Ownership of Kitchen Tools and Food Knowledge at WAFER



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Table of Contents:

Problem/Needs Statement 3-5

Goals, objectives, evaluation and action plan 6-8

Marketing Plan 9-10

Cost/Benefit Analysis 11-13

Final Report 14-20

Appendices

**Problem/Needs Statement**

**Concerns among low-income populations:**

When the food package has run out and families are still faced with low access to food or low monetary income to buy healthy foods, families tend to rely on cheap, high-fat foods to suppress hunger rather than promote health. These high-fat, high-calorie foods replace nutrient-dense foods, such as fruits and vegetables that are essential to the diet. Continually eating a high-calorie diet leads to weight gain to the point of being overweight or obese. The health implication of being overweight or obese is a higher risk for chronic diseases, such as cardiovascular disease, diabetes, and certain types of cancers.1 Additionally, those who fall into the obese category are more likely to experience very low food security as compared to individuals who are normal or overweight. 2 This supports the idea that those who have issues with food availability result to eating a high-fat meal to stretch the dollar, leading to obesity, and high risk of chronic diseases.

The low-income, minority populations historically have lower health literacy compared to the White population. Health literacy can be defined as the ability to use health information from any source to make appropriate health decisions.3 In 2012, it was reported that over 90 million Americans have inadequate health literacy.4 Causes for this typically are derived from low-education levels, low access to adequate health care, or language barriers. In reality, African Americans and Latinos are 1.5 times more likely to report fair or poor health than Caucasian counterparts. Likewise, other adults with less than high school educational attainments are 2.4 times as likely to report fair to poor health than those with greater than a high school attainment. 3 Although one organization can only do so much to improve the low health literacies of the low-income minorities, nutrition education programs can be developed to suit the educational level, and possibly the language of participants at local food emergency pantries.

**Local situation: WAFER**

WAFER is a non-profit organization based in La Crosse, Wisconsin devoted to serving the low-income population of La Crosse County and the surrounding areas. Once participants are assessed to meet financial and residency criteria, they receive a package based on household size that is expected to feed those in that household for four days. Participants receive a food package once a month, and then can receive more food packages based on the organization’s discretion and family’s stated need.5

The WAFER organization serves roughly 1600 families each month. In total, more than 20,000 food packages feed over 56,000 people each year for approximately four days each month.5 The organization has a vital purpose in the La Crosse County community. According to the United States Department of Agriculture’s Food and Environment Atlas, 23,940 adults in La Crosse County live in an area with low-access to a grocery store. Worse yet, 5,482 adults live in an area with low-access to a grocery store and also come from a low-income background.6 Both of these statistics demonstrate the need for a food emergency resource, such as WAFER.

If WAFER were able to implement a nutrition education program on the consumption of fruits and vegetables, it could significantly raise awareness about a healthy lifestyle. In fact, studies have established that improvement in nutrition knowledge is an important tool to stimulate dietary behavior that will promote healthy weight in all generations.2 From the researcher’s experience, WAFER does receive some nutrition education materials from the University Of Wisconsin extension program; however, there is room for improvement in health information, specifically nutritionally educational information.

Participants in the WAFER program receive a variety of both fresh and non-perishable items within their food package. Unlike some other food pantries, WAFER is available to offer fresh produce. Although participants can receive fresh fruits and vegetables, staff members note many lack basic food preparation skills or basic food knowledge.5 The fresh produce donations are only as good as the knowledge base about the preparation and storage of those food items.

**Problem:**

Currently, the WAFER organization needs some way of combating the poor diets of low-income participants. A group of researchers were faced with this same question. They found that household cooks were under-accepting and under-utilizing different food items from food pantries due to lack of knowledge in preparing the food item.4 To try to discover a solution, a twenty-three question survey was created asking questions related to available kitchen utensils and food preparation preferences. This information was compiled and utilized to create “Quick! Help for Meals,” an individualized flyer with recipes and tips based off the client’s response.7 The results of the study were that the tailored recipes helped to eliminate the unfavorable attitude toward preparing challenging foods.7

Similarly, another study also looked at personalizing nutrition education materials to meet the needs and preferences of low-income participants in food banks programs similar to WAFER. It was found that tailoring the nutrition education materials was shown to be more effective than non-tailored nutrition education materials in the predominately low-income, ethnically diverse population. It was also more effective in participants with lower education that those who achieved a higher education.8 The theory as to why the lower educated were more receptive is that they would have had less previous exposure to nutrition education. Thus, this study again shows that when you tailor the information to the client, he or she will be more receptive to making a dietary change, such as increasing intake of fruits and vegetables.

