency food network programs like food pantries in their

respective regions.

<div align="center">Development of the Food Pantry Director Survey</div>

The FPDS was modeled after Feeding America's Hunger in America (HIA) survey in order

to provide language alignment and terminology that would be familiar to the food pantry

directors[36]. The HIA survey was modified to focus only on food pantries, as the original survey

was designed to encompass all different types of feeding programs (e.g. food pantries, backpack

programs, soup kitchens). The adapted survey entitled, the Food Pantry Director Survey (FPDS)

contained three sections—Food Pantry Details, Services and Programs, and Nutrition Policies at

the food pantry. The FPDS was reviewed by the research staff for both readability and content

validity. The final survey was converted into Qualtrics, tested among the research team to

identify any potential issues and then sent to food pantry directors. A more detailed description

of the survey is provided elsewhere.[66]

In order to understand the perceived barriers that food pantries associate with

distributing healthful foods at their food pantries, pantries were asked how much they agreed or

disagreed with 10 barriers (e.g. it costs too much money to purchase more healthful foods,

giving out and serving more healthful foods is not a goal of our pantry, we have limited/no

ability to store more healthful foods) on a 5-point Likert scale in the survey, where 1 was

strongly disagree to 5 which was strongly agree. Means and standard deviations were calculated

for each barrier.

Calculating Adoption of Policies at Food Pantries

Questions were designed for the FPDS to determine if food pantries had formal written

nutrition policies, informal nutrition policies or no nutritional policy. Two questions on the FPDS

survey asked about formal written nutrition policies. One question asked about policies that

restricted certain donations or foods distributed and another question asked about policies that

encouraged donation or distribution of healthier foods. To capture informal policies, if survey

respondents answered no to either of the formal policy questions, a question about informal

policy was displayed in the survey.

Responses to the survey items about formal and informal policies were considered

hierarchically, such that any pantry with a formal policy was coded as such (regardless of

response about informal policy) and any pantry with an informal policy was coded as such only if

they did not have a stronger, formal policy. The number of pantries with a formal, informal, and

no policy was divided by the total number of pantries in the sample to calculate a policy

adoption rate.

Analysis

Analysis of the FPDS was conducted using Statistical Package for the Social Sciences

(SPSS) version 24 (Armonk, NY: IBM Corp). To describe the types of food pantries and

characteristics of the food pantries, descriptive statistics were performed on the related

variables. To determine if there were any significant socio-demographic differences within the

sample by type of policy (formal, informal, no policy), chi-squares were calculated for categorical

variables.

For continuous variables, one-way ANOVAs were performed to determine if the mean

score of each barrier was statistically different by type of policy (formal, informal, no policy).

Levene's test for equal variance was performed for each barrier to determine if there was a

difference in variance. If there was no difference in variance, the F-statistic and p-value from the

ANOVA was used and if the p-value was significant, the post hoc test Scheffe was performed to determine between which policy groups there was a significant difference. If there was unequal variance, the Brown-Forsythe robust test of equality of means was used and the post hoc test Games-Howell was performed to determine which groups were significantly different.

Results

Representativeness of Sampled of Food Banks

Using the County Health Rankings—county-level percent food insecure, percent rural, percent minority, and median household income were compared between food banks that agreed to participate and food banks that did not respond. Only median household income represented a statistically significant difference (p<0.001), but the difference between the two groups was less than $2,500.

Response Rate of Food Pantries

The survey was completed by 1,539 food pantries (28.0%). The breakdown of complete surveys by the USDA's FNS Regions is shown in Table 1. Additionally, the response rate of surveys sent directly from the research staff was 24.8% (n=641) and the response rate of surveys sent from food banks to food pantries was 30.8% (n=898). 161 food pantries did not provide information to be able to identify the FNS region or the survey delivery method.

Types of Nutrition Policies

Of the 1,539 pantries that completed the survey, 191 did not answer the policy question and were excluded from the policy analysis resulting in an analyzed sample of 1,348 pantries. Two-hundred eighty-two pantries (20.9%) had a formal nutrition policy, 677 (50.2%) pantries had informal nutrition policies and 389 (28.9%) had no policy.

Demographic information from the FPDS for the food pantries by policy type is shown in Table 2. There were significant differences between policy type (formal, informal, no policy) in the following food pantry categories: type (χ^2=26.13, p=0.001) (e.g. faith-based, governmental, community action program), those with paid staff (χ^2=13.05, p=0.011) (e.g. full or part-time),

those with volunteer staff (X^2=16.64, p=0.002), those with a board of directors (χ^2=29.57,

p<0.001), those part of a formal network of food pantries (χ^2=40.74, p<0.001) (e.g. a network

outside of the food bank), operation type (χ^2=14.48, p=.025) (e.g. client-choice, traditional,

blended), and frequency of food distribution (χ^2=24.04, p=0.045) (e.g. once a week, once a

month, multiple times a week, multiple times a month). There were no differences between the

policy types and how long the pantry had been in operation, or if the pantry limited the number

of times clients could receive food.

Perceived Barriers to Distributing Healthful Foods

Table 3 provides the mean and standard deviation of each barrier by policy type. The

average score for the perceived barriers was 2.90 (SD=1.08). The barriers with the highest mean

score overall were "*We have limited ability to get more healthful foods from other donors and*

food sources (e.g. food drives, retailers)" (M=3.49, SD=1.09) and "*It costs too much money to*

purchase more healthful foods" (M=3.34, SD=1.13).

Results from one-way ANOVAs to test for differences in mean barriers score by formal

policy, informal policy or no policy groups are shown in Table 4. There were significant

differences between mean barrier scores and policy types for eight out of the ten barriers. Some

of the barriers with significant differences include "*We have limited ability to get more healthful*

foods from other donors and food sources (e.g. food drives, retailers)" (F=12.01, p<0.001),

"Giving out and serving more healthful foods is not a goal of our pantry" (F=46.69, p<0.001), and

"We are not comfortable dictating or restricting what types of food are donated to our pantry"

(F=16.36, p<0.001). There were significant differences between the formal policy and no policy

groups in all the barriers except "*We are not sure how to identify foods that are considered more*

healthful" (MD=-0.14; p=0.127). The no policy group reported higher agreement to all the other

barriers than the formal policy group. The only significant difference between formal policy and

informal policy groups was "*We have limited/no ability to store more healthful foods."* (MD=-

0.27, p=0.017), with the informal policy group reporting higher agreement than the formal

policy group to the barrier.

Discussion

The primary goal of this study was to determine the adoption of nutrition policies at

food pantries across the U.S. using the RE-AIM framework. Overall, 20.9% of food pantries that

responded had a formal nutrition policy and half reported informal policies or guidelines. In the

published literature we reviewed, no other studies addressed adoption of nutrition policies at

the food pantry level, thus we were unable to compare our results with others studies. Previous

reports determined rates of nutrition policies at food banks and overall feeding programs.[36,47,64]

However, these reports did not examine the degree to which those policies 'trickle down' to

food pantries served by the food banks nor how those food pantries might adapt policies or the

specific barriers faced by these smaller organizations.

Campbell and colleagues, identified the need to develop, adopt, and implement

nutrition policies at all levels of the emergency food network.[47,51] Nutrition policies can play a

vital role in improving the nutritional quality of food donated and distributed to clients. At the

food bank level, a recent study found that food banks with a nutrition policy that banned certain

foods were distributing twice as many fresh fruits and vegetables as unhealthy foods—defined

as sugar-sweetened beverages, sweet snacks, savory snacks, and candy.[64] Notably, those food

banks that had no policy or guidelines were distributing 10% more unhealthy foods than fresh

fruits and vegetables to other organizations in their network.[64] Because not all food banks have

a nutrition policy, and food pantries receive food from other sources in addition to food banks,

the development of a nutrition policy at the food pantry level is important so that pantries are

able to distribute food that is most beneficial to their clients and align with their practices

regardless of what their parent food bank may have in place.

A secondary aim of this study was to determine if the perceived barriers that food

pantries associate with distributing healthful foods at their food pantries differ among policy-

adopting food pantries compared to those that have an informal or no policy. Our study found

that there were significant differences among 8 of the 10 perceived barriers by nutrition policy

type. Specifically, 7 of the 8 with differences were found between those with a formal policy and

those with no policy, with the no policy group reporting a higher agreement to those barriers

than those with a formal policy. One of those barriers that was significant between both the

formal and no policy groups and the informal and no policy groups was, "*We are not*

comfortable dictating or restricting what types of food are donated to our pantry". Language of

the nutrition policy that food pantries adopt is important. As noted above, food banks with a

formal policy and a language that banned certain types of food distributed more healthful foods

than those without a ban, restriction, or with informal guidelines.[64] Schwartz and colleagues

determined that strong and comprehensive language in policy improves the implementation of

the policy.[67] Feeding America's *Foods to Encourage* framework, developed from the USDA's

Dietary Guidelines for Americans, provides directive language that is intended to send a positive

message about healthful foods, focusing on specific food groups that are more widely accepted

as contributing to good health.[68] Having directive language, whether restrictive or encouraging,

allows food donors, the community, and clients to all receive a consistent message about the

food pantry's commitment to serving more healthful foods. Thus, pantries that are not

comfortable restricting types of food that are donated, could frame their policy in a positive

way, similar to *Foods to Encourage* to overcome this barrier. Whether focusing on restriction or

encouragement, pantries will need to consider balancing the adoption of a policy with the

policy's effectiveness to explore the potential impact on food donation, distribution and dietary

quality.

Another identified perceived barrier survey was, *"We have limited ability to get more healthful foods from other donors and food sources (e.g. food drives, retailers)"* and both formal and informal policy pantries were different than no policy pantries—with pantries that had no policy reporting higher agreement with the barrier. Limited availability and access to healthful foods from donors has been shown to affect distribution of healthful foods.[43,69] The development of a nutrition policy that addresses both the need to have regular access to healthful foods and alternatives in situations where availability might be inconsistent can help food pantries overcome this barrier. Working with local farmers and grocers to cultivate a relationship where excess produce is donated to the food pantry is a practical step that can help to improve the access and availability of healthful foods at food pantries.[51,52] This strategy has been shown to be effective in improving the distribution of healthful foods at the food banks and is worth examining at the food pantry level.[52]

The shift towards improving the nutritional quality of food at emergency food networks through specific nutrition policies is a relatively new development.[47,51,52,68] As such, the adoption of nutrition policies at the food pantry level may be less likely because their parent organization (e.g. food banks) are only beginning to draft and adopt formal nutrition policies. In the current study, 21% of food pantries had adopted a formal nutrition policy, compared with 33% of food banks in another study.[64] Cited barriers to distributing more healthful food at food pantries are notably different among policy-adopting and non-policy adopting pantries. Since perceived barriers were higher among those pantries without a policy, the adoption and implementation of a formal nutrition policy may help to provide the tools needed to overcome barriers and improve the distribution of healthful foods. In addition, this study helps to illuminate what some of these specific barriers are, and efforts can be made to address these and others identified as

further studies address improving food options at food pantries of various sizes and capacity

levels across the country.

The utilization of the RE-AIM framework to evaluate the adoption rate of nutrition

policies at food pantries is novel and allows for future research to be conducted under the same

framework for comparison. Applying the RE-AIM framework to a setting that is understudied

builds the necessary foundation for future research and because RE-AIM can be used by

researchers and practitioners alike, food pantries could also draw from the framework to

identify if the policies they have adopted are effective.[62,70,71] However, one factor of applying RE-

AIM that is often incomplete is the translation of the entire framework for a comprehensive

evaluation.[72] Because there was not previous research to clearly recognize if food pantries had

nutrition policies, this study focused on the *adoption* of nutrition policies at food pantries, but

future research should look to evaluate all components of RE-AIM.

<div align="center">Limitations & Strengths</div>

One limitation to the current study was that there are food pantries outside of the

Feeding America network that are not included in our sampling frame. By reaching out to the

food banks through Feeding America and two additional feeding organizations, we could ensure

sampling within every state and cast a wide geographic net. However, there are likely food

pantries within states that are not captured with this sampling approach. Also, we reported on

the representativeness of the food banks that did and did not respond to our survey but again,

we could not explore the representativeness at the food pantry-level. There is no accurate way

to accumulate denominator information and demographic information on food pantries to

explore representativeness. One major strength of this study was that to our knowledge this

was the first study to exclusively examine a nationwide sample of food pantries to better

understand the role nutrition policies may play at their organization. Additionally, studies in

food pantry settings are sparse, and more are warranted to advance our knowledge of food

pantries and current nutrition policies and developing accompanying resources to help pantries implement policies and/or practices to promote more healthful eating.

Conclusions

This study aided in gaining a better understanding of the adoption of nutrition policies at food pantries. However, more research is needed to better understand the role these policies play in the distribution and donation of food at the pantry. Specifically, examination of the other components of the RE-AIM framework, in particular *implementation* of the policies would allow for researchers to understand the fidelity to which these policies are being executed. Second, research is needed to determine if the policies that are being adopted have extensive *reach* and are *effective* to change both distribution and donation of foods at the pantry, and ultimately client consumption. While one in five pantries have adopted formal nutrition policies, it is unclear the degree to which these policies are being implemented, as well as the reach and effectiveness of the policies on food donation and distribution. Finally, longitudinal studies may be considered, especially those that seek to examine the *effectiveness* and *maintenance* of these policies at food pantries, which would allow for researchers to understand the long-term role policies can have at food pantries.

Table 1: Response Rate of Survey by USDA FNS Region

FNS Region	Surveys Received	Surveys Sent	Response Rate
Mid-Atlantic (MAR)	137	512	26.8%
Mountain Plains (MPR)	248	1606	15.4%
Midwest (MWR)	250	662	37.8%
Northeast (NER)	140	338	41.4%
Southeast (SER)	279	996	28.0%
Southwest (SWR)	186	542	34.3%
West (WR)	138	844	16.4%
Did not Report	161	--	--
Total	**1539**	**5500**	**28.0%**
MAR States: DC, DE, MD, NJ, PA, VA, WV; *MPR States:* CO, IA, KS, MO, MT, ND, NE, SD, UT, WY; *MWR States*: IL, IN, MI, MN, OH, WI; *NER States:* CT, MA, ME, NH, NY, RI, VT; *SER States:* AL, FL, GA, KY, MS, NC, SC, TN; *SWR States*: AR, LA, NM, OK, TX; *WR States*: AK, AZ, CA, HI, ID, NV, OR, WA			

Table 2: Demographic Characteristics of Food Pantries by Policy Type

	Total	Formal Policy	Informal Policy	No Policy	
	n	*n (%)*	*n (%)*	*n (%)*	*p-value*
Number of Distribution Sites	1333	281	670	381	0.876
1	1142	242 (86)	570 (85)	330 (87)	
2 or more	191	39 (14)	100 (15)	52 (13)	
Years in Operation	1314	276	663	375	0.162
10 years or less	456	83 (30)	234 (35)	139 (37)	
More than 10 year	858	193 (70)	429 (65)	236 (63)	
Type of Food Pantry	1342	281	674	387	**0.001**
Faith-based or located in a religious institution	928	175 (62)	473 (70)	280 (72)	
A governmental agency	25	5 (2)	13 (2)	7 (2)	
A community action program (CAP)	62	26 (9)	17 (3)	19 (5)	
Some other non-profit or private organization that is NOT faith-based, governmental, or a CAP	224	55 (20)	114 (17)	55 (14)	
Other	103	20 (7)	57 (8)	26 (7)	
Food Pantry Workforce & Structure					
Paid Staff	431	109 (39)	215 (32)	107 (28)	**0.011**
Volunteer Staff	1278	267 (95)	656 (97)	355 (91)	**0.002**
Board of Directors	868	206 (73)	449 (66)	213 (55)	**<0.001**
Formal Network of Food Pantries	328	99 (35)	170 (25)	59 (15)	**<0.001**
Operation Type of Food Pantry	1334	277	672	385	**0.025**
Client-Choice Model	730	153 (55)	383 (57)	194 (50)	
Traditional pre-packaged box pantry	488	96 (35)	225 (33)	167 (43)	
Combination of CCM and Traditional	92	20 (7)	53 (8)	19 (5)	
Other	24	8 (3)	11 (2)	5 (1)	

Limit number of times clients can receive food	1340	282	673	385	0.498
No	430	87 (31)	211 (31)	132 (34)	
Yes	903	195 (69)	458 (68)	250 (65)	
Don't Know	7	0 (0)	4 (1)	3 (1)	
What is the Limit?	901	194	457	250	0.954
One time per week	77	18 (9)	40 (9)	19 (8)	
One time per month	554	118 (61)	279 (61)	157 (63)	
Two times per month	121	23 (12)	62 (14)	36 (14)	
Other	149	35 (18)	76 (17)	38 (15)	
Food Distribution	1335	278	670	387	**0.045**
One day per week	300	45 (16)	161 (24)	94 (24)	
More than one day of the week (certain days of the week, but not every day of the week)	417	98 (35)	212 (32)	107 (28)	
Every day of the week	100	30 (11)	51 (8)	19 (5)	
Once per month	305	60 (22)	148 (22)	97 (25)	
More than once per month	182	37 (13)	82 (12)	63 (16)	
Certain months of the year, but not every month	9	3 (1)	4 (<1)	2 (<1)	
Irregular Schedule	20	5 (2)	10 (1)	5 (1)	
Don't Know	2	0 (0)	2 (<1)	0 (0)	
Percentages may not add to 100 because of rounding. Bolded values represent significance at 0.05.					

