Evaluation of the Springfield MENU Program

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EVALUATION OF THE SPRINGFIELD MENU PROGRAM

A Thesis Presented

by

HANNAH STENGER

Submitted to the Graduate School of the University of Massachusetts Amherst in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE

SEPTEMBER 2015

Department of Nutrition
EVALUATION OF THE SPRINGFIELD MENU PROGRAM

A Thesis Presented

by

HANNAH F. STENGERS

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ACKNOWLEDGEMENTS

Thank you to the Mason Square Health Task Force and the Dunbar YMCA for so warmly welcoming me into their community. I specifically would like to thank Tasha Moultrie-Phillips and Wanda Givens, the “Dunbar Divas,” and all of the study participants from the Let’s Get Task Force Fit program.

I would also like to thank Dr. Elena Carbone, my mentor, thesis committee chair, and academic advisor, for her continued guidance and support over the past three years. I would also like to thank my committee member Dr. Lindiwe Sibeko for her input and expertise.

I am honored to have been involved in the Live Well Springfield Campaign, and am so grateful for the invaluable experiences I gained as a community nutrition researcher. Thank you to Kathy Wicks, Jessica Collins, Tyrra Minto, and Catherine Ratte for their leadership. Special thanks to the Live Well Springfield evaluation team, including Dr. Carbone, Dr. Elaine Puleo, Tim Paradis, Jesse Mushenko, and Laura Fries.

Thank you to my ever-supportive parents and sister, and thank you to my friends and classmates for their encouragement throughout my entire graduate career.
ABSTRACT

EVALUATION OF THE SPRINGFIELD MENU PROGRAM

SEPTEMBER 2015

HANNAH F. STENGER, B.S., UNIVERSITY OF ROCHESTER
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Studies have shown that many low-income and disadvantaged Americans have a poor diet quality, which increases obesity and chronic disease risk. According to the Massachusetts Department of Public Health, education and income levels of Springfield residents are well below state averages, and racial diversity in Springfield has increased significantly over the past few decades. Springfield’s demographics increase the risk of health disparities in the community, and higher rates of diabetes, heart disease, and obesity are seen in Springfield. To promote healthy eating behaviors among Springfield residents, Mason Square Health Task Force (MSHTF), a Live Well Springfield (LWS) partner, created a 6-session nutrition curriculum, entitled The MENU Program. The goal was to increase overall health awareness and healthy eating behaviors among residents in communities that are being targeted by the LWS initiative. Topics of the The MENU Program included MyPlate guidelines and label reading, budget shopping and cooking, healthy restaurant choices, diet and chronic disease, and food justice. The objective of this study was to evaluate The MENU Program to assess its strengths, weaknesses, and effectiveness using both quantitative and qualitative data from surveys, process
evaluation, and facilitator observations. There were two phases of this study: Phase 1 was the evaluation of the pilot program delivered to a group of senior women recruited through the Dunbar YMCA; Phase 2 evaluated the second offering of the curriculum to Mason Square residents enrolled in the Task Force Fit Challenge. All participants responded positively to The MENU Program sessions and positive changes were seen in knowledge, attitudes, and behaviors after both Phases. Participant-perceived useful material included handouts, group discussions, and hands-on activities. Observational data supports the usefulness of group discussion over lecture-based teaching methods. This study supports the use of The MENU Program as an effective community education program for Springfield, MA. It has the potential to positively influence residents’ diet quality and nutrition-related behaviors through improved nutrition knowledge and attitudes.
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CHAPTER 1

INTRODUCTION

Studies have shown that people of color with low socioeconomic status have poor diet quality, which increases obesity and chronic disease risk. According to the Massachusetts Department of Public Health, Springfield is among the top five poorest cities in the state. (MDPH 2013) Live Well Springfield (LWS), a health and wellness initiative created in 2010, received a grant from the CDC in 2012 to increase Springfield residents’ access to fruits and vegetables with a full-line grocery store and mobile farmers markets. To increase awareness and utilization of these new opportunities, LWS is partnering with the Mason Square Health Task Force (MSHTF) to promote healthy eating behaviors among Springfield residents. MSHTF created a 6-session nutrition curriculum, entitled The MENU Program, with the goal to increase overall health awareness and healthy eating behaviors among residents in communities that are being targeted by the LWS initiative. The purposes of this study are to: 1) Pilot test and evaluate the 6-week curriculum, and 2) Revise the curriculum and evaluate the first public offering of The MENU Program.
CHAPTER 2
LITERATURE REVIEW

2.1 Diet Quality and Health Outcomes

Many Americans have a poor diet quality, consisting of too few fruits and vegetables and an excess of saturated fats and added sugars. Consuming a diet of poor quality is associated with detrimental health outcomes, including obesity, type 2 diabetes, and cardiovascular disease. (USDA and DHHS 2010). Several studies suggest that adherence to the Dietary Guidelines for Americans may lower the risk of chronic disease (Bassuk 2008, Chiuve 2012, Nicklas 2012, Koning 2011, Reedy 2014). The Dietary Guidelines emphasize the consumption of fruits and vegetables, whole grains, lean proteins, and minimal intake of sugar-sweetened beverages, refined grains, and saturated fats. For the purposes of this study, two categories of energy intake will be used to assess diet quality: fruit and vegetable intake and sugar-sweetened beverage intake. These categories of energy intake were chosen because they can give an overall sense of diet quality, and the limited focus reduces the burden on the participants for filling out longer, more time consuming questionnaires.

2.1.1 Fruits and Vegetables

The Dietary Guidelines for Americans 2010 recommend that most adults consume four to five servings of fruit and three to five servings of vegetables per day (USDA and DHHS 2010). However, fewer than one in ten people in the US are meeting these recommendations (Kimmons 2009). In fact, a typical American diet only meets
59% of the recommended vegetable intake level and 42% of the recommended fruit intake (USDA and DHHS 2010). A Healthy People 2020 baseline objective is to increase the contribution of fruits and total vegetables to the diets of Americans aged 2 and older, which equals to target daily intake of 1.1 cup of vegetables and 0.9 cups of fruit per 1,000 calories. (DHHS 2010).

There is evidence that diets high in fruits and vegetables are linked to lower risks of cardiovascular diseases, obesity, certain types of cancers, and type 2 diabetes (Boeing 2012). Fruits and vegetables are nutrient dense foods, yet are lower in energy per cup than other foods; therefore, consuming a diet high in fruits and vegetables may help lower energy intake and aid in weight loss or maintenance. Fruits and vegetables are particularly good sources of potassium and fiber, which are two of the four nutrients of concern in American diets, the others being calcium and vitamin D (USDA and DHHS 2010). A 2011 meta-analysis found that diets high in potassium are associated with lower rates of stroke and may reduce the risk of coronary heart disease and total cardiovascular disease (D’Elia 2011). Dietary fiber improves glycemic control and increases satiety, and evidence from epidemiological studies show that dietary fiber intake is associated with lower prevalence of type 2 diabetes and obesity (Anderson 2009). In 2012, a review of the health benefits of fruits and vegetables found weak support that fruits and vegetables protect against chronic diseases; however, these findings may be limited due to the fact that few randomized controlled trials on fruits and vegetables and health status have been published (Slavin 2012). They did conclude that whole fruit and vegetable consumption is associated with greater fiber intake and
satiety, and specific nutrients in fruits and vegetables (dietary fiber, vitamins, minerals, and phytochemicals) support the idea that fruits and vegetables are important for good health (Slavin 2012).

2.1.2 Sugar-Sweetened Beverages (SSB)

Added sugar in the diet is linked to the increased energy intake, decreased intake of essential nutrients, greater BMI, and heart disease (Johnson 2011). Added sugar in the diet accounts for about 16% of Americans’ total caloric intake (USDA and HHS 2010). In 2008, the average intake of added sugar for American adults was 19.2 teaspoons/day, (Welsh 2011) while the American Heart Association recommends that men and women consume no more than 9 teaspoons and 6 teaspoons, respectively (AHA 2014).

The greatest contributor to added sugar in the diet is sugar-sweetened beverages (SSB); 23.9% of US adults consume SSB at least once daily (Park 2014), and SSBs account for 35.7% of the added sugar consumed by Americans (USDA and DHHS 2010). Sugar-sweetened beverages include a vast array of products, such as sodas, soft drinks (fruit drinks, lemonade, and sweetened iced teas), energy drinks, sports drinks, and flavored waters. The liquid carbohydrates in SSBs contribute less to satiety than solid carbohydrates and the body does not compensate for the energy intake from liquids (Pan 2011). A high intake of SSBs contributes to excess energy intake, and can contribute to obesity. A 2006 review of prospective cohort and cross-sectional studies found positive associations between SSB consumption and weight gain and/or obesity in adults (Malik 2006).
SSB intake is disproportionate among different segments of the population, with higher intake of SSB associated with lower household income, lower education level, and racial/ethnic minority status. (Park 2014) In cross-sectional study of 3,926 adults, participants were mailed the HealthStyles survey to assess various health-related behaviors, knowledge, and attitudes including intake and knowledge about SSBs. (Park 2014) SSB intake was determined by asking “During the past 7 days, how many times did you drink sodas, fruit drinks, sports or energy drinks, and other SSBs, not including fruit juice or diet drinks.” A limitation to this survey is that it did not specify what a portion size of SSB is. Knowledge about SSBs was determined by asking if participants agreed with the statement “Drinking SSBs can cause weight gain.” Participants were also asked “How many calories does a regular 24-oz fountain drink have?” and were provided calorie ranges (i.e. 150 kcal or less, 151 to 250 kcals, etc.) Sociodemographic variables, including age, sex, race/ethnicity, education level, and marital status were included in the survey. The researchers found that non-Hispanic Blacks and Hispanics were more likely to consume SSB two or more times per day (p<0.001) than non-Hispanic Whites. In addition, individuals with less than a high school education and those earning ≤$34,999 per year were more likely to consume SSB two or more times per day (p<0.001). The proportion of adults who agreed that SSBs can lead to weight gain and who knew the actual kcal content of a SSB was highest among non-Hispanic whites, college graduates, and those earning $75,000-$99,999 per year (p<0.001) (Park 2014). Lastly, knowledge about SSBs were significantly associated with intake (p<0.001) after controlling for sociodemographic variables; adults who neither agreed nor disagreed
that SSBs lead to weight gain were more likely to consume two or more SSBs per day. The authors concluded that nutrition education about SSBs should be targeted toward adults with lower-incomes, less education, and of racial and ethnic minority status.

### 2.2 Influence of Socioeconomic Status (SES) on Diet Quality and Health Outcomes

#### 2.2.1 SES and Diet Quality

Many external factors can influence diet quality, one of which is an individual’s socioeconomic status. The three key components of socioeconomic status are income, occupation, and education level (CDC 2014). Higher-quality diets are generally consumed by individuals with higher income and greater education level (Darmon 2008). Not only are higher quality diets consumed by more affluent people, but they cost more; every 100gram addition of fruits and vegetables increases diet cost, and a higher consumption of dietary fat and sugar is associated with a thriftier food plan (Drewnowski, Darmon, Briend 2004). Interventions in low SES communities may be hindered by the additional cost, availability, and access barriers that are present among these individuals.

In 2010, Lucan et al. interviewed 40 African American adults living in Philadelphia, PA to identify promoters of and barriers to fruit and vegetable consumption. The study sample came from an urban, low-income community that was more than 95% African American. This group was specifically targeted due to the disproportionate incidence of diet-related chronic disease among African Americans and individuals with low SES. A “free listing” interview technique was used to collect data.
This method provides participants with verbal or visual prompts, and asks for stream-of-consciousness responses in order to identify prominent factors that influence fruit, vegetable, and fast food consumption (Lucan 2010). For example, the researcher asked “List all of the reasons that make it likely for you personally to eat vegetables.” Data from this study revealed that among this population, cost was a barrier to all healthy foods, while convenience and availability were barriers to fruits and vegetables, but promoters for fast foods (Lucan 2010). Although this was a small study, it builds upon prior research (McGee 2008; James 2004; Dietz 2001) identifying the most relevant promoters and barriers to fruit and vegetable consumption in African American communities. Other studies have found that cost and availability are also barriers for fruits and vegetables among multi-ethnic populations (Yeh 2008).

Individual nutrient intake also varies by income and education level among some populations. A cross-sectional study by Aggarwal et al. used food frequency questionnaire (FFQ) and socio-demographic data from 1,266 Seattle residents as part of the Seattle Obesity Study to examine the relation between nutrient intake, diet cost, and SES. Residential telephone numbers were randomly selected, and potential participants were called and asked to complete a telephone survey. Self-reported age, gender, race/ethnicity, education, and income were given in this survey. Of the 2,001 people who completed the telephone survey, 69% completed and returned a FFQ. Most of the respondents (63%) reported a household income at or greater than $50,000, and a majority (57%) were college graduates. About one quarter (23%) had less than a college education and a household income of less than $50,000. Intakes of vitamins,
minerals, fats, and added sugar were converted into quintiles. Participants in this study who consumed diets with the lowest quintiles of vitamin C, E, beta-carotene, potassium, magnesium, and fiber were more likely to be from lower income and education groups (p<0.0001). Additionally, diets with the highest quintiles of saturated and trans-fat were associated with lower SES (Aggarwal 2012). Several limitations of this study lie in the self-reported nature of the data and the homogeneous population (85% were non-Hispanic White). Nevertheless, significant associations between nutrient intake and SES were found, indicating the need for further research on how to promote a nutrient-rich diet to lower SES consumers.

2.2.2 SES and Diet-Related Chronic Disease

Socioeconomic variables not only influence diet quality, but are also associated with diet-related diseases. Low-income and lower levels of education are associated with higher rates of nutrition-related diseases, such as obesity, diabetes, and CVD (Lucan 2010).

Findings from the NHANES 2005-2008 have shown that in general, obesity rates are similar among men for all income and education levels (Ogden et al. 2010). However, obesity rates vary slightly among different populations of women; for example, women with less education and lower incomes are more likely to be obese than higher income women and those with college degrees.

Research has shown that type 2 diabetes and obesity have similar relationships with SES, which isn’t surprising given that that obesity is a strong predictor of type 2
diabetes (Nguyen 2011, Wang 2005). In a retrospective analysis of data from NHANES I Epidemiologic Followup Study (NHEFS), Robbins and colleagues investigated the association between SES and the incidence of diagnosed diabetes. (Robbins 2005) Data from a total of 11,069 subjects, aged 25-74, from NHEFS were examined in this study. Baseline interviews were conducted between 1971 and 1975, and follow-up data were collected periodically until 1992. Three measures of SES- poverty income ratio (PIR), education, and occupational status- were assessed. Incidence of diagnosed diabetes was determined either through participant self-report to the researchers or from hospital records. Lifestyle factors, including BMI, physical activity, energy intake, and smoking status, were adjusted for as these are potential mediators between SES and type 2 diabetes (Robbins 2005). After adjusting for age, race/ethnicity, and potential lifestyle mediators, strong associations were seen between PIR and incident diabetes among men; the hazard ratio for those with at least 5 times the poverty level in comparison with those below the poverty line was 0.49 (95% CI 0.15 to 0.9). While not significant, strong associations were also seen between education and occupational status and diabetes among women. An important limitation of this study is that incidence diabetes was confined to self-reported or doctor diagnosed cases, which excluded cases of diabetes that had yet to be diagnosed. Findings from this study support the conclusion that low SES is associated with an increased risk of developing diabetes. Furthermore, this study suggests that type 2 diabetes is more prevalent among people with low SES regardless of race and ethnicity (Robbins 2005).
A third diet-related disease of public health concern is cardiovascular disease (CVD). Higher risk of cardiovascular disease is found among those with lower socioeconomic status (Loucks et al. 2009, Franks et al 2011), and studies have shown that certain risk factors (i.e. reduced health-care access, lower likelihood of smoking cessation, and the stress of lifelong social disadvantages) can explain this relationship (Winters et al. 2010, Pollitt et al. 2005, Shonkoff et al. 2009). These studies support the need for more aggressive prevention of cardiovascular disease among low SES populations. Preventive measures for reducing this disease include adequate physical activity and high quality diet (Kromhout et al 2002). Specific dietary factors, such as total carbohydrate intake (as percent of energy intake) and consumption of trans-fat is associated with risk of cardiovascular disease (Yang 2002, Mente 2009). In contrast, certain dietary components have protective effects on cardiovascular health, including intake of vegetables, nuts, fish, and omega-3 fatty acids (Mente 2009). Consuming a diet that supports cardiovascular health is particularly important for socioeconomically disadvantaged individuals, and nutrition education interventions that promote heart healthy diets should target these populations.

2.3 Nutrition Education Programs

The Centers for Disease Control and Prevention (CDC) and the US Departments of Agriculture (USDA) and Health and Human Services (HHS) promote health and nutrition messages. The Dietary Guidelines for Americans (USDA and DHHS 2010) and Healthy People 2020 (healthypeople.gov) are jointly issued by the USDA and HHS to
promote health goals for the American people. A key recommendation in the Dietary Guidelines for Americans 2010 is to increase physical activity and healthy eating in order to prevent and reduce the prevalence of obesity. The DGA describes how calorie balance through appropriate nutrition and adequate physical activity is key to reducing obesity. The DGA 2010’s Call to Action has three main principles, one of which is to encourage healthy eating and physical activity behaviors that can set the stage for lifelong well-being (USDA and DHHS 2010).

Primary prevention of nutrition-related diseases relies on the combined efforts of communities, schools, families, and individuals. The current study will focus on the aspect of the community and its influence on nutrition-related health and well-being. This emphasis on community education programs is in line with the Healthy People 2020 objective to improve the availability and quality of these programs (DHHS 2010). The social connection that communities provide amplifies the impact that community-based programs have on nutrition knowledge, attitudes, and behaviors.

2.3.1 Nutrition Education and Nutrition Knowledge and Behaviors

Eating behaviors, such as reading nutrition labels, preparing meals from scratch, and choosing appropriate portion sizes, are important skills for improving nutritional well-being. Additionally, having an understanding of nutrition advice, such as recommended guidelines for daily fruit and vegetable intake, knowledge of nutrient content (i.e. added sugar) in specific foods, and ways to reduce added fat or sugar in
one’s diet, can increase the likelihood of consuming a diet higher in fruits and vegetables and lower in fat (Wardle 2000).

Nutrition education programs have had some success improving behaviors and increasing awareness and understanding of nutrition advice among low-income individuals. The Expanded Food and Nutrition Education Program (EFNEP) is one example of a community-based program that targets low-income families and encourages positive attitudes toward healthy eating and helps participants gain the knowledge, skills, and behaviors for improving their nutritional well-being (Dollahite 2014). Studies that have evaluated the effectiveness of EFNEP have seen improvements in diet quality, nutrition knowledge, and food management skills. Findings from these studies support the fact that nutrition education can increase specific healthy eating behaviors, such as food buying, meal planning, and meal preparation among low-income adults (Doeleman 1998, Arnold 2000, Cason 2004).

In 2004, Cason et al. completed a retrospective analysis of 4,121 low-income EFNEP intervention participants in Virginia and South Carolina (Cason 2004). The nutrition education intervention consisted of 6-12 lessons that focused on the Food Guide Pyramid recommendations and Dietary Guidelines for Americans, and participants received varying numbers of lessons depending on the family situations and their specific food and nutrient needs. Nutrition lessons derived from the Eating Right is Basic curriculum, and were led by trained EFNEP paraprofessionals. Evaluation with a Food Behavior Checklist found that all nutrition-related behaviors improved from pre to
post intervention. The behaviors of interest fell into the categories of food selection, buying, preparation, or safety. In this study, authors discovered that food selection behavior “use of nutrition facts on labels” improved the most, with 59% of participants exhibiting this behavior after the intervention, suggesting that nutrition education is highly effective in increasing the use of nutrition labels to make healthy food choices among low-income adults (Cason 2004). Both previous and more recent studies have shown that food label use is associated with improved dietary quality among all income levels (Perez-Escamilla 2002, Graham 2012, Cha 2014). Therefore, nutrition education targeted toward improving food label use could help improve dietary quality. Limitations in the study design exist; for instance, a detailed description of how the number of lessons was decided upon was not provided by the authors, nor was it mentioned that this factor was adjusted for in the analysis.

Nutrition education interventions are often delivered in structured environments to enhance the effectiveness of the program. In addition to EFNEP, schools, worksites, and health-care facilities are examples of social settings in which many people of a community can be easily reached for an intervention. Head Start, an early childhood development program for children and families, is one example of this type of setting at which nutrition education interventions have been targeted. In 2014, Dollahite and colleagues adapted the eight-week nutrition program *Eating Right is Basic-Enhanced* and delivered it to a group of low-income Head Start parents (n=134) in New York City. The objective was to increase participants’ knowledge, skills, and food choices through activities that were hands-on and dialogue-based. A dialogue-based approach to
learning creates an active discussion among participants and guides them to learn new information for themselves, instead of solely providing information or lecturing (Dollahite 2014). Topics of the weekly workshops included: portion sizes, food safety, food shopping and menu planning, feeding children, and the MyPyramid food groups.

In this randomized experimental study carried out over 16 weeks, participants were assigned to either immediate education (IE) or delayed education (DE). The IE group received the intervention in the first eight weeks, and the DE group received the intervention in the second eight weeks. This particular study design was chosen to allow comparison of knowledge and behavior retention between immediate intervention and delayed intervention groups. Data were collected using a 10-item behavior checklist at three time points; upon enrollment, eight weeks later (between IE and DE), and at the conclusion of the study. The 10 items focused on four constructs: diet quality, food safety, food security, and food resource management, and was scored out of a maximum of 50 points.

Using the DE as the control group during the IE intervention, the behavior checklist scores increased significantly from 35 to 43 points when measured immediately after the eight-week intervention (p<0.05). Three of the four constructs--self-reported nutrition, food safety, and food resource management--improved while food security remained stable. Additionally, behavior change was retained eight weeks post intervention for the IE group. This study is unique because it is the first to be conducted in EFNEP that combines retention of change and a randomized controlled design. A limitation of this study is the absence of a control group for the IE
participants, allowing for possible outside nutrition information to influence participants during the second eight week period. The majority of participants (74%) were Hispanic, so these results cannot be generalized to other races and ethnicities (Dollahite 2014). Furthermore, the data collected did not include any items about specific food consumption; the diet quality part of the questionnaire only addressed: thinking about healthy food choices, preparing food without salt, using Nutrition Facts labels, and feeding children breakfast. Changes in actual intake can therefore only be speculated.

Outside of federally funded programs such as EFNEP and Head Start, religious organizations like churches and synagogues also provide a structured, supportive environment to deliver effective nutrition interventions. Eating for a Healthy Life (EHL) is a dietary intervention that was developed and implemented over 12 months in 40 Seattle-area religious organizations (Bowen et al 2009). Each religious organization and its members were randomized to either the intervention (n=1099) or comparison (n=1076) group after completing a baseline survey, which collected socio-demographic data and assessed dietary behaviors using a modified Fat and Fiber Behavior questionnaire (Bowen 2004). In addition, a 24-hour food recall was randomly administered to 30% of the baseline study population. Other items assessed in the survey were community integration, religious organization attendance, and perceived health. This study did not assess specific nutrition behaviors, attitudes, or knowledge.

The EHL intervention had various components, including educational sessions, interpersonal support between members and an assigned “Healthy Eating Coordinator,”
motivational flyers and advertisements, and informative mailings on dietary changes (Bowen et al. 2009). After the 12 month intervention period, follow-up surveys were administered, which contained similar information to the baseline. Analysis of the follow-up data revealed that fat and fiber scores improved as a result of the intervention ($p=0.005$). Fruit and vegetable intake increased among both intervention and comparison groups, with a greater improvement among the intervention group ($p=0.030$). Fat and fiber score improvements were greater for intervention participants who had high perceived health, were highly integrated in the community, and had greater religious organization attendance. This is a strong study due to its randomized design, large sample size, and methods for measuring dietary intake. However, the population was mostly White (91%) and well-educated (53% had a four year college degree or more), so results cannot be generalized to more diverse populations.