Currently, participants at WAFER cannot create nutritious meals that include fresh fruits and vegetables because they lack basic kitchen tools and preparation methods to prepare the meals. These case studies look at an option to providing nutrition education that is effective for increasing healthy preparation of foods, specifically fruits and vegetables.

The purpose of this study is to explore the following questions:

• How can WAFER and the researcher increase the knowledge about basic food preparation skills, specifically for fruits and vegetables?

• Would participants be more likely to eat more fruits and vegetables if they were given more background knowledge about different preparations?

• Do participants not possess the physical accommodations or kitchen supplies to handle fresh produce or food donations of any sort?

References:

1. Dietary Guideline for Americans. 2010. United States Department of Health and Human Services Website. http://www.health.gov/dietaryguidelines/2010.asp. Updated July 6, 2014. Accessed July 6, 2014.
2. Acheampong I, Haldeman L. Are Nutrition Knowledge, Attitudes, and Beliefs Associated with Obesity among Low-Income Hispanic and African American Women Caretakers?. *Journal Of Obesity* [serial online]. January 2013;2013:1-8. Available from: Academic Search Complete, Ipswich, MA. Accessed July 6, 2014.
3. Bennett I, Jing C, Soroui J, White S. The Contribution of Health Literacy to Disparities in Self-Rated Health Status and Preventive Health Behaviors in Older Adults. *Annals Of Family Medicine* [serial online]. May 2009;7(3):204-211. Available from: Academic Search Complete, Ipswich, MA. Accessed July 6, 2014.
4. McKee M, Paasche-Orlow M. Health Literacy and the Disenfranchised: The Importance of Collaboration Between Limited English Proficiency and Health Literacy Researchers. *Journal Of Health Communication* [serial online]. October 2, 2012;17:7-12. Available from: Academic Search Complete, Ipswich, MA. Accessed July 6, 2014.
5. Nutrition Education & Tools Project. WAFER, for those in Need [serial online].1-17. Available at: http://waferlacrosse.org/net-project-2/. Accessed July 6, 2014.
6. Food and Environment Atlas. United States Department of Agriculture Website. http://www.ers.usda.gov/data-products/food-environment-atlas/go-to-the-atlas.aspx. Updated March 14, 2014. Accessed July 6, 2014.
7. Evans, Susan H., Clarke, Peter, and Carol Koprowski. Information design to promote better nutrition among pantry clients: four methods of formative evaluation. *Public Health Nutrition* [serial online]. August 26, 2009;13(3):430-437. Available from: Academic Search Complete, Ispwich, MA. Accessed July 6, 2014.
8. Gans K, Risica P, Acharyya S, et al. Effectiveness of different methods for delivering tailored nutrition education to low income, ethnically diverse adults. *International Journal Of Behavioral Nutrition & Physical Activity* [serial online]. January 2009;6:1-11. Available from: Academic Search Complete, Ipswich, MA. Accessed July 6, 2014.

**Goal, Objectives, Evaluation and Action Plan**

**Background of the study:** The researcher evaluated if participants at WAFER owned basic cooking tools in their home that would facilitate the preparation and cooking of fruits and vegetables. From here, it was assessed if participants would cook more with fruits and vegetables if they had more cooking tools and if they knew of different preparation techniques. The examples of ways to increase food knowledge were recipes, food demonstrations and taste testings.

**Goal:** WAFER participants will increase their fruit and vegetable intake.

**Objective #1**: Construct a pictorial survey intended for participants of WAFER to assess the availability of kitchen tools in their homes and their general probability of cooking more with fruits and vegetables with better access to kitchen tools and preparation methods by July 15, 2014.

**Evaluation:** Will have approved, pilot tested, and revised the survey with Sue, a manager of WAFER, by Wednesday, July 16th, 2014.