Table 3: Means & Standard Deviations of Perceived Barriers by Policy Type

Barrier	Total		Formal Policy		Informal Policy		No Policy		
	M	SD	M	SD	M	SD	M	SD	F
It costs too much money to purchase more healthful foods.	3.34	1.13	3.17	1.19	3.36	1.09	3.43	1.14	**4.59****
We have difficulty getting more healthful foods through our distributor (e.g. food bank).	3.20	1.20	3.02	1.26	3.18	1.18	3.36	1.17	**6.66*****
We have limited ability to get more healthful foods from other donors and food sources (e.g. food drives, retailers).	3.49	1.09	3.28	1.17	3.46	1.08	3.70	1.01	**12.27*****
We have limited/no ability to store more healthful foods.	3.16	1.30	2.90	1.36	3.17	1.30	3.35	1.22	**9.55*****
Clients typically do not choose more healthful foods.	3.06	1.11	2.93	1.13	3.06	1.10	3.16	1.11	**3.28***
Clients have limited knowledge on how to select or prepare more healthful foods.	3.25	1.02	3.15	1.06	3.27	0.99	3.27	1.04	1.40
Clients are not able to store perishable foods (e.g. limited refrigeration).	2.89	0.99	2.87	1.10	2.90	0.95	2.89	0.97	0.08
We are not sure how to identify foods that are considered more healthful.	1.89	0.84	1.88	0.89	1.81	0.80	2.02	0.88	**7.59****
Giving out and serving more healthful foods is not a goal of our pantry.	1.90	0.92	1.67	0.88	1.78	0.81	2.28	1.01	**49.61*****
We are not comfortable dictating or restricting what types of food are donated to our pantry.	2.87	1.16	2.65	1.19	2.79	1.13	3.14	1.12	**16.36*****
SD=standard deviation; bolded values represent significant differences; * Significant Difference at <0.05; ** Significant Difference at <0.01; *** Significant Difference at <0.001									

Table 4: Mean Difference of Perceived Barriers between Formal/Informal Policies, Formal/No Policies, and Informal/No Policies

| Barrier	Formal to Informal Policy			Formal to No Policy			Informal to No Policy		
	Mean Diff.	p-value	95% CI	Mean Diff.	p-value	95% CI	Mean Diff.	p-value	95% CI
It costs too much money to purchase more healthful foods.	-0.20	0.053	-0.36, 0.00	-0.26	**0.013**	-0.48, -0.04	-0.07	0.657	-0.25, 0.11
We have difficulty getting more healthful foods through our distributor (e.g. food bank).	-0.16	0.192	-0.37, 0.06	-0.34	**0.002**	-0.58, -0.11	-0.19	0.056	-0.38, 0.00
We have limited ability to get more healthful foods from other donors and food sources (e.g. food drives, retailers).	-0.18	0.073	-0.38, 0.01	-0.42	**<0.001**	-0.63, -0.21	-0.24	**0.001**	-0.40, -0.08
We have limited/no ability to store more healthful foods.	-0.27	**0.017**	-0.50, -0.04	-0.45	**<0.001**	-0.70, -0.21	-0.18	0.062	-0.37, 0.01
Clients typically do not choose more healthful foods.	-0.13	0.261	-0.33, 0.07	-0.23	**0.038**	-0.45, -0.01	-0.10	0.416	-0.28, 0.08
We are not sure how to identify foods that are considered more healthful.	0.08	0.455	-0.07, 0.23	-0.14	0.127	-0.30, 0.03	-0.21	**0.001**	-0.35, -0.08
Giving out and serving more healthful foods is not a goal of our pantry.	-0.11	0.188	-0.26, 0.04	-0.61	**<0.001**	-0.79, -0.43	-0.50	**<0.001**	-0.65, -0.36
We are not comfortable dictating or restricting what types of food are donated to our pantry.	-0.14	0.228	-0.35, 0.06	-0.49	**<0.001**	-0.71, -0.26	-0.34	**<0.001**	-0.53, -0.16
"Mean Diff." =mean difference; bolded values represent significance at .05; The post hoc test Scheffe was performed to determine between which policy groups had a significant difference when the sample size reported equal variance. If there was unequal variance, the post hoc test Games-Howell was performed to determine which groups were significantly different.									

Figure 1: Sampling Framework of Food Banks
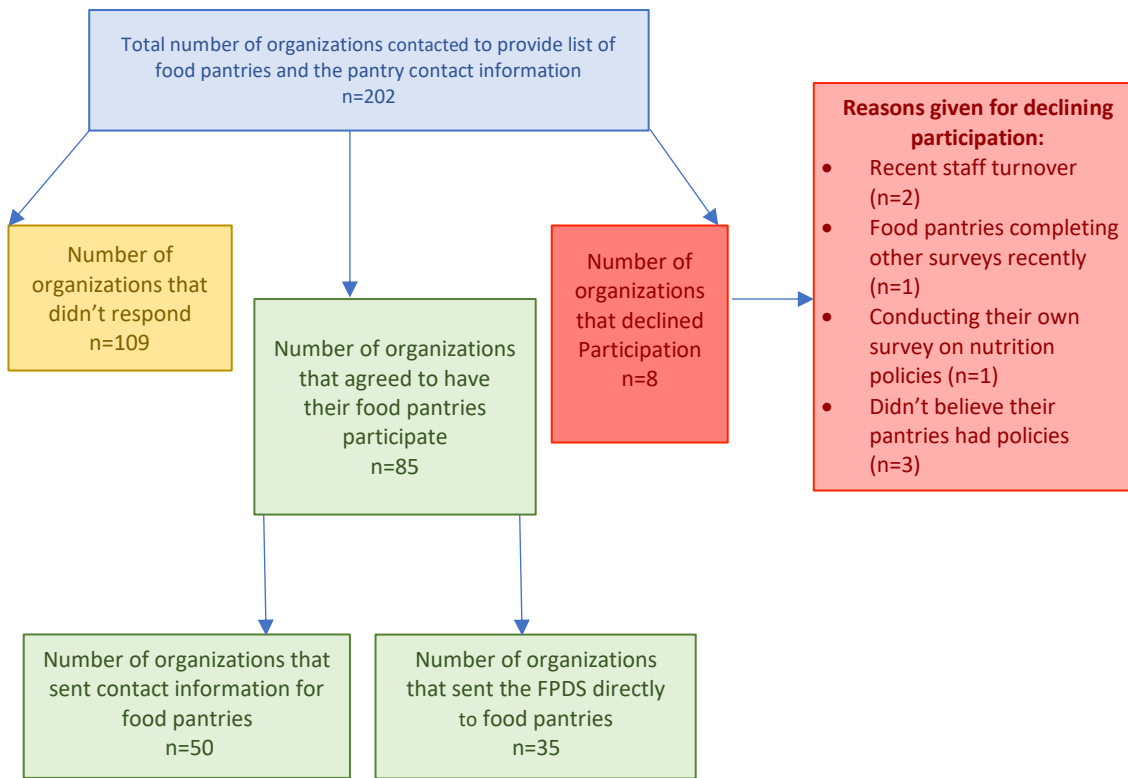
Figure 2: Response Rate of Food Pantries to the FPDS
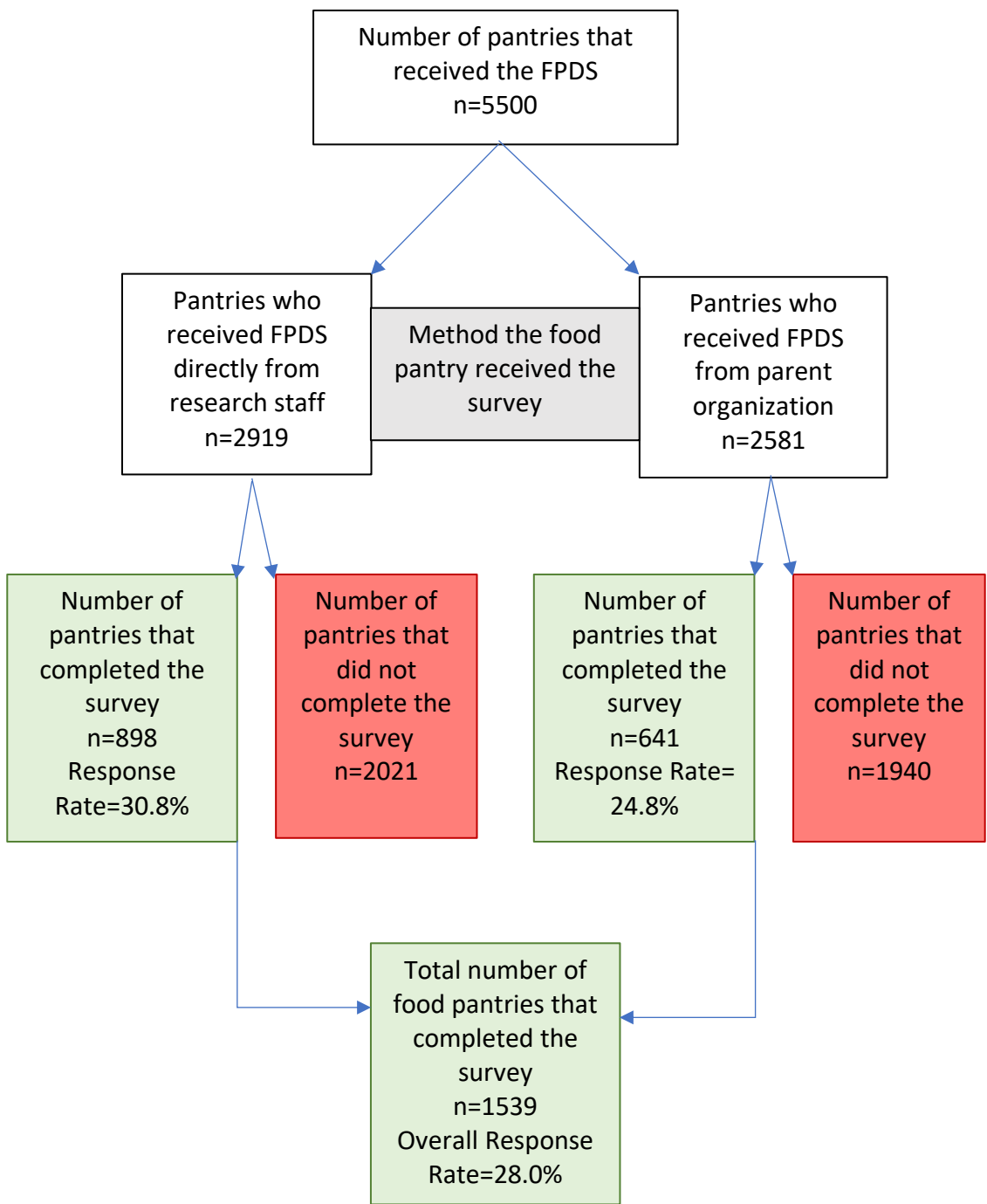
Chapter 3: What do we know about nutrition policies at food pantries? Determining the strength and comprehensiveness of nutrition policies being adopted at food pantries

Introduction

Household food insecurity is a persistent problem in the United States (U.S.). Nearly 16 million U.S. households were food insecure at some point in 2016.[1] Food insecurity has been associated with a variety of chronic diseases including obesity, diabetes, and hypertension.[4,15,17,22,23] Food insecurity has typically been addressed through policies, programs, and practices at the federal, state, and local levels.[20] Well-known examples include federal food assistance programs, including the Supplemental Nutrition Assistance Program (SNAP) and the Special Supplemental Program for Women, Infants, and Children (WIC) that support food purchasing for low-income households.

Beyond federal nutrition assistance programs, several other programs aim to reduce food insecurity among vulnerable populations. In particular, emergency food networks play a vital role in helping to reduce both food insecurity and hunger. Emergency food networks often include food banks, food pantries, and other meal programs. Food banks are typically storage and distribution centers that distribute food to local food pantries. In most cases, food banks do not directly distribute food to households or individuals. Food pantries are often smaller, less formal programs that operate within a community organization (e.g. faith-based institution, community center) to distribute food directly to households and individuals. Typically, food pantries receive food from food banks; however, most food pantries also accept food donations directly from the community and purchase food items to fill gaps in their offerings.

An increased concern regarding the higher prevalence of obesity and chronic diseases among food insecure individuals has led to an targeted focus on the nutritional quality of the

food distributed through emergency food networks including food banks and pantries.[47] Some

food banks are adopting inventory practices to monitor food acquisition and improve the

nutritional quality of their donations and distributions.[48,49] Feeding America, the largest

nationwide network of food banks, has also developed the "Foods to Encourage" guidelines

which provide nutritional guidance to food banks within their network to assist in the

identification and selection of healthful foods by the food banks.[36] The "Foods to Encourage"

guidelines are evidence-based recommendations developed using the Dietary Guidelines for

Americans and MyPlate recommendations which focus on increasing fruit, vegetable, and whole

grain consumption and including lean proteins and low-fat dairy products.[50]

The adoption of these guidelines by Feeding America provide insight into the current

effort to adopt nutrition policies at food banks. However, how those policies are disseminated

for adoption and implementation by food pantries within a food bank's network is less

understood. Food pantries, who are often responsible for the direct distribution of food to

clients, are an important link for the implementation of nutrition policies in emergency food

networks. A recent study found that even when food banks had nutrition policies, food pantries

that partnered with the food bank were often unaware of the policy.[51] However, this study did

not explore if the food pantry was implementing their own nutrition policy or if the food pantry

had the capacity to adopt and implement a food bank nutrition policy. Food pantries are often

small informal organizations within volunteer staff that may lack the organizational structure or

capacity to develop, adopt, or implement policies to improve the quality of food offered to

clients.[53] Since many pantries also rely on donations from their communities to supplement the

inventory of food received from food banks, they may be hesitant to restrict or prohibit certain

types of food donations. Several organizations have developed guidelines to help with the

development and adoption of nutrition policies both at the food bank and food pantry

level.[54,55,73] However, it remains unclear how many food pantries are using a nutrition policy to guide their food donations and distributions.

Most policy interventions are stronger than individual interventions along three dimensions: policies generally have extensive reach, can be implemented consistently at relatively low cost, and once adopted may be easier to maintain compared to individual-based changes.[56] Policies can be conceptualized at three levels—formal written codes or regulations, written standards that guide choice, and unwritten social norms that influence behavior.[59] Once adopted, written policies can further be assessed to determine their strength and comprehensiveness. Schwartz and colleagues have conducted assessments on school district wellness policies better understand how these policies are implemented at the individual school level.[67,74] Using this approach Schwartz and colleagues were able to determine that the wording of the policies made a difference.[67] Policies with strong (e.g. specific directions) language were more likely to be fully implemented than if they were written with weak, vague language. Policies that are comprehensive (e.g. cover a wide breadth) are also more likely to be implemented with a higher degree of fidelity.[67] Additionally, establishing a written policy creates a standard at which to hold the organization (e.g. food pantry) accountable for making changes.

The overarching goal of the project was to fill the gap in the literature regarding adoption and implementation of nutrition policies at the level of food pantries in the emergency food network guided by the RE-AIM framework. The primary aim of this study was to assess the strength and comprehensiveness of nutrition policies at food pantries.

Methods

This was a cross sectional study that included a survey distributed to a national sample of food pantry directors. For those survey respondents that had a written policy and submitted

that policy, the research team utilized a scoring protocol to code the submitted policies for strength and comprehensiveness.

