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**United States Food Insecurity and the Need for Improved Nutrition and Additional
Nutrition Education in Local Food Assistance Programs**

By: Elizabeth Sain and Carissa Hohider

Introduction

Food insecurity has been a prevalent issue in the United States for decades and has been attempted to be eradicated through implementation of various food assistance programs such as Supplemental Nutrition Assistance Program (SNAP). As government aid funding has begun to diminish, and food stamp eligibility criteria has increased, additional assistance, or programs such as a food pantries or soup kitchens are often needed in order to make ends meet. The Akron-Canton Regional Foodbank is one of the largest food distributors in the nation to food pantries, hot meal sites, shelters and other hunger-relief programs in attempt to eradicate hunger and food insecurity. Food security itself, however, is not solely having enough food to eat. Without access to healthy foods and preparation knowledge, many individuals find themselves unable to provide their families with adequate nutrition and are considered to be food insecure. With constant rising rates of obesity and diet related conditions such as hypertension, diabetes, and hyperlipidemia, it is essential to provide individuals with knowledge and means to achieve adequate health via food despite socioeconomic status.

Many food pantries have utilized popular donation items such as canned tuna, beef stew, and boxed potatoes for their participants, typically low in necessary micronutrients for both growth and health maintenance. This can be attributed to numerous factors such as the short shelf life of most fresh fruits and vegetables, as well as frequent lack of necessary cooking and storage items. The objective of this project include providing food distributors with a model for hosting a

food demonstration, and utilizing proper food safety and sanitation protocol when preparing items. Recipes selected will utilize ingredients frequently used at food banks such as canned tuna, but will also include implementation of underutilized fresh foods. No cook recipe options will be provided as well as pertinent nutrition education lessons via recipes cards and presentations.

Review of Literature

Food Insecurity in the U.S.

Food security is a term used to define an individual's access to an adequate supply of food in order to live a healthy and active life. Food insecurity refers to a lack of adequate food due to limited resources.¹ Approximately 20 million Americans are affected by food insecurity, which is the highest rate of food insecurity since 1995.² In the year 2012, approximately 85.5% of households in the United States were food-secure, meaning that all members of the household always had access to an adequate amount of food. In contrast, approximately 14.5% of households were food-insecure at some point throughout the year, meaning that at least one member of the household did not have the money or other resources to purchase necessary food.¹ Food-insecure households often experienced difficulty purchasing food and eating high quality meals. About 10% of households with children were food-insecure in 2012, which is equivalent to 3.9 million American households.¹

In addition, almost 6% of households in 2012 were categorized as very low food security households, which is a more severe category of food insecurity that significantly affects the individual's diet. About 7 million households struggled with very low food insecurity in 2012, meaning that the amount of food eaten by at least one household member was decreased, and eating behaviors were altered because the individual was unable to buy food. Households

categorized as having very low food security often reported feeling worried about running out of food and eating less or skipping meals because of their limited access to food. Very low food security households typically have had difficulty purchasing enough food for a few days out of the month, for about 7 months out of the year.¹ Therefore, a variety of food types and food groups, such as whole grain breads, fruits, and vegetables, are often unavailable in food-insecure households.³

The amount of money spent on food is correlated with the income of the household, with higher income households spending more than lower income households. While measured against the Thrifty Food Plan - a food cost standard developed by the USDA for a low-cost diet, a household below the poverty line typically spent about 9% less than the Thrifty Food Plan. In contrast, a household above 185% of the poverty line spent about 29% more than the Thrifty Food Plan.¹ The Thrifty Food Plan has also been estimated to be very time consuming, requiring in most cases nearly twice the amount of average American food preparation time, preventing consumers from selecting this USDA suggested food-cost method.⁴

In 2012, households that were food-secure spent an average of 26% more on food than a food-insecure household of the same size and composition. Households that are food-insecure often look to other methods of providing food for their families when on a very low budget.