**Action Plan:**

Time: 3 hours (1 hour to construct the survey, 1 hour to discuss the survey’s effectiveness, and 1 hour to revise the survey).

Staff responsible: Senior dietetic student and Sue, operations manager at WAFER.

When: July 15, 2014 to create the survey, July 16th (9:00-10:00 AM) to pilot test the survey and July 16th to revise the survey based on results of pilot testing.

Resources needed: Viterbo University computer, Microsoft Word program, vehicle, color printer.

Budget: Printing: 1 copy of the survey ($0.16), Hourly pay $23/hour ($69) =$69.16

**Objective #2**: Survey at least 150 participants of WAFER program while they are waiting in line to receive their food packages.

**Evaluation:** Will attain 150 survey responses from WAFER participants by the 24th of July 2014.

**Action Plan:**

Time: 4 hours

Staff responsible: Senior Dietetic student

When: Survey times: Thursday, July 17th, 2014 from 9:30 AM-12:45 PM. Will arrive ½ hour earlier to set up survey area and supplies. Thursday, July 24th, 2014 from 9:30 AM-12:45 PM. Will arrive ½ hour earlier to set up survey area and supplies.

If response rate is low in the morning traffic, will extend surveying hours to 3:30-7:45 PM, also allowing ½ hour for set up and includes the time before individuals are picking up their food packets.

Resources needed: 200 copies of the pictorial survey. 200 allows for some to be incomplete or tossed. 25 pencils. 1 “ballot box” for completed surveys. Scissors to cut the surveys. Vehicle for transportation.

Budget: 100 sheets of color printed copies (pictorial surveys) at $0.16 per sheet= $16.00

14 hours of work at $23/hour=$322.

25 pencils from dollar store=$2

Wrapping paper to decorate the “ballot box” for completed surveys=$1

=$341.00

**Objective #3:** Analyze and summarize the data from a minimum of 150 individuals by 31st of July, 2014.

**Evaluation:** Will have produced written report by August 4th, 2014. Each kitchen item that is boxed will receive a “1” in the excel spreadsheet. An item is that not checked will receive a “0.” The researcher will tally up all the responses in each category to create a proportion or percentage (number who own a particular kitchen item/total number of those surveyed). This will be completed for each kitchen item. For the second and third response question, the response that is given will receive a “1,” and the un-circled responses will receive a 0. If no response is given, all 3 categories will receive a 0. The data will be analyzed by a proportion or percentage (number of that particular response/total number of those surveyed).

**Action Plan:**

Time: 10 hours

Staff responsible: Senior dietetic student

Resources needed: Microsoft Excel, completed 150 surveys, binder to present the final written report.

Budget: $8 for printing costs of final report and binder=$8

10 hours at $23/hour=$230

=$238

**Objective #4:** Present the final research findings to classmates, instructors, preceptors and guests at the final poster session to be held Thursday August 7th from 8:00-9:30 AM and personally speak with six guests about the findings.

**Evaluation:** Will have produced a factual poster to present at Viterbo University in the Nursing Building by Monday, August 4th, 2014.

**Action Plan:**

Time: 6 hours

Staff responsible: Senior Dietetic student, Carol Klitzke’s assistance in the approval of the poster prior to presenting.

Resources needed: Viterbo University’s computer lab, PowerPoint presentation software, Viterbo University’s poster printer.

Budget: 6 hours at $23/hour=$138

$15 cost to print poster (estimate at this time).

=$153

Total costs to meet all objectives: $801.16.

**Marketing Plan**

**Background of the study:** The researcher evaluated if participants at WAFER owned basic cooking tools in their home that would facilitate the preparation and cooking of fruits and vegetables. From here, it was assessed if participants would cook more with fruits and vegetables if they had more cooking tools and if they knew of different preparation techniques. The examples of ways to increase food knowledge were recipes, food demonstrations and taste testings.

**Marketing Goal:**

150 WAFER participants will correctly respond to the pictorial survey by July 24th, 2014.

**The 4 P’s of Marketing:**

Product: The product being promoted is the pictorial survey. Originally, two types of surveys were created (one with just words and the other with words and pictures), but it was decided to use the pictorial survey because of its attractive appeal. There are five pictures of kitchen tools; the WAFER participants are to check the ones they own at home. There are two other questions that follow related to cooking and food preparation. The product is appropriate because it is an attractive survey that is easy to complete. The pictures draw the reader in and the simple three questions make it an easy survey to complete before receiving the monthly food package. The survey is also in color, which is more expensive, but makes the survey more appealing and makes the pictures pop.