Sampling of Food Pantries

Feeding America is a network of 200 food banks and over 60,000 food pantries across the country.[36] Food bank information that was available on Feeding America's website was used to identify contact information from the list of 200 food banks. Food bank directors from the Feeding America network were emailed a brief description of the project aims and were asked if they would be willing to share a list of contact information of the food pantries they currently serve or distribute the survey directly to the food pantries within their network. Additionally, through conversations with the food banks, two other organizations connected to food pantries were identified and contacted. From the list of 202 organizations, 85 agreed to either send their list of food pantries with contact information (n=50) or distribute the survey directly (n=35) to their food pantry members. Food banks who sent the survey directly were asked to track and report the number of food pantry directors to determine the denominator for reach. Recruitment of the food banks took place over the summer and fall of 2017.

Survey of Food Pantry Directors

A survey, called the Food Pantry Director Survey (FPDS), was developed to understand the number and proportion of food pantries that had a nutrition-focused policy. The survey was modeled after Feeding America's Hunger in America survey to ensure language alignment and terminology that would be familiar to the food pantry directors.[36] The FPDS was reviewed internally by the research team for both readability and content validity. The final survey was converted into Qualtrics for online survey administration, tested among the research team to identify any potential issues, and then sent to food pantry directors.

The FPDS contained three sections—Food Pantry Details, Services and Programs, and Nutrition Policies at the food pantry. The Food Pantry Details section collected demographic

information about the pantry including the number of staff members and volunteers, years of

operation, and type of food pantry (e.g. faith-based, government agency, community action

program). The Services and Programs section measured operational aspects of the food pantry

such as the hours of operation, whether the pantry place a limit on how many times clients can

receive food, and the types of organizations that donate to their pantry. Finally, the Nutrition

Policies section asked if the food pantry has a written policy that guides their food distribution

or donation.

Two questions from the FPDS were used in this study to determine if the food pantry

had a written nutrition policy guiding donations or distributions of the food at the pantry. If the

response to either of the written nutrition policy questions was yes, the survey respondent was

prompted to upload their written nutrition policy. This could be as a word document, a pdf, or a

picture. If a policy document was not uploaded at the time of the survey, the research team

followed up with the respondents twice to see if they would be willing to send the policy via

email, by texting a photo, or through regular postal mail.

Quantifying the Strength and Comprehensiveness of Policies

A coding tool was developed to quantify the strength and comprehensiveness of the

nutrition policy based on two resources.[73,74] The aforementioned policy assessment by Schwartz

et al was used to determine the strength and comprehensiveness of the written nutrition

policies.[67,74] The system for coding and scoring was modeled on Schwartz and colleagues 3-point

scale where 0 was not included, 1 was included but not specific, and 2 was included and

specific.[74] The content for the coding tool was adapted from the "Guide to Drafting a Food Bank

Nutrition Policy".[73] The guide used Feeding America's "Foods to Encourage" guidelines to help

select important components to include in a nutrition policy. The content from the original

guide that was most relevant to food pantries was included and components that were specific

to food banks were dropped or adapted to address food pantries. The final six components

included in the coding tool were policy rationale and benefit, food inventory, foods to encourage, foods to reduce, supplemental resources (e.g. information related to specific foods for chronic disease or nutrition education for clients), and implementation.

The adapted coding tool was pilot tested by the research team and a written protocol was created for coding the policies. All coders met to review the tool and to make any final clarifications before coding began. Researchers read each policy in its entirety to determine if it discussed food donations, distributions, or had a nutritional piece stated within the policy. If the policy did not have a nutritional component it was not further coded. If the policy was determined to have a nutritional component, each researcher coded the policy using an excel spreadsheet. Each submitted policy was coded independently by two researchers and researchers met to resolve any discrepancies in their coding. If the two coders were unable to reach a consensus, a third, senior researcher was brought in to finalize the code.

The adapted coding tool contained six components made up of 23 total items. Each item was coded a 0, 1, or 2. If the policy component contained weak language (e.g. suggests, attempt, recommend, encourage) it was scored as a 1. If the policy contained directive language (e.g. will offer, will limit, mandate, require, not allow, prohibit), it was scored as a 2.

Scoring for Strength and Comprehensiveness

A policy's strength was reflected by the degree to which a policy included detailed information and specific language. A strength score was calculated for each component. Researchers counted the number of items scored as a 2 and divided the count by the total number of items in that component. A total policy strength score was an average of all the policy strength components (6 total). The total scores could range from 0 (weakest) to 1 (strongest).

$$Component\ Strength\ Score = \frac{\#\ of\ subgroup\ items\ coded\ 2}{\#\ of\ subgroup\ items}$$

$$Total\ Strength\ Score = \frac{Strength\ \sum_{i=1}^{N} X_1}{6}$$

A policy's comprehensiveness reflects the breadth of the policy across the components. To calculate the comprehensiveness of each component, the researchers counted the number of items in each component coded as 1 or 2 and divided the count by the total number of items for that component. A total comprehensiveness score was an average of all the policy comprehensiveness components (6 total). The total score could range from 0 (least comprehensive) to 1 (most comprehensive).

$$Component\ Comprehensiveness\ Score = \frac{\#\ of\ subgroup\ items\ coded\ 1\ or\ 2}{\#\ of\ subgroup\ items}$$

$$Total\ Comprehensiveness\ Score = \frac{Comprehensiveness\ \sum_{i=1}^{N} X_1}{6}$$

Results

The survey was sent to N=5500 food pantry directors throughout the U.S. Twenty-eight percent of food pantries completed the survey (n=1539). Of those that completed the survey 282 pantries (20.9%) indicated they had a formal nutrition policy in the FPDS. However, only 40 (14.2%) submitted a policy document to be coded. Twenty-seven policies did not include a nutrition component as verified by two coders and were, therefore, defaulted to a score of zero for strength and comprehensiveness. Thirteen (32.5%) included a nutrition component and were coded (see Figure 3).

Content of Policy

Of the 13 pantries that had a formal written policy with nutrition components, 12 (92.3%) stated that their policy contained language that encouraged healthful food distribution or donation and 8 (61.5%) included language that restricted certain types of foods for

distribution or donation. Of the 27 policies that did not include a nutrition component, 11

provided a list of foods, 5 included the organizational mission statement, 4 included a list of

requirements for clients to receive food, and the remainder provided information on operations

and narratives of foods received and offered.

Characteristics of Food Pantries with Nutrition Components in Their Policies

Demographic, organizational, and operational information from the FPDS was paired

with nutrition policy data to describe the characteristics of the pantries that had a nutrition

component within their policy. Of the 13 pantries with a nutrition component in their written

policy, 30.8% were faith-based or located in a religious institution, 15.4% were part of a

community action program (CAP), and 53.9% were some other non-profit or private

organization that was not faith-based, governmental, or a CAP. Only one (7.7%) pantry had been

in operation for less than a year, and 61.5% had been in operation for more than 10 years. Ten

pantries (76.9%) operated using a client-choice model in which clients are able to select which

food they receive, while 3 pantries (23.1%) classified themselves under the traditional model in

which boxes of preselected food items are distributed to clients.[39] The 13 policies came from

food pantries in 10 different states.

Of the 27 pantries that were determined not to have nutrition components in their

written policy, 63% were faith-based or located in a religious institution, 3.7% were part of a

CAP, and 33.3% were some other non-profit or private organization that was not faith-based,

governmental, or a CAP. Most of the pantries had been in operation for more than 10 years

(84.6%). Eighteen pantries (66.7%) operated using a client choice model, 22.2% classified

themselves under the traditional model, and 11.1% stated they were a combination of the two

models.

Of the 13 eligible policies, twelve pantries (92.3%) provided some sort of nutrition

education at their food pantry. The most common type of education was "flyers or written

materials on nutrition and health" (91.7%), followed by "cooking demonstrations or tastings of

healthier food" (50.0%), and "referring clients to activities related to nutrition or better eating at

other locations" (50.0%). Other types of education included "workshops or classes on nutrition,

health issues, or shopping on a budget" (33.3%), "training on gardening skills" (33.3%),

"workshops or classes on specific health problems related to nutrition" (16.7%), "one-on-one

meetings with a RDN or other person trained to help people with nutrition and health" (16.7%),

and "cooking classes" (8.3%).

Value of Improving Food Quality & Perceived Barriers to Increasing Offerings of Healthful Foods

In addition to reviewing the submitted nutrition policies, the FPDS was used to

understand the value placed on healthful food distribution by food pantries and potential

barriers to meeting that goal. All policy coded pantries (n=13) when asked the question, "How

important to you is it that your food pantry gives out healthful foods like fruits, vegetables, low-

fat milk, whole grains, lean meats, etc.?" answered that it was important or very important.

Figures 4 and 5 show the percentage of food pantry directors with coded policies that agreed or

disagreed with the statements, "My food pantry focuses on the quantity of foods given to

clients, even if it is not as nutritious as we might like" and "My food pantry focus on the quality

of foods given to clients, such as increased fruits and vegetables, even if it means limiting the

donations or purchase of some types of foods."

The most common perceived barriers to serving healthful foods at food pantries with a

nutrition component in their policy were, "it costs too much money to purchase more healthful

foods" (n=8; 61.5%), and "clients have limited knowledge on how to select or prepare healthful

foods" (n=6; 46.2%). Additionally, 12 pantries (92.3%) disagreed with the statement "giving out

or serving more healthful foods is not a goal of our food pantry" and ten pantries (76.9%)

disagreed with the statement, "we are not sure how to identify foods that are considered more

healthful."

Strength and Comprehensiveness Scores

Twenty-seven of the policy documents that were submitted by food pantries did not include a nutrition component and therefore were scored a zero across all items. Overall, strength scores for the 13 policies that included a nutrition component ranged from 0.00-0.78 (M=0.16, SD=0.23). Overall comprehensiveness scores ranged from 0.00-0.69 (M=0.34, SD=0.18). Table 5 shows average strength scores by components ranged from 0.01-0.23 and average comprehensiveness scores ranged from 0.13-0.69. The lowest average component score for both strength and comprehensiveness was implementation.

Average scores for policy rationale and benefit were the highest of the comprehensiveness—meaning pantries were addressing the purpose of the policy in the document. However, the average strength score for this component was 0.23, which means the rationale and benefit was not specific. Comprehensive score averages were higher than strength score averages, meaning the policies covered the components but did not state specifically how each component would be addressed.

Additionally, the average strength of the implementation of the policy was the lowest of the six components (0.01). Of the items measured within the implementation component no policy specified who will be in charge of dissemination of the policy or when the policy will be disseminated and communicated to stakeholders, volunteers, and staff. Average comprehensiveness of the implementation of the policy was also the lowest of the components (0.13). Of the items measured within the implementation component no policy addressed when the policy will be disseminated and communicated to stakeholders, volunteers, and staff or who will be in charge of disseminating the policy to key stakeholders.

Discussion

The purpose of this study was to understand the number and proportion of food pantries adopting and implementing nutrition policies. A secondary aim was to assess the strength and comprehensiveness of nutrition policies at food pantries.

The number of food pantries from the FPDS that stated they had a formal nutrition policy was 282. This study used a representative sampling strategy and in doing so, the reach of nutrition policies at food pantries was determined to be low. Nutrition policies at food pantries are an important strategy that can be utilized to improve the distribution of healthful foods to food insecure individuals. With the limited reach of current nutrition policies, more effort focused on developing, adopting, and implementing nutrition policies at all levels of emergency food networks can help to improve the distribution of healthful foods to food insecure individuals.

Of the forty submitted policies, only 13 policies had a nutrition component and were coded for strength and comprehensiveness and overall scores for both components were low. The average strength scores by component were very low, no component's average score was above 0.23 on a scale of 0-1. Indicating that while pantries may have written nutrition-focused policy, they are not using the specific language within the policy that would lead to effective implementation of the policy. In addition, the average strength of the implementation was 0.01 and the average comprehensiveness was 0.13, with no policy measuring who or when the policy would be disseminated to stakeholders and staff. In comparison, another study that coded strength and comprehensiveness of school wellness policies had an average strength score of 0.24 and an average comprehensiveness score of 0.51.[75] Identifying who is in charge of disseminating and reviewing the policy is critical to ensuring that the policy is implemented correctly—if no one knows who or when it is supposed to be disseminated no one can track if

the policy is effective. Who is in charge and when it is being enacted should be explicitly stated in the policy to improve both implementation and the strength of the policy.

The food pantries with a nutrition component within their policy identified a number of barriers to healthful food distribution. These barriers were focused at the food pantry and client levels. Almost 40% of food pantries perceived client preference as a barrier, meaning that the food pantry directors commonly perceive that clients do not or will not choose more healthful foods if offered was common in the sampled pantries. At least two studies have explored this issue and find that may not always the case. Two studies recently conducted that aimed to better understand pantry clients' food preferences found that clients preferred to receive healthful foods, including fruits, vegetables, and lean proteins.[36,43] Furthermore, less healthful foods, were ranked lowest by clients on the list of preferred foods.[36,43] Most recently, Simmet and colleagues' systematic review also found that food pantries have a strong influence on client's diets, but were mostly unable to support more healthful diets because of a lack of financial means or a way to store fresh foods at the pantries.[35] They suggested that the distribution of more perishable foods would increase the diet quality of food pantry users.[35] About half of the pantries in our study (n=6) indicated that knowledge of their clients, specifically, knowledge on how to select and prepare more healthful foods was a barrier for the pantry to provide more healthful options.

Another barrier in distributing more healthful foods is that many pantries do not want to dictate or restrict donations. We found no studies exploring this issue in food pantries, but dictating or restricting donations has been examined at the food bank level with mixed results.[51,53] Handforth and colleagues found that food bank directors were worried that if they implemented a policy that restricted or dictated what types of donations they would accept their donations would decrease.[53] However, a nationwide survey of food bank directors found

most were supportive of more healthful nutrition being emphasized in food banking practices and indicated they intended to improve the nutritional quality of the food they distributed.[51] Our study shows that food pantries with nutrition policies are not as worried about their donors stopping or reducing their donations. However, these pantries have already taken the steps to adopt nutrition policies, thus they have made an organizational decision to that end or know that they have the support of their donors.

Limitations

One limitation to the current study was that there are food pantries outside of the Feeding America network that may not be represented in this sample. Food pantries can be difficult to identify as there is not a nationwide comprehensive database that exists and they can be small, grassroots organizations. However, Feeding America is a nationwide organization, with a presence in every state. By reaching out to each food bank (n=200) we were able to cast a wide net to gather survey responses. A second limitation is that a very small number of food pantries had nutrition policies, thus limiting our sample size for review and coding of policies. However, this limitation is indicative of the magnitude of work necessary to bolster the adoption and implementation of policies and practices by food pantries to support their efforts to receive and distribute more healthful foods. In addition, to date, no other study has tried to assess the strength and comprehensiveness of nutrition policies at the food pantry level. Given the small sample size, we restricted our data analysis to descriptive information and not inferential statistics. Finally, this was a cross-sectional study that captured responses at one point in time, limiting our ability to capture pantries who may be in the process of adopting policies or those who have strengthened policies already in place.

Conclusions

Overall, the adoption of nutrition policies at food pantries was low—very few respondents had policies and many of those that submitted policies that were not specific to

nutrition. Although food banks have moved to adopt and support nutrition policies, this study indicates there is more work to do to ensure policies are adopted at all levels of the emergency food system. For those pantries with nutrition policies in place, the average strength and comprehensiveness scores were low. Policies that are stronger are more likely to be implemented and have the intended impact. A better understanding of what constitutes a successful nutrition policy and how to draft, adopt, and implement the policy is needed for food pantries since they are an important part of the emergency food assistance network. Importantly, this study did not assess capacity of the food pantries that did or did not have nutrition policies in place. Given the low number of overall food pantries with a nutrition policy, focusing on capacity among food pantry directors to write and adopt policies may be necessary.

Moving forward, food pantries may consider working on adopting nutrition-focused policies that encourage healthful food donations and distributions. Additionally, during the development of the nutrition policy, pantries need to focus on the language used to ensure the policy is explicit and easy to follow. Furthermore, pantries need to address implementation of the policy as fidelity to the policy is critical to ensure effectiveness. If pantries do not know how the policy is to be implemented or who is responsible for making the changes to adhere to the policy, there may be limited impact with the resultant policies. Pantries will likely need further guidance and assistance in developing meaningful nutrition policies, a task that the public health and nutrition community may take on. While pantries perceived their clients' as unwilling to choose healthful food options or perceive that donors may not like restrictions, other studies have demonstrated support by clientele and donors for increasing healthful food options. It is recommended that pantries have an open dialogue with their clients and donors regarding potential policy changes. Continued research is needed to examine if more pantries adopt nutrition-focused policies the degree to which those policies are implemented and if they

improve the donation and distribution of food—and in the long term, improve the health

outcomes of the food insecure clients they serve.