About 59% of food-insecure households have reported utilizing aid from at least one of the three largest Federal food assistance programs, which are the Supplemental Nutrition Assistance Program (SNAP), the National School Lunch Program, and the Special Supplemental Nutrition Program for Women, Infants, and Children.¹ Also, about 59% of very low food security households utilized these same programs, with the most commonly used program being SNAP.¹

In addition to these Federal programs, food-insecure individuals may also seek aid from local emergency food providers.¹

Food Insecurity in Ohio

In the state of Ohio, about 1 out of 6 people is food-insecure, and 1 out of 4 children is food-insecure.⁴ Within the Akron-Canton region, 1 out of every 7 people and almost 1 out of every 4 children is food-insecure.⁵ The Akron-Canton Regional Foodbank, recently awarded Food Bank of the Year, provides emergency food assistance to people in need, with the goal of ending hunger and providing good nutrition to those in need within the community.⁶ The Akron-Canton Regional Foodbank distributes more than 20 million pounds of food per year, the equivalent of 72,000 meals per day, or 17.2 million meals throughout the year.⁵ Food and other items are delivered to over 180,000 people yearly.⁵ A new emphasis has been placed on distributing fresh produce, with over 6 million pounds of fresh produce given away in 2012.⁶ This demonstrates the Foodbank's goal of increasing the health status of those who utilize the Foodbank's emergency food services, not just reducing hunger.⁶

Health Risks of Food Insecurity

Food banks have started to not only provide short supplies of food and necessary survival amenities, but also attempt to confront the various issues that accompany chronic hunger and poor nutrition such as obesity. Over the course of the last few decades, the rates of obesity have steadily increased, and have been considered by many to be a global epidemic.⁷ At this point, over 50% of Americans are considered overweight, a (BMI greater than 25), and over 20% are considered obese, (greater than 30.)⁷ Obesity has been associated with several diseases including Type II diabetes, cardiovascular disease, hypertension, and according to some researchers, cancer.⁷ The prevalence of obesity, as well as chronic obesity-related diseases has become a

principal issue for food banks nationally.³ Families considered socioeconomically low are less likely to consume healthy foods, but rather foods that are high in saturated fat and associated with poor nutrition intake and obesity.⁷

In conjunction with lower incomes, purchasing nutritious foods is not always possible due to lack of access to various foods, lack of food preparation equipment, as well as a lack of nutrition knowledge. Often those in poverty live in areas with decreased supermarket access and instead surrounding convenience and fast food establishments with poor produce selection.⁷ It is therefore unsurprising that many food bank recipients do not select various nutritious, and unfamiliar food selections such as regarding fruits and vegetables. This nutrition knowledge can also be considered a component of health literacy, which is the extent to which an individual can obtain and process health-related information in order to make informed health decisions.⁹ Nearly 20% of Americans read at only a 5th grade reading level, a disparity that must be considered when producing various nutrition education materials.⁹ Since 2005, the Academy of Nutrition and Dietetics has identified health literacy and nutrition advancement as priority issues.⁹

This prevalent low socioeconomic status has also been directly associated with various adverse health effects. This includes common obesity-related conditions such as hypertension and hyperlipidemia.⁷ Diabetes, in particular, was found to be nearly 50% more likely to occur as well as inadequate control of the disease after diagnosis.⁷ This is likely due to the sensitive carbohydrate influenced nature of diabetes as well as the necessity of expensive medication.⁷ The increasing lack of proper nutrition is also a major point of concern, particularly in children, common victims of food insecurity. Research has displayed that in typically low income households, more obesity-related foods and beverages and fewer protective foods are consumed.⁷

Overall health status evaluated by a person's obese/overweight status as well as BMI has also been found to directly correlate with food insecurity status in both children and adults.⁷

Emergency Food and Nutrition

While Federal food assistance programs provide low income individuals with necessary nutrients, emergency food services in the United States greatly depend on food banks. These food banks are food storage centers that distribute food to smaller, nonprofit organizations, often food pantries and soup kitchens. The first food bank organizations began in the late 1960s and have expanded and grown tremendously in the past several decades.¹⁰ Feeding America includes a network of more than 200 food banks across the United States and Puerto Rico, giving food to over 37 million individuals who suffer from hunger. Together, this network provides over 3 billion pounds of food each year to local non profit agencies, which give the food to needy families.¹¹ Food banks accept donations of surplus food from wholesalers, manufacturers, individuals, and government sources.¹² Foods can be fresh, frozen, or canned, and beverages are donated as well.¹³