Place: The place to conduct the survey is at the WAFER organization. The organization is located on Causeway Boulevard in La Crosse, WI. The surveys are conducted face-to-face. The researcher will be surveying the participants as they walk in and are waiting in line to get checked in. The researcher will be personable and down-to-earth, and she will be able to achieve the 150 surveys of the goal.

Price: The cost to the participants at WAFER is their time and energy. The researcher will be working alongside other regular volunteers at WAFER, so this will help achieve the participant’s trust. The volunteers will help the researcher gather interest in taking the survey, along with conversation with those at WAFER. Also, due to the short length of the survey, there is not much energy associated with completing the survey. The first questions entices the participants, and the second and third question require the most time, yet are a sentence long and require circling a “yes,” “no,” or “maybe.” The inconvenience of the survey will be reduced by administering the survey before the food packages are handed out (for those who are waiting in line) which will give the participants something to do while they are waiting in line to receive their food. The researcher will also be there during the time they handout the food packages during the regular hours.

Promotion: The researcher will get people to respond to the survey by being personable, friendly and smiley. In a conversation with Erin Waldhart previously, she stated that the people at WAFER will be more likely to fill out a survey if you emphasize the survey is anonymous and will not affect their food package. The people can become very defensive, so it is important for the researcher to remember to explain their responses will not be directly related to them and not to put their names on the survey. The survey will be used to determine if the population is in need of more kitchen tools or knowledge about preparing foods, particularly fruits and vegetables. Both of these research pieces have the opportunity of benefiting the program.

The verbal script that will be used when people walk in is the following, “Hi there! How are you? Do you mind taking a short survey? Your responses are anonymous and are used to develop programs here at WAFER.” If they complete the survey, the researcher will state, “Thank you very much. I appreciate it.” It was decided to add the component of the survey being short because Sue stated they previously had to complete long surveys, so the length is less intimidating. From the researcher’s experience of first conducting the surveys, some participants stated, “Oh, that was easy,” so the survey length is not intimidating to participants, from experience.

**Project Promotions:**

Again, the researcher will state the survey is anonymous and does not relate to the participant, but can be used to develop different programs at WAFER (if that is what the research finds). Appreciation will be shown (with a smile) to the participants for completing the survey. A “ballot box” will be created for the participants to put their completed surveys in, which is very non-threatening. This will hopefully promote the survey.

**Cost/Benefit Analysis**

**Background of the study:** The researcher evaluated if participants at WAFER owned basic cooking tools in their home that would facilitate the preparation and cooking of fruits and vegetables. From here, it was assessed if participants would cook more with fruits and vegetables if they had more cooking tools and if they knew of different preparation techniques. The examples of ways to increase food knowledge were recipes, food demonstrations and taste testings.

**Goal:** WAFER participants will increase their fruit and vegetable intake.

**Target Population:** The target population is participants at WAFER. A sample of 151 surveys was collected to assess cooking tools and desire to do more cooking and food preparation with fruits and vegetables. For this portion of the research, the focus will be on individuals 20 years of age or older living at or below the poverty line who have hypertension. If the adults can increase their fruit and vegetable intake, this will help improve the nutrition of the household as well, which would be an added benefit.

**Cost of the Study:** The cost associated with increasing the fruit and vegetable intake of participants at WAFER through the use of the survey was $801.16. This figure is made up of the following categories with related costs:

33 hours of labor at $23/hour= $759.00

Printing costs=$39.16

Supplies= $3

Total: $801.16

**Purpose:** The Dietary Guidelines for Americans 2010 specifically states to increase fruits and vegetables for three reasons. The first reason is that fruits and vegetables contribute nutrients that are being under-consumed in the US population and can be improved through an increase in fruit and vegetable intake. The nutrients are folate, magnesium, potassium, dietary fiber, vitamins A, C and K.1