The current study proposes to assess nutrition knowledge and healthy eating behaviors in response to a nutrition education intervention. To date, few studies have comprehensively evaluated an education intervention to include measures of knowledge for nutrition recommendations and specific nutrition-related behaviors. This study proposed to assess changes in a wide range of knowledge and behaviors due to an educational intervention. In terms of delivery methods, the literature supports the use of a structured community setting for carrying out a nutrition intervention, such as EFNEP groups, Head Start programs, and religious organizations. The current study will be implementing the proposed program at the Dunbar YMCA, a fitness and community center located in the Mason Square neighborhood of Springfield.
2.3.2 Nutrition Education and Nutrition-Related Attitudes

Nutrition education that promotes the connection between nutrition and health may influence attitudes toward healthy eating. For example, positive changes to nutrition-related attitudes in response to an education intervention were found in the short-term Nutrition Advice Study (Glanz 2012). This randomized controlled trial recruited 189 low-income adults (83% female, 17% male; 54% white, 46% African American; mean age 39 ±7 years) using a market research company in Atlanta, GA; of these, 128 were assigned to a group that received education on Nutrition Rich Food (NRF), while 61 control participants were given a standard nutrition education intervention. NRF is a nutrient profiling system that scores foods based on its nutrient density as a way for consumers to easily identify and select healthful foods, and the NRF approach to eating was being evaluated as a novel nutrition education tool. Both groups received one 1-hr long nutrition lesson on either the NRF eating approach (intervention) or MyPyramid and the 2005 DGA (control). In addition, the intervention group received materials that included shopping list templates, menu planners, a pocket guide on how to choose nutrient rich foods, a shopping bag, and a magnet. During the eight weeks following the lesson, the intervention group received weekly motivational emails and biweekly informational mailings, and the control group received a total of two mailings with handouts and brochures from the USDA. Outcomes of interest were nutrition knowledge, attitudes, behaviors, and intake and were measured with a survey at baseline and at 8-weeks follow up. Diet quality was assessed using the Healthy Eating
Index (HEI). Race/ethnicity, education level, household income, and BMI were also assessed via survey.

In the NRF intervention group, changes in meal planning behaviors improved significantly, with 53.1% reporting they “Always or usually plan meals before shopping for groceries” post intervention, compared to 28.9% pre intervention (p<0.001). In contrast, 37.7% of the pre-intervention control group and 32.8% of post-intervention control group responded that they “Always or usually plan meals before shopping for groceries.” Attitudes toward nutrient rich foods improved among both NRF and control groups. Significant increases were observed in NRF participants who strongly agreed with the following statements: “I have the information I need to identify nutrient rich foods” were observed (27.3% to 87.5%, p<0.001), “It is easy to increase the number of fruit and vegetables that my family eats” (38.3% to 46.1%, p<0.05), and “I think nutritious or nutrient-rich foods are affordable for my family” (25.8% to 34.4%, p<0.05). Attitudes improved among control participants as well, but not significantly. Diet quality improved non-significantly for all, with HEI scores increasing 9.3% in the NRF group and 3.6% in the control group (Glanz 2012). A limitation of this study was the short length of the intervention, with only one in-person interaction at baseline. In addition, one criteria for inclusion in this study was that participants must have expressed interest in improving their diets; this may have created a more motivated, self-efficacious sample which is not representative of the general public. Results of this study show that a short-term nutrition intervention based on increasing nutrient rich foods, meeting the DGA requirements, and choosing correct portion sizes is effective at
improving healthy eating behaviors, attitudes, and diet quality. Future studies are needed with longer follow up periods with more in-person interactions.

Another short term study by Anderson et al. in 2001 assessed the impact of a 5-A-Day promotional program in 669 low-income women living in and around Flint, Michigan. Participants were recruited through WIC and the Commodity Supplemental Food Program (CSFP), with 564 and 455 completing the pre-test and post-test, respectively. Of those who completed the post-test, 43% were African American, 49% were White, and 7.3% were of other racial background. Almost half (49%) had a high school education or less, and the mean participant age was 29 years. Participants received one of four interventions: nutrition education, Project FRESH coupons (redeemable for $20 in produce from farmers’ markets), both education and coupons, or no intervention. Attitudes about fruits and vegetables, fruit and vegetable consumption, farmers’ market use, and knowledge of the phrase “5 A Day for Better Health” were assessed with a self-administered questionnaire before and after the intervention. This questionnaire was adapted from BRFFS questions, and was pilot tested among a group of WIC clients of similar demographics to the intervention population. Participants in two of the four groups (education-only and coupons and education) were given a 20 minute interactive lecture immediately after their pretests on nutrition and health, buying power, produce seasonality, proper storage, and preparation of fruits and vegetables. The lecture concluded with follow-up questions in a game show format. Pretests and posttests were administered two months apart.
A multivariate analysis incorporated eight covariates (fruit and vegetable consumption, working status, household size, number of children, smoking, age, pregnant or lactating, and attitudes about fruits and vegetables) and looked at the amount of variance that could be explained by two factors: coupons and education. Coupons alone were found to have a direct effect on improving fruit and vegetable intake (p<0.01) but not attitudes. However, education had an effect on general attitudes about fruits and vegetables; i.e. taste of fruits and vegetables, family response, preparation knowledge, and importance for health; (p<0.01) and the improved attitudes exerted an effect on consumption. (Anderson 2001) These findings suggest that education directly produces a change in attitude, which may over time produce a change in behavior; yet due to the brief follow-up period, only slightly significant behavior change was observed. Future interventions spread over longer periods of time are needed to confirm this association. Furthermore, similar interventions may be strengthened with increased contact with participants; this study implemented a sole 20-minute nutrition lesson, reminder cards, and phone calls, but could have been enhanced with educational mailings and additional in-person nutrition lessons.

A similar nutrition intervention program was implemented among WIC 5-A-Day participants in Maryland without the use of coupons (Havas 1998). A total of 3,122 women (56% Black/African American; mean age of 27.2 years) enrolled in WIC at 16 sites across Maryland agreed to participate in the study, and the intervention was delivered at eight randomly assigned sites, while the other eight sites served as the control. The nutrition program was implemented by peer educators, and comprised of
three 45 minute nutrition lessons delivered over six months, printed educational handouts, and four personalized letters with reminders and tip sheets mailed directly to participants. A self-administered questionnaire was completed both before and after the intervention, and included items on self-efficacy, attitudes, knowledge, stages of change, and fruit and vegetable consumption. In particular, attitude statements about fruits and vegetables—such as “having a vegetable for lunch is important to me”—were evaluated with five-point Likert scale. The attitude scores for each item were summed, with the range of possible scores being from 0-20 points. Fruit and vegetable consumption was measured by asking how many servings of fruits and vegetables (including 100% juice) participants had each day. In the intervention groups, significantly greater changes were seen in fruit and vegetable consumption (0.56 serving increase in intervention groups vs. 0.13 serving increase in control groups; p=0.002). Additionally, fruit and vegetable attitude scores improved significantly more among intervention participants (0.49 point increase in intervention groups vs. 0.15 point increase in control groups; p=0.003). This supports the conclusion that nutrition education programs in low-income populations are successful at increasing both fruit and vegetable consumption and attitudes about fruits and vegetables. (Havas 1998)

The randomized study design and large population are strengths of this study, yet many limitations can be found. Nonattendance rates were high (19% attended all three sessions, 46% attended no sessions) and the subject population was mostly African American women under the age of 30, which is not representative of all low-income populations. Additionally, there are notable weaknesses in the survey design, such as
the inclusion of 100% fruit juice when assessing fruit and vegetable consumption is a weakness, as the intake of whole fruits and vegetables should be of greater importance. Furthermore, the intervention was comprised of only three nutrition lessons delivered over six months; the broad spacing of the lessons may have contributed to the high nonattendance rates, and more frequent education sessions could have produced even greater positive changes.

The current study will be incorporating measures of nutrition-related attitudes in the proposed evaluation of this nutrition education intervention. Few studies have included changes in attitudes as an outcome of interest in response to nutrition education, and those that have also are limited by the study design. The current study proposes to deliver the nutrition education intervention twice over two time-periods, 6 weeks and 3 months, as prior studies have been limited by short intervention periods. The design of the current intervention allows for more in-person interaction with the participants, which will hopefully have a greater impact on nutrition-related attitudes.

2.4 Springfield, Massachusetts

The city of Springfield, MA is the largest city in the Pioneer Valley, an area of western Massachusetts comprised of 69 cities and towns located west of the Berkshires. As of 2010, 153,057 people reside in Springfield, making it the third largest city in Massachusetts and the fourth largest in New England (MDPH 2013). Springfield, situated along the Connecticut River, is the Pioneer Valley’s cultural and economic center.
The racial and ethnic diversity of Springfield has increased considerably over the past few decades. From the 2000 to 2010, the population of non-Hispanic Whites in the city decreased from 49% to 38%, and the Hispanic population increased from 27% to 39%. In comparison to state-level data, there are fewer (37% vs 76%) non-Hispanic White residents of Springfield and more African American (22% vs.7%) and Hispanic (39% vs.10%) individuals (MDPH 2013).

Income and education levels of Springfield residents are well below state averages. Household income is less than 60% of state household income, and one quarter of Springfield residents live below 100% of the poverty level (MDPH 2013). More than one-quarter (26.6%) of the residents have less than a high school education compared to 15.2% of all Massachusetts residents (MDPH 2013).

The social determinants of health are defined by the World Health Organization as the conditions that a person is born into and subsequently lives and works in throughout their life (WHO 2014). These determinants, as well as race and ethnicity, sex, sexual orientation, and age, are largely responsible for the differences in health outcomes seen across social classes (CDC MMWR 2013). The social determinants of health also predict the food environment one lives in; residents of lower-income or minority communities often have less access to grocery stores and markets that offer healthy foods than those who live in other communities (CDC MMWR 2013). Individuals who are born and live in environments that lack equal access to healthy foods are more likely to have poor diet quality, and therefore are more at risk for diet-related diseases.
Springfield’s demographics increase the risk of health disparities in the community, and higher rates of diabetes and heart disease are seen in Springfield (MDPH 2013). Additionally, almost one-third (32.3%) of adults in Springfield are obese, which is 10% greater than the state. In fact, since 2006 the rates of obesity in the Pioneer Valley have consistently been above state-wide averages (Pioneer Valley Planning Commission 2013).

2.4.1 Food Access and Availability

In addition to higher prevalence of social inequalities and health disparities, Springfield has been recognized by the CDC as an area where a large percentage of residents have limited access to affordable healthy food (USDA and ERS 2014). These types of areas are commonly referred to “food deserts” or “food swamps”.

Food deserts are often defined by area-based measures of food access, taking into account the distance to the nearest supermarket for all individuals in a geographically defined area, as well as groups with low-income and without vehicles (Ver Ploeg et al. 2012). For many low-income residents of urban areas, the term “food swamp” may more accurately describe the food environment they live in, and for the purposes of this study, the term “food swamp” will be used to describe the Springfield, MA area. A food swamp is defined as an area where there is limited access to healthy food options and a greater relative availability of energy-dense, nutrient-poor foods from fast-food restaurants, corner markets, and convenience stores (Ammerman 2012).
U.S. food access studies have found that in general, energy-dense foods and fast-food availability is greater in low-income neighborhood (Larson et al. 2009).

Living in areas with low access to healthy foods may further contribute to diet-related health disparities. A review by Larson et al. in 2009 found that neighborhoods with greater access to full-line grocery stores in comparison to convenience stores consume a higher quality diet and tend to have lower rates of obesity (Larson et al. 2009). The authors also concluded that limited access to fast-food restaurants, independent of other food options, is associated with lower rates of obesity and higher diet quality (Larson et al. 2009).

2.4.2 Live Well Springfield

The Live Well Springfield (LWS) initiative was created in 2010 by the Pioneer Valley Planning Commission to address obesity and chronic disease in Springfield and increase access to physical activity opportunities and healthy food. The LWS initiative received a grant from the Centers for Disease Control and Prevention in 2012 to further their efforts by: establishing a full-line grocery store in Springfield, increasing access to fresh produce through farmer’s markets and the Go-Fresh Mobile Markets, increasing access to and usage of the Riverwalk, and expanding the city’s bicycle and pedestrian plan. (Partners for a Healthier Community 2014). For the purposes of this research, focus will be on the food access components of the LWS initiative; establishing a full-line grocery store and increasing the utilization of the mobile markets.
A research team from UMass Amherst was invited to serve as the evaluation team for the Live Well Springfield Initiative. The collaboration between UMass Amherst and LWS began in 2012 when the Community Transformation Grant was awarded by the CDC. The following sections will discuss the community-academic partnership in depth in order to justify the use of the community-based participatory research framework.

2.4.3 Mason Square Health Task Force

One of the LWS partners is the Mason Square Health Task Force (MSHTF), a coalition of community members with the mission to eliminate racial and health disparities in the Mason Square neighborhood. In 2007, Baystate Health received $9.6 million to be invested in the community as part of the Massachusetts Department of Public Health Determination of Need (DON) program. (MEOHHS 2014) This money was given out to various Springfield organizations, including the North End Community Housing Initiative, the North End Community Center Project, and the Greater Mason Square Community Centers Project (which includes the MSHTF). The MSHTF and the Dunbar YMCA received $2.8 million in DON funding in 2007 to be spent over seven years, ending in 2014. The MSHTF has used this money through a Request For Proposals (RFP) process, providing grants to various non-profit organizations in the Mason Square Community to support projects dedicated to health improvement (MSHTF 2010).

As part of the Community Transformation Grant that was awarded to LWS, money was allocated to the MSHTF and was used for the creation and execution of MENU Program and the Task Force Fit Campaign. CTG funding was also used to support
the MSHTF Community Check-Ups, which are quarterly meetings for Mason Square residents to learn about the efforts of the Task Force and to promote the full-line grocery store initiative.

The physical food environment may impact a person’s dietary preferences and choices based on the availability of stores and restaurants (USDA and ERS 2009). For Springfield, a lot of attention has been placed on introducing full-line grocery stores to improve access to healthy, affordable foods. Studies show that average intake of fruits and vegetables improve slightly after the openings of new full-line grocery stores (USDA and ERS 2009). As part of the LWS movement, the MSHTF is addressing the inequalities in access to healthy, affordable foods in Springfield by supporting the mobile and farmer’s markets. The MSHTF continues to support the Mason Square Food Justice Initiative’s (MSFJI) JUST FOOD campaign, which after its 2011 launch has been advocating for a full-line grocery store and year round farmer’s market.

In addition to improving food access, an objective of the MSHTF is to educate residents on how healthy food and exercise are linked to a better quality of life (MSHTF 2014). The Let’s Get Task Force Fit and the Community Classroom are two campaigns initiated in 2014 that provide opportunities for community members to learn and engage with each other. The Let’s Get Task Force Fit campaign brought together more than 120 people in a summer fitness challenge as a continuation of efforts to improve the health of Mason Square residents. The Community Classroom workshops address topics such as urban agriculture, financial literacy, health equity, and nutrition.
The Community Classroom nutrition workshops are being presented in a six-session series called *The MENU Program*. This program has been developed by the MSHTF and is to be delivered at the Dunbar YMCA and various other community centers in Springfield. As the city works to increase food access and improve food justice with the LWS grocery store and mobile market initiatives, *The MENU Program* will encourage support of these programs by improving residents’ knowledge and awareness of healthy eating.

The Evaluation of *The MENU Program* is unique because of the relationship between UMass and the MSHTF. In this community-academic research collaboration, the community is leading the intervention, and the university was invited to take part in the grant writing to serve as the lead agency for evaluation of the whole LWS campaign. The MSHTF was solely responsible for the idea and creation of the program; UMass is helping the Task Force by evaluating the program so that it can become an effective tool for this community. Because of this relationship, this study will utilize and adapt the community-based participatory research framework.

### 2.5 Community Based Participatory Research

Community-engaged research, also known as community-based participatory research (CBPR) is a useful framework for reaching underrepresented populations that typically are difficult to engage using traditional research approaches (Horowitz et al. 2009). Community engagement has grown in recognition in response to a better
understanding of the links between social and environmental factors and individual behaviors and health outcomes.

There are many definitions of “community.” Perhaps most simplistically, a community can be viewed as merely as sense of “who is included and who is excluded from membership” (CDC 1997, part I). In the context of public health research, a broader sociological perspective of a community is required. A community is a unit of identity, in which its members are linked by a shared identification or emotional connection to each other (Israel 2005). Communities can be linked by ethnicity, language, age, gender, religion, or shared social values, or can be defined as a geographic location, such as neighborhood, city, or region (Sadler 2013). Communities are unique and come in various forms, and can be linked by one or more common lifestyle, interest, affiliation, or perspective. Communities can also be overlapping, and many people belong to many different communities (Sadler 2013). No matter how one defines “community,” it is important for researchers to clearly identify the group of people with whom they will be partnering (CDC 1997).

2.5.1 Comparing CBPR with traditional research

Community-based participatory research (CBPR) is an approach to research which values the partnership between researchers and community members, and equally involves both throughout the planning, development, and implementation process (Israel et al. 1998). This is in contrast to traditional research methods or
community-placed research, in which research is conducted in a community and rarely includes the active participation of its members (Israel 2000).

In traditional research interventions, a “top-down” approach is taken, starting with a review of the literature prior to the start of the study (Table 1). The investigators deliver the intervention to their selected target population, collect and analyze data, and then disseminate the findings in a peer-reviewed journal. Using this approach, members of the community are the subjects of the study and have little say in how the intervention is implemented. The findings of the study are rarely presented in a way that can be interpreted by the end users, and the community reaps little to no benefit from participating in this type of institution-lead study.

CBPR is a framework for research that works collaboratively with communities to identify their needs while recognizing and building on their strengths. In contrast to traditional research, the community is actively involved in every stage of the study design, implementation, and analysis. Representatives of the community guide the researchers in the recruitment process in order to gather the more representative study sample (Viswanathan 2004). With the assistance of the community members, an effective intervention can be designed that is culturally and socially relevant and be more likely to produce positive results (Viswanathan 2004).

CBPR has been reviewed as an effective strategy for collaborating with community partners and decreasing the barriers to successful community engagement in health research (Salimi et al. 2012, Hicks et al. 2012). CPBR benefits the research
institution, by improving the quality and relevance of the research data and by building connections and trust with community partners for future research (Israel 2000). Additional benefits of CPBR are recognized by the NIH and the CDC, and include the creation of culturally relevant interventions and more effective recruitment and retention methods (Wallerstein 2010). The increased attention on CBPR methods by funding agencies warrants more published articles on the positive results of academic-community collaborations (Salimi et al. 2012).

More importantly, CBPR provides benefits to societies that traditional research approaches have not successfully reached. By actively engaging in the research process, the community members are empowered with increased control over the research process. This builds capacity in the community so that after the research has ended, the community has acquired skills, experiences, and opportunities to improve their ability to problem solve. CBPR encourages the sharing of information and resources within the community, helps bridge cultural gaps, and can directly improve the health and well-being of the community (Israel 2000).

A community-led approach to CPBR is not one that is commonly seen. Most CBPR partnerships are characterized by equal involvement of both partners throughout the process. In the case of the current research study, the community partner- MSHTF-identified the needs of the community, designed the intervention, recruited participants, and led the implementation of the program. The academic partner- UMass Amherst- has taken on the data collection and analysis components of the current
study. In a traditional CBPR design (see Figure 1) both partners typically provide input for the design and implementation of an intervention, and this study is unique because of the limited involvement of the academic partner in that process.

2.5.2 Entering the Community

Entering the community as a co-researcher is a critical step in the CBPR process. Traditionally, researchers enter the community, conduct their study, and then leave without acknowledging or consulting the community members. Bharadwaj suggests that a community-based research partnership be composed of five phases: pre-research, community consultation, community entry, research, and research dissemination (Bharadwaj 2014). For the current study, pre-research and community consultation do not apply due to the fact that the community had already defined their needs and consulted with their members before creating the program. This study focuses on the community entry and research phases of a CBPR process. In Bharadwaj’s model, the research phase is neither community-led nor researcher-led; rather it is an equitable partnership.

Since the community had conducted a needs assessment and created the program before partnering with us, it was important to respect their leadership and vision. The Mason Square community is a tight-knit, passionate group, and the importance of creating a trusting relationship upon entry was recognized. Co-facilitation of the program is one method we used to reduce the challenges of entering
the community. Working with a community member and leader eliminated some of the barriers that the student researcher may have faced had she led the sessions alone.

2.6 Gaps in the Literature

The Live Well Springfield Initiative is community designed and led, and UMass Amherst was invited to serve as a partner to lead the evaluation process. This is a strength because the needs of the community are first and foremost and the program has been designed to address specific areas of interest for this population. This also a challenge because *The MENU Program* had already been developed, therefore limiting the impact that researchers had on the content as well as the program implementation and collection procedures.

During the search of the literature, EFNEP was found to be the only community nutrition education program that consistently includes analysis of diet-related knowledge, attitude, and behavior change among participants. EFNEP nutrition interventions are evidence based programs that are developed by researchers. *The MENU Program* is unique because it was created by the community, for the community, with the sole purpose of expanding nutrition knowledge and increasing awareness of the food justice initiative among Springfield residents. Therefore, the current study has the opportunity to apply common evaluation procedures to a solely community-designed nutrition intervention. This is an opportunity to assess changes across multiple variables (nutrition knowledge, attitudes, and behaviors) to allow for a broader examination of how *The MENU Program* operates in this particular community.
2.7 Research Questions

The goal of The MENU Program is to increase overall health awareness and healthy eating behaviors among residents in communities that are being targeted by the LWS initiative. The purposes of this study are to: 1) Pilot test and evaluate the 6-week curriculum, and 2) Revise the curriculum and evaluate the first public offering of The MENU Program.

There are six research questions that have guided this study. They are as follows:

1. After completing the six-session MENU Program, to what extent are changes seen in participants’ knowledge, attitudes, and behaviors?
2. To what extent do changes in knowledge, attitudes, and behaviors differ in relation to mode of delivery?
3. What are the participants’ perceptions of the six sessions in Phase 1?
4. What are the participants’ perceptions of the six sessions in Phase 2?
5. What do observations add to our understanding of participants’ responses to the curriculum in Phase 1?
6. What do observations add to our understanding of participants’ responses to the curriculum in Phase 2?
CHAPTER 3
METHODS

3.1 Study Design Overview

The MENU Program is a six-part intervention developed by staff at the Mason Square Health Task Force of Springfield MA. The curriculum was adapted using materials from the USDA’s “Eat Healthy, Be Active” community workshops and the “Eating for a Healthy Life” workshops (USDA 2012, NCI 2009) Evaluation of The MENU Program was carried out in two phases: 1) piloting the curriculum with a convenience sample of senior women at the Dunbar YMCA; and 2) adapting the sessions based on comments and feedback from the pilot, making revisions to the curriculum as needed, and delivering a second round of sessions to a group of adult Springfield residents, aged 18 years and older.

One student (HS) and one MSHTF staff member (TMP) co-facilitated all sessions of Phase 1 and Phase 2. A script was created for each 90 to 120 minute session, and was used as guidance for the facilitators (Appendix A). Powerpoint presentations were created by the graduate student (HS) to accompany the session scripts. Educational handouts were given to each participant as supplemental material, and additional visual materials used included: food portion models, measuring cups, fat and sugar test tube displays, an “Eat This Not That” book, and plastic MyPlate plates.

The evaluation process included the following components: 1) administering a pre-intervention survey to assess baseline knowledge, eating attitudes and behaviors; 2)
administering six brief process evaluations at the end of each session; 3) administering a post-intervention survey at the end of the final session to assess any changes in eating attitudes, behaviors, and knowledge; and 4) recording observations as written facilitator field notes.