One concern with the donated food available through food banks is the nutritional quality of the food. Since food-insecure individuals are at higher risk of suffering from chronic diseases¹² as well as nutrient deficiencies while maintaining adequate caloric intake, the nutritional value of emergency foods must be considered. An excess of high-calorie, low-nutrient foods are often found at emergency food provider facilities, which has led to a new focus on healthier food options for food bank and pantry clients.¹³ Feeding America has set a goal of distributing 1 billion pounds of fresh produce by 2015 in order to support better nutrition among clients who often consume fruits and vegetables intermittently.¹¹

Previous research has shown that many food pantry clients have poor diets and are at an elevated risk for malnutrition as well as obesity.¹⁴ Fruit and dairy products seem to be less distributed than other food groups at food pantries,^{12,15} as well as foods containing vitamins A and C, necessary for immune health as well as growth and development. Fiber and whole grains have been shown to be lacking in food pantries as well.¹⁶ However, since emergency food programs rely on food donations, it may be difficult for food banks and pantries to obtain the ideally nutrient-rich food items.¹⁵

Nutrition-Based Initiatives in Food Banks

Recent research has shown an increase in nutrition-based initiatives within food banks to increase the nutritional value of foods available to low-income individuals. Each food bank has a slightly different approach to improving the nutritional quality of available foods, as there are no federal guidelines or policies to regulate food bank nutrition or the availability of certain food products. Many different approaches have been considered by food banks across the United States, with some controversy between which approaches are better than others.¹³ The main intrinsic initiatives of food banks, however, remains feeding those who are hungry.¹⁷

Nutrition profiling is a very popular way to educate clients, staff, and funders about the nutritional value of available products.¹³ In this system, food items are ranked according to their nutrition facts labels and assigned a numerical value or color to suggest how often the food item should be consumed.¹³ This labeling system allows those selecting foods to easily identify what foods are healthy versus unhealthy without requiring any prior nutrition knowledge.² Systems such as these also allow food bank employees to conduct simple nutrient analyses for those who utilize their services.² Some nutrition profiling systems are more complex than others, but most food banks agree that this is a simple way to increase nutrition awareness within the food bank.¹³

Another approach involves restrictive policies within the food bank that limit the products that facilities accept from donations.¹³ These are used to remove specific foods that are deemed unhealthy, such as soda or candy.¹³ This is currently a very controversial issue because it decreases the variety of foods available to clients, thus reducing their choices of food items.¹³ Some believe food banks should not restrict their choices because low-income individuals should have the same choices as the rest of the general population.¹³ Restrictive policies can also hurt relationships with food donors and potentially result in lost donors.¹³ Others, however, feel it is an appropriate step to encourage the utilization of healthy foods while decreasing the availability of unhealthy foods.¹³ Patrons of the New York food bank showed support for these restrictive policies and revealed that they would rather receive substantial foods such as meats, fruits, and vegetables rather than soda and unhealthy snack foods.²

Increasing the fresh produce offered at food banks is another popular way to enhance nutrition. As a nation, the focus on an increase in fresh produce has been seen in grocery stores that serve all populations as well as in restaurants due to the increased focuses on both nutritional quality as well as sustainability.³ This is a complex issue, however, because fresh produce is costly and highly perishable, and it often requires costly refrigeration. Some food banks have been required to hire additional staffing in order to properly maintain and distribute produce.² Not all food bank employees serve as volunteers, which may lead to increased costs, which are often hard for food banks to fulfill.

Additionally, many consumers that utilize foods from their local food banks are unsure of what to do with a particular produce item, which then leads to unnecessary waste. This has led to apprehension from various food banks to increase distribution of particular produce items that often low socioeconomic populations are not familiar with, due to a lack of access.⁴

In addition to improving the quality of foods offered at food banks, many emergency food providers across the United States have started developing innovative nutrition education programs to teach their clients about food and nutrition. These programs aim to encourage clients to better control their own health by supplementing emergency food assistance with education. In many facilities, the culture is becoming more focused on food and nutrition education, rather than solely on food assistance. Food banks and pantries have developed classes for low-income individuals that teach concepts such as how to grocery shop on a budget, cook nutritious meals with low-cost ingredients, lead an active lifestyle, and even grow their own food.¹⁹