The second reason to increase fruits and vegetable intake is because intake of these two dietary components is associated with a reduced risk of chronic disease, including cardiovascular disease or heart attack and stroke, and certain types of cancers. Lastly, fruits and vegetables are relatively low in calories, which can help adults and children achieve a healthy weight. 1

A diet that the general public can follow to increase their intake of fruits and vegetables is the Dietary Approaches to Stop Hypertension (DASH) diet. This diet can also reduce the risk of high blood pressure, which can lead to a reduced risk of heart attack and stroke. The DASH diet emphasizes fruits, vegetables, low-fat dairy products, whole grains, poultry, seafood, and nuts. It also suggests the public follows a diet lower in sodium, red or processed meats, sweets, and high-sugar beverages. 1

Through the DASH diet, the public can increase their fruit and vegetable intake, which has numerous benefits including reduction in blood pressure. In 2010, the annual cost of high blood pressure of citizens in the United States was $93.5 billon. This figure includes health care services, medication, and missed days of work associated with hypertension. 2 The number of people who have high blood pressure in the United States is roughly 67 million Americans, or 1 out of every 3 people. 2

**Outcomes:**

Given these facts and statistics, some simple math allows the comparison of the costs of completing the research project with the benefits of lowering blood pressure from consuming fruits and vegetables

**Calculating annual cost of hypertension per individual in the US:**

Annual cost of US population with hypertension: $93.5 billion

US population who has hypertension: 67 million Americans

$93,500,000,000/67,000,000=$1,395.52 annual cost of hypertension per individual in the US with high blood pressure.

The Center for Disease Control (CDC) reported that at or below poverty level, 18.4% of people over the age of 20 have uncontrolled hypertension. This could be due to lack of resources to control their hypertension, or simply being unaware of their hypertension.

From the data given to me by Erin Waldhart, there are 31,808 adults that are served at WAFER.

**Hypertension at WAFER**

31,808 \* 18.4% with non-medicated hypertension=5,852 individuals at WAFER who have non-medicated hypertension. It was decided to use the statistic of the percent of those with non-medicated hypertension because this population struggles financially to purchase food, so purchasing medications is probably not a high priority. Thus, they are most likely to have non-medicated hypertension.

**Calculating annual cost of hypertension at WAFER:**

5,852 adults at WAFER with non-medicated hypertension \* $1,395.52 annual cost= $8,166,583.04 annual cost of non-medicated hypertension in WAFER adult community.

Although it would be ideal to reach all the adult participants in the WAFER community to influence them to eat more fruits and vegetables, this is unrealistic. Because the WAFER food package only covers four days of meals, this leaves the majority of the meals to be purchased from the individual. For this reason, it is hoped to reach 10% of the adult participants at WAFER. The goal is for the researcher’s presence and education to influence 10% of the adults with non-medicated hypertension to instill good habits.

**Behavior change in 10% of WAFER adult population**

5,852 adults with non-medicated hypertension at WAFER \* 10% make a behavior change=585 adults at WAFER who will make a behavior change to eat more fruits and vegetables and reverse their non-medicated hypertension.

**Annual cost of hypertension of that 10% of WAFER adults**

585 \* $1,395.52= $816,379.20.

This figure means that if 10% of the WAFER adult population who previously had non-medicated hypertension made a behavior change to reverse their non-medicated hypertension, it would save the US government $816,379.20 in annual costs associated with hypertension.

**Inputs and outputs ratio:**

$816,379.20 (outcomes) ÷ $801.16 (resources/inputs) = $1,019

This figure states that for every $1 put into the research program to increase fruit and vegetable intake of the non-medicated, hypertensive participants at WAFER, it saves the United States $1,019 in the costs associated with hypertension. This can be expressed as a ratio $1: $1,019.

References:

1. Dietary Guideline for Americans. 2010. United States Department of Health and Human Services Website. http://www.health.gov/dietaryguidelines/2010.asp. Updated July 6, 2014. Accessed July 23, 2014.
2. High Blood Pressure Frequently Asked Questions (FAQs). Centers for Disease Control and Prevention Web site. http://www.cdc.gov/bloodpressure/faqs.htm#5. Updated July 7, 2014. Accessed July 24, 2014.
3. Health, United States, 2011. National Center for Health Statistics Web Site. http://www.cdc.gov/nchs/data/hus/hus11.pdf. Published May 2012. Accessed July 24, 2014.