This study design and recruitment procedures were approved by the Institutional Review Board at UMass Amherst (see Appendix C)

3.2 The MENU Program Pilot (Phase 1)

A convenience sample of 15 women aged 65 years and older, were recruited from a weekly chair aerobics class at the Dunbar YMCA in Springfield MA. The Mason Square Health Task Force (MSHTF) had verbally generated interest for The MENU Program among the aerobics class members in the fall of 2013. Interested participants were invited to participate by attending the first session (#1) of The MENU Program and signing up. Those who agreed to participate received a written consent paragraph at the beginning of the first session informing them of the nature of the study, which was also read aloud by the graduate student facilitator (HS), before completing the pre-intervention survey (see Appendix B.4). By completing the survey questions, individuals indicated that they read and understood the consent paragraph and agreed to participate in the study. Participant questions about the data collection process were addressed by the graduate student facilitator (HS). Phase 1 of The MENU Program ran weekly from December 12th 2013 to January 30th 2014, with two rescheduled sessions due to holidays and inclement weather.
3.2.1 Curriculum:

The pilot curriculum consisted of six sessions designed to be delivered in sequential weekly sessions by a graduate student facilitator (HS) and a MSTHF staff member (TMF). The first session (#1) was 120 minutes to accommodate introductions, the informed consent, and administering the pre-intervention survey. The following sessions (#2–#6) were each approximately 90 minutes. The topics and goals for each weekly session were as follows:

- **Nutrition 101**
  - Session goals:
    - Learn how to create a balanced meal using MyPlate.
    - Learn to identify the different food groups and what they do for the body.
    - Learn how to read and understand the nutrition facts label.

- **Enjoying Healthy Foods that Taste Great**
  - Session goals:
    - Learn to identify sources of fat in the diet.
    - Learn ways of modifying recipes to make them healthier.

- **Stretching Your Budget, Saving Your Peace of Mind**
  - Session goals:
    - Learn skills to plan meals for the week.
    - Learn the benefits of planning meals ahead of time.

- **Eating Out, It Happens!**
  - Session goals:
Learn how to compare the fats in restaurant meals by reviewing nutrition facts.

Learn strategies and skills for selecting healthier food options at restaurants.

• Diet and Disease

• Session goals:
  o Be able to name risk factors for heart disease, diabetes, and cancer.
  o Be able to name preventive measures for lowering the risk of heart disease, diabetes, and cancer.
  o Leave with a health oriented goal they can work toward.

• Food Justice and Food Access

• Session goals:
  o Be able to define “food justice.”
  o Be able to name at least two Springfield-based food justice initiatives.

Each session included an introduction and icebreaker activity at the beginning to engage participants in active discussion. The sessions concluded with a wrap-up and summary of the topics covered. Each session had an accompanying PowerPoint presentation that was developed by the UMass graduate student evaluator (HS). The complete curriculum can be found in Appendix A.
3.2.2 Incentives for Phase 1

Each participant was given a folder for holding all of *The MENU Program* learning materials. All curriculum materials in this folder were distributed to participants to keep, including a reusable plastic MyPlate plate, healthy recipes, shopping tips, nutrition label facts, and MyPlate informational brochures developed by the USDA and obtained from Choosemyplate.gov. Recipes, shopping tips, and other handouts were acquired from the USDA’s “Eat Healthy, Be Active” program and the “Eating for a Healthy Life” workshops (see Appendix A). At each session of the pilot phase, participants were given a cold or hot lunch from AC Produce Main Street Market in Springfield. Participants of the pilot phase also received a Live Well Springfield reusable grocery tote or drawstring bag as an incentive at the end of the intervention.

3.3 The MENU Program (Phase 2)

Based on the results of the pilot study, process evaluations, and participants’ comments, *The MENU Program* curriculum was revised and offered to the community in the second phase of the evaluation process. A detailed description of the revisions is included in this document as part of the results for Phase 1. Participants in the second phase were recruited from the “Let’s Get Task Force Fit Together” program led by MSHTF. The Task Force Fit (TFF) program was a health and fitness campaign running from May through August of 2014 created to support the development of healthier community in Springfield. Residents registering for the TFF campaign could join a weight loss competition with monthly weigh-ins. By utilizing many of Springfield’s
recreational resources, TFF members were given access to free fitness activities, such as dragonboat racing on the Connecticut River and biking along the Riverwalk. As part of the nutrition component in TFF, *The MENU Program* was offered to members free of charge. TFF members registered for the revised 6-part *MENU Program* which was offered over the course of four months (May-August 2014). One of the two classes was selected to participate in the evaluation of the second phase of *The MENU Program*. This particular class was selected based on the availability of graduate assistant (HS), so that HS could attend and assist the majority of the sessions.

3.3.1 Incentives for Phase 2:

Participants of *The MENU Program* Phase 2 were given all curriculum materials as well. A small healthy snack was also provided at each of the six sessions for Phase 2. Since participants of *The MENU Program* Phase 2 were members of the Task Force Fit program, they received points by participating in the nutrition classes to go toward a raffle entry.

3.4 Pre-intervention Data Collection

At the beginning of the first session, after introductions, a five-part paper-based survey modified from previously validated instruments was administered by the graduate student to all participants. The validated instruments used for this survey’s development are: the LiveWell Springfield Baseline Survey, NHIS Five Factor Questionnaire (NCI 2005), EFNEP Food Behavior Checklist (Anliker 2005), and the National Obesity Observatory Nutrition Knowledge and Attitude questionnaire (Roberts...
The survey was created by the graduate student evaluator (HS) and is designed to assess participants eating behaviors, knowledge, and attitudes (see Appendix B.2). Due to time constraints, the survey was not pilot tested before the start of the program. The pre-intervention questionnaire took approximately 20 minutes to complete, and contained the following components:

I. Shortened food frequency questionnaire
   - Intake of fruits, vegetables, red meat, poultry, fish, whole grains, and sugar sweetened beverages.

II. Shopping, cooking, and eating behavior
   - Behaviors of interest include reading nutrition labels, shopping with a grocery list, preparing meals from scratch, and ordering healthy restaurant meals. Each behavior included in the survey is a key learning objective of one or more of the six sessions.

III. Beliefs and attitudes about healthy eating
   - Barriers to healthy eating, intentions toward eating more healthy food, and perceptions of what “healthy” means.

IV. Knowledge and awareness of healthy eating
   - Knowledge of select nutrition guidelines and general recommendations as set forth by the DG 2010.

V. Personal questions
   - “How would you describe your health?” using 5-point Likert scale from “Poor” to “Excellent.”
   - Household makeup: “Are you currently living with a child or children?”
3.5 Post-intervention Data Collection

The post-intervention questionnaire had the same components as the pre-intervention questionnaire, with two additional questions at the beginning asking:

1. How many sessions did you attend?
2. a. Have you made any changes to what you eat, where and how you shop for food, or how you cook since coming to the sessions?
   b. If YES, please list some changes you have made.

3.6 Process Evaluation Data Collection

Participants were asked to complete a brief process evaluation immediately following each session (see Appendix B.3). A five-point Likert scale (1= “Strongly Agree” 5=“Strongly Disagree”) was used to determine the extent to which participants agree with nine statements. Statements #1, 2, and 5-9 were consistent across all six sessions. Statements #3 and #4 were reflective of the material covered at that particular session. For example, statement #3 on the process evaluation for Session 1 was: “I plan to use the MyPlate tool to create balanced meals,” while statement #3 for Session 2 was: “I plan to use strategies I learned today to eat smaller portions,” and statement #3 for Session 3 was: “I plan to try planning my meals ahead of time this week.”

The process evaluations were designed to help identify the participants’ intentions to make behavior changes after each session, and to help find strengths and weaknesses of the program materials and of how the information was delivered. Intention to make behavior changes was addressed with item #5 on each process
evaluation: “I plan to change my eating habits based on the information I learned today.” Strengths and weaknesses of the program were assessed with items #8 and #9, which state “Please tell us which materials you found most useful,” and “If this session were to be repeated, what should be left out or changed?”

3.7 Facilitator Observations

Written observations were taken at each session by the graduate student facilitator (HS). These field notes centered on the following observations:

- Participant questions and comments
- Positive and negative interactions between participants
- Nonoccurances (planned activities or objectives that were not covered)

3.8 Attendance and Participant Identification

Participants signed their name on a sign-in sheet at the beginning of each session, and two copies were made: one for MSHTF and one for the graduate student evaluator (HS). To maintain anonymity, identification numbers were assigned to each participant at the first session they attend. The ID numbers was assigned randomly using the sign-in sheet from the first session. The pre-intervention survey, post-intervention survey, and process evaluations were marked with participant’s ID number. Participant ID numbers and their corresponding initials were kept in a folder separate from all surveys and process evaluations and stored in a locked and secure room at UMass.
CHAPTER 4
ANALYSIS

4.1 Pre and Post intervention questionnaires (Quantitative Data)

Participant questionnaires were labeled with an anonymous identifier to assure accurate matching of each individual’s pre and post data. Pre-surveys that did not have a matching post-survey were not analyzed for changes. Survey data was entered into an Excel spreadsheet, and responses were coded numerically. Responses to the questions addressing fruit and vegetable servings were entered as numerical values (i.e. 2 servings = 2), and ranges were averaged (i.e. 2-4 servings = 3). Responses to fruit and vegetable intake questions #2 and 4 were entered as: 1=Never; 2=Sometimes; 3= About half of the time; 4= Usually; 5= Always. Additional intake responses will be entered as: 0=Never; 1= 1 x month; 2=1 x per week 3= 2-3 x per week; 4= Every day; 5= 2-3 x per day.

Three, four, and five point Likert scale questions were entered as follows: For four-point shopping and cooking behavior questions (#8, 9, and 11): 1= Always; 2= Usually; 3= Sometimes, 4= Never. For three-point intention-to-change questions (#13): 1= Very Willing, 2=Somewhat willing, 3= Not at all willing. For five-point attitude questions (#17): 1= Strongly Agree, 2=Agree, 3= Undecided, 4=Disagree, 5=Strongly Disagree. Yes/No questions were entered as 0=No, 1=Yes, and responses to questions that were left blank were entered as “n”.

Data was analyzed using Microsoft Excel to determine if changes occurred between pre and post intervention. The main dietary outcomes of interest were self-
reported intake of fruits and vegetables and sugar sweetened beverages. Changes in fruit and vegetable intake in the pre/post comparison were entered as continuous data and analyzed using a chi-square analysis. Changes in SSB intake were entered as categorical data (<1 serving per week or >1 serving per week). Survey and process evaluation items on knowledge and attitudes were analyzed as categorical data as well, with either 2 or 3 response categories depending on the number of the items in the Likert scale. Chi-square tests were used to compare categorical intake data and responses to all Likert scale questions.

Pre and post questionnaires from the pilot study (Phase 1) were analyzed separately from the pre and post questionnaires from Phase 2 due to the differences in delivery methods. Pre/post changes in intake, knowledge, and attitudes were compared between the pilot phase and Phase 2 to analyze any differences in results. The most attention was spent on comparing changes in knowledge, attitudes, and behaviors between Phase 1 and Phase 2 groups, as changes in intake will not be significant due to the small sample. The specific items on the pre- and post- surveys that were analyzed for this study are as follows: Item #9 on the survey provides insight into what changes in shopping and meal planning behavior were made; Item #17 was analyzed for changes in healthy eating attitudes; Items #18-#21 were assessed for changes in nutrition knowledge.
4.2 Process Evaluation (Quantitative Data)

Participants were asked to complete a brief process evaluation at the conclusion of each of the six sessions. Each process evaluation has nine items, plus a space provided for additional comments. Items 1, 2, and 5-9 are the same for each session (See Appendix B.3). Items 3 and 4 are statements that are specific to the content covered in each particular session.

Process evaluation data from each class session was labeled with their appropriate anonymous identifiers, and all data was entered into Excel. Each item of the process evaluation was answered with a 5-point Likert Scale ranging from 1=Strongly Agree to 5=Strongly Disagree, and these were coded into Excel similar to the pre and post questionnaires.

As previously mentioned, statements 3 and 4 of each process evaluation ask about participants’ intentions to change behavior based on the specific content of that particular session. These questions were analyzed to determine if the goals of the session were met, and if participants are planning to apply what they’ve learned to their daily lives. For example, the first goal of Session 1 (see Session Scripts in Appendix A) is “Learn how to create a balanced meal using MyPlate”. The corresponding evaluating statement (statement #3) on the process evaluation is “I plan to use MyPlate tool to create balanced meals.” If a majority (≥50%) of participants Agree or Strongly Agree with this statement, this would suggest that the first goal of Session 1 was met.
Another outcome of interest is whether or not participants’ intentions to change behavior are influenced by the session material. Statement #5 of each process evaluation is “I plan to change my eating habits based on the information I learned today,” and the responses to this statement provided insight into whether a particular session positively influenced a participants’ intentions to change.

4.3 Process Evaluations (Qualitative Data)

Responses to questions eight and nine on the process evaluations (“Please tell us which materials were most useful,” and “If this session were to be repeated, what should be left out or changed?”) were entered into Excel verbatim. Due to the small sample size, coding, identification, and analysis of recurring themes was done by hand in Excel.

4.4 Observational Data

Written shorthand notes were expanded upon within 48 hours of each session to include additional comments on the overall quality of the session (Atheide 1996). Themes were identified by inductively analyzing field notes (Berg 2001). In “Qualitative Research Methods for the Social Sciences,” Berg identifies major messages that can be used in content analysis, which include words, themes, characters, and concepts (Berg 2001). Based on the context that the field notes were taken (i.e. the observer was also the facilitator, so notes included few direct quotes from participants), analyzing field notes relied mostly on labeling themes, which is a more useful unit to count (Berg 2001). The themes that the notes were sorted by are as follows: 1) Participant characteristics;
2) Peer interactions; 3) Participant-Facilitator interactions; 4) Presentation methods and strategies; and 5) Classroom environment. The themes that emerged from
CHAPTER 5
RESULTS

5.1 Phase 1

Phase 1 of The MENU Program ran weekly from December 12th 2013 to January 30th 2014, with two rescheduled sessions due to holidays and inclement weather. A total of 15 participants completed the pre-intervention survey; 11 of whom completed the post-intervention survey as well. All participants in Phase 1 were female Springfield residents over the age of 65 years as reported by Mason Square Health Task Force (MSHTF) staff, and were members of the Dunbar YMCA Chair Aerobics fitness class. No additional demographic data were collected due to MSHTF concerns about the participants’ potential discomfort disclosing personal information.

5.1.1 Phase 1 Quantitative Results

5.1.1.1 Self-Reported Fruit, Vegetable, and Sugar Sweetened Beverage (SSB) Consumption

Table 2 shows changes in mean fruit and vegetable intake pre- and post-intervention. Changes in percent consumption of fresh and frozen fruits and vegetables are also shown. At pre-intervention, the overall average intake of fruit was 1.8 servings (range: 0-3 servings), and at post-intervention it was 1.7 servings (range: 1-4 servings). The mean change in fruit intake was -0.1 servings, but this change was not significant (p=0.26). Overall intake of vegetables was 1.33 servings (range: 1-2 servings) and 1.78
servings (range: 1-3 servings) at pre- and post-intervention, respectively. This change of 0.45 servings was significant (p=0.009).

Participants’ consumption of sugar-sweetened beverage intake was categorized into < 1 per week or > 1 per week. There was no change in consumption of SSBs; at both pre-intervention, 82% consumed SSBs ≤ 1 per week and 18% consumed SSBs > 1 per week.

5.1.1.2 Shopping and Meal Planning Behaviors

Changes in shopping and meal planning behaviors are shown in Table 3. Participants increased their frequency of “Always” or “Usually” reading nutrition labels from 54% to 72% from pre- to post-intervention, respectively (p=0.38). There was no change in the frequency of “shopping with a grocery list” from pre- to post-intervention (both remained at 45%). Meal planning behavior increased, with 36% reporting “Always” or “Usually” planning meals ahead of time at post-intervention compared to 27% at baseline; however, this change was not significant (p=0.65).

5.1.1.3 Changes in Healthy Eating Attitudes

Slight improvements were seen in two of the four healthy eating attitudes (see Table 4). At pre-intervention, 91% “Agreed” or “Strongly Agreed” with the statement: “Eating healthy is very important to me,” while at post-intervention this increased to 100% of participants (p=0.31). Percentage of “Agree” or “Strongly Agree” responses to “Healthy food tastes good to me” increased from 82% to 91% from pre to post intervention (p=0.53).
5.1.1.4 Changes in Nutrition Knowledge

Knowledge of dietary recommendations did not change significantly (see Table 5). At pre-intervention, the mean response to “How many servings of fruits and vegetables should a person eat each day?” was 3.44 servings (range 2-5); at post-intervention, the average response was 3.7 servings (range 2-6). At both pre- and post-intervention, participants correctly identified an average of 6 out 7 examples of lean protein. Participants also responded correctly to 2 out of 3 options for “What are good ways to make a recipe lower in fat?” at both pre and post-intervention.

Responses to the question “Have you ever heard of MyPlate/MyPyramid?” improved from baseline to post-intervention. At pre-test, half the respondents (50%) responded “Yes”, and half said “No.” The percent of “Yes” responses increased to 64% at post intervention.

5.1.1.5 Attendance

There were 11 participants who completed both the pre- and post-intervention survey. Five completed the baseline survey at session 1, six completed the baseline survey at either session 2 (one person), 3 (three people), or 4 (two people). Those who attended session 1 had an overall higher rate of attendance (average of 4.8 sessions) as compared to those who did not attend session 1 (average of 2.8 sessions). The average attendance of all 11 participants was 3.73 sessions. Everyone attended at least two sessions, and only one person attended all six sessions. The session with the highest rate of attendance was Session 6: “Food Access and Food Justice” (11 participants), followed by Session 4: “Eating Out, It Happens!”(8 participants) and Session 3:
“Stretching Your Budget, Saving your Peace of Mind” (7 participants). No participants came late or left early during any of the sessions.

5.1.1.6 Perceived Amount of Useful Information

Perceived usefulness of information was determined using items #1 and #7 on each evaluation. All participants found each of the six sessions to be useful; 100% “Strongly Agreed” or “Agreed” to the following two statements: “This session covered useful information” and “Overall, I found the session to be very informative” (Table 5). Session 5: “Diet and Disease” had the greatest number of participants who “Strongly Agreed” with both statements (100% and 100%). Session 6: “Food Justice” had the fewest number of participants who “Strongly Agreed” with the statements (70% and 89%).

5.1.1.7 Behavior Change Intent

Process evaluation questions #3-#4 were tailored to reflect participants’ intentions to change behavior based on each individual session (see Table 7) and were asked at the end of each session. Statement #5 was the same across sessions: “I plan to change my eating habits based on the information I learned today.” For sessions 1, 2, and 5, all respondents “Strongly Agreed” or “Agreed” with all questions #3-#6, and Sessions 3 and 6 were the only sessions to receive any “Neutral” responses.

Table 8 presents answers to the post-intervention survey questions “How many sessions did you attend?” and “Have you made any changes in what you eat, where you shop, or how you cook; if yes, please list some of the changes.” Almost all respondents (91%) said they had made changes in their nutrition-related behaviors, and all but two
(82%) provided a list of specific changes they had made. Four respondents reported they had increased their fruit and vegetable consumption. Two participants said they had made positive changes in the portions they ate, and three stated they increased their use or understanding of the nutrition facts labels.

5.1.2 Phase 1 Qualitative Results

5.1.2.1 Process Evaluation Comments

Responses to item #8: “Please tell us which materials you found most useful” are presented in Table 9. Participants mentioned the usefulness of handouts and other visual aids for every session. The usefulness of group discussions was a frequent comment, as described by one participant who said: “Conversation. It motivated me to do the things I should be doing.”

5.1.2.2 Facilitator Observations

Observational notes were taken by the graduate student facilitator (HS) in shorthand during and after each of the six sessions. Notes were organized into one of five themes that emerged as notes were reviewed: 1) classroom environment; 2) participant characteristics; 3) peer interactions; 4) participant-facilitator interactions; and 5) presentation methods and strategies. Results of each of these are presented below.
1. Classroom Environment

All six sessions were held in the same conference room at the Dunbar YMCA in Springfield, MA. Participants sat at rectangular tables, and everyone sat facing in at each other. The co-facilitators (HS and TMF) stood or sat near the projector and laptop to control the PowerPoint slides.

In general, MENU Program sessions were held immediately following the Chair Aerobics class. All MENU Program participants were members of both groups. They often came into the room with high energy and seemed to be in good spirits after exercising.

2. Participant Characteristics

Since no demographic data were collected, descriptive characteristics can only be gathered from observations. Participants in The MENU Program were all female. All of the women were over the age of 65 and either African American or Hispanic, based on facilitator observations and verbal confirmation from MSHTF leaders.

3. Peer Interactions

All participants knew each other outside of The MENU Program, so conversation within the group happened frequently. Encouragement to try new things occurred between participants occasionally, such as when new food was presented for lunch or given as samples. Participants also shared their knowledge and personal experiences with other group members. For example, when discussing recipe modifications, many of the women had low-fat cooking tips they currently used or had heard from other
peers outside of the group. One of the women also shared her experience with cutting back on sugary beverages, and encouraged the other group participants to try things like flavored water.

4. Participant-facilitator Interactions

Occasionally the group would get side-tracked on a topic that was unrelated to the session material. This happened at least once per session, and often took the group off track for 10-15 minutes; however, conversation was always food- or nutrition-related. One week, participants discussed at length the topic of juicing; another week a long sidebar occurred on the topic of quinoa. The graduate co-facilitator (HS) sometimes had difficulty redirecting the conversation due to the strong personalities of the women and their enthusiasm for the topic.

5. Presentation Methods and Strategies

Each session started with an icebreaker question to get the group comfortable and engaged in conversation. The icebreakers for each session were as follows:

- Session 1: *Share your name and one food memory from childhood. Why does this memory stick with you?*
- Session 2: *Who do you want to stay healthy for?*
- Session 3: *What are some of the barriers that your household faces in planning meals ahead of time?*
• Session 4: What are some of your favorite places to eat out, and what do you usually order?

• Session 5: Picture yourself healthy. What does this look like? Who and what do you want to stay healthy for?

• Session 6: How did your parents and grandparents eat? What is different about the way you eat and why?

This was the most interactive part of each session, as participants took their time answering the question thoughtfully and sharing stories. The icebreaker activities that generated the most group interactions occurred at sessions 1, 2, and 6.

The icebreaker question for the first session generated many anecdotes, including emotional memories associated with food. For instance, one participant described a difficult period in her childhood when food was scarce, followed by periods of overeating when food was available. Another participant shared a pleasant memory of making a marble cake with her mother when she was a child. One person laughed when she explained that her ritual of eating dessert before dinner was passed down from her dad, who would never eat his meal until he had dessert.

In response to the icebreaker for the second session, almost everyone in the group said “family” (or children, grandchildren). Most participants also said “for myself.” One participant said she wanted to be healthy so she could see her grandson graduate high school.

The icebreaker for the last session generated a long discussion about the changing food environment. One participant had grown up on a farm in the southern
U.S., and described eating an abundance of fresh vegetables because of the availability. The group discussed how processed foods are so much more available, and how the prices of vegetables often prevented them from buying them at the grocery store.

5.2 Phase 2

Phase 2 of The MENU Program ran from June through August 2014, and was held at the Dunbar YMCA. Sessions were held every 2 to 3 weeks and were being offered as part of the Task Force Fit program, a health and fitness campaign running from May through August of 2014 created to support the development of healthier community in Springfield. A total of 6 participants completed both the pre- and post-intervention surveys. A majority of the Phase 2 group represented in the survey data were female (5 out of 6). The majority of the participants were African American, with only 1 out of 6 participants being Caucasian. All participants were taking part in the Task Force Fit campaign and were committed to attending fitness events, weigh-ins, and other community sponsored health and wellness activities.