Urban gardens are arising with plots open to community members, as well as school gardens that use farming as part of food and nutrition education within school curriculum. Programs can be both formal or informal, large or small, and they differ based on the institution and the needs of the community.¹⁷

Nutrition Education and Cooking Programs for Emergency Food Recipients

Cooking-focused nutrition education programs may be very valuable to low-income families who lack understanding of food and nutrition. According to Share Our Strength's Cooking Matters 2012 report, the majority of low-income households in the United States eat dinner at home most nights of the week; however, the prevalence of healthy meals being prepared throughout the week is much lower. Only 53% of families claimed to eat healthy meals (meals that include fruits, vegetables, low-fat or nonfat dairy products, whole grains, lean meats, and water, but do not contain much added sugar, fat, or salt) most or every day at home. About 58% of families reported eating fast food for dinner 1-2 times per week, and on average, families make dinner from scratch about 4 times per week. A strong majority of low-income families

(85%) feel that eating healthy is important to their families, but more than 40% of these same families are not eating healthy meals for most days out of the week. The most commonly reported obstacles to cooking healthy meals were cost, time, and conflicting schedules. Twenty-five percent of families reported always or often being unable to buy certain healthy foods because of the high price of those items. The families that reported eating healthy meals often throughout the week were the same families to report budgeting and planning their meals. In addition, many parents demonstrated lack of understanding about food and nutrition. In the survey, a strong majority of parents understood that fresh produce is very healthy; however, many did not recognize canned and frozen fruits and vegetables as being healthy. These statistics show that many low-income families want to cook healthy meals but do not, and increased nutrition education could be a method to help improve this.¹⁸

In addition, the Share Our Strength's Cooking Matters report found that most low-income families are interested in learning how to better budget and cook healthier meals. Families who use Federal food assistance are even more likely to want education on cooking and budgeting than those who do not. About 75% of families believe that cooking healthy meals is possible for their families. The need for nutrition education is abundant, and the responses of low-income families show that educational programs could be a useful way to improve participants' grocery shopping, cooking, and eating behaviors.¹⁸

Nutrition education programs must be built according to the needs of their communities. When developing a program, the community's need should be identified and the target population should be identified and understood culturally. Many organizations have found it helpful to partner with other organizations, especially if resources are limited. Measurable goals and objectives must also be determined along with evaluation methods. These are used to show

whether or not the nutrition education program is working and how it can be improved to better serve the community.¹⁷

There are many obstacles that emergency food providers face when attempting to begin a nutrition education program at their facility. Funding is the most commonly reported difficulty, which includes food and equipment costs, transportation costs, and staff costs.¹⁷ Not only must the costs inflicted upon the food banks be considered, but also the burdens presented to the consumers themselves. For example, a food bank may easily provide refrigerated food, but many consumers may not have refrigeration capabilities available to them at home. In addition, community participation is also a commonly reported obstacle, as well as partnerships and human resources.¹⁹

Nutrition Education and Food Demonstrations

Food demonstrations are also popular among emergency food providers, as well as recipes that correspond to available food items. These approaches encourage cooking at home and the utilization of healthy ingredients.¹⁹ Recent research has shown food demonstrations to be successful in educating refugees about nutritious, low-cost foods that may be unfamiliar to them.¹⁹ In Washington state, for example, the Hunger Intervention Program provides weekly cooking demonstrations that utilize unfamiliar ingredients that are available at the food bank, as well as common ingredients that are used in different ways. This helps reduce the amount of wasted produce and also teaches participants how to prepare healthy, new recipes. These food demonstrations allow participants to observe the cooking process of a particular recipe, learn about the nutritive benefits of the ingredients, taste the finished product, and then go home with a recipe card and the ingredients necessary to make the recipe themselves.²⁰

Methods

A presentation entitled “Introducing Nutrition to Your Pantry Clients” was prepared and presented to an audience of pantry personnel from the Akron-Canton area. The presentation took place at the Akron-Canton Regional Foodbank and also included a sample food demonstration of two recipes.