**Final Report**

**Project Summary:**

From the problem/needs statement, it was uncovered that there is a lack of knowledge of basic food preparation and food knowledge. To help combat this, the researched investigated if participants at WAFER own basic cooking tools (mixing bowl, kitchen knife, measuring cups/spoons, saucepan, and can opener) to effectively make nutritious meals, specifically with fruits and vegetables. Next, it was assessed if the participants would be more likely to cook with fruits and vegetables if they had more kitchen tools and if they knew different ways to cook and prepare foods.

The overall goal for the research project is as follows: WAFER participants will increase their fruit and vegetable intake.

**Objectives of the research with Outcomes:**

**Objective 1:** Construct a pictorial survey intended for participants of WAFER to assess the availability of kitchen tools in their homes and their general probability of cooking more with fruits and vegetables with better access to kitchen tools and preparation methods by July 15, 2014.

**Evaluation:** Will have approved, pilot tested, and revised the survey with Sue, a manager of WAFER, by Wednesday, July 16th, 2014.

**Outcome:** The pictorial survey included five, common kitchen items that many households would own. The participants were to check the boxes of the items they own. Second, they were to indicate their desire to cook more with fruits and vegetables with access to more kitchen tools and knowledge of different ways to prepare fruits and vegetables. The responses were “yes,” “no,” and “maybe.” Please see Appendix A for the survey example.

Sue approved of the surveys on Wednesday, July 16th. The surveys were printed in color and were ready to be distributed to WAFER participants.

**Objective 2:** Survey at least 150 participants of WAFER program while they are waiting in line to receive their food packages.

**Evaluation:** Will attain 150 survey responses from WAFER participants by the 24th of July 2014.

**Outcome:** The researcher obtained 151 surveys of those receiving food packages on Thursday, July 17th and 24th. The researcher approached the participants while they were waiting in line to receive their food packages and kindly asked them to answer a simple, anonymous survey that would be used to develop programs at WAFER.

**Objective 3:** Analyze and summarize the data from a minimum of 150 individuals by 31st of July, 2014.

**Evaluation:** Will have produced written report by August 4th, 2014. Each kitchen item that is boxed will receive a “1” in the excel spreadsheet. An item that is not checked will receive a “0.” The researcher will tally up all the responses in each category to create a proportion or percentage (number who own a particular kitchen item/total number of those surveyed). This will be completed for each kitchen item. For the second and third response question, the response that is given will receive a “1,” and the un-circled responses will receive a 0. If no response is given, all 3 categories will receive a 0. The data will be analyzed by a proportion or percentage (number of that particular response/total number of those surveyed).

**Outcome:** 151 individuals completed the pictorial survey and a final written report was created before Monday, August 4th. The first question asked the participants to check which kitchen tools they owned at home. 139 individuals owned a saucepan, 138 owned a can opener, 115 owned measuring cups/spoons, 126 owned a mixing bowl, and 137 owned a kitchen knife. For the corresponding percentages, please refer to the bar graph in **Figure 1**.

**Figure 1**: Question One of the Survey

For question two, participants were asked the following question, “If you had more cooking tools at home, would you be more likely to cook with fruits and vegetables? (Circle Answer)” To answer this question, 81 participants indicated yes, 36 indicated maybe, and 29 indicated no. That leaves 5 participants who chose not to answer this question. Please see **Figure 3**, which illustrates this result.

**Figure 3**: Question Two of the Survey

Lastly, question three addressed if participants would be more likely to cook with fruits and vegetables if they knew different ways to cook or prepare food items. The examples that were given to increase knowledge were food demonstrations, taste testings or recipes. To answer this question, 94 participants indicated yes, 36 indicated maybe and 18 indicated no. Again, this leaves 3 who chose not to respond to this particular question. **Figure 4** clearly illustrates this response.

**Figure 4**: Question Three of the Survey

**Objective #4:** Present the final research findings to classmates, instructors, preceptors and guests at the final poster session to be held Thursday August 7th from 8:00-9:30 AM and personally speak with six guests about the findings.

**Evaluation:** Will have produced a factual poster to present at Viterbo University in the Nursing Building by Monday, August 4th, 2014.