5.2.1 Phase 2 Quantitative Results

5.2.1.1 Self-Reported Fruits, Vegetables, and Sugar Sweetened Beverage Intake

Table 10 shows changes in mean fruit and vegetable intake from pre- to post-intervention. At pre-intervention, participants reported that they consumed an average of 1.7 servings of fruit (range: 0-3 servings) and 2.25 (range: 1-3 servings) of vegetables...
per day. At post-intervention, participants reported consuming 2.7 servings of fruit (range: 1-4 servings) and 2.9 servings of vegetables (range: 2-4 servings). Change in fruit intake (p=0.04) was significant, while change in vegetable intake (p=0.07) was not.

Sugar-sweetened beverage intake among Phase 2 participants did not change. At pre- and post-intervention, 50% consumed SSBs ≤ 1 per week and 50% reported consuming SSBs > 1 per week.

5.2.1.2. Shopping and Meal Planning Behaviors

Changes in shopping and meal planning behaviors are shown in Table 11. Participants increased their frequency of “Always” or “Usually” reading nutrition labels from 84% at pre-intervention to 100% at the end of the intervention (p=0.30). There was a small negative change in the behavior of “shopping with a grocery list” from pre-to post-intervention: frequency of “Always” or “Usually” using a grocery list was 84% at pre-intervention and 66% at post-intervention (p=0.50). Meal planning behavior increased, with two-thirds (66%) of participants reporting “Always” or “Usually” planning meals ahead of time at post-intervention, compared to 17% at baseline (p=0.07). This finding may have reached significance had the sample size been larger.

5.2.1.3 Changes in Healthy Eating Attitudes

Attitudes toward healthy eating (see Table 12) remained the same or improved from pre- to post-intervention. All (100%) of participants “Strongly Agreed” or “Agreed” with the statement “Eating healthy is very important to me.” A majority (83%) “Strongly Agreed” or “Agreed” with the statement “Healthy foods taste good” at pre-
intervention, which increased to 100% at post intervention. At both pre- and post-intervention, 66% responded that they “Disagreed” or “Strongly Disagreed” with the statement “I get confused over what’s supposed to be healthy and what isn’t.” Positive changes were seen in response to the statement “I am eating more healthy foods than I have in the past” with most participants (83%), “Strongly Agreeing” with this statement at post-intervention, as compared to only 1 (17%) who “Strongly Agreed” at pre-intervention.

5.2.1.4 Changes in Nutrition Knowledge

Changes in nutrition knowledge for Phase 2 are presented in Table 13. At baseline, the mean response to “How many servings of fruits and vegetables should a person eat each day?” was 4.5 servings (range 3-6), as compared to 5.5 servings (range 3.5-8) at post-intervention. However, only four participants answered this question at pre-intervention and three at post-intervention. At both times, most participants (83%) correctly identified an average of 6 out 7 examples of lean protein. All participants responded correctly to all three options for “What are good ways to make a recipe lower in fat?” and all responded “Yes” to “Have you ever heard of MyPlate/MyPyramid?”

5.2.1.5 Perceived Amount of Useful Information

All participants found the six sessions useful. All “Strongly Agreed” or “Agreed” with the two statements: “This session covered useful information” and “Overall, I found the session to be very informative” on each of the six process evaluation (Table
13). Session 2: “Enjoying Healthy Food That Taste’s Great” had the greatest number of participants (87%) who “Strongly Agreed” with both statements. Copies of process evaluations for session 6 were not made, so data for the two participants in attendance were not gathered for this session.

5.2.1.6 Self-Reported Behavior Change

Table 14 presents answers to the Phase 2 post-intervention survey questions “How many sessions did you attend?” and “Have you made any changes in what you eat, where you shop, or how you cook? If yes, please list some of the changes.” All participants reported making changes to their nutrition-related behaviors, and all provided a list of some of the changes they had made. Half (50%) stated they were buying and eating more fruits and/or vegetables; two said they had made changes to how frequently they plan meals, and one respondent stated that she used and understood nutrition facts labels more.

5.2.2 Phase 2 Qualitative Results

5.2.2.1 Process Evaluation Comments

Responses to item #8 on the process evaluations for Phase 2- “Please tell us which materials you found most useful”- are presented in Table 16. More people in Phase 2 than in Phase 1 responded “Everything” or “All of it,” and there were more nonresponses for this item in Phase 2. For session 1, of the participants who answered this item, everyone either said “Portions,” “MyPlate” or “Nutrition facts label” were the
most useful materials. For session 2, many participants responded “MyPlate” or “Portions” again, as this material was reviewed at the beginning of the session. 2 of the 4 responses for session 4 mentioned that the handouts were the most useful materials. For session 4 and 5, only two people were in attendance, one of whom gave a comment (Table 15), and for session 6, process evaluations were not prepared to be handed out as previously mentioned.

5.2.2.2 Facilitator Observations

Observational notes were taken by the graduate student facilitator (HS) in shorthand during and after each of the six sessions. Notes were organized into one of five themes, which were determined during Phase 1 and used during Phase 2 for continuity: 1) classroom environment; 2) participant characteristics; 3) peer interactions; 4) participant-facilitator interactions; and 5) presentation methods and strategies.

1. Classroom Environment

Each session was held at the Dunbar YMCA in a classroom typically used for child and teen art activities. Participants sat at round tables facing the projector screen, which was at the front of the room.

2. Participant Characteristics

Most (80%) were female; one male participant attended all six sessions, and two other males came to one session; these two males are not represented in the survey
data because they did not complete both pre- and post-surveys. The majority of the participants were African American, with only one regular attendee being a White female. All individuals were over the age of 30, but none were older than 80 based on verbal confirmation from MSHTF staff.

3. Peer Interactions

A common topic of group conversations was participants’ families and children. Individuals discussed family meals and snack ideas with each other, offering tips to other participants who also had children. Another common interaction between peers was discussing the difficulties around eating healthy at work; at least 2 regular participants worked the night-shift at their place of employment, and sympathized with each other about the problem of maintaining healthy eating habits at night.

4. Participant-Facilitator Interactions

There were fewer participant-facilitator interactions among Phase 2 participants as compared to Phase 1. The Phase 2 group was interested in group discussions with their peers, and often told stories and offered tips from personal experience to their fellow group members. The facilitators led the groups through the presentation and the activities, but on one occasion the necessary handouts for the activity weren’t prepared, so the facilitators resorted to generating group discussion.
5. Presentation Methods and Strategies

The same Powerpoint presentations that were used in Phase 1 were used in Phase 2 with no changes. Presentations averaged 30 slides each, and typically took the whole hour to go through. Slides were made to go along with the facilitator scripts that were created by the MSHTF staff to prompt group discussion. For Phase 2, the co-facilitators opted to use more facilitated group discussion than lecturing as the presentation method which will be examined in this report’s discussion. The handouts and activities for Phase 2 were the same as Phase 1 except for those used at session 2; the MSHTF co-facilitator (TMF) added an additional activity sheet to this session due to her personal preference.

5.3 Phase 1 vs. Phase 2

There were differences between the delivery, setting, and participant characteristics for Phase 1 and Phase 2. First, Phase 1 was held with a group of women, aged 65 and older. Phase 2 participants were both men and women, and ranged in age from approximately 35-70 years. Phase 1 was held during six consecutive weeks in the winter, while Phase 2 was held every 2 or 3 weeks in the summer. Phase 1 was held every week at 11:00 AM in a quiet area of the Dunbar YMCA after the group participated in a chair aerobics class, and Phase 2 was held at 6:00 PM on the first floor of the YMCA near the gymnasium, which often had concurrent evening activities.

Changes to Session 1: Nutrition 101 were made between Phase 1 and Phase 2. A large amount of advanced material (explanations of dietary cholesterol, vitamins,
minerals, fiber, etc.) was removed from the session script. This material was too in-depth for an introductory lesson, and both facilitators agreed that the covering material like MyPlate, food groups, portion sizes, and nutrition labels was a higher priority.

5.3.1 Changes in dietary intake: Phase 1 vs. Phase 2

In both Phase 1 and Phase 2, intake of vegetables improved from pre- to post-intervention (Phase 1: 0.45 servings, p=0.009; Phase 2: 0.6 servings, p=0.07). In Phase 1, fruit intake decreased non-significantly (-0.1 servings, p=0.26), and fruit intake in Phase 2 increased from 1.4 servings to 2.6 servings. While this Phase 2 change was not significant (p=0.04), it was likely due to the small sample size (n=6). In both Phase 1 and Phase 2, SSB intake did not change from pre- to post-intervention.

5.3.2 Changes in Nutrition-related Behaviors; Phase 1 vs. Phase 2

There were positive changes in nutrition-related behaviors in both Phase 1 and Phase 2. In Phase 1, the most improved behavior change was the frequency of nutrition-label use (p=0.38) and in Phase 2 the most improved behavior change was the frequency of planning meals ahead of time (p=0.07). The behavior “shopping with a grocery list” did not change in Phase 1, but did improve among Phase 2 participants (p=0.5).

5.3.3 Changes in Healthy Eating Attitudes; Phase 1 vs. Phase 2

Attitudes toward healthy eating were slightly different among participants in Phase 1 as compared to Phase 2. All of Phase 2 participants reported that healthy eating was very important to them at both pre- and post-intervention, while only 91% of Phase 1 participants said the same at pre-intervention (this did increase to 100% by
post-intervention). All participants of both Phases improved their attitude toward the
taste of healthy food (Phase 1, p=0.53; Phase 2, p=0.30). The most notable difference
between attitude changes among Phase 1 and Phase 2 is that participant responses to “I
am eating more healthy foods than I have in the past” improved in Phase 2 (p=0.30),
while they dropped slightly in Phase 1 (p=0.61).

5.3.4 Changes in Nutrition Knowledge: Phase 1 vs. Phase 2

Phase 2 participants had a better understanding of nutrition recommendations
and guidelines at pre-intervention than Phase 1 participants. In Phase 2, the average
response to “How many servings of fruits and vegetables should a person eat each
day?” was 4.5 servings, while in Phase 1 the average response was 3.4 servings. Both
groups improved their knowledge of fruit and vegetable intake recommendations from
pre- to post-intervention, with the knowledge of Phase 2 participants improving slightly
more (Phase 1, 3.7 servings; Phase 2, 5.5 servings). In Phase 2, 100% of participants had
heard of MyPlate or MyPyramid at pre-intervention, while only 50% of Phase 1
participants had.

5.3.5 Perceived Usefulness and Self-Reported Behavior Change; Phase 1 vs. Phase 2

In both Phase 1 and Phase 2, participants commented that the handouts were
among the most useful materials used in the program (see Table 9 and 16). Similarities
between participant-identified useful topics include: food and meal substitutions,
MyPlate, portion sizes, nutrition facts label, and meal planning.

Almost all of those in Phase 1 and 2 reported behavior change, with only 2 of the
11 Phase 1 participants not replying to the question “Have you made any change in
what you eat, where you shop, or how you cook? If yes, please list some of the changes.” (Table 8) The most common self-reported change in Phase 1 had to do with changing the amount they consume of specific foods or nutrients (Salt, sugar, fat, carbohydrates, grains, fiber). The most common self-reported changes in Phase 2 had to do with more broad purchasing or planning behaviors; 4 out of 6 participants made changes to what they buy or how frequently they plan meals (Table 15).
CHAPTER 6

DISCUSSION

The purpose of this study was to evaluate the effectiveness of *The MENU Program*, a 6-week nutrition education series delivered in two different phases (Phase 1 and Phase 2) to Springfield, MA community members. The outcomes of interest for this study were: 1) changes in nutrition-related knowledge, attitudes, and behaviors (KAB); 2) differences in KAB changes between Phases; 3) perceived usefulness of the curriculum; and 4) intentions for behavior change. Findings from this study suggest that a classroom-based nutrition workshop series delivered to the Springfield community can influence nutrition-related knowledge, attitudes, and behaviors.

Change in diet quality, as indicated by changes in fruit, vegetable, and sugar-sweetened beverage (SSB) intake, were seen in both Phase 1 and Phase 2, which is consistent with previous educational intervention studies. For example, in a recent 2015 study by Auld and colleagues, the EFNEP Eating Smart Being Active program in five states was analyzed for its effectiveness at increasing various nutrition-related behaviors including fruit and vegetable intake. Improvements were observed in all five states (significant changes in two of the five states), and overall consumption of fruit and vegetables increased by 0.3 servings. (Auld et al. 2015) The study by Auld et al. differs from the present study in a few areas: it has a much larger sample size (n=7,231), is comprised of 8 instead of 6 lessons, and included data from a larger age range (12-70 years). There were many similarities between the curricula topics; both address nutrition, food purchasing, meal planning, and food preparation. Evaluation tools
between the EFNEP curriculum and *The MENU Program* are similar, as they both utilize the EFNEP 10 item Behavioral Checklist. One final similarity between these two studies is the use of educators that are members of the community in which the program is delivered. In the present study, the MSHTF staff member TMF (also a member of the Mason Square community) was invaluable to the program, as she helped establish a rapport with the participants that otherwise may not have been achieved.

In the present study, changes in other nutrition-related behaviors, including shopping and meal-planning, were observed as well. According to both qualitative and quantitative results, one of the most useful components of *The MENU Program* was nutrition-label reading information and activity. Although non-significant, positive changes occurred in nutrition label reading behavior in both Phase 1 and Phase 2 (Phase 1: p=0.38; Phase 2: p=0.30). Reading and understanding nutrition labels has been shown in previous studies to be associated with improved dietary intake. One cross-sectional study among African American adults in North Carolina found that people who were “usual” or “often” label users had higher intakes of fruit and vegetables and lower intakes of fat (p=0.001) (Satia, Galanko, and Neuhouser 2005). Including a label-reading activity in nutrition education curriculum is both well received and effective at influencing the frequency of label use, and could positively affect diet quality.

Qualitative results supported the quantitative findings, as anecdotes from facilitator notes suggested that participants were more frequently using nutrition labels and talking with their families about how to read nutrition labels. One facilitator note
from HS states: “[She] looked at the label for sodium on the bag of tortilla chips [since last session], and told her sister about reading sodium and sugar on the label.”

Participant comments also supported the measurable changes that were observed (see Table 8 and Table 15), with many of the group self-reporting that they were eating more fruits and vegetables and making lower-fat and sodium food substitutions. While significant changes may not have been seen when analyzing the surveys or process evaluations, participants from Phase 1 were especially vocal about how the sessions influenced their shopping, cooking, and eating behaviors. In keeping with the literature, studies that seek to improve nutrition-related behaviors often find that nutrition education can increase specific healthy eating behaviors, such as food buying, meal planning, and meal preparation among low-income adults. (Doeleman 1998, Arnold 2000, Cason 2004).

Small positive changes in nutrition-related attitudes were observed from pre- to post-intervention in both Phase 1 and Phase 2 of this study. This supports data from the literature that nutrition education can positively influence attitudes toward healthy eating. One study by Rustad and Smith found that after receiving nutrition education program, a group of ethnically diverse, low-income women improved their attitudes toward the ability to buy nutritious foods on a budget (Rustad and Smith 2012).

It is difficult to measure changes in nutrition-related knowledge based on the pre- and post-intervention survey results. The questions used to assess knowledge were not comprehensive, and this is discussed further in the limitations. However, the
literature supports the connection between nutrition education and nutrition-related knowledge (Arnold and Sobal 2000). An improvement for the evaluation of *The MENU Program* would be to include a survey of nutrition knowledge that is supported in the literature. Knowledge surveys in the literature include questions that assess awareness of food groups, dietary recommendations (such as recommended servings of fruits and vegetables), and diet-disease relationships. One study by Beydoun and Wang generated a “nutrition knowledge belief score” by asking questions that were cued with “To you personally, it is very important, somewhat important, not too important, or not at all important to:” and included some of the following statements: “a) Choose a diet with plenty of fruits and vegetables, b) Use sugars only in moderation,” and “ c) Eat at least two servings of dairy products daily”, to name a few. (Beydoun and Wang 2008) Another study by Mcleod and colleagues used a nutrition knowledge questionnaire that included diet-disease relationship questions such as: “A diet high in fruits and vegetables and low in salt can help to prevent high blood pressure” and “Dietary fiber can help prevent constipation.” (McLeod et al 2011). Diet-disease relationship questions were not included in the present study, and would have improved the ability of the surveys to assess nutrition-related knowledge.

Perceived usefulness of the session material was evaluated with process evaluations and items on the post-intervention questionnaire. For Phase 1, Session 6: Food Access and Food Justice received the lowest amount of “Strongly Agree” responses to the statements “This session covered useful information” and “Overall, I found the session to be very informative” (Table 6). This may be due to the fact that the session
was solely based on a Powerpoint presentation; there were no additional activities, handouts, or demonstrations to go along with this session. It may have been less useful because it was less engaging, as the other sessions included multiple visual handouts and interactive activities.

Differences in self-reported behavior change were seen between Phase 1 and Phase 2. More participants in Phase 1 mentioned reducing intake specific foods or food components, such as fat, sugar, salt, and carbohydrates, while those in Phase 2 more often reported that they changed food purchasing or meal planning behaviors. One explanation for the specificity of the changes in Phase 1 was that more emphasis was placed on the “foods to reduce” section of Session 1 in the first Phase; this was one component that was removed due to time constrains in Phase 2.

6.1 Teaching Strategies and Environment

One main finding from facilitator observations and written comments was that group discussion seemed to be a more effective method of presenting information than lecturing. As seen in Table 9, multiple participants’ comments on process evaluations that “conversation,” “group discussions,” and “advice [and] suggestions” were some of the things they found most useful. The co-facilitators also observed that participants paid closer attention and were more engaged during discussion rather than the Powerpoint lectures. Facilitated group discussion, where learners share their knowledge and experiences with the group, allows the participants and the facilitator to share control over the lesson, reducing the sense that one person (or the “expert”) has
more power over the learner. (Abusabha, Peacock, and Achterberg 1999) Facilitated discussions are more likely to contribute to meaningful knowledge and behavior change because the group members’ personal concerns and previous experiences are respected (Abusabha, Peacock, and Achterberg 1999).

Certain portions of each MENU Program session, such as the icebreakers, utilized facilitated group discussion. Since the icebreakers occurred at the beginning of each session, they were useful for engaging the participants and encouraging them to comment throughout the session. The icebreakers also connected the participants to one another; often an individuals’ experience could be shared with multiple people, which revealed common goals and values. The icebreakers also prepped the group for each session’s topic; for example, in session 6 the icebreaker asked participants to describe how their parents and grandparents ate generated discussion about the changing food environment. This tied in well to the topic of session 6, which was food access and food justice. The icebreakers that generated the most discussion were those for sessions 1, 2, and 6, and were as follows:

• Session 1: Share your name and one food memory from childhood. Why does this memory stick with you?

• Session 2: Who do you want to stay healthy for?

• Session 6: How did your parents and grandparents eat? What is different about the way you eat and why?
These elicited fond feelings and memories from the participants, and the discussion was strengthened by the emotional response these questions produced.

Using Powerpoint slides to present information was not as effective for Phase 2 as it was for Phase 1. One reason is because of the timing of the sessions. Each session was held at 6pm on a weeknight, and most participants came directly from work. The classroom was also often warm, so turning off the lights to view the Powerpoint slides resulted in the group becoming less focused and quieter. Having a lively discussion often engaged the participants more, and it was observed that participants seemed more interested in the topics if other group members were offering advice from their own experiences. Prompting group discussions became the strategy used more often for this group, as the facilitators learned what was and wasn’t working.

The teaching environment was an important factor in the implementation of The MENU Program. In Phase 1, the co-facilitators were seated alongside of the participants, which made the setting informal. However, for Phase 2, the co-facilitators sat at one table while participants were spread out across 3-4 separate round tables. This format was less conducive for group discussion, as some participants had their backs to other participants, and some individuals chose to sit by themselves at a separate table and were not as engaged. In Phase 2, the sessions were held from June-August and the temperature of the room was also a concern; on multiple occasions the heat and humidity made the room uncomfortable to be in for a long period of time.
This may have made participants in Phase 2 restless or irritable, and could have impacted the effectiveness of the program.

One aspect in need of improvement regarding teaching strategy was keeping the group discussions on track. At least once per session, the group would get side-tracked for up to 10-15 minutes on a topic that was unrelated to the session topic. While interesting, this was time consuming and detracted from the focus of the session. The side conversation was usually nutrition-related, but wasn’t relevant to the topic at hand. This may have contributed to qualitative results showing that Powerpoint slides were a less effective teaching method as on occasion, the presentation was hurried through to make up for lost time.

6.2 Community-University Relationship

The successful collaboration between UMass Amherst and the MSHTF was in large part due to effective communication, mutual respect, and a genuine appreciation for the relationship. This was demonstrated through how the classroom dynamic evolved with both co-facilitators present. The dynamic was positively affected by the MSHTF staff co-facilitator, as her close connection to the Mason Square community and her familiarity with the participants made the group at ease. The MSHTF staff member warmly introduced the graduate student facilitator (HS), allowing HS to easily transition into discussing the research study. The relationship between HS and the group participants was strengthened over the course of the workshop series by listening to the participants’ concerns and answering previous weeks’ questions thoughtfully with
handouts. For example, multiple participants expressed an interest in learning about vitamin and mineral supplements, so HS was able to provide reliable information that would be useful to the women. HS also brought samples of quinoa after participants expressed interest in tasting this whole grain. This prompted group discussions of whole grains and new recipes, as many of the participants were eager to try the new grain in other dishes.

This study design is adapted from a community-based participatory research (CBPR) framework. Unlike traditional interventions, a main tenet of CBRP is to actively involve the community throughout the planning, development, and implementation of a program (Israel et al. 1998). The current study goes even further than just actively engaging the community; the idea for The MENU Program was conceived entirely by the community organization (MSHTF) and was completely developed without the assistance of an academic institute. Few studies to date have evaluated a program in which the researchers had little to no influence in the intervention design, which is what makes The MENU Program and the current study so unique. The program was designed by the community with only the needs of the community in mind. One study by Davison et al. utilized a similar approach when creating a parent and family-centered obesity intervention program in five Head Start centers in upstate New York. (Davison et al. 2013) The researchers adapted the CBPR framework and introduced a parent-centered CBPR approach for childhood obesity prevention, involving the parents at every stage to create a multi-component intervention that lasted six months. At post-intervention, positive changes were seen in child TV-viewing time, daily physical activity, dietary
measures, and significant improvements in parent’s self-efficacy to provide healthy foods. (Davison et al. 2013) This study is one example of how a CBRP framework can be adapted and does not have to form to the specific framework.

CBPR interventions also have the potential to build community capacity and increase the sustainability of the program. The capacity of the MSTHF to address health problems in their community can be improved and sustained through evaluation of THE MENU Program. Intentions from the MSHTF are to continue using The MENU Program throughout the community and to make it available to a larger range of audiences, including teens and adolescents. By improving the services they offer to their community, MSTHF is creating lasting resources that can affect positive change in the community. In this study, capacity building occurred through co-facilitation of the sessions. By working together, both the graduate student researcher (HS) and the community leader (TMP) had the opportunity to build skills and gain knowledge. From the perspective of the student researcher, co-facilitation built capacity because it gave the community leader the chance to simultaneously observe and participate in leading the sessions. The process of being flexible in the curriculum and modifying the sessions according to group characteristics (i.e. relying less on slides with a quiet group) can be carried into the future as the community leader facilitates more sessions.

6.3 Limitations

As with any self-reported data, there is always the possibility of bias resulting from over-reporting changes in behavior, knowledge, or attitudes. (Hebert 1994, Miller
et al 2008) Self-reported fruit, vegetable, and SSB intake at post-intervention could have been influenced by the participants’ desire for social approval; this social desirability bias could have also affected self-reported changes in attitudes. Another limitation to survey results are non-responses, which occurred more frequently in Phase 1 than in Phase 2. These differences in response rates may have been due to the timing of the surveys at each session. In both Phases, non-responses can affect the quality of data results.