The PowerPoint presentation, which can be found in the Appendices section, explained the definition of a food demonstration, the different types of food demonstrations, how to choose a demonstration style, catering to the audience, choosing a recipe, determining a nutrition message that is simple and clear, some tips for holding a successful food demonstration, a review of food safety, and a step-by-step approach to preparing for and conducting a food demonstration. Links for helpful recipe resources were also included.

A tri fold brochure entitled “Running a Successful Food Demonstration” was also designed and given to each audience member. The brochure, which can also be found in the Appendices section, reiterated the main points of the PowerPoint presentation and also included the two recipes prepared during the food demonstration.

During the food demonstration, two recipes were prepared in front of the audience: apple tuna salad and chili bean dip. These two recipes utilized food items commonly found at the Akron-Canton Regional Foodbank and also local pantries. The apple tuna salad utilized canned tuna, and the chili bean dip utilized canned or dried beans. The recipes were prepared step-by-step and given to audience members to sample. During the food demonstration, a question-and-answer session also took place where audience members posed questions regarding food demonstrations or general nutrition questions.

Finally, a survey consisting of four questions was given to audience members to complete. The survey participants consisted of nine individuals from various food pantries in the surrounding Akron-Canton area. The survey given to participants is shown below.

Food Bank Demonstration Survey

Please circle one choice for each question.

1. Has your food pantry ever held a food demonstration? Yes No Not sure

2. A food demonstration held at my pantry would encourage participants to choose foods that they might not otherwise consider.

1	2	3	4	5
Strongly Disagree		Neutral		Strongly Agree

3. A food demonstration held at my pantry would help participants to make healthier food choices, including more fruits and vegetables.

1	2	3	4	5
Strongly Disagree		Neutral		Strongly Agree

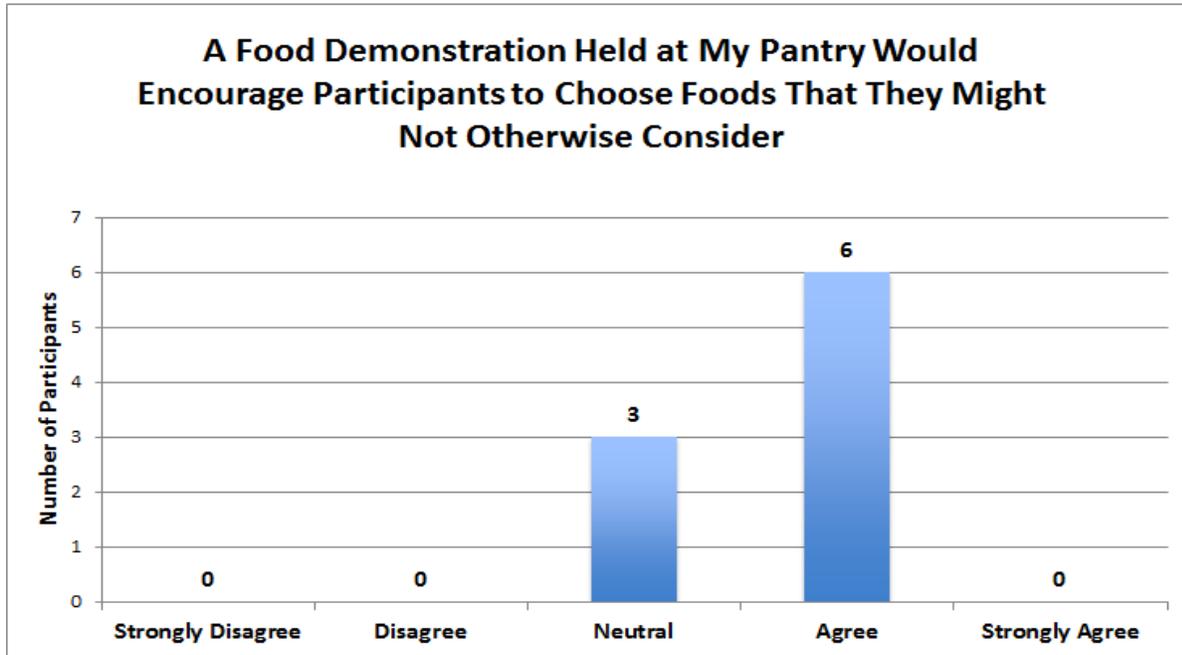
4. A food demonstration at my pantry would be possible.