**Outcome:** The audience of the poster presentation session was very receptive and fascinated by the research findings. The researcher personally spoke to 6 guests about the research findings. The researcher believes this population at WAFER will be reached in terms of nutrition education from the dietetics community.

**Analysis:**

The results were really surprising to see that almost a quarter of those surveyed at WAFER (24%) do not own measuring cups or spoons. These kitchen tools are vital when trying to create a recipe, especially for the first time. If a participant does not own measuring cups/spoons, trying a new recipe would seem intimating and he or she could be less likely to venture out and try new foods with new preparation techniques.

In addition to that, the participant who does not own measuring cups/spoons would be more likely to purchase convenience foods, which do not require measuring because the components are pre-measured or the convenience foods do not require the cook to achieve exact measurements. An example would be cooking macaroni and cheese from a box does not require the cook to have an exact amount of butter or milk, but to their liking. However, a cook creating a new recipe would not want to guess measurements of ingredients for fear that the recipe would not turn out and the ingredients would go to waste. Thus, measuring cups and spoons become vital when trying a new recipe or making an old recipe that includes specific measurements.

When relying more on convenience foods for meals, this can discourage the use and utilization of fresh, wholesome ingredients that can come from using a recipe to create a meal. Furthermore, convenience foods are prepared for a long shelf life, which can include high contents of fat and sodium. These are both linked to increased risk of heart disease, further perpetuating the need to incorporate fruits and vegetables into the diet. As stated earlier, fruits and vegetables are an important component of the DASH diet, which has been shown to combat hypertension.

When analyzing the response to owning other kitchen tools, many did own a saucepan (92%), can opener (91%), and knife (91%), but there is still a small percentage of the population who do not own these items. Also, 83% of those surveyed did own a mixing bowl, and this is significantly lower than other kitchen items mentioned previously. Many recipes may require the cook to mix or stir multiple ingredients together and the mixing bowl would be the kitchen tool for this task.

Some preparation techniques for fresh fruits and vegetables do not require many, or any, kitchen tools. However, some fruits, such as melon or watermelon, require some kitchen tools and preparation time prior to eating these fruits. It is clear that the use of some kitchen tools is still necessary for the preparation of some fruits and vegetables.

The second question addressing if the participants would cook more with fruits and vegetables if they had more kitchen tools is a continuation of the discussion above. Over half (54%) indicated yes, they would cook and prepare more fruits and vegetables if they had more kitchen tools. 24% indicated maybe, which reveals there may be some ambivalence in the response, which means participants could possibly be persuaded to changing their cooking and preparation style with fruits and vegetables if they had more kitchen tools. Lastly, 19% indicated no they would not cook more with fruits and vegetables if they had more kitchen tools. This can be interpreted as they already live in a home full of kitchen tools, so adding more would not change their cooking styles. The researcher observed some participants verbalized they acquired their cooking tools from a relative that had passed on, so they had plenty of kitchen tools.

The third question is where the researcher believes the program has a lot of room to grow. The third question addressed if the participant knew of different ways to cook or prepare foods, would he or she would be more likely to cook with fruits and vegetables. It was suggested to include some examples of how they would learn new ways to prepare fruits and vegetables and the examples of taste testings, recipes and food demonstrations were given. For this question, almost two thirds indicated yes (62%), and almost a quarter indicated maybe (24%). This means that 86% of those surveyed were completely positive to try these techniques to increase their knowledge about cooking and food prep, or there is some ambivalence there. The way to combat ambivalence is to promote any future taste testing, food demonstrations or recipes with a good marketing plan. This way, those who indicated “maybe” could possibly be persuaded to a “yes” if the activities seemed “fun” and were well promoted. Promotion can also be very effective when teaming up with employees that already work at WAFER because the researcher experienced that the employees can have a close relationship with the participants because they see them on a monthly basis.

The interpretation of a “no” response for question three may be that the participants feel they already cook enough with fruits and vegetables and are pleased with their cooking and preparation knowledge. This could also mean the participant who indicated “no” has no interest in changing his or her cooking style and does not wish to cook differently or more with fruits and vegetables. It was observed that some individuals were homeless and expressed they will be homeless for a while, so this may not be the time for them to start changing their cooking styles.