Significance of many of the results was affected by the small sample size. While many results trended toward positive improvements in knowledge, attitudes, and behaviors, none were statistically significant. The sample population size in this study was a limitation, as data from the six participants in Phase 1 and 11 participants in Phase 2 was not enough to generate significant results.

Survey results were also affected by session attendance. If a particular person attended five out of six sessions, he/she was exposed to most of the material. However, if the one session they missed contained important information that was addressed in the pre- and post-surveys, this could greatly affect the perceived effectiveness of the entire program. For example, in Phase 1, responses to the question “Have you ever heard of MyPlate/MyPyramid?” improved from baseline to post-intervention. At pre-test, half the respondents (50%) responded “Yes”, and half said “No.” The percent of “Yes” responses increased to 64% at post intervention (seven participants said “Yes” and four said “No”). However, three out of the four people who said “No” at post-
intervention did not attend the first session which discussed MyPlate. This particular survey result is therefore skewed because of these participants.

Occasionally miscommunication between MSHTF and the graduate student facilitator (HS) occurred, which was a limitation for this study. On one occasion (Phase 2, session 6) copies of process evaluations were not made, therefore data are missing for that session. The intention for Phase 2 was to add demographic questions to the pre- and post-surveys, but the wrong surveys were handed at session 1 of Phase 2, so demographic information could not be collected from Phase 2 participants. Electronic communication was mostly used between MSTHF staff and HS, and occasionally emails would get lost or attachments would not work. Implementing a multi-week educational series like *The MENU Program* with a community organization requires a lot of communication and coordination. While each of these limitations is worth noting, examination of the program as a whole reveals that these issues were not particularly consequential in achieving the goal of successfully implementing an effective community nutrition education program.

### 6.4 Implications for Future Research

The curriculum in general was well received by all participants in both Phases of this intervention. Everyone gave positive feedback in verbal and written comments; however, a few changes based on facilitator observations could improve this program for future implementations. One suggested change to the program curriculum would be to narrow the focus of Session 1: Nutrition 101 to include the material that participants
found most useful. This includes nutrition label reading, portion sizes, and the MyPlate food groups. Reducing the amount of content in the first session would allow more time for the pre-intervention evaluation, and a simple and useful first session may be more likely to encourage participant attendance for the remainder of the sessions.

Multiple questions on the pre- and post-intervention surveys would benefit from modification before the program is implemented again. First, the questions that assess nutrition knowledge did not adequately gauge a participant’s general knowledge. The most useful question in that section was “Have you ever heard of MyPlate/MyPyramid?” The knowledge section should include questions that assess topics found in all sessions. For example, suggested additional 5-point Likert scale questions (from Strongly Agree to Strongly Disagree) for this section would be: “Fruits and/or vegetables should cover one half of a dinner plate”; “Nutrition labels have information about calcium, vitamin C, iron, and fiber content”; “Adding spices and herbs to food is one way to add flavor without adding salt”; and “Fruit juice drinks, energy drinks, iced tea, and coffee drinks are all considered sugar-sweetened beverages.” Use of a Likert scale for the questions could have provided a better assessment of baseline and post-intervention nutrition knowledge among participants.

A much larger sample would be needed in future evaluations of this program in order to produce significant results. Another suggestion for future research would be to extend the analysis period to include a follow-up of 3-6 months to evaluate knowledge and behavior change retention.
This study has found that a number of best practices should be included in future implementations of *The MENU Program*. For one, sessions should be more focused around facilitated group discussion, with the Powerpoint used as supplementary and not as the main learning tool. Second, visual handouts and interactive activities should continue to be incorporated into each session, and throughout each session, to keep participants engaged and to increase the effectiveness of the program as a whole. Third, if a meal or snack is provided at each session, foods that are discussed during the program should be incorporated into those meals to connect the learning material to real-life recipes (i.e. bringing in samples of quinoa during Phase 1). And lastly, continuous evaluation will reveal new strengths and areas of improvement, and pre-surveys, post-surveys, and process evaluations will provide useful feedback for the MSHTF.

Evaluation of *The MENU Program* was presented to the Live Well Springfield Leadership Group meeting on June 9th, 2015. The graduate student researcher (HS) provided bullet points of the findings, and the presentation was positively received by the group. The results of the study will also be delivered to the members of the Mason Square Health Task Force, which will hopefully include some of the participants from Phase 1.

**6.5 Conclusion**

Nutrition education programs delivered in a community setting can be effective tools for increasing nutrition-related knowledge, attitudes, and behaviors. (Dollahite
Nutrition education programs can also improve dietary intake, which in low-income communities tends to be lower in fruits and vegetables and higher in sugar-sweetened beverages than in more affluent communities (Darmon 2008).

Utilizing a community-based participatory research framework, UMass Amherst and the Mason Square Health Task Force collaborated to deliver *The MENU Program* two Phases to the community of Mason Square in Springfield, MA with the goal to increase overall health awareness and healthy eating behaviors among residents. The results of this study suggest that a 6-session nutrition education program that centers around group discussion, visual handouts, and hands-on activities delivered in this community can positively influence diet quality, nutrition behaviors, knowledge, and attitudes. This evaluation can inform the future use of *The MENU Program* in the Mason Square community and future partnerships between UMass Amherst and the Springfield community.
SESSION 1: NUTRITION 101

SESSION LENGTH: 120 MINUTES/2 HOURS

SESSION GOAL(S):
1. Learn how to create a balanced meal using MyPlate.
2. Learn to identify the different food groups and what they do for the body.
3. Learn how to read and understand the nutrition facts label.
4. Learn how to calculate BMI using resources available in print and online.
5. Learn how to determine daily caloric intake using resources available in print and online.

FACILITATOR NOTE: Things written in bold are things that you should read aloud. Feel free to make these talking points your own. But attempt to cover the bolded material when you deliver this session.

SESSION OUTLINE:
- Pre-Test
- Introduction
  - Welcome to the MENU program
  - Our Food Philosophy
- Ice Breaker
- Anatomy of your plate—The My Plate approach
  - Activity: Assembling the perfect plate
- The plate’s different food groups, daily servings, and what they do for your body.
  - Vegetables
  - Fruit
  - Grains
  - Protein
  - Dairy
- What we need to make us go
  - Calories
  - Carbohydrates
  - Sodium
  - Fats
  - Cholesterol
Essential Vitamins and Nutrients

Using labels to help us create the perfect plate.
  Label activity

Wrap-Up
  What are some barriers that you face in making the perfect plate?
  What we’ll be doing over the next 5 sessions—6 Strategies for eating well

Materials Needed:

- Nametags—reusable would be best
- Copies of Pre-Tests
- Writing utensils
- Color copies of My Plate
- MyPlate Placemats (if you have them)
- Laminated cut outs of the different food groups and plates
- Samples of different food groups
- Matching game materials—slips of paper with different food components and their descriptions
- Salt and sugar stack up displays (in MSHTF supply closet)
- Slips of paper or items from displays
- Copies of label sheets
  - Use the Nutrition Facts Label to Eat Healthier OR
  - How to Read the Nutrition Facts Panel AND
  - Read it Before You Eat It
- Copies of nutrition label worksheet (from EHL)
- Nutrition labels (enough for each person to have two labels)
- Journal of some kind—something with which they can take notes if they want???

Pre-Test

- Read the consent paragraph aloud, and hand participants paper copies of the consent paragraph. Indicate that these forms should not be signed.
- Hand out copies of the pre-test and writing utensils
- Collect the completed pre-tests, and place them in an envelope marked with the session date.
- When everyone has finished, begin the session.

Introduction

- Welcome to the MENU program
  - Introduce yourself.
- Our Food Philosophy:
  - Food is an inherent part of our culture and who we are as people
  - Our memories of food and connections to food are important parts of our lives
Being healthy isn’t about changing who we are, what we have come from, and what we like to eat. Rather, it’s about connecting to those things and making small changes to:

- Reconnect with cultural food traditions that have long passed
- Add nutritional value to foods we already love
- Explore the bounty of food options available to us and try new things
- Grow a healthier relationship with food

No one is perfect. We all have things about our diets that we would like to change. But we have to be real with ourselves. We can’t change everything all at once. We can’t stop eating or eat in ways that aren’t true to our traditions and tastes. Change is a gradual process and lifelong changes are ones that fit with who we are.

Ice Breaker

- Share your name and one food memory from childhood.
- Why does this memory stick with you?
- **Facilitator Note:** Prepare your own food memory before the session starts.

  Example: Every year for our birthdays, my mother would let us pick our favorite meal and dessert and she would make it for us. My choice was always her meatloaf, mashed potatoes, and corn. For dessert, I always wanted strawberry cake with cream cheese frosting or white cake with mom’s homemade buttercream icing. To this day, I want that meal on my birthday. And I remember my brothers’ favorite meals too. My oldest brother always wanted lasagna and apple or peach cobbler. My middle brother wanted broccoli casserole. Now, my boyfriend is a part of this tradition. He likes oven fried chicken with macaroni and cheese and green beans. Like my brothers and I, he gets excited about the meal.

Anatomy of your plate—The My Plate approach

- How many of you remember the food pyramid?
- Does anyone remember what the food pyramid looks like? What kinds of things where included in the food pyramid?
  - Like you all, I remember the food pyramid. They taught it in school and included on the backs of cereal boxes.
  - What you may not know, is that the food pyramid has been replaced by a different visual aid. It’s now a plate, often called MyPlate.
  - It’s pretty much the same thing. Like the Food Pyramid, the USDA (US Department of Agriculture) created it to help us eat in a balanced way.
  - In some ways, I like the plate better because it helps me to visualize how much of each food group I need when I am filling my own plate at lunch and dinner.
Today, we are going to take a close look at the plate and the foods that make up its different sections.

- Hand out copies of MyPlate (or if they exist, placemats).
- **What do you notice about the plate?**
  - Possible responses may include:
    - There are five sections for different foods
    - Vegetables and grains make up the largest sections of the plate
    - Fruits, protein, and dairy make up the smallest sections of the plate.
- Every five years, the USDA puts out guidelines for diet and exercise that are based on science to encourage Americans to eat healthier foods and do more physical activity.
- Following the guidelines can help to prevent certain chronic health conditions and obesity.
- The two goals of these guidelines and things like MyPlate are:
  - To help Americans balance calories and manage their body weight
  - To encourage Americans to eat foods that are high in nutrients
- It promotes balance and moderation in daily diets but also promotes variety.
- **Activity: Assembling the perfect plate**
  - Divide participants into pairs
  - Hand each pair a cutout of a plate
  - Hand each pair and envelope with cutouts of different foods.
  - Ask them to assemble the perfect plate, encouraging them to create a plate full of foods that they would like to eat.
  - Participants receive cutouts of different foods and have to assemble the perfect plate

**Anatomy of MyPlate: Food Groups, Daily Servings, and What They Do for You**

- **Facilitator Note:** Have a food sample of each food group that participants can taste as you talk about it.
- **Vegetables**
- **What are some of your favorite vegetables?**
- **What are some of the key nutrients in vegetables?**
  - Key nutrients of vegetables include potassium, dietary fiber, folic acid, vitamin A, vitamin C
- **Fruit**
- **What are some of your favorite fruits?**
- **What are some of the key nutrients in fruit?**
  - Fruits are a really important source of fiber in our diets. Many fruits also give us Vitamin C, calcium, and potassium.
• Vegetables and fruits are really, really good for us. That’s why they make up half of the plate. At any given meal, half of the food on your plate should come from these food groups.

• Grains

• What are some of your favorite grains?
• What are some of the key nutrients in grains?
• There are two types of grains. Can you name them?
• Whole grains—these contain the entire grain kernel
  o Examples: whole wheat flour, oatmeal, bulgur, brown rice
  o Look for these ingredients on food labels.
• Refined grains—have been milled, which removes the bran and germ
  o Examples: white bread, white rice, white flour
  o Most of these grains are enriched, which means that the B vitamins and iron they contained are added back in after refining. However, the fiber is not added back.

• Grains, particularly whole grains, contain dietary fiber, B vitamins, iron, magnesium and selenium, and folic acid.

• Protein

• What are some of your favorite foods that contain protein?
• What are some of the key nutrients in protein?
• Protein provides the building blocks for bones, muscles, cartilage, skin, blood, enzymes, hormones and vitamins
• Proteins have amino acids that help in building and preserving body muscle
• Examples of animal-based proteins: meat, poultry, eggs, and dairy products
• Examples of plant-based proteins: beans, peas, seeds, and soy products
• Key nutrients: B vitamins, Iron, Magnesium, Zinc, Omega 3 fatty acids
• What types of proteins are best for us?
• Lean proteins such as chicken and fish
• Plant-based proteins such as beans
• MyPlate and the USDA recommend that we get most of our protein from these lean and plant-based proteins. They suggest having fish at least 2 times a week.
• Most Americans get more than the daily recommended amount of protein.

• Dairy

• What are some of your favorite dairy foods?
• What are some of the key nutrients in dairy?
• All fluid milk products and most foods made from milk are included in this food group
• Soy milks and soy products are also considered part of the dairy group
• Foods that are made from milk but that have little or no calcium are not included in this group. This includes things such as cream cheese, cream, and butter
• These foods contribute nutrients like calcium, vitamin D, and potassium to the diet.
• However, these foods can be high in fat and cholesterol so should be consumed in moderation.

What we need to make us go

○ Many of the food groups that we talked about contain other things, such as calories, carbs, fat and vitamins. We have talked about some of these things already. But because these things sometimes get more focus than the actual foods we eat, I want to spend a few minutes talking about them.

○ Facilitator Note: Consider making this more interactive by creating a matching game out of it. Write each of the things below on separate slips of paper. Then, write information about each item on separate sheets of paper. Hand them out to participants and ask them to find their match. The matched pairs then present their item to the group.

○ Calories
  ▪ What are calories?
  ▪ What do they do for us?
    • At the end of the day, calories are just a way of measuring energy. They tell us how much energy that a food will give us.
    • The total number of calories a person needs each day depends on their age, gender, height, weight, and daily level of physical activity
    • We need calories to do everything that we do, but if we don’t eat healthy foods or exercise enough, we can eat more calories than we need to have enough energy from the day. Eating more calories than you need can lead to undesirable health effects such as weight gain.
  ▪ Where are calories found on the plate?
    • Carbohydrates, protein, fat, and alcohol are the main sources of calories in most of our diets.

○ Fats
  ▪ Why do we need to eat fat? What does it do for us?
    • We need fats to make us go.
    • Fats help in the absorption of fat-soluble vitamins such as Vitamins A, D, E, and K.
  ▪ There are five types of fats. Can you name some of them?
    • Saturated fat
      ○ Examples: milk, meat, coconut oils, hydrogenated shortening
      ○ Solid at room temperature
      ○ Raises blood cholesterol more than other forms of fat.
    • Unsaturated fat
      ○ Liquid at room temperature
- Monounsaturated fats
  - Examples: canola oil and olive oil

- Polyunsaturated fat
  - Two Types
  - Omega 3
  - Omega 6

- Trans fat
  - These are not essential in the diet and we should consume as little of them as possible.

The different types of fat a person consumes is way more important in influencing a person’s risk of heart disease than the total amount of fat a person consumes.

Consuming monosaturated and unsaturated fats helps to reduce the risk of heart disease while consuming saturated, polysaturated and trans fats increases a person’s risk of heart disease.

Only 20%-35% of daily calories should come from fat

- Cholesterol
  - What is cholesterol?
    - A fat-like substance found only in animal products (meats, egg yolks, milk products such as butter and cheese)
    - The body uses cholesterol for biological and structural functions
    - It is recommended that people eat less than 300mg per day of cholesterol
    - There are good and bad types of cholesterol.
    - Three types (optional content)
      - Low-density lipoprotein or LDL—known as bad cholesterol because it is a key contributor to heart disease
      - High-density lipoprotein or HDL—known as good cholesterol because it protects against heart disease
      - Very low-density lipoprotein or VLDL—this is a type of bad cholesterol

- Carbohydrates
  - What are carbohydrates?
  - What do they do for us?
    - Carbs are part of a large group of sugars, starches, cellulose and gums that are similar because they contain carbon, hydrogen and oxygen in similar proportions. Your body uses carbohydrates by converting them into glucose, a simple sugar, for energy.
    - Carbs give us energy
• The body needs them to use fat efficiently, so you don’t want to cut them out entirely
• However, carbs are the primary source of calories for most Americans and so we have to consume them in moderation and work to eat those types of carbs that offer the most benefits to our bodies.
• Kinds of Carbs:
  o Simple sugars—glucose, fructose, galactose
  o Double sugars—maltose, sucrose, lactose

  ▪ Where are carbs found on the plate
  ▪ Starches such as grains, potatoes, and starchy vegetables
  ▪ Also from consuming too much added sugar and refined grains and not enough fiber.

  o Sodium
    ▪ What does consuming sodium or salt do for us?
    ▪ Salt helps maintain the fluid in our blood cells and is used to transmit information in our nerves and muscles. It is also used in the uptake of certain nutrients from our small intestines. The body cannot make salt and so we are reliant on food to ensure that we get the required intake.
    ▪ We need this only in small quantities.
    ▪ However, consuming large amounts of sodium can cause or contribute to high blood pressure.
    ▪ Where is sodium found on the plate?
      • Most of the extra sodium Americans get comes from the added salt contained in processed foods.
      • This is why reading labels, which we will talk about later, is so important.

  o Essential Nutrients:
    o Facilitator Note: Time permitting, cover this material. Consider doing it as a matching game, as suggested above.
      ▪ Potassium:
        ▪ Lowers blood pressure by lessening the effects of sodium on blood pressure
        ▪ Also helps with joint pain (find a source for this)
        ▪ Found in: fruits, vegetables, milk, and milk products
      ▪ Dietary Fiber:
        ▪ Non-digestible carbohydrates
        ▪ Flushes out the body and helps us go to the bathroom (have healthy bowel function)
        ▪ Two types of fiber:
          o Soluble—slows down the digestion of food in your stomach, which helps you to feel full. Can help to
lower cholesterol levels by interfering with the way your body absorbs it. Sources: apples, oranges, pears, strawberries, beans, dried peas, blueberries, cucumbers, celery, carrots

- Insoluble—Aids in regular bowel movements because it adds bulk to the diet and speeds up the passage of food through the intestines and stomach. Sources: zucchini, celery, broccoli, cabbage, onions, tomatoes, carrots, cucumbers, green beans, dark leafy vegetables, raisins, grapes, fruit, root vegetable skins

- Consuming a high-fiber diet can reduce the risk of cardiovascular disease, obesity, and Type 2 diabetes
- Women should consume at least 25 grams of fiber per day
- Men should consume at least 38 grams of fiber per day
- Look for the following as primary ingredients on the food label: brown rice, buckwheat, bulgur, millet, oatmeal, quinoa, rolled oats, whole grain barley, whole grain corn, whole grain sorghum, whole oats, whole rye, and wild rice

- Calcium—Helps promote strong bones and teeth. Dairy products are excellent sources of calcium.
- Vitamin D—Can help reduce the risk of bone factors. Also contained in sun
- Vitamin A—Keeps eyes and skin healthy. Helps protect against infections.
  - Examples: carrots, greens, pumpkin, sweet potatoes
- Vitamin C—Helps heal cuts and wounds. Keeps teeth and gums healthy. Aids in iron absorption
  - Examples: green peppers, broccoli, potatoes, and cabbage
- Folate/Folic Acid—Helps the body make red blood cells, which help prevent anemia. The lack of folate can cause miscarriages and some kinds of birth defects
  - Sources: dark green leafy vegetables
- B Vitamins—Helps the body release energy. Aids in the formation of red blood cells. Help build tissues. Help the nervous system to function.
- Iron—Used to carry oxygen in the blood
- Zinc—Helps the immune system function properly

**Optional Activity: Sugar and Salt in Foods**
- Bring the two displays about how sodium and sugar can stack up.
- Write the items on the displays on pieces of paper OR bring the food items mentioned in.
- Divide participants into two teams and have them race to line up foods from the least to greatest amounts of sodium that they think they contain.
• When they are done, share the displays with the correct information.
• Count the number of correct responses and give the winning team a prize.
• Sometimes the amount of salt and sugar in foods can sneak up on you. Often, if we eat a lot of processed or pre-made foods, we end up consuming a lot of additional salt and sugar.

Using labels to help us create the perfect plate:
• In the early 1990s, the USDA required that all packaged foods contain nutrition labels and that these labels have the same format.
• These labels give important nutrition information that can help you to better plan your diet.
• What are some of the things you have seen on nutrition labels?
  o You’ll find a lot of information on the nutrition label, including:
    ▪ Serving Size
    ▪ Amount of Calories in one serving
    ▪ Amount of Fat/ Total Fat in one serving
    ▪ Amount of Cholesterol in one serving
    ▪ Amount of Sodium in one serving
    ▪ Amount of Carbohydrates in one serving
    • Dietary Fiber
    • Sugars
    ▪ Amount of Protein in one serving
    ▪ Amount of Vitamins/Essential Nutrients in one serving
• Sometimes they write serving sizes that don’t reflect a normal portion. In my experience, this is especially true of fattier foods such as cookies or buttery popcorn.
• The larger the serving size you consume, the more of each of these things you will consume.
• Label reading activity
  o Objective: Compare the nutrition labels of two similar foods to assess if they are high or low fat
  o Distribute nutrition label handout.
  o Gather labels from a variety of food products (higher and lower fat food products).
  o Arrange the labels in pairs of similar products (ex. Frozen yogurt vs. ice cream).
  o Break participants into pairs. One person in the pair gets the higher fat item and the other person gets the lower fat item.
  o Give each pair a nutrition label worksheet.
  o Participants read the labels with their partner and use them to fill out the worksheet.
  o When participants finished, ask them:
    ▪ What did you discover?
Did the two items have the same serving size?
How did the serving size listed on the label compare to what you would actually eat?
Would you eat any of the foods you looked at?
What food label information was difficult to understand?

Label-reading can be helpful in a number of ways:
- It can help you consume more moderate portions of foods
- It can give you an awareness of the nutritional value (or lack of value) of foods
- It can help you to food budget by eating lighter foods or less servings for several meals before and after a meal in which you splurge and by planning additional physical activity to cancel out the calories and fats you consumed that day.
- Another section of the label that I find helpful is the ingredients list. This section lists the ingredients in order of the quantity used. I use this information to help me plan. If the first ingredient is sugar, I usually don’t buy it.

Wrap-Up
- At the end of the day, I think that we mostly know what things we need to do to eat better. These include things like
  - Eating more fruits and vegetables
  - Eating more fiber and whole grains
  - Eating less salt
  - Eating less sugar
  - Exercising more
- But sometimes, with everything that goes on in our lives, it is hard to make these changes.
- What are some of the barriers that you face in making the perfect plate?
  - Write them down and save them for next week
- We are going to spend the next 4 sessions exploring these barriers and finding solutions to them.
  - Next time, we will talk about modifying recipes and substituting certain ingredients to make healthier meals.
  - After that, we’ll talk about how to be a better kitchen manager through time and money-saving things like meal planning.
  - We’ll talk about eating out and how to prepare for social eating so that we don’t feel guilty when we splurge.
  - We’ll close out the MENU program by setting some goals and talking about how the things we have talked about fit into a larger context of food justice.
- Date, time, and location of next session
Extra Content:

- **BMI—What is your healthy weight?**
  - BMI is a measure of your weight compared to your height (EHBA)
  - Calculating your BMI can be difficult for folks who are extremely muscular, very tall, or very short.
  - But overall, BMI is a good indication of healthy weight for the majority of the population.
  - BMI does not measure body fat. However, it is similar to body fat levels. For that reason, it can give you a good idea of your weight status.
  - Why care about BMI and your weight status? Folks who are overweight or obese are at increased risk for chronic health conditions such as heart disease, high blood pressure, high cholesterol, Type 2 Diabetes, and some types of cancer.
  - Activity: Use a BMI chart to determine healthy weight.