Table 5: Average Score for Strength and Comprehensiveness by Component

	Strength	Comprehensiveness
Policy Rationale & Benefit	0.23	0.69
Food Inventory	0.10	0.28
Foods to Encourage	0.18	0.35
Foods to Reduce	0.23	0.38
Supplemental Resources	0.23	0.18
Implementation	0.01	0.13
Possible range for each score is 0.0-1.0.		

Figure 3: Flow Diagram of Survey Respondents and Policies Coded
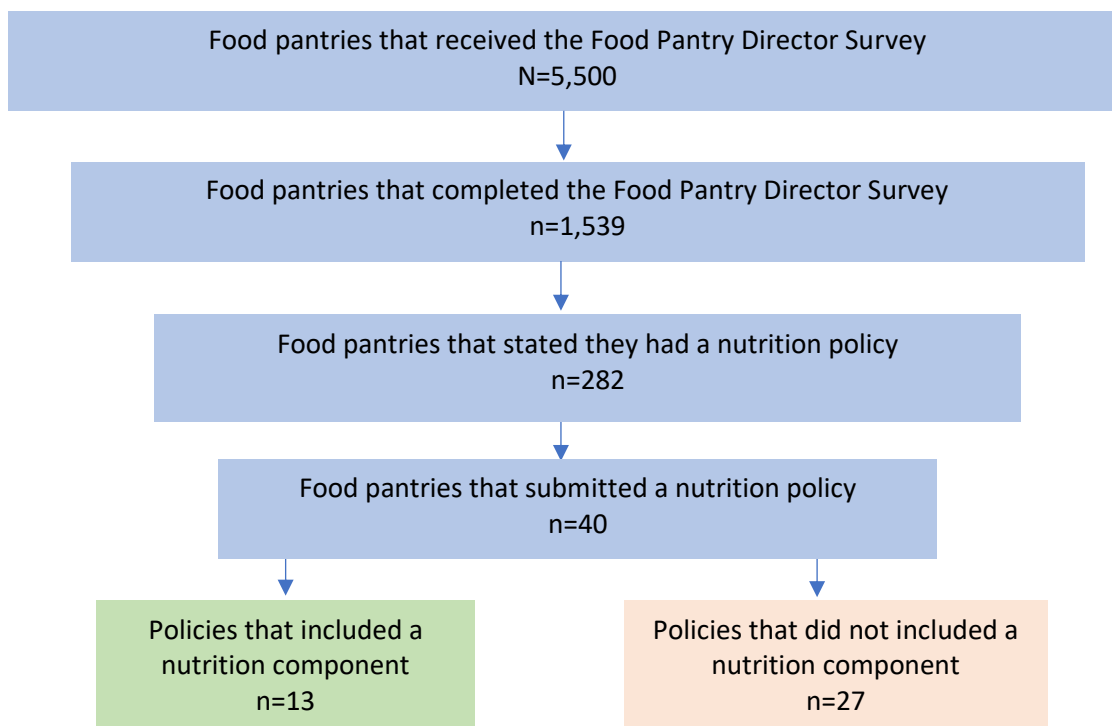
Figure 4:
"My food pantry focuses on the quantity of foods given to clients, even if it is not as nutritious as we might like." (n=13)

Agree or
Strongly Agree
30.8%

Neither
Disagree or
Agree
15.4%

Disagree or
Strongly Disagree
53.8%

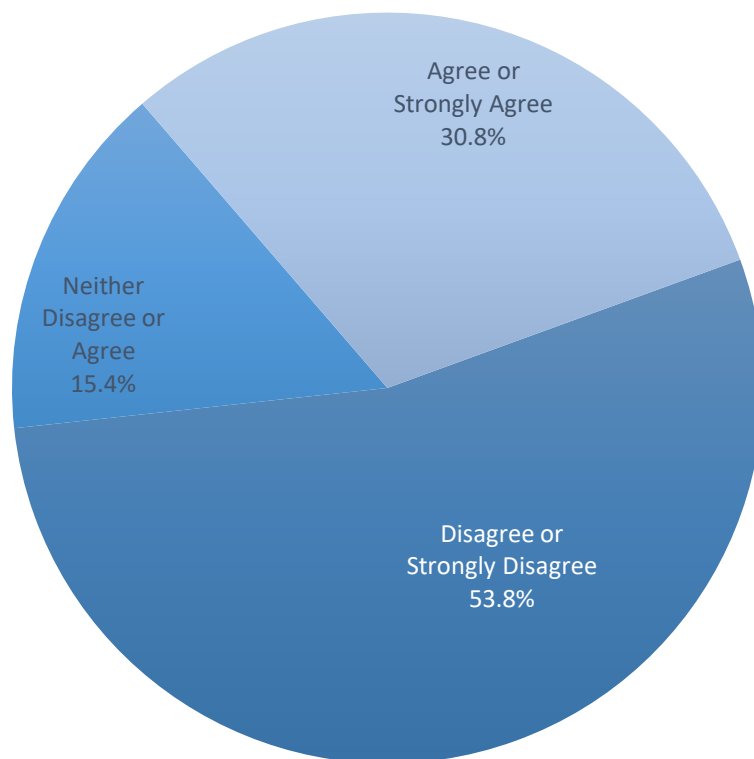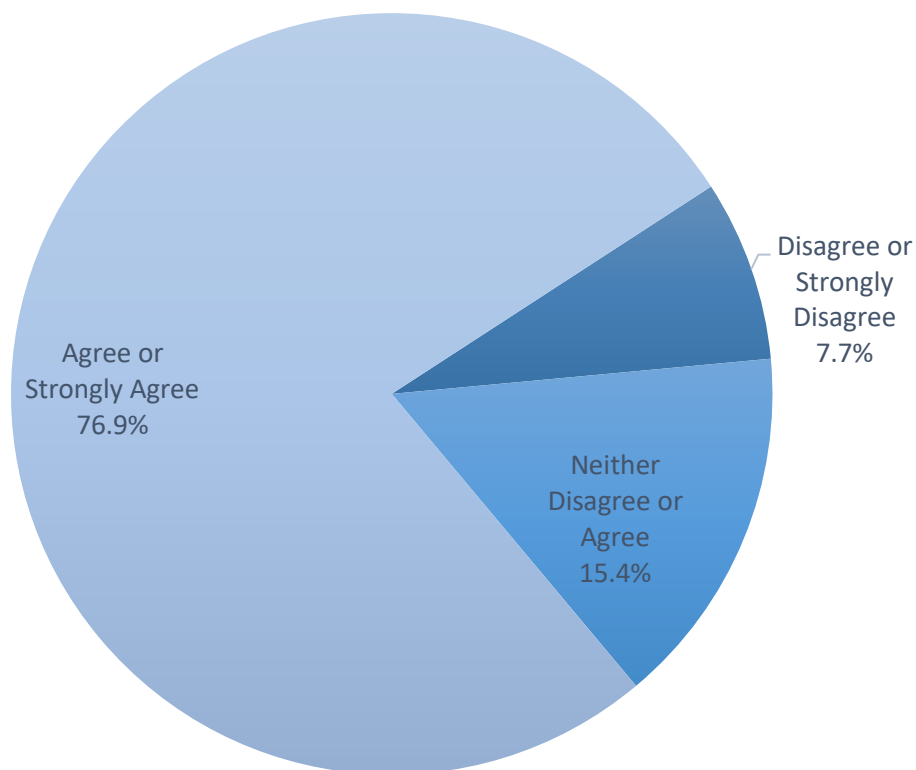**Figure 5:**

"My food pantry focus on the quality of foods given to clients, such as increased fruits and vegetables, even if it means limiting the donations or purchase of some types of foods." (n=13)

Agree or Strongly Agree 76.9%

Disagree or Strongly Disagree 7.7%

Neither Disagree or Agree 15.4%

Chapter 4: A thematic analysis on the implementation of nutrition policies at food pantries using the RE-AIM framework

Introduction

The emergency food system (which includes food banks, food pantries, and other feeding programs) plays a vital role in helping to reduce food insecurity among low-income households across the United States (U.S.).[1] In this system, food banks serve as large distribution warehouses and most food banks do not distribute food directly to clients. Typically, food banks distribute food to food pantries, which are often less formal programs that operate within a community organization like a faith-based institution or community center. Food pantries are responsible for the direct distribution of food to low-income households. Food pantries receive their food from a variety of sources, including food banks, businesses, and community donations.[36]

As a result of this broad reach, in 2014, as many as one in seven individuals in the U.S. received food assistance from Feeding America, a national emergency food assistance network of food banks and food pantries.[36] The emergency food system may play an important role in the health of Feeding America clients. In recent years, food banks have made intentional efforts to improve the nutritional quality of the food they distribute.[52,53,64] However, the degree to which food pantries are working to improve the nutritional quality of the food served is relatively unknown.[66,76]

While food pantries may be concerned about the nutritional quality of the food they are distributing, they may have limited resources to address the issue.[35,76] In our recent study, only one in five food pantries had adopted a formal nutrition policy that guided their food donation and distribution.[76] Additionally, another study focusing on the strength and comprehensiveness of the policies that had been adopted found that policies had both relatively weak language and

did not have a wide breadth.[66] Food pantries often operate as not-for-profit organizations or as

part of a larger organization of volunteers (e.g. faith-based institutions). The staff or volunteers

may lack knowledge or capacity to develop policies to improve the quality of food offered. That,

coupled with the reliance on donations and a potential hesitance to restrict the types of foods

they accept, may be a barrier to implementing a nutrition policy.[66,76] However, these possible

barriers to implementation have not been fully explored at the food pantry level.

There has been over 430 publications using the RE-AIM framework (reach, effectiveness,

adoption, implementation, maintenance) for planning and evaluation of health programs and

policies since its inception,[77] but its application to nutrition policies has been limited, and no

studies have evaluated food pantries using this framework.[71] The RE-AIM framework is a strong

model to evaluate public health policies[56] and understanding the degree to which those policies

are implemented; therefore, applying RE-AIM to better understand the role nutrition policies

have at food pantries using qualitative methods may be especially useful. Previously,

researchers have focused on the adoption dimension of the RE-AIM framework to assess

nutrition policies at food pantries.[76] Implementation of a policy means applying the policy as

planned, adequately enforcing it, and ensuring ongoing and consistent compliance with the key

components of the policy.[56] Implementation is different than adoption, in that implementation

consists of multiple acts that must be repeated over time to enforce or comply with the policy.[56]

Implementation is the dimension of RE-AIM where the need for qualitative understanding is

most warranted and often more meaningful than that of quantitative information.[78] Now that

researchers know the degree to which nutrition policies are being adopted at food pantries, the

logical next step would be to determine how these policies are being implemented.

The use of qualitative methods to evaluate the implementation of nutrition policies

helps researchers understand a complex situation where food pantries may be limited in their

capacity to fully implement a policy.[66,76,78] Examples of how the implementation component of RE-AIM can be addressed through qualitative data questions include, "How consistently was the policy implemented?", "By whom and when?", "What influenced implementation or lack of implementation?", and "How and why was the policy adapted or modified over time?".[78,79]

The purpose of this study was to use a qualitative approach to explore the implementation of nutrition policies among food pantries that had adopted a formal written nutrition policy. Further, we wanted to explore barriers to implementation in those pantries that had not adopted a nutrition policy. The overall goal of this study was to determine the degree to which food pantries are implementing nutrition policies and identify possible barriers to implementation.

Methods

All study instruments and methods were approved by the University of Nebraska Medical Center Institutional Review Board.

Study Design

This qualitative study used a thematic analysis approach,[80] which included semi-structured interviews with food pantry directors who completed the Food Pantry Director Survey (FPDS) in the fall of 2017. The FPDS was sent to 5,500 pantries across the U.S. The researchers received 1,539 responses and determined that 282 pantries had adopted a nutrition policy[76]. Of those 282 pantries with a formal policy, 40 sent their nutrition policy to the research team to be coded for strength and comprehensiveness.[66] Thirteen of the 40 policies were determined by the research team to have a nutritional component, and were fully coded for strength and comprehensiveness of the policy; the remaining 27 were defaulted to a score of zero for both strength and comprehensiveness for numerous reasons (11 provided a list of foods, 5 included the organizational mission statement, 4 included a list of requirements for clients to receive food, and the remainder provided information on operations and narratives of

foods received and offered).[66] The focus of this study was to examine the RE-AIM component of implementation of nutrition policies at food pantries and barriers to implementation of these policies in pantries that had not adopted nutrition policies. To help contextualize the qualitative findings from the pantries, the characteristics of the pantry are also reported.

<div align="center">Sampling</div>

The 13 pantries that were determined to have a formal nutrition policy from a previous study were contacted for the semi-structured interview on implementation of their nutrition policy.[66] To strengthen our understanding of implementation, we matched the 13 pantries with 13 pantries that had not adopted a formal nutrition policy based on four conditions: geographic region, type of pantry (e.g. faith-based, community action program), and operation method (e.g. client choice, traditional). Client choice pantries allow clients to self-select the food they wish to take and are not required to take any certain food items.[39] In a traditional model, clients are given a pre-determined box or bag of food to take with them at each visit.[39] We aimed to sample both policy and matched non-policy pantries to explore implementation factors (e.g., non-policy pantries may have components of nutrition policies implemented despite not having a formal policy). Emails were sent to all 26 food pantries asking if their director would be willing to participate in a phone interview to further understand the results of the survey they completed. A follow-up email was sent to the pantries that had not responded a week later. A second round of matched pantries that did not have a nutrition policy (n=14) were identified and emailed the following week to ensure we had representation from both policy-adopting and non-policy adopting pantries. In total, 40 pantries were contacted and asked to participate in the interviews. To compensate their time, pantry directors received a $25 gift card to amazon.com after the interview was completed.

Measures and Data Collection

Semi-structured script questions were created from the FPDS responses and used a

modified motivational interviewing approach in which the responses to the FPDS were captured

and used to explore the implementation and barriers to implementation of nutrition policies at

food pantries.[81] All interviewees were asked again if they had a formal nutrition policy to ensure

we captured any changes in the 5-8 months since the FPDS was completed. The questions within

the script targeted different factors of implementation from the RE-AIM framework, including

policy enforcement, delivery of the policy, unexpected consequences, fidelity to the policy, and

barriers to implementation. An example of a policy enforcement question included in the

interview was, "How do you ensure that this policy is followed consistently?". Examples of

delivery of the policy delivery questions were, "How do you communicate this policy with your

donors? How about with the clients your serve?" and "Who was mainly in charge of

creating/revising the policy?". Unexpected consequences were identified by asking, "What

unexpected outcomes or changes have occurred (if any) since you have enacted the policy?".

For pantries that did not have a formal policy, the interview guide focused on 'why' they

hadn't adopted a nutrition policy, barriers to implementation if a policy were to be adopted,

how they would be able to enforce a policy if they adopted one, and how to ensure fidelity to

the policy. Examples of questions related to the barriers to implementing a policy if it were

adopted included, "Why do you think you don't have a formal policy?" and "What would be

potential challenges to getting a policy up and running at your food pantry?". Questions related

to the enforcement and fidelity of a proposed policy included, "Who would be in charge of

implementing the changes for a new policy?", "How would you make sure the policy was used

consistently?", and "If you were to put a policy in place, what would be needed for your pantry

to stick with to that policy?".

Interviews took place during April and May 2018. Interviews were conducted by a

trained interviewer and recorded for transcription. Consistency was promoted by adherence to

the semi-structured script and confirmed by frequent review of the audio-tapes and transcripts.

Data Analysis

A thematic analysis method was used in the coding of the interviews.[80] Thematic

analysis is a method for identifying, analyzing, and reporting themes within data.[80] The RE-AIM

dimension of implementation was operationalized a priori and guided the coding matrix

development. The subthemes that resulted from the interviews were then coded into broader,

parent themes of different factors of implementation. Two researchers individually used a line-

by-line coding strategy to turn the raw data from the transcribed interviews into meaning

units[82]. Researchers then collaboratively determined the codes for each meaning unit and

reached a consensus. In an iterative process, the researchers further organized the coded

meaning units into themes focused on the different factors of implementation. Saturation was

reached when no new meaning units emerged from interviews and was evident in the final

interview.

To illustrate the reliability of the data across the emerging subthemes, the total number

of meaning units was quantified.[82] However, the quantification of meaning units does not

necessarily reflect the associated value, importance, or emotion across themes—only that the

emergent themes are reliably detected.