In addition, a brochure was created to test out which method is effective for increasing food and cooking knowledge of the participants. The researcher spent time at WAFER with individuals waiting in line and asked questions about the readability of the brochure, if the information is helpful, what is liked or disliked about the brochure. This is one method of increasing food and cooking knowledge. Although this was not a hands-on approach, it allowed for some education. Unfortunately, the brochure received many mixed reviews of its effectiveness. Some felt the brochure had information that was too basic, while others desired more common knowledge. An explanation of some common responses is indicated in the following: “Cooking for one was found to be helpful for an older woman. She stated she just learned how to braise green beans, so she found the cooking tips to be helpful. She did keep the brochure. She was an older woman who cooks for her father. Two younger women thought it was good and informative and would like to keep it. A younger gentleman liked the new information about cooking with oil but would not like to keep the brochure. A man and a woman felt they already knew all the information (did not keep the brochure). A younger gentleman wanted more information about what exactly to eat. He though my information was very specific and he wants to get more vague (what fruits and veggies are/what to eat). He did state he knows he does not eat enough fruits and vegetables. He decided not to keep it. One younger woman though the cooking terms were too elementary and would not like to keep it. One middle-aged and younger woman found the brochure to be very informative and very good and both would like to hang onto the brochure.”

A discussion of the limitations of this part of the research is addressed below. This area may be where individualized nutrition education may be the solution to addressing many different levels of nutrition knowledge. Individualizing approaches has been shown to be effective, as explained in the problem/needs section of this report.

The researcher also believes that creating a cooking class for participants at WAFER would be very effective. From the research findings, the percentage who believe they would cook more with fruits and vegetables if there were programs like cooking classes was very high. The researcher observed that many individuals knew each other in the La Crosse community, so the cooking classes many bring together their community in a healthy, educational way.

**Limitation:**

One limitation of the study is that there were no questions to address if the participants owned the kitchen tools, but they were not in working order or in “bad shape.” This could influence the results because a participant could have the kitchen items, but he or she chooses not to use those items because of their bad shape (dull, rusty, or dangerous). Also, the research found that many participants indicated they owned all the kitchen tools that were provided in the survey, yet they still indicated they would cook more with fruits and vegetables if they received more kitchen tools. The researcher questioned if the participants would really cook more with fruits and vegetables with more kitchen tools, or if the question became confusing or misleading. This is due to the fact that some already had a many tools, so the question is raised, would you really still like more?

Another limitation of the survey is that the researcher was not always able to receive a survey from the Hmong participants. There were times where a younger family member could interpret or help him or her answer, but this was not always the case. In that sense, the Hmong population is under-represented in this research study.

The last known limitation is that the brochures indirectly asked the participant if they already knew the cooking tips in the brochures. This can be a sensitive topic to ask someone how much they know about cooking already. They may have lied about the brochure when they stated they already knew everything. They may have felt pressured or embarrassed to admit they found something confusing or misleading.

**Application:**

The research findings will be presented to the professors who function as preceptors for the Nutrition 371 and 373 courses. Both of these courses are supervised practice courses that can target low-income individuals for nutrition education. The researcher believes the research findings indicated that there is a demand for some nutrition education (cooking classes, taste testings, or recipes) to be made available to this population. It is the researcher’s hope that Erin Waldhart at WAFER and the professors at Viterbo University would be willing to consider collaborating to help fill the need of nutrition education and cooking knowledge for this target audience at WAFER.

Additionally, it was found that 76% of those surveyed do not own measuring cups/spoons, so an option could be to write a grant that would allow for some funds to be used to purchase cooking tools. At this point in the research findings, measuring cups/spoons would be the first target, but mixing bowls would be helpful as well, seeing as this was the second kitchen tool that was not checked as being owned at home.

Thirdly, the grant to purchase more cooking tools may be helpful for individuals who already own cooking tools, yet they are in “bad shape” or not working order. A brand new or gently used cooking tool may increase the likelihood of cooking with fruits and vegetables. If a grant cannot be obtained or written, communication with people in the community who already donate regularly to bring their gently-used kitchen items into WAFER would also be beneficial.

**Nutrition education materials:**

The brochure that was created for WAFER participants can be found in Appendix B. In addition, a copy of the poster used for the poster presentation can be found in Appendix C.