- **Determining your daily caloric intake:**
  - There are general recommendations about the daily recommended number of calories for men and women of different age groups
  - However, individuals may need more or fewer calories to maintain a healthy weight depending on how active they are. Really active folks tend to need more calories while inactive folks need less calories to maintain a healthy weight.
  - Activity: Determine your daily needed number of calories.

- **USDA Consumer Messages:**
  - Build a Healthy Plate
    - Make half of your plate fruits and vegetables
    - Switch to skim or 1% milk
    - Make at least half of your grains whole
    - Vary the types of proteins you eat
  - Cut back on foods that are high in solid fats, added sugars, and salt
    - Choose foods with little or no added sugar
    - Look out for salt in the foods you buy—it all adds up
    - Eat fewer foods high in solid fats
  - Eat the right amount of Calories for you
    - Enjoy your food, but eat less
    - When eating out, choose lower calorie menu options
    - Write down what you eat to keep track of how much you eat
  - Be physically active your way
Session 2: Enjoying Healthy Food that Tastes Great

Session Length: 90 minutes

Goal(s) for Session 2:
• Participants will learn to identify sources of fat in their diets.
• Participants will learn ways of modifying recipes to make them healthier.

Facilitator Note: Things written in **bold** are things that you should read **aloud**. Feel free to make these talking points your own. But attempt to cover the **bolded** material when you deliver this session.

Outline of Session 2:
• Icebreaker
  o Who do you want to stay healthy for?
• Two skills to eating the things that you like without worrying:
  o Portion control
  o Smart substitutions and recipe modifications
• Food tasting—trying healthier versions of favorite foods
  o Examples:
    ▪ Mac & Cheese made with butternut squash
    ▪ Oven fried chicken tenders with pureed cauliflower breading
    ▪ Crispy kale or okra
    ▪ Red velvet cake made with beets
• Recipe round robin
• Wrap up:
  o Share next week’s topic
  o What are your favorite places to eat out? OR What are your top food temptations?

Materials Needed:
• Flip chart & Markers
• Handout Packet
• Recipe Modification worksheets:
  o Eating for a Health Life Curriculum pages 422-423 and for you, 155-165
  o Eat Healthy Be Active USDA Curriculum pages 33-34
• Samples of healthier versions of foods
• Plates
• Napkins
• Cutlery
Introduction

- Last week, we talked about dietary requirements, my plate and label reading
  - Prompt them to see if they recall information from last week
  - Give incentives as they answer
- We also talked about barriers. I heard you all name {insert barriers they identified}
- Today, we are going to talk about some ways to overcome those barriers by focusing on a couple of techniques that will help you to eat the foods you love with less guilt and more good stuff for your body.

Icebreaker

- What kinds of medical/health issues run in your family?
- Who do you want to stay healthy for?

Skill Building

- Last week we talked a bit about changes we can make to eat healthier. These included:
  - Adjusting portions so that they look more like the servings and portions on MyPlate
  - Eating more fruits and vegetables
  - Eating more fiber and whole grains
  - Eating less salt
  - Eating less sugar
  - Exercising more
- This week, I want to talk about ways of achieving these things by making small changes. Sometimes, small changes, like the ones we are about to talk about can make a big difference.
- Today we are going to talk about two skills that allow us to eat the things that we like without worrying:
  - Portion control, which means eating smaller portions of some things and bigger portions of other things
  - Smart substitutions and recipe modifications—basically, I am here to teach you how to be a recipe ninja.

Finding the Fat in Your Diet

- Where is most of the fat in your diet?
- Are their meals you eat that you think contain more than 10 grams of fat per serving? What are they?
To put this in perspective, 1 tablespoon of olive oil has 12 grams of fat, 2 tablespoons of peanut butter has 15 grams of fat, and 1 tablespoon of butter has 11 grams of fat.

Make a list of the foods they discuss.

- What cooking method was used? Did the cooking method add fat to the meal?
- Why are these meals higher in fat?
- What are some of the low-fat meals that you routinely eat?
- What cooking method was used?
- Why are these meals lower in fat?
- Let’s look at our list of higher fat main dishes. Are there ways that you can think of that we could lower the fat?

Facilitator Note: Many of the ideas that participants named were in the box below. As they share their ideas, chime in with things that they haven’t mentioned from this list.

Selecting Proteins

- Select leaner cuts of ground beef (90% lean or higher), turkey breast, or chicken breast.
- Consider using ground turkey, ground chicken, or boca (soy) crumbles instead of ground beef.
- Select leaner cuts of beef such as round, tenderloin, or sirloin cuts.
- Limit your purchase of processed meats, which tend to be high in sodium.
- Try seafood instead of meat and poultry. Try to eat at least 8 ounces of seafood per week.
- Take the skin off of chicken and turkey pieces before cooking them.
- Because sometimes leaner cuts of meat are more expensive, you can do the following to save money:
  - Look for ads for special savings on leaner cuts of meat
  - Buy a family pack and separate it into smaller portions; freeze what you don’t cook right away
  - Beef eye of round and bone-in leg of lamb are lower in fat and price.
  - Buy poultry with the skin on. Trim the fat and skin yourself before eating.
  - Use more recipes that stretch the meat such as casseroles, stir fries, etc.
  - Even if you purchase fattier cuts of meat, there are things you can do to lower the fat:
    - Trim the fat off of your meat before you cook because it reduces the temptation to eat it when its cooked.
    - Leave chicken skin on while baking because it will help it to stay moist. But, do take the skin off before you eat it.
    - Drain the fat off of ground beef and rinse it once it is cooked.
Reducing Sodium
- Compare the sodium in foods like soups, bread, and frozen meals using labels and choose foods with lower numbers.

Reducing Sugar
- Choose whole grain cereals that don’t have frosting or added sugars. For extra flavor, add raisins, vanilla, and/or cinnamon.
- Reduce the amount of sugar in recipes by one quarter to one third. You can add flavor when sugar is reduced by adding vanilla, cinnamon, or nutmeg.

Cooking Methods and Recipe Substitutions
- Cook with low-fat methods such as baking, broiling, boiling, or microwaving, instead of frying.
- Use oils and spray oils instead of solid fats like butter and margarine.
- Increase the amount of vegetables and/or fruit in a recipe so that you fill your plate with fruits and veggies.
  - You can even sneak them in! You can do this by adding vegetables to things that don’t normally contain them such as:
  - Adding pureed butternut squash to macaroni and cheese—it adds to the color, creaminess and health of it!
  - Add pureed beets to red velvet cake—it adds color, sweetness, and nutritiousness!
  - Use pureed vegetables as part of the breading in dishes like oven fried chicken.
  - Once you start sneaking veggies in, you will get excited about it. It’s like a fun game that only you are in on.
- Tenderize meats by
  - marinating them ahead of cooking
  - cooking them using moist cooking methods
  - pounding them with a heavy meat mallet (this makes you feel powerful too)
  - using tenderizers such as Adolf’s
- Try eating more meatless meals.
- Try eating more plant-based proteins such as beans.
  - Ease into this change by challenging yourself to eat one meatless meal per week.
- Discover the power and flavor of roasted vegetables. This sounds crazy, but when you lightly coat veggies in olive oil, squeeze a bit of lemon and a pinch of salt on them, they become insanely delicious!
Seasonings
- Season foods with herbs, spices, lemon juice, and vinegar rather than salt
- Use lower fat sauces such as flavored mustards, salsa, Asian salsas, and some barbecue sauces.

Stretching Foods and Reducing Portions
- Mixing meat with rice, noodles, potatoes, or vegetables makes a small amount of meat go further, saves you money, and fills you up.
- Reduce serving sizes of higher fat foods (such as meat) and increase serving sizes of lower fat foods (such as fruit and vegetables).
- Changing serving sizes is one of the most important things a person can do. It makes a huge impact. This is especially true with meat. Americans typically eat much larger portions of meat than we need. Your goal for meat portions is 3 ounces. Remember, make your plate look like MyPlate!

Recipe Modification
- Based on our conversation, you can see that there are lots of common themes around ways to change recipes to make them healthier.
- If you are anything like me, you appreciate a good list. So I want to share a list of guidelines or steps for modifying recipes.
- Facilitator Note: Prepare a handout packet with Guidelines for Changing Recipes, How to Modify a Recipe, and Lean Cuts and Cooking Methods. Refer to this throughout the session.
- Step 1: Remove high-fat ingredients.
  - Scan the recipe and ask yourself, what ingredients add fat, salt, or sugar to the recipe?
  - Then ask yourself, what can I do to eliminate these ingredients?
  - Example: Make a stir fry with just veggies and no meat.
  - Do you have other examples?
- Step 2: Use less of the high-fat ingredient(s).
  - If you can’t remove an ingredient all together, consider using less of it.
  - Examples:
    - Use less oil to brown meat or veggies
    - Reduce nuts to ¼ cup per recipe (unless the nuts are your main source of protein in the recipe)
  - Do you have other examples?
- Step 3: Use lower-fat substitutes for some of the ingredients.
  - There are all kinds of lower-fat foods that we can use as a substitute for high fat ones.
  - Examples:
    - Use skim or non-fat milk and cheese
    - Use plain yogurt or blended cheeses instead of sour cream.
- Use light mayonnaise on sandwiches and in salad dressings.
- Use applesauce instead of butter or margarine in baked goods.
  - Do you have other examples?
  - I have a handy dandy sheet with suggestions for food substitutes.

- **Step 4: Change the ingredients.**
  - Sometimes, just like people, ingredients need a makeover.
  - Examples of changing ingredients include:
    - Trimming the fat around the edges of meat.
    - Taking the skin off of chicken or turkey.
    - Blend mayonnaise with plain non-fat yogurt.
    - Use two egg whites instead of one whole egg.
    - Use ground turkey instead of ground beef.
    - Substitute whole wheat flour for ½ of the white flour in a recipe
    - Using whole wheat pasta or brown rice instead of white

- **Step 5: Use low-fat cooking methods to prepare and cook foods.**
  - Sometimes you can just change the way you cook things to make them healthier.
  - Use vegetable spray or olive oil rather than butter, shortening or lard.
  - The goal is to boil, roast, microwave or grill.
  - When you must fry, consider oven frying or broiling without adding fats like oils.
  - You can also stir fry or sauté with water and some sauces.
  - Cook vegetables with water or broth rather than fat.
  - Braising meat makes it moist, delectable, and delicious. It also makes the house smell amazing.
  - I often thicken things like soups (especially creamy or potato-based soups) by pureeing a small amount of the soup and adding it back in. This thickens it without adding additional fats such as cream or milk.
  - Can you think of other low-fat cooking methods?

- **Step 6: make changes to replace moisture and flavor.**
  - Examples:
    - Any time you remove 1/4c or more of fat, you will probably need to add moisture to your recipe. This may mean adding water, fruit juice, broth, skim milk, or pureed fruits and vegetables like applesauce or pumpkin.
    - Use lemon or lime juice and/or vinegar to intensify the flavor of dishes.
    - Use garlic, onions, herbs, peppers, hot sauces, and salsas to add flavor. (However, be careful about the salt content of some salsas and hot sauces.)
    - Use fresh herbs and spices.
Food Tasting—trying healthier versions of favorite foods

- Bring a selection of foods that have been prepared in a healthier way than is traditionally used.
  - Examples:
    - Mac & Cheese made with butternut squash
    - Oven fried chicken tenders with pureed cauliflower breading
    - Crispy kale or okra or vegetarian greens
    - Red velvet cake made with beets
    - Adding shredded carrots or zucchini to baked goods or pancakes
    - Using spaghetti squash instead of spaghetti.

- Have participants sample the foods and ask if they can identify what makes them healthier.
- These are just a few of my ideas about how to make recipes healthier.
- What are some things that you have tried?
  - Recipe round robin
  - Feel free to bring a copy of these recipes next week. I can make copies of them and distribute them to the larger group.

Activity: Recipe Modification

- We’ve had a chance to talk about how to modify recipes.
- And you’ve had a chance to taste healthier versions of some typically fattening foods.
- Now, I want you to have a chance to practice modifying a recipe.
- Hand out the recipes.
- You will receive one of four recipes:
  - Lasagna
  - Taco Salad
  - Chicken Tortellini Casserole
  - Fried Rice
- Your goal is to work with a partner to modify the recipe in a way that makes it healthier.
- Allow them to munch on the food while they modify their recipes.
- Then have each pair share with the group.
- When two pairs have the same recipe, ask the first group to share and ask the second group if they had any other ideas or tried anything different.
- Would you eat this recipe? Why or why not?
- Is there a recipe that you are excited about changing after this session?

Wrap-Up

- We talked about a lot of small steps that we can make to eat healthier.
• I realize that in some ways, this may have been information overload.
• When you think about making some of these changes, what are some of the challenges you think you might face?
• What changes will be easy to make?
• **Facilitator Note:** Make a list of these after the session and attempt to address the barriers in the next sessions.
• Next week, we will be talking about how to be an effective kitchen manager by planning meals ahead of time.
• Before we go through, I just want us to take a minute and acknowledge that although these changes are small, they can be hard. And I want us to remind ourselves of the thing we started with.
  o Think of who or what you want to stay healthy for.
• As you think of them, ask yourself: “Is it worth it to stay healthy for this person or to do this thing?”
• For me, that motivates me to stay healthy and it puts these changes in perspective.

**Process Evaluation:**
• Pass out copies of the process evaluations.
• Let participants know that you would love to have their feedback on the session.
• Ask them if they would mind to take a minute to tell you what they thought of the session.

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**Session 3—Stretching your Budget, Saving your Peace of Mind**

**Session Length:** 90 minutes

**Goal(s) for Session 3:**
• Participants will learn skills to plan meals for the week.
• Participants will learn the benefits of planning meals ahead of time.

**Facilitator Note:** Things written in **bold** are things that you should read **aloud**. Feel free to make these talking points your own. But attempt to cover the **bolded** material when you deliver this session.

**Outline of Session 3:**
• Introduction:
• Icebreaker:
Who cooks most of the meals in your household?
Who cooks most of the meals in your household?
What types of meals does he/she prepare?
What types of meals does he/she prepare?
How does this person plan meals for the week?
How does this person plan meals for the week?
What are some of the barriers that your household faces in planning meals ahead of time?
What are some of the barriers that your household faces in planning meals ahead of time?

- Meal Planning—the perks
- Meal Planning—the process
- Activity:
  - Create a meal plan for the next week.
- Food Tasting:
  - Two recipes using similar ingredients
- Wrap up:
  - Introduce next week’s topic—Preparing for eating out

**Materials Needed:**

- Flip chart
- Markers
- Consider making a ppt to go over the steps listed below
- Meal Plan worksheet (from *Eating Healthy for Life*)
  - Pages 434-435
- Shopping list worksheet (from Eat Healthy Be Active USDA curriculum)
  - Pages 83-85
- Grocery store circulars
- Recipe cards from the office (to give participants inspiration)
- Sample foods using similar ingredients or ingredients for food demo
- Pens
- Extra paper for menu planning
- Copy of *Eat This Not That: Supermarket Edition* to pass around
- Process Evaluations

**Introduction**

- Last week we talked about enjoying healthy food that tastes great without added guilt or weight gain by making recipes healthier and controlling portions.
- We also talked about the people and things that we want to stay healthy for.
- A couple of weeks ago, we talked about some of the barriers we all face in eating healthy. Today, we are going to talk about how to address another of the barriers you identified by planning meals ahead of time.

**Icebreaker**

- Who cooks most of the meals in your household?
- What types of meals does he/she prepare?
• How does this person plan meals for the week?
• What are some of the barriers that your household faces in planning meals ahead of time?

**Facilitator Note:** Prepare flip chart sheets ahead of time with these questions on the top. Write down people’s answers to the questions on the flip chart pages and refer back to them throughout the session. You may even consider crossing off barriers as you share meal planning skills that may help participants overcome them.

• **Facilitator Note:** Before the session, think of your own answers to these questions and be prepared to share them with the audience as a part of the dialogue during the ice breaker or as a way of introducing the discussion that follows. What are your own meal planning habits? What are the barriers you face in planning meals and eating healthy during the week? If you are a meal planner, what are the benefits of planning meals? If you have thought about these things, you will better connect with participants and the session will be more successful.

**Meal Planning—the perks**
• Despite the barriers that we have named, what do you think are some of the perks or benefits of planning meals in advance?
  o Possible answers include:
    ▪ Saves you money
    ▪ Saves you time during the week (after an initial time investment)
    ▪ Prevents you from eating out
    ▪ Often means you eat healthier, more nutritious foods
    ▪ Saves resources—we use more of what we buy when we plan
  o **Facilitator Note:** If some of these answers don’t come up, supply them, being careful to give participants plenty of time to come up with their own list.

**Meal Planning—the process**
• **Step 1:** Pick a day for meal planning and grocery shopping
  o Do you have a day that you normally spend running errands, doing laundry, and catching up around the house?
  o If so, consider adding meal planning to your agenda for that day.
  o For me, Sundays have always worked well as an all-purpose catch-up day. I spend the day taking care of things around the house, doing laundry, going to the grocery, and working in my yard.
  o I often plan meals for the week over a cup of coffee when I wake up at the same time as I create a to-do list for the week.
  o **Facilitator note:** Change the above two talking points so that they are true to your own experiences.
  o **What is your food budget for the week?**
Step 2: Take a look at your schedule—what does your week look like?
  - Are there nights when you will be able to cook?
  - Are there nights when you need a meal that’s quick and easy?
  - Do you have any plans to eat out or have dinner with friends or social groups that you are a part of?

Step 3: Make a menu for the week, taking into account:
  - When you will have time to cook
  - Make a note on days when you need to eat something quick
  - Make a note on days in which you have plans to eat out or with friends. You won’t need to cook those days.
  - What’s on sale at the grocery (we’ll talk about this a bit more in step 3).
  - What’s in season—sometimes it can even help to look at the weather that week. I have often found that when it’s cooler, I crave heartier and warmer foods such as soups and stews, whereas when it is warm I crave salads and sandwiches that don’t heat up the kitchen.
  - Are there any meals that you have been craving?
  - If you need ideas and inspirations look for quick and easy online recipes.
  - If you have a meal or two in mind that you would like to eat, think about its ingredients. Are there ingredients that can go in multiple meals (ex. A recipe calls for celery—what else can you make with celery?)?
  - Five meals that lend themselves really well to using leftover ingredients are:
    - Stir fries
    - Soups
    - Pastas
    - Casseroles
    - Salads
    - You can throw almost anything into these dishes and they will taste good.
  - Think about your budget. Does the menu you have planned fit within it? If not, modify as necessary.

Step 3: Take a look at grocery store ads and coupons
  - Are any of the ingredients for the meals you planned on making on sale?
  - Are there things on sale that inspire you to make something different?

Step 4: Make a grocery list with all of the things you will need
  - Try and make your list match the layout of the store. For example, list dairy items, frozen items, meats, and produce together in groups. This will make you more efficient when you are in the store.

Step 5: Shop!
  - Stick to your list when you are in the store—don’t rely on your memory.
- Eat before you shop; we tend to make smarter decisions when we grocery shop on a full stomach.
- Buy store brands if they are cheaper.
- If you purchase some items in bulk or family packs, they can be cheaper. Look for the unit cost on the shelf and try to buy items with the lowest unit cost.
- Compare the nutrition content of foods using all of the label reading knowledge that you gained in Module I.

**Step 6: Cook!**
- Take a day to cook some meals that you can eat leftovers of later in the week. Soups, stews, casseroles, and stir fries are very good for this.
- Post the meals you are prepared to cook on the fridge so that everyone can see them.

**Things that can help:**
- Having lists of recipes and healthy options for each meal
  - Example: I keep all of my recipes in a cookie jar by the fridge. It’s easily accessible and I pull it off the shelf both to remind me of long-forgotten recipes and to help me plan meals.
- Having coupons in one place
- Setting some time aside at the beginning of the week to cook/prepare some things ahead of time.
  - Example: You know you want to have a few salads. Go ahead and cut up your greens and salad garnishes so they are easily accessible and ready to go.
  - Example: Make a large one pot meal and box up leftovers for convenient grab-and-go lunches.
- Stock up on non-perishable pantry staples such as low-sodium canned goods, frozen vegetables, and dried beans. If you have these items on hand, you always have a few recipe basics on hand.
- Challenge yourself to make one or two meatless meals per week. These meals are generally cheaper to prepare than meals with meat and they are extremely healthy.
- Make healthy foods accessible and put them in plain sight! Keep cut up veggies in the front of the fridge so that you see them every time you open it. Place a bowl of fruit on the table or on the kitchen counter where you will see it all of the time. Half of the battle in healthy snacking is making healthy foods as convenient as junk food.

**Activity: Create a Meal Plan for the next week**
- Create a meal plan for the next week.
- Create a grocery list using store circulars. (see USDA grocery list handout)
Food Tasting:
- Two recipes using similar ingredients
  - Tuna salad
  - Soup
  - Celery and hummus
- Facilitator Note: You could also transform this into a cooking demonstration depending on the facilities you have at your disposal.

Processed Foods—What are they and why should I care?
- The Academy of Nutrition and Dietetics defines processed foods very broadly (source:http://www.eatright.org/Public/content.aspx?id=6442471055)
- They say that processed foods fall on a kind of spectrum that starts with minimal processing and ends with heavy processing.
- Minimally processed foods are things such as bagged spinach, cut vegetables, and roasted nuts that are pre-prepped for convenience.
- Some foods are processed, or packaged at their peak to lock in nutritional quality and freshness. These include canned beans, tomatoes, frozen fruit, frozen vegetables, and canned fishes such as tuna.
- In some foods, flavor and texture have been added using things such as sweeteners, salt, spices, oils, and preservatives. These foods include jarred pasta sauce, salad dressing, yogurt, and cake mixes.
- Then, there are ready-to-eat foods, which tend to be the most heavily processed. These include things like crackers, granola, deli meats, frozen meals and pre-made meals.
- Some processed foods like orange juice that has been fortified with calcium are beneficial to your health (being mindful of sugar of course).
- But many times, heavily processed foods have a great deal of hidden salt, sugar, and fat.
- So you have to be a kind of detective and look for those things when you shop.
- Facilitator Note: This content was added hastily and before our copy of Eat This Not That: Supermarket Edition arrived. Consider perusing this and adding content from it for this module.

Wrap up:
- Introduce next week’s topic—Preparing for eating out
- Could be good to have a round robin in which people list either:
  - Their favorite restaurants
  - Where they most often eat out

Process Evaluation:
- Pass out copies of the process evaluations.
- Let participants know that you would love to have their feedback on the session.
• Ask them if they would mind to take a minute to tell you what they thought of the session.

**Session 4—Eating Out, It Happens**

**Session length:** 90 minutes

**Goal(s) for Session 4:**
- Participants will learn how to compare the fats in restaurant meals by reviewing nutrition facts.
- Participants will learn strategies and skills for selecting healthier food options at restaurants.

**Outline of Session 4:**
- Introduction
- Icebreaker
- Activity: The Fats of Life
- Activity: Eat This, Not That Game
- Strategies for lowering fat when we eat out
- Activity: Menu Madness
- Wrap-up

**Materials Needed:**
- Flip Chart
- Markers
- Lap Top
- Projector
- Fats of Life PowerPoint
- Small Ice Cream Scooper(s)
- Paper Plates
- Roll of wax paper (in supply closet)
- Tub of Crisco/vegetable shortening (in supply closet)
- Eat This Not That PowerPoint
- Copies of Eat This Not That Book
- Restaurant Menus (printed from the internet)
- Process Evaluations
Introduction:

- Last week we talked about meal planning. In the past week, did anyone try this out? If so, how did it go?
- If you didn’t try it out, why not?
- Today we are going to talk about preparing to eat out. Because it is not realistic to think that we won’t ever eat out again. Eating out is fun; it often gives you a chance to connect with people you love, support local businesses, and treat yourself for working so hard.