Results

Characteristics of the Food Pantries

A total of ten food pantry directors of the 40 contacted were interviewed (25%). Out of

the 27 matched, non-policy adopting pantries, three agreed to participate and were interviewed

(11%). Seven of the 13 policy-adopting pantries were interviewed (54%). Two additional pantries

agreed to participate but did not respond to multiple requests to set up the interview. Pantries

were matched to the USDA's Food and Nutrition Service (FNS) regions to reflect similarity in grouping of pantries by a previous study.[76] Four pantries were from the Southwest Region, three were from the Southeast Region, one was from the Mountain Plains Region, and two were from the Midwest Region. Four pantries were faith-based, and six identified as another type of non-profit that was not faith-based, governmental or a community action program. Five pantries operated using a client-choice model pantry, and other five pantries were using a traditional model.[39]

Themes and Subthemes

The subthemes, including meaning units that emerged from the interviews are listed in Table 6. Subthemes included partnerships with the food pantry, donations and ordering of food, distribution of food, nutrition education at the food pantry, healthful food access and availability, and nutrition policies. Five out of the six subthemes had been previously identified as key components of a nutrition policy for food pantries.[66,73]

Implementation of Nutrition Policies

Since the focus of this study was implementation, the interviews were further coded using an implementation lens. Tables 7 and 8 show a total of five implementation themes identified from the subthemes for pantries with formal nutrition policies and three implementation-focused themes for pantries that did not have a formal nutrition policy.

Across the implementation themes explored for formal policies were barriers, enforcement, delivery of the policy, fidelity and unexpected consequences. For informal policies, themes explored were barriers, enforcement, and fidelity. A barrier to implementation that was mentioned in the interviews with pantries that had informal policies was lack of time, with one pantry director stating, *"I would say probably the time factor. I don't think it'd be difficult to sit down and write a policy for receiving food and distributing food. I don't think it would be hard to sit down…"*. Another director mentioned needing a template to help them

create a policy, stating, *"Do we have templates out there? Is there something out there that we can look at and have some reference to? I know that has been a barrier because I get online all the time and I'm looking."*

When examining the interviews from food pantries with a formal policy, barriers they identified when trying to implement their policy included volunteer pushback. One pantry director stated, *"There has been some pushback.... we had maybe three volunteers in particular who were like very upset."* Additionally, an unintended consequence reported by another pantry director was volunteers leaving, saying, *"[after the policy was enacted] we had one guy quit for about four months…"*.

Looking at the enforcement of formal policies at pantries, one pantry director stated, *"Most [volunteers] are kind of in between and kind of like, 'Oh whatever the policy is I'll do.' It's hard for people to throw things out even if it's cotton candy….and so we have to just be like, 'Okay the buck stops here sometimes.' Just because somebody dropped off their junk and they're probably getting credit for it on some tax form somewhere—it shouldn't be our problem if it's really junk you know?"*

When talking about how the policy is delivered, or disseminated, to staff, volunteers, and clients, a formal policy pantry director said, *"I'll work with our volunteer manager about how we message things to the volunteers….it takes a while to get things but we feel like every quarter we should be doing some kind of training."* And another pantry director with a formal policy remarked, *"We keep our policies in [a computer database] and we can print that information off and share that with our volunteers. We train them on how our clients are served here in [the pantry] and we train them on our limits and the categories of food that we offer."*

Discussion

Guided by the RE-AIM framework, this study sought to qualitatively describe the implementation and barriers to implementation of nutrition policies at food pantries. Previous research shows one in five pantries have adopted a formal nutrition policy.[76] However, in another study of those same food pantries, the written formal nutrition policies rarely addressed implementation,[66] and this study helps to explain possible reasons why and provide context as to why formal policies may not be addressing the necessary factors of implementation.

There are two published guides designed to help food pantries develop nutrition policies.[54,55] However, none of the pantries we interviewed acknowledged being aware of these guides or using them in the development of their nutrition policy. For example, one director at a pantry with only informal policies, specifically asked if there were templates or guides to help them draft a formal policy, indicating that more targeted dissemination of available resources is needed. Providing a way for food pantries, that are willing to adopt and implement a policy, to access these guides that already exist is an important step in improving the adoption and implementation of a formal nutrition policy. Furthermore, Martin and colleagues have pilot tested a nutrition profiling system at food pantries that focus on increasing the knowledge and capacity of the food pantries to select healthful foods to distribute to their clients.[83] This system helps pantries when ordering food from food banks, requesting donations, and helping volunteers identify healthful food options. Training of this system was necessary at each of the pantries, and it would not be able to be utilized independent of training. However, the policies guides that are currently available provide food pantries the tools needed to conduct a self-assessment and create a policy without the need of external assistance. Adopting and

implementing a nutrition policy, in accompaniment with a nutrition profiling system, may allow

for a more well-rounded approach to improving healthful food distribution and donations.

Looking at the enforcement of formal policies that are already being implemented

underscores the degree to which pantries are willing to adhere to a policy, as well as putting

steps in place to ensure the policy is enforced with a high degree of fidelity. One pantry found

that volunteers were hesitant to adhere to the policy when it came to not distributing certain

types of food because they felt that if someone donated the food, it should be distributed with

no restrictions. The director relayed that they reminded the volunteers, that more than likely

the person or business donating was either going to throw it out or receive a tax write off—and

they should not feel obligated to distribute unhealthy food, simply because it was donated. This

discomfort with choosing foods that should or should not be distributed is not exclusive to food

pantries. In a qualitative study by Handforth and colleagues, food bank directors also shared this

concern, but ultimately found that when the policy was in place, it was easier to enforce the

policy with less resistance from donors because it was formalized.[53] This highlights a key finding

that while pantries may have a policy and try to enforce it—ultimately, it is up to their

volunteers or staff to truly apply the policy. The full support of adopting agents has been shown

to directly influence implementation fidelity.[84] If the volunteers or staff are unwilling to do that,

the food pantry cannot be expected to be implementing the policy with a high degree of fidelity.

Another key component of implementation is the unexpected consequences the policy

may have for the food pantry. One pantry director spoke to the fact that they had a volunteer

quit after the policy was implemented because they disagreed with the policy. Another director

talked about the unexpected consequences the policy had on the clients they served. In

particular, on the children that received the food, they found that the children would go through

the food they received and leave the undesired food on their doorstep. However, the pantry

was able to redistribute that food to their senior clients or other individuals. If the policy is intended to improve the dietary habits of pantry clients, but clients resist the changes made by the policy, it is essentially rendered ineffective. A better explanation of why the policy is in place and the reasoning behind why a pantry may have switched the food they distribute might help to reduce these unintended consequences. Campbell and colleagues suggest being transparent in the development of the policy and also including clients throughout the process.[51] Studies have repeatedly found that clients prefer to receive fresh fruits, vegetables, and other healthful foods from food pantries,[35,46] but the perceived resistance received from clients conveyed by the pantries we interviewed may have been due to lack of communication about the changes taking place.

The barriers to implementation explored in this study have been identified in other policy interventions.[53,67,85] Strategies mentioned above, including involving volunteers and clients during the development of the policy, building the capacity of the food pantry, and supporting the stakeholders that are tasked with enforcing the policy have been identified as ways to increase implementation fidelity.[53,67,83,85] Overall, while the barriers to policy implementation at food pantries may be significant, there have been proven successful strategies to overcome those obstacles.

Limitations

The interview script was intended to elicit responses about implementation of nutrition policies at food pantries, but a limitation to the study was that only seven pantries were interviewed who had implemented a formal nutrition policy. However, interviews were conducted until saturation was met and no new themes developed in the final interview. Another potential limitation was that the food pantries without formal policies were asked to speak hypothetically about if they were to implement a nutrition policy. While some of these pantries might not have any intention of implementing a nutrition policy, conversations with all

three of those pantries resulted in statements about a desire and a need to formalize their

guidelines. Additionally, the sample of pantries that we were able to interview that did not have

a formal policy was small (n=3); thus, limiting our ability to expand upon the themes presented

in this study. However, multiple attempts were made to contact additional pantries, but no

other pantries agreed to participate. Overall, the potential pool of pantry directors to interview

about implementation factors was small based on the limited number of pantries with nutrition

policies in place.[66,76] However, the information provided expands what is known about

implementation of nutrition policies at food pantries.

Conclusions

The findings of this research provide several potentially beneficial areas of future

research. First, including a qualitative component to future RE-AIM evaluations of nutrition

policies can help to more fully understand the results.[78] Exploring implementation with a

qualitative approach provides detailed information about potential opportunities in working

with pantries. Second, pantries that did not have policies were open to having a formal policy,

but did not know how to go about creating and implementing a policy. Current guides already

exist to help pantries develop a nutrition policy. But additional work is needed to ensure these

guides are widely disseminated and easily accessible to food pantries to improve the number of

food pantries adopting nutrition policies. A targeted intervention that builds upon this research

and focuses on building the capacity of food pantries to develop, adopt, and implement

nutrition policies would be beneficial to continue to improve the food donated and distributed

at food pantries. Another opportunity would be to assist those with a nutrition policy on

implementation by providing technical assistance and strategies to help improve the

enforcement and fidelity of the policy at their pantry, including providing fidelity checks and

training on the policy to volunteers and staff. By supporting food pantries in the development,

adoption, and implementation of nutrition policies researchers can play an important role in

improving the quality of food in the emergency food network.

Table 6: Subthemes and Meaning Units with Sample Quotes from Interviews with Food
Pantry Directors

Subthemes		Number of Meaning Units	Sample quotes
Partnerships with the food pantry		77	"Over the years, it's varied a little bit how much we get from [the food bank], but I'd say in the last year about 55 percent of our total is from them. So, the rest is from a variety of sources which includes individuals. They can come to our door and just drop off stuff on the stoop anytime. Major food drives through schools and businesses, and then we also get food from faith-based organizations and just the community at large— anybody at all."
Farmers' Markets		3	"Outside of the food bank, we also partner with a farmer's market that provides us with vegetables, primarily. And if we have vegetables left over, then the next day, we'll continue giving out boxes, because we don't want our produce to spoil."
Community Gardens		4	"We also had a partnership with the community garden nearby and what they would do is the items that they were gonna donate that were more than they could use, they would leave in a cooler by our doors every morning and we had those items and we'd wash 'em off and package them and then they always went."
Food Drives		19	"We have a couple of businesses entities that will conduct food drives usually around the Thanksgiving, Christmas time period. They will collect—will do a food drive themselves, and then deliver."
Food Bank		29	"Knowing there is always enough food. If we were to call say, hey, we need more food, then we—we'd know that we would get the necessary food or quantity that we need. So, we're just elated that we do fall under the [food bank], because they have such great resources."
Donations & ordering food		111	"I stay away from ordering any sweets, any baked goods, and that kind of thing. Because we promote, in our food bank, at our food pantry, rather, we promote healthy eating."
Distribution of food		174	"So here we have a client-choice, we pride ourselves, we tell our volunteers that when you put products out, don't just put them out haphazardly. Take your time, make sure the labels are to the front. Make sure that you separate items…we told them sort corn with corn and green beans, put all that stuff together and organize our shelves so that our shoppers have a wonderful experience. Because we like them to have a shopping experience."
Nutrition education at the food pantry		58	"We contracted out a registered dietitian and a nutritionist to do a couple different things. The main things though are the registered dietitian every other week—he's at a table for three hours. And he's like a consultant for people who have

			questions about health and nutrition. And he has samples there and he has information and he answers people's questions."
Healthful Food Access & Availability		98	"[a volunteer] is one of the people that shops over at the [food bank]. And their goal is to get nutritionally based food…. but there are times I go shopping and the only thing they'll have is like Cheez-Its, crackers, and Pop-Tarts and stuff like that. So, if that's all they have for me then probably I'm going to get it. I'm going to get the cereal. I'm going to get the Pop-Tarts because it's something instead of nothing…our main goal when we buy the food, is based on nutrition and then the last thing [the volunteer] would get would be sugary—over sugary cereals or sugary drinks."
Limitations		31	"Well, we may have to limit [what produce we are able to offer], again, simply because what we order we may not wind up getting."
Support		56	"We offer unlimited produce now. There are no limits. We're ordering more and getting more. I think we're going to between double and triple the produce offerings that are on the floor…and so I think that will encourage people to take more when there's just so much."
Nutrition Policies		155	"We sort of got the operational piece kind of up and running at least in terms of being written and thought about and decided in more like January. Throughout this year, we're going to move things around and moving our shelving around in the food pantry. And we're going to have more signage and sort of try to promote nutrition in that way."
Formal Policies		103	"The USDA guidelines is really just sort of a baseline starting point is how I think of it. I actually want to do better than the USDA guidelines…we have the nudging and the placement of things. So, one way we're doing that now and have been for a little while is with our produce. We offer unlimited produce now."
Training of staff & volunteers		40	"The volunteers are slowly getting on board with learning about what we're trying to do. And some more than other— but they're promoting these healthy items."
Barriers		39	"We have some—some pushback—as we were getting ready to approve the policy. Basically, last year…I had a draft of the policy…like how we might do this and what it might look like and other specific steps. I had a draft of it and we sent it out to all the volunteers. And we put it back in the volunteer station also…you know a lot of people—first there was confusion because you know I had said we're not going to take these five snacks or something. And people would say 'Well do you mean—does this count?' There is a little subjective area in there. So, there were a lot of questions first of all. And then I got so much pushback on a couple of things that I decided not to even—I kind of changed on them for now because I just thought this is such a headache I'm getting a question every ten minutes…it was too much."

Restrict vs. Encourage		32	"I have some control in what I order. There are categories that I don't order like desserts and cookies. I won't get that or I'll get very little of that kind of thing [so it aligns with the policy]."
Informal Policies		47	"No, not at the moment [we don't have a formal policy]. As far as the types of things, no, I don't really have anything written up at this point…. we were so small at one point that we weren't sure we needed all that but now we're finding that the more written policies and things we can put into place the better off we are."
Training of staff & volunteers		16	"We primarily follow the guidelines of the food bank. And once a year we're required to attend a mandatory training. At such time, we come back—those that attend. Or primarily myself, but if someone else were to—the responsibility to come back and pass the training on to the rest of the volunteers."
Barriers		4	"Being that we're all volunteers, it's probably time and getting everybody together to sit down and write [the policy]. It's just getting that commitment from someone to actually sit down and do it and then basically trying to find some examples to go by."

Table 7: Implementation Themes of Formal Nutrition Policies at Food Pantries with
Quotes from Food Pantry Directors

Implementation Theme	Questions from Interview Guide	Sample Quotes	
Barriers	Have there been any challenges to getting that policy in place?	"Yeah, there has been some pushback.... we had maybe three volunteers in particular who were like very upset. 'Who are we to tell people to make this decision?' And then these snacks [that we don't give out]—sometimes they end up in our breakroom. 'Why can we eat them but they can't have them?' It was too paternalistic. It's not fair that we're making that decision."	"I think the key for us since we're so dependent on volunteer help—I mean everybody in [the food pantry] is a volunteer except for me…if you have a policy no matter how great it is. If 90 percent of the volunteers are very upset it's not going to work."
Enforcement	How do you ensure that this policy is followed consistently?	"I order food from the [food bank] and when we're accepting donations, we scan those items. We specifically order certain things for our different [locations]. For instance, we just got a request from [one location] for healthy snacks….so as I'm ordering food, if the food bank doesn't necessarily have healthy snacks, what I do is I may order some meal kits. And meal kits, there are 12 meals in each kit and included in those kits are snacks. So, I scan those to see how they can be beneficial."	
Delivery of Policy	How do you communicate this policy with your donors? How about with the clients your serve?	"I'll work our volunteer manager about how we message things to the volunteers….it takes a while to get things but we feel like every quarter we should be doing some kind of training."	"[the executive director] is trying to do a volunteer information night. It could also be for people out there in the community who are not volunteering with [the food pantry], but they want to learn more…. we've done one so far and

			"we're going to schedule another one for very soon…we're trying to do them quarterly or close to that."
		"And then there is also written material [on the policy]. You can convey a lot of things through written material and just say if you have any questions come see [me]. That's a good way too 'cause not everybody really cares."	"We keep our policies in [a computer database] and we can print that information off and share that with our volunteers. We train them on how our clients are served here in [the pantry] and we train them on our limits and the categories of food that we offer."
		"We offer some general guidelines to [donors] about what we have a need for. I push oftentimes for peanut butter because although I am able to purchase USDA peanut butter, I still would like peanut butter in other areas for our shoppers that are not USDA eligible."	
	Who was mainly in charge of creating/revising the policy?	"Mostly it's me I guess, but I will show it to a couple of the people that work with my program directors and they'll just make a comment or two."	"Yes, I'd be the one that put it in effect…I'm the director."
		"Well we have a [food pantry] advisory board and an executive advisory board for [the pantry] and they implement those policies."	
Fidelity	Could you provide me an example of how the policy has affected your practices—in particular, if you were at the pantry before the policy, what did it	"Most people are kind of in between and kind of like, 'Oh whatever the policy is I'll do.' It's hard for people to throw things out even if it's cotton candy….and so we have to just be like, 'Okay the buck stops here sometimes.' Just because somebody dropped off their junk and they're	"[The unlimited produce offered since the policy was adopted is] really good. A lot of people are really appreciative. You might try an eggplant or something that you—oh if you feel like I get two of these and one of those I'm not going to do an eggplant…but you might

	look like then versus now?	probably getting credit for it on some tax form somewhere—it shouldn't be our problem if it's really junk you know?"	try something new when it's unlimited… [the clients] are very considerate and very aware that there are other people. In fact, we almost want them to be a little greedy about this. 'Take more. Try this.' Yeah and our volunteers are really good about suggesting stuff. They like the produce. It's their favorite area most of them."
Unexpected Consequences	What unexpected outcomes or changes have occurred (if any) since you have enacted the policy?	"[after the policy was enacted] we had one guy quit for about four months…"	Talking about giving more healthful foods to children, "they're going to weed through it and say, 'Oh, I don't really want this.' But at least they're considerate enough to leave it at our doorstep and not just leave it stranded anywhere else, where we were able to take that and put it [back] into our food pantry and give it to our seniors or other individuals."