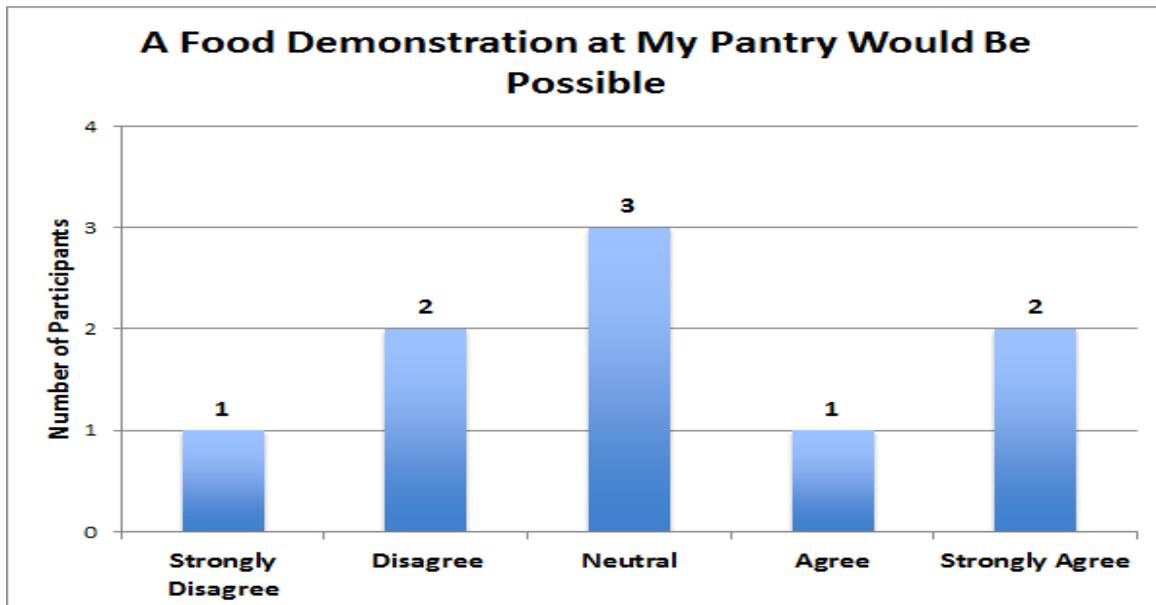
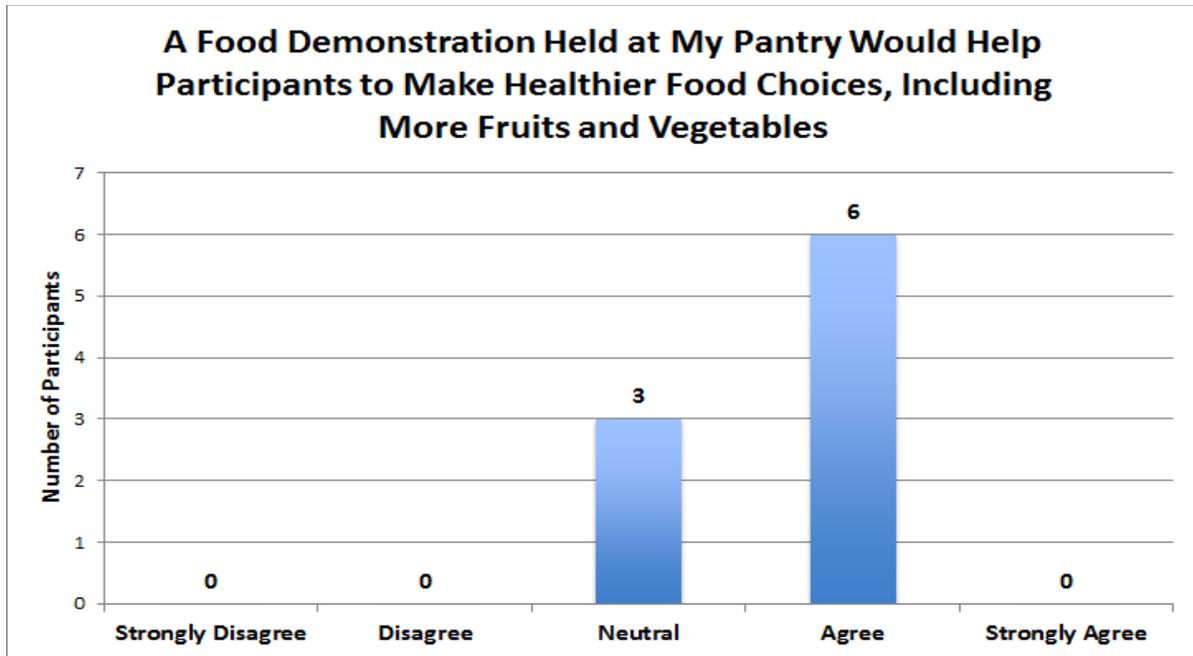
1	2	3	4	5
Strongly Disagree		Neutral		Strongly Agree