Icebreaker:

- What are some of your favorite places to eat out?
- Is there a food that when it’s on the menu, you always have to order it when you go to a restaurant? What is it?

Activity: The Fats of Life

- So, we’ve all established that we sometimes like to eat out. We have places we like to go and we have foods that we love to eat.
- This is just a fact of life.
- But there are some realities about eating out:
  - When we eat out, we consume more salt, sugar and fat than we would at home.
  - We also often eat more food than we do when we are at home.
  - Most of the time, we spend more money per serving than we would at home.
- The goal of this session is to help us prepare for eating out by:
  - Knowing a bit more about the content of some of our favorite foods.
  - Illustrating the options that you have when you eat out.
- One of the ways we are going to look at these options is with an activity called “The Fats of Life.”

Facilitator Note: Instructions and talking points for this activity are in the Fats of Life PowerPoint. Please use these to plan this activity and prepare your talking points for it. Please note: You may want to view the slideshow before you make changes to it. Because animation has been added to many of the slides, you will find it easier to see what happens in the activity if you view it first as a slide show.

Activity: Eat this, Not that Game

- I think the Fats of Life activity really illustrates the amount of fat in different foods.
- It also illustrates the benefits of cooking at home.
- As I was putting together the activity, I found myself curious about restaurants outside of McDonalds and I remembered the series of books called Eat This Not That.
• Is anyone familiar with this series?
• Can someone tell the group what it’s all about?
• Here in a second we are going to play a game in which we look at a handful of popular restaurants and compare dishes based on their calorie, fat, sodium, and sugar content.
• Facilitator Note: Instructions and talking points for this activity are in the Eat This Not That Game powerpoint presentation. Please use these to plan this activities and plan your talking points for it. Please note: You may want to view the slideshow before you make changes to it. Because animation has been added to many of the slides, you will find it easier to see what happens in the activity if you view it first as a slide show.

Activity: Menu Madness
• Based on our conversation today and previous sessions, what are some things that we can do to make the meals we eat out a little healthier?
  o Potential answers may include:
    ▪ Limit heavy sauces
    ▪ Select oil-based rather than cream or mayonnaise-based salad dressings.
    ▪ Select grilled foods instead of fried ones
    ▪ Ask for a to go box and put half of your meal in it when your food arrives—you get two meals for the price of one and end up eating a healthier portion.
    ▪ Choose healthier sides (example: select a salad instead of fries)
    ▪ Order water rather than a sugar-sweetened beverage
    ▪ Hold fattening ingredients such as mayonnaise.
• Print out a group of popular restaurant menus with nutrition facts.
  o Examples: Friendly’s, Cracker Barrel, McDonalds, Mama Iguanas
• Divide participants into pairs.
• Ask each pair to choose a menu.
• Think about if you were to go to this restaurant and order.
  o What would you typically order?
  o Take a look at the nutrition information for that particular dish.
  o Is there anything about it that surprises you?
  o With your partner, talk about ways that you could make healthier choices.
  o Give participants a chance to look over the menus and talk with their partners.
  o Then ask them to share with the larger group.
  o What were some of the strategies you came up with to eat healthier at this restaurant?
Wrap-Up

- At the end of the day, it’s also important to know yourself and what foods you love so much that you can’t avoid eating them. Let yourself have a few of those and don’t feel bad about enjoying them.
- Exercise is also kind of magical in terms of cancelling out comfort foods.
  - Talk about planning for exercise
- Activity with Eat this Not that book as an incentive
- Next week we will talk about using the things we have learned in the past few weeks to set goals for ourselves going forward.

Facilitator Note: Facilitated discussion during this module will give you a lot of insight into the restaurants and types of foods that participants like. Use this information to inform changes that you make to this module, particularly in the examples you use for the Eat This, Not That Game and the menus you bring in for the menu exercise. These exercises are best when participants connect to them because they are places they would actually go and foods they would actually eat.

Process Evaluation:
- Pass out copies of the process evaluations.
- Let participants know that you would love to have their feedback on the session.
- Ask them if they would mind to take a minute to tell you what they thought of the session.

Session 5—Diet and Disease

Session Length: 90 minutes

Goal(s) for Session 5:
- Participants will be able to name at least 3 risk factors for heart disease, diabetes, and cancer.
- Participants will be able to name at least 3 preventative measures they can take to lower their risk of experiencing heart disease, diabetes, and cancer.
- Participants will leave with a health-oriented goal that they can work towards.

Outline of Session 5:
- Introduction
- Icebreaker
• Risk and Protective Factors for Heart Disease, Diabetes, and Cancer
• Goal Setting for a Healthy Life
• Wrap-Up

Materials Needed:
• Flip Chart
• Markers (enough to share with the group)
• Paper
• Magazines (if you have them)
• Glue (if you have them)
• Copies of Risk and Prevention Handout
• Copies of Goal-Setting for a Healthy Life Handout
• Process Evaluations

Introduction:
• Last week we talked about preparing to eat out. Did anyone use any of the things we talked about in the past week? If so, how did it go?
• This week, we are going to talk about how we can all stay healthy long after this program is over.
• In particular, we are going to talk a bit about common chronic diseases like diabetes and heart disease and ways to prevent them.

Icebreaker:
• Pass out paper, pens, and markers.
• Facilitator note: It would be really great if you had magazines that they could use to create a collage.
• I would like you to use these materials to illustrate:
  o Picture yourself healthy. What does this look like?
  o Who do you want to stay healthy for?
  o What do you want to stay healthy for?
• After participants have had a chance to work, ask them to share.
• As we go through this session and afterwards, I want you to keep these things and people in your mind’s eye.

Chronic Illness throughout the Lifecourse
• As we age, our chances for developing certain chronic conditions and diseases increase. This includes things such as
  o Diabetes
  o High Blood Pressure
  o Heart Disease
• Research has shown that the risk of developing these conditions is higher for different groups. African Americans, in particular, have an increased risk of developing heart disease and Type II Diabetes.
• In preparing for this module, I thought about the #1 killers of Americans.
• According to the CDC, the following were the leading causes of death in 2011:
  o Heart Disease (597,689)
  o Cancer (574,743)
  o Chronic Lower Respiratory Disease 9138,080)
  o Stroke (129,476)
  o Accidents & Unintentional Injuries (120,859)
  o Alzheimer’s Disease (83,494)
  o Diabetes (69,071)
• Of these, I was most interested in heart disease, cancer, and diabetes.
• So I did a quick search of the American Heart Association, the American Diabetes Association, and the American Cancer Society.
• In the process, I discovered that the websites of these organizations are, by and large, terrible.
• So I ended up doing a lot of research on the Mayo Clinic site, which is surprisingly helpful.
• Pass out spreadsheet of risk factors and preventative behaviors.
• This sheet of paper lists the risk factors for heart disease, diabetes, and cancer.
• It also lists different preventative behaviors that we can use to lower our risk of experiencing any of these conditions.
• Take a look at the spreadsheet. Let’s focus for just a minute on risk factors.
• What risk factors do these conditions have in common?
  o Possible answers include:
    ▪ Smoking/tobacco use
    ▪ Family history
    ▪ Poor Diet
    ▪ Physical Inactivity
  o Look at the spreadsheet for more.
• Now, take a look at suggested ways of preventing, or lowering risk of these things.
• What preventative actions do they have in common?
  o Possible answers include:
    ▪ Eating a healthy diet
    ▪ Exercising regularly
    ▪ Quitting smoking
    ▪ Regular screening
  o Look at the spreadsheet for more examples
• Many of these look pretty familiar right? Many of them are things that we have already been talking about.
• And that’s the real point of this whole program.
Its main point is to give you skills and strategies to stay healthy throughout your life.
Because I don’t want any of you to experience any of these things. And based on the things you brought up in our ice breaker, you don’t want to either.

Goal-Setting for a Healthy Life
- You have already identified who and what you want to stay healthy for.
- You’ve also pictured yourself healthy and imagined what that would look like for you.
- You know your medical history.
- Keeping all of these things in mind, I would like each of you to name one goal that you would like to work towards in the coming months to help you stay healthy for the people you love.
  - Pass out goal-setting worksheets.
  - Give them time to devise a goal.
  - Then ask: How can we support you in achieving this goal?
    - Who/what else do you need to support you to be successful?
    - How can you ask for their support?
  - Does anyone want to share?

Wrap-Up
- Next week will be our next week together and we are going to do two things
  - Celebrate with tasty and healthy food
  - Putting the things we have talked about in a larger context.
- We’ve spent a lot of time in the previous sessions talking about personal barriers that we face in eating healthy. These included things like time and money.
- But the reality is that there are other, larger factors that contribute to our ability to eat healthy. These include things like our ability to access healthy foods.
- So next time, we’re going to talk about food access and food justice. And we’ll talk about people and organizations in our community that are making a big difference.

Process Evaluation:
- Pass out copies of the process evaluations.
- Let participants know that you would love to have their feedback on the session.
- Ask them if they would mind to take a minute to tell you what they thought of the session.
Facilitator Note: Sometimes, talking about chronic disease and health conditions, especially diabetes, can cause participants to ask diet-specific questions. Below, you will find a few talking points from the Mayo Clinic about this:

Tips for Diabetic Eating

Also known as low glycemic eating

1. Choose high-fiber, slow release carbs (brown rice, wild rice, sweet potatoes, yams, squash, whole wheat pasta and bread, high fiber cereal, steel cut or rolled oats, bran flakes, peas, leafy greens)
2. Eat a lot of non-starchy vegetables, beans, and fruits
3. Eat grains in the least processed state possible
4. Limit white potatoes and refined grain products
5. Limit concentrated sweets (ice cream, fruit juice, sugar-sweetened beverages)
6. Eat a healthy protein at most meals (beans, fish, skinless chicken)
7. Choose foods with healthful fats (olive oil, nuts—almond, walnuts, & pecans, and avocados)
8. Have 3 meals and two healthy snacks each day—do not skip breakfast
9. Eat slowly and stop when full.
10. Consider keeping a food diary so you can identify problem areas

Strategies for moderation:

1. If you have a sweet tooth, tips for moderating sugar:
   a. If you want dessert, do not eat bread or pasta as a part of your main meal.
   b. Add healthy fats to desserts (peanut butter, ricotta, yogurt, or nuts)—fat slows down the digestive process so blood sugar levels don’t spike as quickly
   c. Eat sweets with a meal rather than as a stand alone snack.
   d. Savor each bite of dessert—eat slowly
2. Cutting down on sugar
   a. Reduce soft drinks and soda—try sparkling water with a dash of fruit juice
   b. Sweeten foods yourself
   c. Reduce the amount of sugar in recipes by ¼ to ½
   d. Find healthy ways—such as fruit—to satisfy your sweet tooth
   e. Start with half of the dessert portion that you would normally eat
Session 6—Food Access and Food Justice

Session Length: 90 Minutes

Goal(s) for Session 6:
- Participants will be able to define food justice.
- Participants will be able to name at least 2 Springfield-based food justice initiatives

Outline of Section 6:
- Introduction:
  - Icebreaker
  - Defining food justice
    - Spotlight on local food justice organizations and efforts
    - Q&A
  - Post-Test
  - Wrap-Up

Materials Needed:
- Flip Chart
- Markers
- PowerPoint Presentation
- Laptop/Computer
- Projector
- Internet Access (to play videos embedded in the presentation)
- Guest speakers from local food justice organizations
- Materials from local food justice organizations
- Post-tests
- Pens/pencils to complete post-tests
- Process evaluations

Introduction:
- Over the past several sessions, we have spent a lot of time talking about nutrition and healthy eating.
- Today, I want to put this in a larger context and talk about the bigger food movement in Springfield
- Before we get into that however, I want to spend a few minutes reconnecting with our pasts.
Icebreaker:
- How did your parents and grandparents eat?
- What’s different about the way that you eat? Why?
- Facilitator Note: Use their conversation to transition to a larger discussion of food justice. A general way to do this is to talk about local movements that are all about looking at why we eat the way we do and changing some things—both big and small—to change this so that people have the option of eating healthier.

Food Justice
- Use the PowerPoint presentation for this portion of the session. It contains a definition of food justice and a video that introduces some of the key players in the local movement for food justice.
- Be sure and review the PowerPoint presentation and make changes based on your knowledge of the local food justice movement. Feel free to add things or remove things.
- Also, consider inviting folks from some of the following places to talk about their work and what food justice in Springfield means to them:
  - Food Justice Group—trying to bring a full line grocery store to Mason Square
  - Gardening the Community
  - Farmers Market and Mobile Markets
  - Springfield Food Policy Council
  - Live Well Springfield
- Depending on time and the location of your presentation, consider walking to a nearby community garden.
- Really think about—and ask any guest speakers to think about—how participants can get involved in the local food justice movement.

Q&A
- Allow participants to ask questions of the guest speakers or any of the content covered.

Post-Test:
- Before we close the session, I need you to complete a survey. For those of you who were here for the very first session, this is the same survey. We will compare your answers from the first session to your answers for this session and see how much change happened in them over time.
- Read the consent paragraph aloud, and hand participants paper copies of the consent paragraph. Indicate that these forms should not be signed.
- Hand out copies of the post-test and writing utensils
- Collect the completed post-tests, and place them in an envelope marked with the session date.
• When everyone has finished, wrap up the session.

Wrap-Up:
• Thank them for participating in the sessions.
• If you have an incentive or closing gift to give them, distribute it.
• Let them know that if they know of another group that would like to participate, you are willing to deliver the program to that group.
• Consider asking them to fill out a process evaluation with their review of the session.

Process Evaluation:
• Pass out copies of the process evaluations.
• Let participants know that you would love to have their feedback on the session.
• Ask them if they would mind to take a minute to tell you what they thought of the session.
B.1 MENU PROGRAM PRE-EVALUATION SURVEY

Thank you for participating in the MENU Program. We hope you will enjoy the program and that you will learn useful strategies. We would like your help in evaluating the program by filling out this questionnaire. It should take about 20 minutes.

First, we would like to know about your dietary intake.

1) Not counting juice, how many servings of fruits do you eat each day?

\[ \text{__________} \]

\text{(A serving equals one medium fruit, about the size of your fist, or a \( \frac{1}{2} \) cup of chopped fruit.)}

2) When you eat fruit, how often are they fresh or frozen (not canned)?

\[ \square \text{ Never} \]
\[ \square \text{ Sometimes (less than half of the time)} \]
\[ \square \text{ About half of the time} \]
\[ \square \text{ Usually (more than half of the time)} \]
\[ \square \text{ Always} \]

3) How many servings of vegetables do you eat each day?

\[ \text{__________} \]

\text{A serving equals one cup of leafy vegetables (about the size of your fist) or \( \frac{1}{2} \) cup of raw or cooked vegetables (about the size of a light bulb)}

4) When you eat vegetables, how often are they fresh or frozen (not canned)?

\[ \square \text{ Never} \]
\[ \square \text{ Sometimes (less than half of the time)} \]
\[ \square \text{ About half of the time} \]
\[ \square \text{ Usually (more than half of the time)} \]
\[ \square \text{ Always} \]

5) On average, how often do you eat the following types of vegetables:

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>1 x month</th>
<th>2-3 x per week</th>
<th>1 x per week</th>
<th>2-3 x per day</th>
<th>Every day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green leafy or lettuce salad</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
French fries, home fries, or hash brown potatoes

Other white potatoes (mashed, baked)

Other vegetables, such as tomatoes, carrots, cabbage, collard greens, and broccoli

6) On average, how often do you eat the following foods?

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>1 x month</th>
<th>2-3 x per week</th>
<th>1 x per week</th>
<th>2-3 x per day</th>
<th>Every day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red meat, such as beef, ham, pork, or lamb.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poultry, such as turkey or chicken</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fish, including canned tuna, etc.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Whole grains, such as oatmeal, brown rice, and whole wheat breads or pastas</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

7) In the past month, how often did you drink sweetened beverages, not including diet or sugar-free beverages?

- [ ] Never
- [ ] 1 x per month
- [ ] 2-3 x per week
- [ ] 1 x per week
- [ ] 2-3 x per day
Now we would like to know about your shopping, cooking, and eating behaviors.

8) When you go shopping for food, how often do you go to….

<table>
<thead>
<tr>
<th></th>
<th>Always</th>
<th>Usually</th>
<th>Sometimes</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full line grocery store? (Big-Y, Stop and Shop)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Convenience store, corner store, or bodega?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small grocery store or market? (Price Rite, NSA, Medina’s)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fruit/vegetable store, farmer’s market, or mobile market?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

9) How often do you:

<table>
<thead>
<tr>
<th></th>
<th>Always</th>
<th>Usually</th>
<th>Sometimes</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Read nutrition labels before purchasing a food product?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shop with a grocery list?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shop with a recipe in mind?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plan meals ahead of time?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

10) When you eat at home, how are most of the meals prepared?

- Pre-prepared (take out/delivery, TV dinners, microwave meals)
- Cooked from scratch (fully prepared by someone at home)
- A combination of the two

11) When eating out (at a restaurant or other food establishment), how often do you try to choose a healthy meal?

- Never
- Sometimes
- Usually
- Always
Now, we would like to know about your beliefs and attitudes about healthy eating:

12) What difficulties do you think you might have with eating more healthy? (Check all that apply):
   - ☐ I/We prefer other foods
   - ☐ I’m too busy
   - ☐ Healthy foods are too expensive
   - ☐ I don’t know enough about healthy eating
   - ☐ Lack of cooking skills
   - ☐ I have difficulty getting to a full-line grocery store
   - ☐ I have limited transportation to get to the store
   - ☐ None
   - ☐ Other (please specify):

13) If you wanted a healthy restaurant meal, how willing would you be to ask for the following things:

<table>
<thead>
<tr>
<th></th>
<th>Very willing</th>
<th>Somewhat willing</th>
<th>Not at all willing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less sauce or dressing</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Grilled instead of fried food</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Chicken, turkey, or fish instead of beef or pork</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Salad instead of french fries or chips as a side</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Broth-based soup instead of cream-based soup</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Water instead of a sugar-sweetened beverage</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

14) What changes, if any, would you like to make to your own diet?
   - ☐ Drink fewer sugary drinks
   - ☐ Eat more fruits and vegetables
   - ☐ Eat less red meat
   - ☐ Eat less fast food
   - ☐ Drink more water
   - ☐ Other (please specify):

15) In one sentence, how would you describe a “healthy diet”?

16) Which of the following best describes what you would think if asked to change your eating habits?
   - ☐ It would be easy to change
   - ☐ I would try to change
17) How much do you agree with the following statements:

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Undecided</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>

Now, we would like to know about your knowledge and awareness of healthy eating:

18) How many servings of fruits and vegetables should a person eat every day?

19) What are examples of a “lean protein”? (Select all that apply)
   - ☐ Turkey
   - ☐ Beef
   - ☐ Pork
   - ☐ Beans
   - ☐ Chicken
   - ☐ Fish
   - ☐ Lamb

20) What are good ways to make a recipe lower in fat? (Check all that apply):
   - ☐ Replace whole eggs with egg whites
   - ☐ Use plain, low fat yogurt in place of sour cream
   - ☐ Use ground turkey in place of ground beef
21) Have you ever heard of MyPlate or MyPyramid?
   □ Yes
   □ No

Finally, we would like to know a little about you:

22) How would you describe your health?
   □ Excellent
   □ Very Good
   □ Good
   □ Fair
   □ Poor

23) Are you currently living with a child or children?
   □ Yes
   □ No
B.2 MENU PROGRAM POST-EVALUATION SURVEY

Thank you for participating in the MENU Program. We hope you enjoyed the program and that you learned useful strategies. We would like your help in evaluating the program by filling out this questionnaire. It should take about 20 minutes.

First, we would like to know about your experience with the MENU Program:

1) How many sessions did you attend? (please circle)

   1   2   3   4   5   6

2) Have you made any changes in what you eat, where and how you shop for food, or how you cook since coming to these sessions?

   ☐ Yes
   ☐ No

   If YES, please list some changes you have made.

Now, we would like to know about your current dietary intake:

24) Not counting juice, how many servings of fruits do you eat each day?

   (A serving equals one medium fruit, about the size of your fist, or a ½ cup of chopped fruit.)

25) When you eat fruit, how often are they fresh or frozen (not canned)?

   ☐ Never
   ☐ Sometimes (less than half of the time)
   ☐ About half of the time
   ☐ Usually (more than half of the time)
   ☐ Always

26) How many servings of vegetables do you eat each day?

   (A serving equals one cup of leafy vegetables (about the size of your fist) or ½ cup of raw or cooked vegetables (about the size of a light bulb))

27) When you eat vegetables, how often are they fresh or frozen (not canned)?

   ☐ Never
   ☐ Sometimes (less than half of the time)
   ☐ About half of the time
28) On average, how often do you eat the following types of vegetables:

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>1 x month</th>
<th>2-3 x per week</th>
<th>1 x per week</th>
<th>2-3 x per day</th>
<th>Every day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green leafy or lettuce salad</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>French fries, home fries, or</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>hash brown potatoes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other white potatoes (mashed,</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>baked)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other vegetables, such as</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>tomatoes, carrots, cabbage,</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>collard greens, and broccoli</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

29) On average, how often do you eat the following foods?

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>1 x month</th>
<th>2-3 x per week</th>
<th>1 x per week</th>
<th>2-3 x per day</th>
<th>Every day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red meat, such as beef, ham,</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pork, or lamb.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poultry, such as turkey or</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>chicken</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Fish, including canned tuna,</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>etc.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Whole grains, such as oatmeal,</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>brown rice, and whole wheat</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>breads or pastas</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

30) In the past month, how often did you drink sweetened beverages, not including diet or sugar-free beverages?

- □ Never
- □ 1 x per month
- □ 2-3 x per week
- □ 1 x per week
- □ 2-3 x per day
- □ Every day
Now we would like to know about your shopping, cooking, and eating behaviors.

31) When you go shopping for food, how often do you go to….

<table>
<thead>
<tr>
<th></th>
<th>Always</th>
<th>Usually</th>
<th>Sometimes</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full line grocery store? (Big-Y, Stop and Shop)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Convenience store, corner store, or bodega?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small grocery store or market? (Price Rite, NSA, Medina’s)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fruit/vegetable store, farmer’s market, or mobile market?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

32) How often do you:

<table>
<thead>
<tr>
<th></th>
<th>Always</th>
<th>Usually</th>
<th>Sometimes</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Read nutrition labels before purchasing a food product?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shop with a grocery list?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shop with a recipe in mind?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plan meals ahead of time?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

33) When you eat at home, how are most of the meals prepared?

- Pre-prepared (take out/delivery, TV dinners, microwave meals)
- Cooked from scratch (fully prepared by someone at home)
- A combination of the two

34) When eating out (at a restaurant or other food establishment), how often do you try to choose a healthy meal?

- Never
- Sometimes
- Usually
- Always
35) What difficulties do you think you might have with eating more healthy? (Check all that apply):
- I/We prefer other foods
- I’m too busy
- Healthy foods are too expensive
- I don’t know enough about healthy eating
- Lack of cooking skills
- I have difficulty getting to a full-line grocery store
- I have limited transportation to get to the store
- None
- Other (please specify):

36) If you wanted a healthy restaurant meal, how willing would you be to ask for the following things:

<table>
<thead>
<tr>
<th>Option</th>
<th>Very willing</th>
<th>Somewhat willing</th>
<th>Not at all willing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less sauce or dressing</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Grilled instead of fried food</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Chicken, turkey, or fish instead of beef or pork</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Salad instead of french fries or chips as a side</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Broth-based soup instead of cream-based soup</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Water instead of a sugar-sweetened beverage</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

37) What changes, if any, would you like to make to your own diet?
- Drink fewer sugary drinks
- Eat less red meat
- Eat less fast food
- Drink more water
- Eat more fruits and vegetables
- Other (please specify):

38) In one sentence, how would you describe a “healthy diet”?