Table 8: Implementation Themes of Informal Nutrition Policies at Food Pantries with Sample Quotes

Implementation Theme	Question from Interview	Sample Quotes	
Barriers	Why do you think you don't have a formal policy?	"Originally, the pantry was rather small when it was first started. It has, within probably the last year and a half, pretty much just blow up. It's just grown quite a bit. When we finally formed our board of directors and everything, it was one of the things that we started to talk about. We were so small at one point that we weren't really sure we needed all that…"	"Encouraging healthier items could possibly be a barrier only because of cost maybe for those that donate…that would be the only thing that I could see that might be a little bit of a barrier."
		"Most of our guidelines are just common sense. We won't give food away that we wouldn't eat ourselves."	"The supply is incredibly too sporadic. I never know from week to week or from day to day what I'm going to get. I never know what [the food bank] has. And in fact [the food bank] has been not that great in getting a lot of good food available to us."
		"We more or less are open to any donation. I believe in personal freedom and personal choice. If I have a choice between giving somebody a candy bar and giving them a protein bar, I would go for the protein bar every time, but I don't always have that choice. And often it's donated to [the food bank] and that's free."	"We're operating on money that comes from the general budget of the church, and it's not a lot of money, it's about $300 a month. And we're dealing with maybe 500 or 600 people a month. A dollar a person or even two dollars a person doesn't go very far to buy groceries four times a month. We don't refuse things. If I have a choice, I'll go with the healthier stuff."
	What would be potential challenges to getting a policy up and running at your food pantry?	"I would say probably the time factor. I don't think it'd be difficult to sit down and write a policy for receiving food and distributing food. I don't think it would be hard to sit down…now that you	"At this point, being that we're all volunteers, it's probably time and getting everybody together to sit down and write them. It's just getting the commitment from someone

		mention it, I think it's a good idea. Specifically, if we're promoting healthy eating. Now, one of the things that—it's not anything in writing. But it's an unwritten policy."	to actually sit down and do it and then basically trying to find some examples to go by."
		"[the food bank] is my biggest struggle, simply because they don't' have a consistent supply of fresh food. I usually order whatever I can from them, but there are times when they have very little on their list of things for me to order."	
Enforcement	Who would be in charge of implementing the changes for a new policy? What do you think barriers would be for that person?	"I don't think we'd have a negative impact. I'd think it'd be positive. Especially the volunteers, they'll see okay, here it is in writing. It'll be more formalized, so to speak. And especially since I have told them that I need to know or they need to record…if we're short of any kind of food group. And I think that would—having it in writing and them knowing that I've made a commitment with that this is what we will do, and because we're getting funding that we must adhere to it. 'How can I say it? It's documented. I've got a report on it.' And I guess it just makes it more formal."	"Right now, it's me. It's me simply because I am there for every [grocery store] pickup and I'm there when the truck comes, and I'm the one who orders food from [the food bank…so it's one person who has to kind of manage what it is coming in and what needs to go out."
		"I could probably sit down and write up some guidelines and make them in a printed manner. There are just a couple of us that lead the ministry and are in charge, so we basically know what we want done."	
	How would you make sure the policy was used consistently?	"I think it would be very appropriate to include those guidelines, or those expectations, when I send out the list of foods that are appropriate and desired for	"Well, our staff, our volunteers, rather, also know our philosophy. It's not in writing, but we always generally speaking will have the same

		the food pantry. So, I'd rather do that than to say to someone, 'Oh no, we don't like that. Or we don't accept that.' I think if we state up front what it is that we're about, in writing, then hopefully people will adhere to it."	volunteers. So, they've been there, they've been volunteering for many years. But for the most part, I want to say that they already have that philosophy engrained in them as well. And I have heard them sharing the information with other people."
		"We're the people that are the leaders, there's about three or four of us that are the primary people, that are the directors, leaders, whatever you want to call us. We set the thing up, we tell [the volunteers] they can't really make a mistake. We're all volunteers. But this is the way we want it done. We want it done so the people are getting the best."	
Fidelity	If you were to put a policy in place, what would be needed for your pantry to stick with to that policy?	"We need to create some pantry policies. Do we have templates out there? Is there something out there that we can look at and have some reference to? I know that has been a barrier because I get online all the time and I'm looking. What is available out here? Where can I go to look to see some examples we can turn around and modify/edit to work for us?"	"I could say I have a limit on what I will give out…but I can't really say that I'm only going to give out unprocessed meat, because often times the meat supply with dry up at [the food bank] and the only thing I have accessible from them is sandwich meat or hot dogs…for me it is just an issue of access to nutritious food."

Chapter 5: Discussion

Food insecurity has been associated with obesity and other diet-related chronic diseases.[5,15,22,24] Emergency food networks, which include food banks, food pantries, and feeding programs, are a key source of food for food insecure households.[36] The potential for interventions through emergency food networks to reduce food insecurity and improve diet-related diseases shows promise in the studies to date.[44,46] Recognizing the need to improve the quality of food provided to clients, food banks have also moved to develop, adopt, and implement nutrition policies.[47,48,64] However, much of the work to date is focused on food banks instead of food pantries. There is limited information regarding the degree to which food pantries are adopting and implementing their food bank nutrition policies or creating their own. Information regarding policies guiding donations and the type and strength of those policies could help inform efforts to design and implement interventions aimed at food pantries.

Guided by the RE-AIM framework, the overarching goal of this dissertation was to explore the issue of adoption and implementation of nutrition policies at food pantries. Unlike food banks, which are relatively well-structured and financed organizations, food pantries vary widely in size and organizational structure, are largely volunteer run, and are donation driven. The network that connects food pantries is also less formal and most are connected only through their regional food bank, making a national census of food pantries difficult.

To achieve the overarching objective, three studies were conceptualized that focused on the following aims 1) to determine the number and overall proportion of food pantries that have policies regarding the nutritional quality of the food distributed through their organization, 2) to determine the strength and comprehensiveness of the policies at food pantries through objective coding, examination, and review of the policies, and 3) to determine the degree to which formal policies were being implemented at their respective food pantry.

Our findings indicate that only 20.9% of food pantries sampled had adopted a formal nutrition policy. Additionally, the formal policies that had been adopted were not strong nor comprehensive. The policies that were coded lacked directive language to help pantries implement specific components of the policy (e.g. foods to prioritize, foods to reduce). Additionally, no pantry's policy addressed who was in charge of disseminating the policy or when the policy was to be disseminated to the stakeholders (e.g. volunteers, clients, donors). Finally, through qualitative interviews with food pantries, the implementation of the policies varied, with some pantries reporting effective strategies to guide implementation and others citing numerous barriers that prevented successful implementation. Effective strategies that pantries stated they had used to successfully implement their policy included explaining the reasoning behind the policy to their volunteers and why the policy was in place as well as redistributing food to other clients that some clients chose not to accept. However, barriers to implementation that were mentioned by some pantries included not having the time or knowledge to sit down and write a policy. Additionally, a barrier that existed in those with a formal policy included volunteer pushback, with some volunteers quitting after the policy was enacted.

Because this dissertation was the first known examination of the adoption of nutrition policies at food pantries, there were no other studies to directly compare our findings to. Still, studies that reported on nutrition policies at food banks have been reviewed and there was a variation in the degree to which food banks had a nutrition policy. For example, one nationwide study found that 33% of food banks reported a formal nutrition policy guiding their food donations,[64] while another regional study found that 30% of food banks interviewed had a nutrition policy.[53] When the strength and comprehensiveness of the formal nutrition policies at food pantries were evaluated, we found that they were generally weak and narrow-focused

compared to policies that were scored under the same protocol.[75] Schwartz and colleagues

recommend that policies be strong and comprehensive in order to allow for a high degree of

implementation of the policy.[67] However, these policies did not address implementation, as this

component score of the policy was the lowest for both strength and comprehensiveness. Based

on this finding, the third study, focused on the implementation of the policies to fully

understand why those pantries that had a policy were not addressing the implementation of the

policy in their written document and, possibly, in practice.

The results from the third study of this dissertation found that there were barriers to

implementation that both pantries who had an existing nutrition policy and those that had not

formally adopted a policy. Pantries that had formally adopted a nutrition policy spoke about

unintended consequences like volunteers leaving and clients giving back food. Pantries that

hadn't adopted a formal policy, mentioned barriers such as a lack of time to formalize a policy

and lack of knowledge about existing guides to help develop a formal policy. Additionally,

barriers that existed within these pantries also included lack of resources, both financially and

organizationally (e.g. no refrigeration, no space to store food). The pantries that spoke about

these barriers, all acknowledged their willingness to improve the nutritional value of the food

they distribute, but believed these barriers were ones that needed to be addressed first, before

they could commit to formalizing a policy to improve their food donation and distribution.

Open communication with both volunteers, staff, and clients during the development of

the policy—including why the food pantry is making healthful food a priority is important to

help offset those potential unexpected consequences.[51] For pantries that may want to develop a

policy, but lack the time or resources to do so, focusing on current guides that are already in

existence may help them overcome these barriers. In particular, two guides exist with a focus on

helping food pantries develop nutrition policies.[54,55] Improving the dissemination and access of these guides to food pantries could help to overcome the barriers explored in our third study.

The results of this dissertation have allowed researchers to have a nationwide understanding of the degree to which food pantries have adopted nutrition policies. It also generated an understanding of why food pantries did or did not adopt a nutrition policy, as well as barriers they may have faced during the process. Furthermore, it allowed researchers to have a new understanding of the language used in the policies in terms of its strength and comprehensiveness. And for those food pantries that have a nutrition policy, this dissertation has allowed for a better understanding of the degree to which the policies were implemented.

The studies focused on the adoption and implementation components of the RE-AIM framework and future studies should focus on a full RE-AIM evaluation. Using the entire framework is important to better understand the full scope of the policies.[60,77] This dissertation did not use the full framework because it was unknown if nutrition policies currently existed in food pantries. Now that we have evaluated the adoption of nutrition policies at food pantries and have found that one in five pantries have adopted a formal policy, a full scope RE-AIM evaluation with additional studies focused on—reach, effectiveness, and maintenance is warranted.

There are multiple ways to address these components. One way would be to focus on the small number of pantries that currently have adopted and implemented policies. The goal of these studies would be to determine the reach, effectiveness, and maintenance of existing policies on both food donation and client's diet. Once adopted, it may be easier to maintain policies compared to individual-based change[56] and a study could focus on evaluating the maintenance of existing policies. Coupled with the fact that most policy-focused interventions generally have a larger reach than individual-based interventions, evaluating the reach of these

policies on the individuals they serve would be prudent.[56] However, the effectiveness of the

current policies need to first be evaluated. It is of no benefit to maintain a policy that has a

broad reach if it is ineffective at improving the quality of food being donated and the dietary

pattern of individuals served by the food pantries. Therefore, the best approach would be a

longitudinal study, that assessed the effectiveness and reach of existing nutrition policies at

food pantries. A longitudinal study allows for researchers to be able to evaluate if the policy has

a lasting effect on food donations and dietary patterns of individuals accessing the food

pantries. While most individuals do not receive all their food from food pantries, focusing on

improving the food quality from one of the streams that they receive food is of value.

Previous interventions have been effective in improving dietary quality and health

outcomes at food pantries.[45] These interventions, however, have not focused on the policy at

the pantry but on the practices. By identifying the current policy and measuring the reach and

effectiveness of such policies, researchers can begin to identify key outcome measures. An

example of this would be to evaluate the reach by effectiveness of the policy at food pantries.

This can be done by examining the participation rate (number of participating/eligible and

invited to participate) by the effect size on food donations.[60] This participation rate would be the

number of donors (e.g. businesses, community members) that followed the policy guidelines

divided by the total number of food donors to the pantry. This index could also be used to

examine the representativeness of participants. In our previous studies, we were unable to

examine representativeness at the pantry level, however, by using these measures we could

compare those food donors that followed the policy with those that did not. Additionally, most

pantries record the number of people they serve; so, identifying how many of those people are

impacted by the policy would be of value. One factor that should be considered when examining

reach at the client level, is that the clients receiving the food are likely sharing the food with

their family members. Because of this, the policy may have a broader reach than can be examined by collecting data solely from the pantry. It would be beneficial to also examine how many people are served by the pantry, inclusive of family members that may not be there when the food is distributed.

In order to examine the effectiveness of these policies, a longitudinal study that reviewed changes in food donations and distributions would be impactful. One limitation to this approach though, is that if we are looking at pantries that already have a policy in place, we would be unable to collect baseline or pre-policy data. One way to resolve this issue is to include a matched control group of pantries. These pantries would be matched on similar characteristics, but would not have an existing policy. This case-control study design would allow researchers to compare the effect of food donations and distribution between the two groups. Another alternative to the matched control group would be to look back on historical data that the pantry has collected prior to the policy taking effect. However, pantries may not track and record food donations in a way that could examined in a useful way. Because of this, the most meaningful way to examine reach and effectiveness, would be to combine the two components and calculate a reach by effectiveness index.

Another way to utilize the findings from this dissertation would be to focus on improving the dissemination of existing guides to help pantries formalize a nutrition policy. In our third study, pantries who had not formally adopted a nutrition policy were open to formalizing their informal policies or creating a more formal policy, however, they were unaware of guides that were developed to help them with this process.[54,55] These guides were developed to be used by pantries to conduct self-assessments of their current protocols, procedures, and practices. After the self-assessment, the guides are intended to help pantries improve both their policies and practices. There is preliminary support for already developed

guides being successful in the implementation of nutrition policies at food pantries. In the

second study of this dissertation, the food pantry with the strongest and most comprehensive

policy had adopted a policy that used the "Guide to Drafting a Food Bank Policy", a guide that

addresses key components of food donation, distribution, and implementation of the policy.[73]

Working with Feeding America, a nationwide emergency food network, in partnership

with the two teams that developed the guides to help disseminate them to food pantries would

be of value. A future study that focused on a targeted dissemination strategy to improve the

uptake and access of the current guides could lead to improved adoption and implementation of

nutrition policies at food pantries. Successful dissemination of the guides, and technical

assistance and capacity building at food pantries, could provide a way to overcome the two

major barriers mentioned by food pantries. While ideally, a nationwide dissemination of the

guides through Feeding America's expansive network would be the end goal, a better strategy

may be to test the dissemination strategies with a regional food bank and then scale it up one

more time to the entire network.

Testing dissemination strategies could be done in multiple ways. An evaluation of what

is currently being done could be conducted, yet, a better approach may be to also include a new

dissemination strategy as well. One dissemination strategy that could be utilized is to identify

key stakeholders within the regional food bank network, likely food pantry directors and staff at

the food bank, and train them on the two existing guides. In this train-the-trainer model, they

would then be asked to train their staff at their pantry on how to use the guides and put them

into practice. Another option would be to passively disseminate the two guides to pantries

through electronic or postal mail. However, it would be imperative that these delivery methods

allow researchers to track if the guides were received, and eventually used. Once an effective

strategy for dissemination has been identified, or a combination of strategies, scaling the

dissemination intervention would be the next step. Utilizing a control group (e.g. another regional food bank) that does not serve the same area, so there is not a risk of crossover, would be important to see if the dissemination strategy was improving the adoption and implementation of nutrition policies. It would be important to also measure the number of pantries with formal nutrition policies in both groups, both before and after the dissemination intervention. One limitation to this strategy is that there are still going to be food pantries that operate independently from food banks and Feeding America. This is why, testing at the regional food bank level and utilizing stakeholders could help to identify ways to reach those isolated food pantries.