Results

Nine representatives from local food pantries and distribution programs completed the survey above. The survey was completed after the mock food demonstration and instructional

session was completed. 22% of participants had conducted a food demonstration at their own pantry before for those who utilize their services. Data collected revealing opinions regarding running food demonstrations are displayed below in the following charts.





These results indicate potential interest in implementation of food demonstrations at local food pantries. The audience was either neutral or in general agreement that a food demo would encourage people to choose different foods and also that a food demo would help participants to make healthier food choices. The last question's responses were very scattered. One-third of the audience thought a food demo would be possible at their pantry, one-third said it would not be possible, and the last third was undecided. One of the respondents wrote in "A demo may not work for us, but I will consider providing recipes along with some items that we distribute." Providing no cook recipe options, as well as substitution or addition suggestions such as adding apples to tuna salad could increase both fruit and vegetable intake and enhance nutrition education and awareness. On each recipe card, nutrition information pertaining perhaps to specific ingredients in the recipe, or on general wellness could be provided to participants, and act as an inexpensive source of health promotion locally.

Discussion

For decades food insecurity among Americans has been common and has become increasingly more prevalent in Summit County. Facilities such as The Akron Canton Regional Foodbank have sought to eradicate the issues of hunger and food insecurity in the community. Food insecurity, however involved more than simply having a stable food income in the household. ⁷Lack of access to certain types of foods, inability to purchase certain types of food due to high cost, as well as lack of knowledge all serve as exponentially growing catalysts to food insecurity.

Without a proper introduction to unknown fruits, vegetables, and grains, it is unsurprising that the Akron Canton Foodbank has reported an influx in the amount of fresh foods left in their crates and pallets at the warehouse after distribution. In addition to lack of knowledge, many of

these individuals also lack appropriate and seemingly necessary cooking equipment including but not limited to a refrigerator and stove top.

This study sought to help solve this problem through food demonstration implementation. Through creation of a prototype, and provision of guidelines for presentation attendees, food providers utilizing Akron Canton Foodbank items could integrate food demonstrations into their currently offered services. After completing the original demonstration, 66% of attendees reported that they believed a food demonstration would increase their participants' willingness to try to new foods, consistent with findings from the Academy of Nutrition and Dietetics.^{9,10} Additionally, 66% of attendees also reported that utilization of food demonstrations would also increase overall fruit and vegetable intake, typically low among low socioeconomic status individuals.⁴ Increased levels of fruit and vegetable intake is correlated with overall improved health status as well as increased likelihood to achieve daily recommended intake levels for necessary health maintenance micronutrients such as Vitamin A, and C as well as calcium.¹⁵ Despite acceptance, the responses regarding willingness to try a food demonstration at their own facilities was varied. Only 33% of respondents agreed that a food demonstration would be possible at their own facility due to reported lack of confidence and resources. All participants, however, expressed interest in potential incorporation of nutrition education. Through recipe cards integrating popular food bank items such as canned tuna, or peanut butter in conjunction with either canned, frozen, or fresh fruits, and vegetables the amount of produce food waste could be diminished. Integrative programs such as this have been proven successful, and have provided individuals with increased nutrition and cooking literacy.

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