39) Which of the following best describes what you would think if asked to change your eating habits?
- It would be easy to change
- I would try to change
- I don’t want to change

40) How much do you agree with the following statements:
<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Undecided</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eating healthy is very important to me</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
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<td>□</td>
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Now, we would like to know about your knowledge and awareness of healthy eating:

41) How many servings of fruits and vegetables should a person eat every day?

42) What are examples of a “lean protein”? (Select all that apply)

- Turkey
- Beef
- Pork
- Lamb
- Beans
- Chicken
- Fish

43) What are good ways to make a recipe lower in fat? (Check all that apply):

- Replace whole eggs with egg whites
- Use plain, low fat yogurt in place of sour cream
- Use ground turkey in place of ground beef

44) Have you ever heard of MyPlate or MyPyramid?

- Yes
- No

One final question:

45) How would you describe your health?

- Excellent
- Very Good
- Good
- Fair
- Poor
B.3 PROCESS EVALUATIONS

MENU Program Evaluation: Session 1
Nutrition 101

Thank you for participating in the MENU program. This is a new program, so we would really appreciate getting your feedback. Your comments and suggestions will help us improve this session for future participants. Please take a few minutes to let us know what you thought.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
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</tr>
</thead>
<tbody>
<tr>
<td>This session covered useful information.</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>The session activities were helpful.</td>
<td></td>
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<tr>
<td>I plan to use the MyPlate tool to create balanced meals</td>
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<tr>
<td>I plan to begin or increase reading nutrition labels on most of the foods I eat.</td>
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<tr>
<td>I plan to change my eating habits based on the information I learned today.</td>
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Please tell us which materials you found most useful:

If this session were to be repeated, what should be left out or changed?

Additional Comments
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<tr>
<td>I plan to use the strategies I learned today to eat <strong>smaller portions</strong>.</td>
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<tr>
<td>I plan to try a <strong>recipe makeover</strong> this week.</td>
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<tr>
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</tr>
<tr>
<td>I plan to try <strong>planning my meals</strong> ahead of time this week</td>
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</tr>
<tr>
<td>I plan to use a <strong>grocery list</strong> next time I go shopping for food.</td>
<td></td>
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</tr>
<tr>
<td>I plan to change my eating habits based on the information I learned today.</td>
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<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
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<tr>
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<td></td>
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<tr>
<td>I plan to <strong>compare nutrition labels</strong> to choose a food lower in fat.</td>
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<tr>
<td>I plan to ask for <strong>lighter sauces, grilled foods (instead of fried), or healthier sides</strong> when I am out at a restaurant</td>
<td></td>
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<tr>
<td>I plan to change my eating habits based on the information I learned today.</td>
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<table>
<thead>
<tr>
<th>Strongly Agree</th>
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<td></td>
</tr>
<tr>
<td>The session activities were helpful.</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>I learned ways to <strong>reduce my risk</strong> for heart disease, cancer, and diabetes.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am motivated to <strong>achieve the health goal</strong> I made today.</td>
<td></td>
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</tr>
<tr>
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<td></td>
<td>The session activities were helpful.</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>I understand what “food justice” means.</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>I plan to visit and support a <a href="#">local community garden, mobile market, or farmer’s market</a>.</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>I plan to change my eating habits based on the information I learned today.</td>
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Please tell us which materials you found most useful:

If this session were to be repeated, what should be left out or changed?

**Additional Comments:**
Certification of Human Subjects Approval

Protocol Title: MENU Program Evaluation
Protocol ID: 2013-1850
Review Type: EXPEDITED - REVISION
Paragraph ID: 7
Approval Date: 12/08/2014
Expiration Date: 12/10/2015
OGCA #: 1H75DP004641-01

This study has been reviewed and approved by the University of Massachusetts Amherst IRB, Federal Wide Assurance # 00003909. Approval is granted with the understanding that investigator(s) are responsible for:

- Modifications - All changes to the study (e.g. protocol, recruitment materials, consent form, additional key personnel), must be submitted for approval in e-protocol before instituting the changes. New personnel must have completed CITI training.

- Consent forms - A copy of the approved, validated, consent form (with the IRB stamp) must be used to consent each subject. Investigators must retain copies of signed consent documents for six (6) years after close of the grant, or three (3) years if unfunded.

- Adverse Event Reporting - Adverse events occurring in the course of the protocol must be reported in e-protocol as soon as possible, but no later than five (5) working days.

- Continuing Review - Studies that received Full Board or Expedited approval must be reviewed three weeks prior to expiration, or six weeks for Full Board. Renewal Reports are submitted through e-protocol.

- Completion Reports - Notify the IRB when your study is complete by submitting a Final Report Form in e-protocol.

- Consent form (when applicable) will be stamped and sent in a separate e-mail. Use only IRB approved copies of the consent forms, questionnaires, letters, advertisements etc. in your research.

Please contact the Human Research Protection Office if you have any further questions. Best wishes for a successful project.
Table 1. Traditional Vs. CBPR (Salemi et al. 2012, Wallerstein 2010)

<table>
<thead>
<tr>
<th>Traditional Research</th>
<th>CBPR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research issue is defined by the academic</td>
<td>Collaboration between the community to define the research focus and</td>
</tr>
<tr>
<td>Outside “expert” determines methods and use for research outcomes</td>
<td>Study design, implementation, and evaluation are shared</td>
</tr>
<tr>
<td>Community-academic relationship may dissolve after conclusion</td>
<td>Creates strong and lasting partnerships that builds community capacity</td>
</tr>
<tr>
<td>Findings may or may not be disseminated to the community</td>
<td>Findings are always translated and publicized for/by the community</td>
</tr>
</tbody>
</table>
### Table 2a. Dietary Intake, Phase 1

<table>
<thead>
<tr>
<th></th>
<th>Pre-Intervention</th>
<th>Post-Intervention</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fruits</strong></td>
<td>1.8 servings (range: 0-3)</td>
<td>1.7 servings (range: 1-4)</td>
<td>0.26</td>
</tr>
<tr>
<td><strong>Vegetables</strong></td>
<td>1.33 servings (range: 1-2)</td>
<td>1.78 servings (range: 1-3)</td>
<td>0.009*</td>
</tr>
<tr>
<td><strong>Sugar Sweetened</strong></td>
<td>≤1 per week: 82%</td>
<td>≤1 per week: 82%</td>
<td>1.0</td>
</tr>
<tr>
<td><strong>Beverages</strong></td>
<td>&gt;1 per week: 18%</td>
<td>&gt;1 per week: 18%</td>
<td></td>
</tr>
</tbody>
</table>

### Table 2b. Frequency of Consuming Fresh/Frozen Fruit and Vegetable intake; Phase 1

<table>
<thead>
<tr>
<th></th>
<th>Pre-intervention</th>
<th>Post-intervention</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>“Always” or “Usually” % (n)</td>
<td>“Sometimes” or “Never” % (n)</td>
<td>“Always” or “Usually” % (n)</td>
</tr>
<tr>
<td><strong>Fresh or frozen fruit</strong></td>
<td>82% (9)</td>
<td>18% (2)</td>
<td>91% (10)</td>
</tr>
<tr>
<td><strong>Fresh or frozen vegetables</strong></td>
<td>55% (6)</td>
<td>45% (5)</td>
<td>73% (8)</td>
</tr>
<tr>
<td></td>
<td>Pre-intervention</td>
<td>Post-intervention</td>
<td>P-value</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>------------------</td>
<td>-------------------</td>
<td>---------</td>
</tr>
<tr>
<td><strong>How often do you read nutrition labels?</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>“Always” or “Usually” % (n)</td>
<td>54% (6)</td>
<td>45% (5)</td>
<td>73% (8)</td>
</tr>
<tr>
<td>“Sometimes” or “Never” % (n)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>How often do you shop with a grocery list?</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>45% (5)</td>
<td>54% (6)</td>
<td>45% (5)</td>
<td>54% (6)</td>
</tr>
<tr>
<td><strong>How often do you plan meals ahead of time?</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27% (3)</td>
<td>73% (8)</td>
<td>36% (4)</td>
<td>64% (7)</td>
</tr>
<tr>
<td>“Always” or “Usually” % (n)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>“Sometimes” or “Never” % (n)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 4. Attitudes Toward Healthy Eating; Phase 1

<table>
<thead>
<tr>
<th></th>
<th>Percent Agree/Strongly Agree</th>
<th></th>
<th></th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre-intervention % (n)</td>
<td>Post-intervention % (n)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eating healthy is very</td>
<td>91% (10)</td>
<td>100% (11)</td>
<td></td>
<td>0.31</td>
</tr>
<tr>
<td>important to me</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Healthy food tastes good</td>
<td>82% (9)</td>
<td>91% (10)</td>
<td></td>
<td>0.53</td>
</tr>
<tr>
<td>to me</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I get confused over what’s</td>
<td>0% (0)</td>
<td>18% (2)</td>
<td></td>
<td>0.14</td>
</tr>
<tr>
<td>supposed to be healthy and what isn’t</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am eating more healthy foods than</td>
<td>73% (8)</td>
<td>64% (7)</td>
<td></td>
<td>0.61</td>
</tr>
<tr>
<td>I have in the past</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 5. Answers to Knowledge Questions; Phase 1

<table>
<thead>
<tr>
<th></th>
<th>Pre-intervention</th>
<th>Post-intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>How many servings of fruits/vegetables should a person eat each day?</td>
<td>3.4 servings (range 2-5 servings)</td>
<td>3.7 servings (range 2-6 servings)</td>
</tr>
<tr>
<td>What are examples of a lean protein?</td>
<td>6 out of 7 correct answers: 100%</td>
<td>6 out of 7 correct answers: 100%</td>
</tr>
<tr>
<td>What are good ways to make a recipe lower in fat?</td>
<td>2 out of 3 correct answers: 100%</td>
<td>2 out of 3 correct answers: 100%</td>
</tr>
<tr>
<td>Have you ever heard of MyPlate/MyPyramid?</td>
<td>Yes: 50% No: 50%</td>
<td>Yes: 64% No: 36%</td>
</tr>
</tbody>
</table>
Table 6. Perceived Usefulness; Phase 1

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree % (n)</th>
<th>Agree % (n)</th>
<th>Strongly Agree % (n)</th>
<th>Agree % (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Session 1</td>
<td>86% (6)</td>
<td>14% (1)</td>
<td>100% (7)</td>
<td>0% (0)</td>
</tr>
<tr>
<td>Session 2</td>
<td>80% (4)</td>
<td>20% (1)</td>
<td>100% (5)</td>
<td>0% (0)</td>
</tr>
<tr>
<td>Session 3</td>
<td>71% (5)</td>
<td>29% (2)</td>
<td>100% (7)</td>
<td>0% (0)</td>
</tr>
<tr>
<td>Session 4</td>
<td>88% (7)</td>
<td>13% (1)</td>
<td>88% (7)</td>
<td>13% (1)</td>
</tr>
<tr>
<td>Session 5</td>
<td>100% (5)</td>
<td>0% (0)</td>
<td>100% (5)</td>
<td>0% (0)</td>
</tr>
<tr>
<td>Session 6</td>
<td>70% (7)</td>
<td>30% (3)</td>
<td>89% (8)</td>
<td>11% (1)</td>
</tr>
</tbody>
</table>

Table 7. Process Evaluation Statements on Behavior Change Intent

<table>
<thead>
<tr>
<th></th>
<th>Statement #3</th>
<th>Statement #4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Session 1</td>
<td>I plan to use the MyPlate tool to create balanced meals</td>
<td>I plan to begin or increase reading nutrition labels</td>
</tr>
<tr>
<td>Session 2</td>
<td>I plan to use the strategies I learned today to eat smaller portions</td>
<td>I plan to try a recipe makeover this week</td>
</tr>
<tr>
<td>Session 3</td>
<td>I plan to try planning my meals ahead of time this week</td>
<td>I plan to us a grocery list next time I go shopping for food</td>
</tr>
<tr>
<td>Session 4</td>
<td>I plan to compare nutrition labels to choose food lower in fat.</td>
<td>I plan to ask for lighter sauces, grilled foods, or healthier sides when out at a restaurant</td>
</tr>
<tr>
<td>Session 5</td>
<td>I learned ways to reduce my risk for heart disease, cancer, and diabetes.</td>
<td>I am motivated to achieve the health goal I made today.</td>
</tr>
<tr>
<td>Session 6</td>
<td>I understand what “food justice” means”</td>
<td>I plan to visit and support a local community garden, mobile market, or farmer’s market.</td>
</tr>
</tbody>
</table>
Table 8. Self-Reported Behavior Change; Phase 1

<table>
<thead>
<tr>
<th>Participant</th>
<th>How many sessions did you attend?</th>
<th>Have you made any changes in what you eat, where you shop, or how you cook? If yes, please list some of the changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5</td>
<td>I'm not afraid to substitute to lessen the sodium, fat or carbs</td>
</tr>
<tr>
<td>3</td>
<td>6</td>
<td>Use more fiber in food</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
<td>Eating breakfast, more veggies and fruits, grains, understanding nutrition labels</td>
</tr>
<tr>
<td>5</td>
<td>6</td>
<td>Changes in portions I eat. Eat less sweets, desserts, eat more vegetables. Less white bread</td>
</tr>
<tr>
<td>6</td>
<td>4</td>
<td>More juices, smaller meal portions- reading the nutrients</td>
</tr>
<tr>
<td>8</td>
<td>2</td>
<td>Less salt, no sugar, no sweets</td>
</tr>
<tr>
<td>10</td>
<td>4</td>
<td>No response</td>
</tr>
<tr>
<td>11</td>
<td>3</td>
<td>No response</td>
</tr>
<tr>
<td>12</td>
<td>4</td>
<td>Eat more fruits and veg.</td>
</tr>
<tr>
<td>13</td>
<td>2</td>
<td>Request a takeout container before starting your meal</td>
</tr>
<tr>
<td>14</td>
<td>3</td>
<td>Look at labels for amount of fat, sodium, and carbohydrates. I don't dine out often</td>
</tr>
</tbody>
</table>
Table 9. Process Evaluation Comments; Phase 1

<table>
<thead>
<tr>
<th>Session 1</th>
<th>Responses to “Please tell us which materials you found most usefull”</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>“Review of label reading when shopping”</td>
</tr>
<tr>
<td></td>
<td>“MyPlate”</td>
</tr>
<tr>
<td></td>
<td>“The MyPlate portion control was most useful”</td>
</tr>
<tr>
<td></td>
<td>“MyPlate”</td>
</tr>
<tr>
<td></td>
<td>“Labels, MyPlate”</td>
</tr>
<tr>
<td>Session 2</td>
<td>“Visuals”</td>
</tr>
<tr>
<td></td>
<td>“The food substitutions”</td>
</tr>
<tr>
<td></td>
<td>“Test tube [visual] aids showing fat and sugar content”</td>
</tr>
<tr>
<td></td>
<td>“Substitution of healthier foods and additives”</td>
</tr>
<tr>
<td></td>
<td>“Limit things, tips for lowering fats”</td>
</tr>
<tr>
<td>Session 3</td>
<td>“The handout!”</td>
</tr>
<tr>
<td></td>
<td>“Availability of food items today as compared to yesteryear”</td>
</tr>
<tr>
<td></td>
<td>“Menu planning”</td>
</tr>
<tr>
<td></td>
<td>“Frugal facts”</td>
</tr>
<tr>
<td></td>
<td>“Reduce waste”</td>
</tr>
<tr>
<td>Session 4</td>
<td>“Comparison of foods/meals in restaurants and grocery stores”</td>
</tr>
<tr>
<td></td>
<td>“The Eat This, Not That book was good. The Which is Better For You [activity], some foods I had no idea that they’d not be good.”</td>
</tr>
<tr>
<td></td>
<td>“Comparison of what to eat or not eat”</td>
</tr>
<tr>
<td></td>
<td>“How to choose the food [with] less fat, sodium”</td>
</tr>
<tr>
<td></td>
<td>“The power point presentation regarding foods that are higher in calories. The handout. Also the discussion from the group with advice suggestion”</td>
</tr>
<tr>
<td>Session 5</td>
<td>“Disease caused by lack of diet, exercise; due to lack of interest and availability”</td>
</tr>
<tr>
<td></td>
<td>“Reviewing the handouts; informative discussions. Goal setting for a healthy life.”</td>
</tr>
<tr>
<td></td>
<td>“Conversation. It motivated me to do the things I should be doing.”</td>
</tr>
<tr>
<td>Session 6</td>
<td>“Samples of foods brought in that were discussed the previous week”</td>
</tr>
<tr>
<td></td>
<td>“Info about the food justice movement”</td>
</tr>
<tr>
<td></td>
<td>“Most of the handouts and PowerPoint presentation”</td>
</tr>
</tbody>
</table>
Table 10. Changes in Dietary Intake; Phase 2

<table>
<thead>
<tr>
<th></th>
<th>Pre-Intervention</th>
<th>Post-Intervention</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fruits</td>
<td>1.4 servings (range: 0-3)</td>
<td>2.6 servings (range: 1-4)</td>
<td>0.04*</td>
</tr>
<tr>
<td>Vegetables</td>
<td>2.3 servings (range: 1-3)</td>
<td>2.9 servings (range: 2-4)</td>
<td>0.07</td>
</tr>
<tr>
<td>Frequency of Fresh/Frozen Fruit</td>
<td>Always or Usually: 83% Half, Sometimes, or Never: 17%</td>
<td>Always or Usually: 50% Half, Sometimes, or Never: 50%</td>
<td>0.22</td>
</tr>
<tr>
<td>Frequency of Fresh/Frozen Vegetables</td>
<td>Always or Usually: 67% Half, Sometimes, or Never: 33%</td>
<td>Always or Usually: 33% Half, Sometimes, or Never: 67%</td>
<td>0.25</td>
</tr>
<tr>
<td>Sugar Sweetened Beverages</td>
<td>≤1 per week: 50% &gt;1 per week: 50%</td>
<td>≤1 per week: 50% &gt;1 per week: 50%</td>
<td>1.0</td>
</tr>
</tbody>
</table>

*p < 0.05
### Table 11. Shopping and Meal Planning Behaviors; Phase 2

<table>
<thead>
<tr>
<th></th>
<th>Pre-intervention</th>
<th>Post-intervention</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>“Always” or “Usually” % (n)</td>
<td>“Sometimes” or “Never” % (n)</td>
<td>“Always” or “Usually” % (n)</td>
</tr>
<tr>
<td>How often do you read nutrition labels?</td>
<td>83% (5)</td>
<td>17% (1)</td>
<td>100% (6)</td>
</tr>
<tr>
<td>How often do you shop with a grocery list?</td>
<td>83% (5)</td>
<td>17% (1)</td>
<td>66% (4)</td>
</tr>
<tr>
<td>How often do you plan meals ahead of time?</td>
<td>17% (1)</td>
<td>83% (5)</td>
<td>66% (4)</td>
</tr>
</tbody>
</table>

### Table 12. Attitudes Toward Healthy Eating; Phase 2

<table>
<thead>
<tr>
<th></th>
<th>Percent Agree/Strongly Agree</th>
<th>Pre-intervention (n)</th>
<th>Post-intervention (n)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eating healthy is very important to me</td>
<td>100% (6)</td>
<td>100% (6)</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>Healthy food tastes good to me</td>
<td>83% (5)</td>
<td>100% (6)</td>
<td>0.30</td>
<td></td>
</tr>
<tr>
<td>I get confused over what’s supposed to be healthy and what isn’t</td>
<td>33% (2)</td>
<td>33% (2)</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>I am eating more healthy foods than I have in the past</td>
<td>83% (5)</td>
<td>100% (6)</td>
<td>0.30</td>
<td></td>
</tr>
</tbody>
</table>
Table 13. Answers to Knowledge Questions; Phase 2

<table>
<thead>
<tr>
<th>Question</th>
<th>Pre-intervention</th>
<th>Post-intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>How many servings of fruits/vegetables should a person eat each day?</td>
<td>4.5 servings (range 3-6 servings)</td>
<td>5.5 servings (range 3-8 servings)</td>
</tr>
<tr>
<td>What are examples of a lean protein?</td>
<td>6 out of 7 correct answers: 83%</td>
<td>7 out of 7 correct answers: 100%</td>
</tr>
<tr>
<td>What are good ways to make a recipe lower in fat?</td>
<td>3 out of 3 correct answers: 100%</td>
<td>3 out of 3 correct answers: 100%</td>
</tr>
<tr>
<td>Have you ever heard of MyPlate/MyPyramid?</td>
<td>Yes: 100%</td>
<td>Yes: 100%</td>
</tr>
<tr>
<td></td>
<td>No: 0%</td>
<td>No: 0%</td>
</tr>
</tbody>
</table>
Table 14. Perceived Usefulness; Phase 2

<table>
<thead>
<tr>
<th></th>
<th>“This session covered useful information” (Process Evaluation Item #1)</th>
<th>“Overall, I found the session to be very informative” (Process Evaluation Item #7)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Strongly Agree % (n)</td>
<td>Agree % (n)</td>
</tr>
<tr>
<td>Session 1</td>
<td>50% (5)</td>
<td>50% (5)</td>
</tr>
<tr>
<td>Session 2</td>
<td>88% (7)</td>
<td>12% (1)</td>
</tr>
<tr>
<td>Session 3</td>
<td>67% (4)</td>
<td>33% (2)</td>
</tr>
<tr>
<td>Session 4</td>
<td>100% (2)</td>
<td>0% (0)</td>
</tr>
<tr>
<td>Session 5</td>
<td>50% (1)</td>
<td>50% (1)</td>
</tr>
<tr>
<td>Session 6</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>
Table 15. Self-Reported Behavior Change; Phase 2

<table>
<thead>
<tr>
<th>Participant ID</th>
<th>How many sessions did you attend?</th>
<th>Have you made any changes in what you eat, where you shop, or how you cook?</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1</td>
<td>5</td>
<td>I have purchased and eaten more fresh vegetables</td>
</tr>
<tr>
<td>C3</td>
<td>6</td>
<td>Buying more produce-attempting meal planning</td>
</tr>
<tr>
<td>C5</td>
<td>3</td>
<td>I plan meals ahead of time, I read labels w/ better understanding</td>
</tr>
<tr>
<td>C8</td>
<td>6</td>
<td>Buying food, time I eat and how much</td>
</tr>
<tr>
<td>C9</td>
<td>5</td>
<td>More vegetables, lighter dressings clear or lighter colors; less oils, breads and more mindful of sugars</td>
</tr>
<tr>
<td>C10</td>
<td>6</td>
<td>Less processed foods</td>
</tr>
</tbody>
</table>
Table 16. Process Evaluation Comments; Phase 2

<table>
<thead>
<tr>
<th>Session</th>
<th>Responses to “Please tell us which materials you found most useful”</th>
</tr>
</thead>
</table>
| Session 1 | “MyPlate for portion size.”  
|           | “Portions.”  
|           | “The plate is very useful.”  
|           | “Nutrition facts label.” |
| Session 2 | “What foods to substitute for healthier [foods].”  
|           | “Add Color to your Day handout. The plate information”  
|           | “Portion size; substitute”  
|           | “How to read the labels” |
| Session 3 | “Handouts”  
|           | “I really enjoy reading the handouts.”  
|           | “Taking your time to plan your meal[s] for the week.” |
| Session 4 | “The condiment activity board” |
| Session 5 | N/A |
| Session 6 | N/A |
Figure 1. Community-Based Participatory Research Framework (Wallerstein 2010)
REFERENCES

Aggarwal A., Monsivais P., Drewnowski A.(2012). Nutrient intakes linked to better health outcomes are associated with higher diet costs in the US. Public Library of Science, 7(5): e37533.


Massachusetts Department of Public Health. (2013). *Socio-demographic standard report for Springfield*