In addition to training the staff and volunteers, helping to build the organizational capacity of the food pantry, including reducing the physical barriers to distributing healthful food is important. Researchers and community members could work together to help overcome the physical barriers like lack of space or refrigeration to help the pantries after they adopt the nutrition policy. This could include using the two existing guides to show how to set up a pantry to utilize the existing space to maximum benefit. Additionally, if remodeling is an option, connecting people within the community to donate their time and expertise would be of value. The pantries that mentioned a lack of refrigeration to store healthful foods, could work with their larger parent organization (e.g. faith-based institution, community center) to work on getting the equipment donated. However, if donations are not realistic, the researchers could help the pantries apply for small grants through community organizations and foundations to help acquire the needed equipment. In those applications, they could propose increasing the number (in pounds or items) or proportion of healthful food they would distribute to their clients. Building the capacity of the food pantry and working with the community to fulfill the physical needs of pantries will help to reduce the barriers to implementation.

The findings from these three studies show a clear need for additional efforts aimed at food pantries to determine if they can develop, adopt, and implement nutrition policies. A full RE-AIM evaluation is needed to fully assess nutrition policies at food pantries. There was not strong opposition to adopting formal nutrition policies from the pantries without one, but the barriers cited were a main deterrent to implementation. Thus, a dissemination study focused on previously developed guides for food pantries could help build the capacity of food pantries that have not adopted nutrition policies, including focusing on existing guides to help these pantries. Helping pantries to overcome the barriers identified throughout these studies can have an effect on the adoption and implementation of nutrition policies at food pantries, and in the long term, improve the food donation and distribution at pantries.

The need for food pantries to develop their own nutrition policy is critical in improving the food donations and distribution. With only one in five pantries adopting a formal nutrition policy, and the strength and comprehensiveness of those policies being relatively week and narrow, focusing on strengthening existing policies, while also helping pantries to formalize effective policies is needed. Most food pantries do not receive all their food from food banks. Many accept donations from businesses and community members in addition to the food from the food banks. Therefore, a policy that 'trickles' down from the food bank would only address a portion of the food received and distributed at food pantries. However, because food pantries are smaller and often informal organizations, partnering with the food bank throughout the development of the food pantry's nutrition policy could help pantries to develop a policy that will be influential in their food distribution and impact all avenues of food received.

Another reason food pantries need to develop their own policies and not rely on their parent food bank's policy is because food pantries are distributing the food directly to their clients. Unlike food banks, who act mainly as a warehouse and distribution center for the food,

food pantries are able to interact directly with the clients that are receiving their food and can likely identify tailored strategies to improve the food distributed. By supporting food pantries in the development, adoption, and implementation of nutrition policies researchers and food banks can play an important role in improving the quality of food in the emergency food network.

The ultimate goal of this dissertation and future studies is to improve the quality of food that is provided through the emergency food networks. These three studies allow researchers to better understand the landscape of nutrition policies at food pantries. This work can also inform future studies that work to support food pantries who wish to adopt nutrition policies and ultimately improve the quality of food distributed to food pantry clients.

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Appendices
Appendix A: Food Pantry Director Survey

This survey is designed to help us better understand the policies that may be in place that guide food donations and/or distributions at local food pantries. You are being asked to participate in this survey because you have been identified as a key contributor to your food pantry. We anticipate this survey will take about 15-20 minutes to complete.

Your individual responses will not be reported or tied to you or your food pantry
Data will be reported in summary format only and in total with responses grouped together
Your participation is completely voluntary
We will provide a final written summary of this project to all participating food pantries

If you have any questions about the survey or problems while trying to complete the survey, please contact the principal investigator (Meagan Helmick) at **(434) 401-7194** or
mhelmick@centerfornutrition.org.

I agree to participate in this survey.

◯ Yes

◯ No

End of Block

Food Pantry Details

1. What is the name of the food pantry you are answering the questions for?

_____

2. What is the physical address of the food pantry?

◯ Address _____

◯ Address 2 _____

◯ City _____

◯ State _____

◯ Postal (Zip) code _____

3. Please select how many distribution sites your food pantry has for dropping off or picking up food.
If you only have 1 site, please select 1. If you have multiple sites, please indicate the number of sites.

○ 1

○ 2

○ 3

○ 4

○ 5

○ 6

○ 7

○ 8

○ 9

○ 10

○ 11 or more

○ Don't know

4. What is the phone number of the food pantry?

_____

5. What is the email address of the food pantry?

_____

6. Is it okay to contact you about possibly visiting your food pantry?

○ No

○ Yes

7. Which of the following best describes your food pantry?
Please select only one answer.

○ Faith-based or located in a religious institution

○ A governmental agency

○ A community action program (CAP)

○ Some other non-profit or private organization that is NOT faith-based, governmental, or a CAP

○ Other, please list: _____

8. How long has your food pantry been in operation (in years)? If less than a year, please answer 0.

○ 0

○ 1

○ 2

○ 3

○ 4

○ 5

○ 6

○ 7

○ 8

○ 9

○ 10

○ More than 10 years

○ Don't know

9. What is your role at the food pantry?
(Please select the one that most applies to you)

    ⚪ Executive Director

    ⚪ Manager/Coordinator

    ⚪ Staff member in charge of procurement, nutrition, or other programs

    ⚪ Other, please list: _____

10. Does your food pantry have any paid staff?
Paid staff includes salary and/or hourly wage staff.

    ⚪ No

    ⚪ Yes

    ⚪ Don't know

10a. How many full-time paid staff does your food pantry have?

    ⚪ 1

    ⚪ 2

    ⚪ 3

    ⚪ 4

    ⚪ 5

    ⚪ 6

    ⚪ 7

    ⚪ 8

    ⚪ 9

    ⚪ 10

    ⚪ More than 10

○ Don't know

10b. How many part-time paid staff does your food pantry have?

○ 1

○ 2

○ 3

○ 4

○ 5

○ 6

○ 7

○ 8

○ 9

○ 10

○ More than 10

○ Don't know

11. Does your food pantry have any volunteers or interns (unpaid)?
This could include members from the community, local high school students, or church members.

○ No

○ Yes

○ Don't know

11a. How many volunteers or interns give time to your food pantry in an average week?

○ 1

○ 2

○ 3

○ 4

○ 5

○ 6

○ 7

○ 8

○ 9

○ 10

○ More than 10

○ Don't know

12. Does your food pantry have a board of directors, or some other formal group or committee that gives you advice or guidance?

○ No

○ Yes

○ Don't know

13. Does your food pantry belong to a formal network of other pantries that meets regularly, beyond your affiliation with a food bank?

   ○ No

   ○ Yes

   ○ Don't know

Food Pantry Services and Programs

14. How often does your food pantry typically offer food to clients?
Please select only one answer.

   ○ One day per week

   ○ More than one day of the week (certain days of the week, but not every day of the week)

   ○ Every day of the week

   ○ Once per month

   ○ More than once per month

   ○ Certain months of the year, but not every month

   ○ Once a year

   ○ Irregular Schedule

   ○ Don't know

14a. What are the hours your food pantry offers food per week?
Please record the time the pantry first opens and the last time it closes each day it offers food to clients. If you are not open on a certain day of the week, leave those times blank.

	Opening Time	Closing Time
Sunday		
Monday		
Tuesday		
Wednesday		
Thursday		
Friday		
Saturday		

14b. What are the days your pantry offers food per month?
Use the calendar below to show which days of the week your pantry offers food.

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Week 1	☐	☐	☐	☐	☐	☐	☐
Week 2	☐	☐	☐	☐	☐	☐	☐
Week 3	☐	☐	☐	☐	☐	☐	☐
Week 4	☐	☐	☐	☐	☐	☐	☐

15. Some food pantries limit the number of times clients or households can get food in a given time period. Does your food pantry have any limits on the number of times a client or household can get food?

○ No

○ Yes

○ Don't know

15a. What is the limit?

○ One time per week

○ One time per month

○ One time per year

○ Other, please list: _____

16. On average, how many clients does your food pantry serve at each distribution?
If you are unsure, please leave blank.

_____

_____

_____

_____

17. Please select the types of clients you served most during the past 12 months. Select all that apply.

☐ Single Mothers with children under the age of 18 years

☐ Families (not single moms) with children under the age of 18 years

☐ Adults (younger than 60 years old) without children

☐ Seniors (adults 60 years old and older)

☐ Only children under the age of 18 years

☐ Immigrant/Refugee population

☐ Non-English speaking clients (what is the most commonly spoken language?)
_____

☐ College Students

☐ Veterans or military families

☐ Hospital or Clinic patients

☐ Individuals affected by a natural disaster (e.g. fire, flood, tornado, hurricane)

☐ Homeless

☐ Other, please list: _____

17a. Of the clients selected above, please rank the clients you serve from most to least often served.
_____ Single Mothers with children under the age of 18 years
_____ Families (not single moms) with children under the age of 18 years
_____ Adults (younger than 60 years old) without children
_____ Seniors (adults 60 years old and older)
_____ Only children under the age of 18 years
_____ Immigrant/Refugee population
_____ Non-English speaking clients (what is the most commonly spoken language?)
_____ College Students
_____ Veterans or military families
_____ Hospital or Clinic patients
_____ Individuals affected by a natural disaster (e.g. fire, flood, tornado, hurricane)

_____ Homeless
_____ Other, please list:

18. In the past 12 months, who were the main financial groups that supported your food pantry? Select all that apply.

☐   Government Funding

☐   Individual Contributions

☐   Corporate Support/Donors

☐   Foundation Support (including the United Way)

☐   Religious Organizations

☐   Client Service Fees

☐   Other, please list: _____

19. In the past 12 months, where did the food pantry receive donations of food or grocery products from?
Select all that apply.

☐ Churches or religious organizations

☐ Local restaurants

☐ Other local stores

☐ Local Manufacturers

☐ Farmers

☐ Local food drives (e.g. Boy Scouts, Letter Carriers)

☐ Federal commodities (e.g. TEFAP, EFAP)

☐ Emergency food or shelter program

☐ State funded food purchase program

☐ Other donated source, please list:
_____

Nutrition policies at your food pantry

20. Does your food pantry have a _**written**_ policy that provides guidance on foods to **restrict** related to food distribution or donation (sugary foods, sodas, candy, etc.)?

○ No

○ Yes

○ Don't know

21. Does your food pantry have a ***written*** policy that provides guidance on foods to **encourage** related to food distribution or donation (fruits, vegetables, whole grains, etc.)?

○ No

○ Yes

○ Don't know

21a. Do you have an informal practice that guides food donations or distributions at your food pantry (e.g. verbal instructions to volunteers, flyers with healthful food suggested for donors, training volunteers to encourage healthful donations)?

○ No

○ Yes

○ Don't Know

21b. If you have a written policy, would you mind sharing it with us? Please upload your written policy.

22. Does your food pantry provide resources to teach clients about nutrition (i.e. how to eat more fruits and vegetables and other more healthful foods or drinks)?

○ No

○ Yes

○ Don't know

22a. Which of the following activities about nutrition or healthier eating does your food pantry do with clients?
Select all that apply.

☐   Flyers or written materials on nutrition and health

☐   Cooking demonstrations or tastings of healthier foods

☐   Workshops or classes on nutrition, health issues, or shopping on a budget

☐   Workshops or classes on specific health problems related to nutrition (e.g. diabetes, hypertension)

☐   Cooking classes

☐   Training on gardening skills

☐   One-on-one meetings with a dietician or other person trained to help people with nutrition and health (e.g. health educator)

☐   Referring clients to activities related to nutrition or eating better at other locations

☐   Other, please list: _____

23. Who leads the activities selected above related to nutrition or healthier eating?
Select all that apply.

☐ Pantry staff

☐ Pantry volunteers

☐ Local nutritionists or other health professionals

☐ Staff from a regional food bank

☐ Staff from Farm Bureau or Cooperative Extension

☐ Staff from local universities or colleges

☐ Other, please list: _____

24. How important to you is it that your food pantry gives out healthful foods like fruits, vegetables, low-fat milk, whole grains, lean meats, etc.?

○ Not at all important

○ Slightly important

○ Moderately important

○ Very important

○ Extremely important

25. Would you classify your food pantry as a client-choice pantry or a traditional, pre-packaged box pantry?

○ Client-Choice Model

○ Traditional pre-packaged box pantry

○ Other, please list: _____

For the next set of questions, please select how much you disagree or agree with each of the following statements regarding your food pantry.

26. My food pantry focuses on the **quantity** of foods given to clients, even if it is not as nutritious as we might like.

○ Strongly Disagree

○ Disagree

○ Neither agree nor disagree

○ Agree

○ Strongly agree

27. My food pantry focus on the **quality** of foods given to clients, such as increased fruits and vegetables, even if it means limiting the donations or purchase of some types of foods.

○ Strongly Disagree

○ Disagree

○ Neither agree nor disagree

○ Agree

○ Strongly agree

28. There are a lot of reasons that may prevent food pantries from serving more healthful foods like fruits, vegetables, low-fat milk, whole grains, lean proteins, etc. Please select how much you disagree or agree with each of the statements with regard to your food pantry.

	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree	Don't know
It costs too much money to purchase more healthful foods.	○	○	○	○	○	○
We have difficulty getting more healthful foods through our distributor (e.g. food bank).	○	○	○	○	○	○
We have limited ability to get more healthful foods from other donors and food sources (e.g. food drives, retailers).	○	○	○	○	○	○
We have limited/no ability to store more healthful foods.	○	○	○	○	○	○
Clients typically do not choose more healthful foods.	○	○	○	○	○	○
Clients have limited knowledge on how to select or prepare more healthful foods.	○	○	○	○	○	○

Clients are not able to store perishable foods (e.g. limited refrigeration).	○	○	○	○	○	○
We are not sure how to identify foods that are considered more healthful.	○	○	○	○	○	○
Giving out and serving more healthful foods is not a goal of our pantry.	○	○	○	○	○	○
We are not comfortable dictating or restricting what types of food are donated to our pantry.	○	○	○	○	○	○

29. What types of resources do you think your pantry would benefit from in terms of being able to serve more healthful foods to clients?

_____

_____

30. Please provide any other comments we have not addressed in this survey.

_____

_____

Appendix B: Coding Tool for Strength and Comprehensiveness

The main purpose of a written food pantry nutrition policy is to guide food procurement decisions of the food pantry and promote consistent decision making to acquire more healthful foods for distribution. Other nutrition related activities and practices, such as nutrition education, may be included in the policy, but should serve to complement its main focus—to improve the nutrition quality of the foods and beverages to be distributed.

1. **Statement of Purpose with a nutrition component.**

   0-Not Included
   1-Included, but does not specify nutrition component.
   > *Example: "The purpose of this policy is to guide the acquisition of food that we will distribute to our clients."*
   2-Included, and specifies nutrition component.
   > *Example: "The purpose of our nutrition policy communicates to clients, affiliated agencies, donors, government programs and the community that we are committed to providing healthful foods to clients."*

2. **Policy Rationale and Benefits to client.**

   0-Not Included
   1-Included, but does not specify rationale or health benefit to client.
   > *Example: "Our food pantry has a history of providing services to the community to supply foods to families in hard times."*
   2-Included, and specifies rational and health benefit to client.
   > *Example: "Our food pantry has a strong commitment to providing healthful foods to clients. We want our clients to know that their health and preferences for more healthful foods are among our highest considerations in acquiring foods."* or *"Our policy to procure and distribute foods of high nutritional quality demonstrates to the community that we take our role and responsibility seriously."*

3. **Food Inventory Sources.**
   a. ***Donated Foods***
      0-Not Included
      1-Included, but not specific.
      > *Example: Policy applies to donated foods and beverages.*
      2-Included, and specific**.**
      > *Example: Policy applies to foods and beverages donated by food manufacturers, distributors, retailers, organizations, producers, and community members.*

   b. ***Government Foods***
      0-Not Included
      1-Included, but not specific.
      > *Example: Policy applies to foods and beverages obtained by government programs.*

      2-Included, and specific**.**

> *Example: Policy applies to foods and beverages obtained by government programs including the USDA, SNAP, and/or WIC.*

    c. Purchased Foods
      0-Not Included
      1-Included, but not specific.

> *Example: Policy applies to food and beverages purchased by the food pantry.*

      2-Included, and specific**.**

> *Example: Policy applies to food and beverages purchased by the food pantry, including purchases made from regional food banks, grocery stores, and other retailers.*

4. **Foods to Prioritize.**
   a. 0-Not Included
   b. 1-Identifies priorities that the food pantry will focus its initial policy efforts.

   > *Example: "We recognize that our clients have expressed a preference for healthful foods, and will put considerable effort and emphasis initially on procuring more healthful foods."*

   c. 2-Identifies specific food groups that the food pantry will focus its policy efforts.

   > *Example: "We recognize that food pantry clients have expressed a preference for healthful foods, particularly more fresh fruits and vegetables. Although our policy aims to increase all of the "foods to encourage", we will put considerable effort and emphasis initially on procuring more fresh fruits and vegetables, particularly more colorful, and nutrient dense varieties."*

5. **Healthful Foods to Encourage.**
   a. Fruits and Vegetables
       0-Not included
       1-Included, but not specific.
   > *Example: Includes reference to fruits and vegetables*
       2-Included, and specific.
   > *Example: Includes specific references such as:*
   >> *fresh produce—more colorful varieties, because they are rich in nutrients and low in calories*
   >> *frozen fruits and vegetables—packed without syrups or sauces*
   >> *fruits canned—in water, 100% juice, or "lite" syrup*
   >> *vegetables canned—with no added salt or reduced sodium*

   b. Whole Grains and Whole Grain-Rich Foods
       0-Not included
       1-Included, but not specific.
   > *Example: Includes reference to whole grains or whole grain-rich foods*
       2-Included, and specific.

> *Example: Includes specific references such as:*
>> *100% whole grain—such as rolled oats, barley, wild rice, and brown rice*
>> *Whole grain-rich bread, pasta, or tortillas—contain whole grain as first ingredient*
>> *Whole grain-rich cereals—contain whole grain as first ingredient*

    c.   Dairy Foods: Low-fat Dairy or Dairy Substitutes
0-Not Included
1-Included, but not specific.
> *Example: Includes reference to low-fat dairy or dairy substitutes.*

2-Included, and specific.
> *Example: Includes specific references such as:*
>> *Plain milk and yogurt—low fat (1%) or skim/non-fat milk and yogurt. Unflavored/unsweetened*
>> *Milk Substitutes—unsweetened milk substitutes*
>> *Flavored milk, Milk Substitutes or flavored yogurt—low fat (1%) or skim/non-fat*
>> *Cheese—reduced fat or low fat*

    d.   Lean Protein Foods
0-Not Included
1-Included, but not specific.
> *Example: Includes reference to lean protein foods*

2-Included, and specific.
> *Example: Includes specific references such as:*
>> *Meat, Poultry, Seafood, and Beans—low-fat, lower sodium*
>> *Eggs*
>> *Nuts and Seeds—no salt added, including spreads such as peanut butter*
>> *Beans and Lentils—if canned, no salt added*

    e.   Plain Water and 100% Fruit Juice
0-Not Included
1-Included, but not specific.
> *Example: Includes reference to plain water and 100% fruit juice.*

2-Included, and specific.
> *Example: Includes specific references such as:*
>> *Bottled, unflavored water*
>> *100% Fruit Juice—including serving size*

6. Foods to Reduce.

    a.   Savory Snack Foods
0-Not Included
1-Included, but not specific.
> *Example: Includes reference to savory snack foods*

2-Included, and specific.
> *Example: Includes specific references such as:*

Chips—corn, potato, puffed cheese, tortilla; not including lower/reduced fat or baked
Crackers—not including lower/reduced fat or backed
French Fries
Onion Rings
Pork Rinds
Example: "Snacks may not exceed 200 calories per serving, no more than 10% of saturated fat per servings, no trans fats or hydrogenated fats, no more than 200 mg of sodium per serving. Items must contain no more than 15 grams of sugar."

b. Sweet Snack Foods and Desserts
   0-Not Included
   1-Included, but not specific.
      Example: Includes reference to sweet snack foods and desserts.
   2-Included, and specific.
      Example: Includes specific references such as:
         Bars—including granola, cereal, energy, or snack
         Cakes
         Candy
         Chocolate
         Cookies
         Donuts
         Frozen Desserts
         Ice Cream
         Fruit Snacks
         Muffins
         Pastries
         Pies
         Popsicles
         Pudding
      Example: "Snacks may not exceed 200 calories per serving, no more than 10% of saturated fat per servings, no trans fats or hydrogenated fats, no more than 200 mg of sodium per serving. Items must contain no more than 15 grams of sugar. Does not apply to fresh produce, dried fruits without added sugar, and canned fruits in juice, not syrup."

c. Sugar Sweetened Beverages
   0-Not Included
   1-Included, but not specific.
      Example: Includes reference to sugar sweetened beverages
   2-Included, and specific.
      Example: Includes specific references such as:
         Energy Drinks—full throttle, red bull, monster, Mountain Dew AMP, Rockstar
         Fruit Drinks—coconut water with caloric sweetener, fruit flavored drink or water with caloric sweetener, fruit nectars, fruit punch, fruit smoothies with caloric sweetener

> *Soda/Pop—regular soft drinks, not including diet, sugar cane beverage, sugar-sweetened carbonated water*
> *Sports Drinks—gatorade, powerade*
> *Sweetened Coffees—blended iced coffee, café mocha, presweetened powdered coffee mix, presweetened ready-to-drink coffee*
> *Sweetened teas—presweetened ready-to-drink tea, presweetened tea mix*
> *Sweetened Shakes and Smoothies—ready-to-drink milkshakes, eggnog*
> *Vitamin-Enhanced Water—Glaceau Vitamin Water, Propel Fitness Water*

7. Foods Not Covered by this Policy

There may be a clause that recognizes that specific foods not identified in the policy are received by the food pantry. They may have a clause in the policy that identifies this.

> 0-Not Included
>
> 1-Included, but not specific.
>> *Example: Includes reference that not all food types donated or distributed is included in the policy.*
>
> 2-Included, and specific.
>> *Example: Many types of foods and beverages not identified in the policy are typically received by our pantry. We recognize that many of these foods are high in added salt, sugar, and/or fat and are therefore less healthful than the "Foods to Encourage", described in the policy. However, they provide clients with important nutrients and the ability to serve quick and easy meals. Examples of these foods include: snack packs of flavored nuts, yogurt snacks, trail mix; canned soups and canned meals such as beef stew, chili con carne; frozen meals and prepared food such as pizza; shelf stable packaged meals such as macaroni and cheese, hamburger helper, instant mashed potatoes; condiments and additives including mayonnaise, salad dressing, pickles, relish, gravy, refined sugar, syrups.*

8. Specific Food for Chronic Disease(s)

The policy may include examples of food that they have specific for clients suffering from chronic disease (i.e. diabetes, hypertension).

> 0-Not Included
>
> 1-Included, but not specific.
>> *Example: Includes reference that some clients may receive different food because of a chronic condition or disease.*
>
> 2-Included, and specific.
>> *Example: Includes a specific protocol for distributing food to clients that have been identified as having a chronic disease, including modification to the normal food a client would receive (i.e. more of a certain item, less of a certain item). Specifically lists chronic diseases with the modification of the food associated.*

9. Nutrition Education for Clients

This policy may include examples of nutrition education provided by the food pantry to the clients it serves.

0-Not Included

1-Included, but not specific.

> *Example: In order to ensure that clients are making informed decisions about healthy food on their own, educational information on nutrition will be supplied at the food pantry.*

2-Included, and specific.

> *Example: Includes a specific list of nutrition education activities or classes offered by the food pantry. Examples could include handing out informational brochures and having educational material/signage more readily available throughout the pantry (should include information about serving sizes, daily values, etc.); host community events that help develop client understanding of food and nutrition (e.g. documentary night); cooking classes or samples with available ingredients at the food pantry including the distribution of recipes with the samples.*

10. Specifies when the policy will take effect

0-Not Included

1-Included, but not specific.

> *Example: The policy has been in place for years, but doesn't list a specific date.*

2-Included, and specific.

> *Example: The policy is effective as of May 1, 2010.*

11. Specifies when the policy will be disseminated and communicated to stakeholders, volunteers, and staff

0-Not Included

1-Included, but not specific.

> *Example: Policy was distributed to all staff/volunteers, but has no specific timeframe or does not specify how new volunteers/staff will learn about policy.*

2-Included, and specific.

> *Example: Gives a specific timeline or date will the policy will be distributed to stakeholders, staff, volunteers as well as how new volunteer/staff will learn about the policy*

12. Specifies who will oversee the dissemination and communication of the policy to staff, volunteers, and stakeholders (who to go to with questions about the policy)

0-Not Included

1-Included, but not specific.

> *Example: Mentions staff in general, not a specific person/role will disseminate policy*

2-Included, and specific.

> *Example: Identifies a staff person (or role) that is responsible for disseminating the policy to staff and volunteers*

13. States when and how training on policy will be provided

0-Not Included

1-Included, but not specific.

Example: Includes mention of training staff/volunteers on policy
2-Included, and specific.
> *Example: Gives a specific time (every year, every 6 months, when new staff/volunteers are hired) and how they will provide training (in person, online)*

14. **Explains how the policy's progress will be reported/tracked**
> 0-Not Included
> 1-Included, but not specific.
>> *Example: Reports that the policy will be tracked, but doesn't give specific details*
> 2-Included, and specific.
>> *Example: Specifies how policy progress will be reported/tracked with specific details (e.g. using information from inventory records on particular types of "Foods to Encourage")*

15. **Specifies when the policy will be reviewed and/or updated**
> 0-Not Included
> 1-Included, but not specific.
>> *Example: Mentions updates to the policy or that it may be reviewed.*
> 2-Included, and specific.
>> *Example: Gives specific time (every year, every 6 months) that the policy will be reviewed and updated*

Appendix C: Interview Guide for Food Pantry Directors

INTRODUCTION:

- Thank you for agreeing to participate in this interview.
- The interview should take about 30-45 minutes and you will receive a gift card as a thank you for your time. ***What email address do you want the gift card sent to?***
- This information will be used to allow researchers to better understand if and how nutrition policies or guidelines are being implemented at food pantries.
- All responses will be summarized as a group and no individual identifying information will be attached to your responses.

Do you have any questions before we begin?

With your permission, I would like to audio record the interview, in order to produce an accurate transcript of our discussion, and minimize handwritten notes during the interview. Is that ok with you?

TURN ON RECORDER

1. [Interviewer] This is Meagan Helmick, interviewing {participant's name}, with {pantry name}, and the date is {day, month, year}.

We want to make sure we have a representative sample of interviews, so we are going to ask you a few basic questions about your pantry. Some of these questions you may have already answered in the survey you completed but it will be helpful to have this information on the recording today.

Because the survey was a few months ago, I want to verify some of your survey answers.

2. Were you the person who completed the electronic survey back in [month completed]?
   a. Okay, great. Has there been any major changes to your pantry since that time?
   b. I have matched you with the [food bank name] as your parent food bank. Is that correct? If no, what is it?
   c. And your pantry is a [faith-based/governmental/CAP/other] pantry. Would you say that is still correct?
   d. And your pantry operates as a [client-choice/traditional/blended] pantry. Is this correct?
   e. Can you tell me how/when you offer food at your pantry?
      i. Ask clarifying questions if needed to be able to compare across pantries.
      ii. Ex: one time per week, one time per month, two times per week, two times per month, other.

DONATIONS & DISTRIBUTIONS
3. Can you explain to me how you accept donations?
   a. What guidelines, if any, do you follow for accepting food? (example: Foods to Encourage, Dietary Guidelines for Americans, MyPlate)
4. What about distribution of food?

        a. What guidelines do you use for that?

POLICY
Next, I want to ask you a few questions about policies, specifically nutrition policies that may guide the foods you accept or give out at your pantry. **For this interview, we are defining nutrition policies as written formal documents that give instructions to volunteers, clients, or staff on the types of food donations you accept and the types of food you distribute**.

Your pantry may have informal guidelines as well as or in place of formal policies. We will discuss these at the end of the interview. For right now, I want you to think of formal policies that your pantry may or may not have in response to the next set of questions.

5. You described accepting donations based on XXXX….is this a formal policy at your pantry? Is it written down?
    a. [if yes]:
        i. You may or may not have been at the pantry when this policy was developed but do you know why your pantry decided to create a policy? (if they do know, why?)
            1. Have there been any challenges to getting that policy in place?
                a. Example: Do you know if they worried about a decrease in donations? People not using the pantry? Other?
            2. Have there been any facilitators (things that smoothed the way) to getting that policy in place?
        ii. How do you ensure that this policy is followed consistently?
            1. Probe: Can you provide example(s)?
                a. Probe: For instance, do you train your staff or volunteers on the policy?
            2. Probe: how often is the policy reviewed for the pantry and with the staff/volunteers?
        iii. How do you communicate this policy with your donors? How about with the clients your serve?
            1. Probe: How often is the communication done? Monthly? Quarterly? Yearly?
        iv. Who was mainly in charge of creating/revising the policy?
            1. Probe: How often have you revisited or considered changing the policy based on feedback?
        v. Could you provide me an example of how the policy has affected your practices—in particular, if you were at the pantry before the policy, what did it look like then versus now?
            1. Probe: How have the foods and beverages given out changed? What type of restrictions do you have (if any) on types or how much food people can receive? Do you have less or more (or the same amount of) food go to waste?
        vi. What unexpected outcomes or changes have occurred (if any) since you have enacted the policy?
            1. Probe: For instance, does it take more, less or the same amount of time to set up for each distribution? Is it more expensive (less or the same) than you planned (e.g. sending information about

the policy to donors/clients)? Loss of food you had before the policy that you couldn't use/distribute after the policy?

b. [if no]:
  i. Why do you think you don't have a formal policy?
     1. Probe: how probable is it that you will develop a formal policy in this area?
  ii. If you were to create a nutrition policy, what types of things would you want in there?
     1. Probe: Types of foods? Preferred food to be donated? Limited amount of soda/pop? Limited amounts of sweets?
  iii. What would be potential challenges to getting a policy up and running at your food pantry?
     1. *ONLY SUGGEST IF THEY CANNOT THINK OF AN EXAMPLE DO NOT MENTION IF THEY GIVE AN EXAMPLE ON THEIR OWN. For example: Worry about a decrease in donated food or people not using the pantry.*
  iv. Who would be in charge of implementing the changes for a new policy? What do you think barriers would be for that person?
  v. How would you make sure the policy was used consistently?
     1. Probe: For example, would you train your staff or volunteers?
  vi. If you were to put a policy in place, what would be needed for your pantry to stick with to that policy?
     1. What impact do you think a policy would have on your donations?
     2. How do you think your clients would receive a new policy?

6. Finally, before I asked you to not include informal policies or guidelines that your pantry may have. Now I want to ask you a few questions about those guidelines you may have.
   a. Do you have guidelines, or unwritten rules about food donation and distribution at your pantry?
      i. [if yes]:
         1. How do these guidelines affect donations/distribution day-to-day?
         2. What are some reasons you haven't formalized these guidelines?
         3. What sorts of things would it take for your pantry to formalize these guidelines?
         4. How important do you think formalizing your current guidelines would be an important step in improving the food you provide?
            a. Why or why not?
      ii. [if no]:
         1. Okay, thank you for your time.

Are there any questions you have for me? Okay, well thank you again for participating in this interview. Have a great day!

Appendix D: IRB Exemption Letter

University of Nebraska Medical Center

NEBRASKA'S HEALTH SCIENCE CENTER

Office of Regulatory Affairs (ORA)
Institutional Review Board (IRB)

IRB Protocol: 159-17-EX
Assessing the Nutrition Policies and Practices of Food Pantries in the United States, including a Subsample Audit of Michigan Food Pantries

PI: * Meagan Helmick

Per the information provided in your IRB application you are assessing food pantry policies, the UNMC IRB has determined that this does not constitute human subject research as defined at 45CFR46.102.

Therefore, it is not subject to the federal regulations. No further action is required.

Please be advised that should anything change which would result in the project meeting the definition of human subject research, the IRB must be notified before any further research activity continues.

Please be advised that the above titled IRB Protocol has been re-classified as withdrawn. Activities which involve human subjects are NOT authorized per 45CFR46/21CFR56/IRB requirements.

If the above information is not correct, please notify the IRB at 402-559-6463 immediately. All co-investigators and participating personnel must be informed concerning the status of this study.

There are no active or pending sponsored projects listed by Sponsored Programs that have been tied to this protocol.

Signed on: 2017-03-14 09:04:00.000