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Nelson, Nicole, E. ***Program Managers' Attitudes and Perception of Nutrition in a Community-Based Home Setting***

Abstract

This research aimed to determine factors that influenced the program managers' decisions regarding food or menu choices offered at the home, to determine if nutritional needs of consumers were perceived as being met, and to identify factors that may assist in improving nutritional quality of meals within the home. Twenty-nine program managers from a community-based housing company (CBHC) were participants in the study. Data were collected in February and March of 2012 through the use of an online survey program. The survey included questions regarding food-related perceptions in the home. Weekly menus were also gathered during the study period from three CBHC homes to relate the nutrient and energy content to nutritional standards. The results determined the majority of participants perceived consumers' fruit and vegetable needs as being met. The weekly menu plan was perceived by most participants to be the main factor influencing menu planning, and the nutritional needs of consumers to be the main factor influencing grocery shopping practices. Participants who had some training related to food and nutrition reported offering vegetables and dark leafy green vegetables significantly more ($p<.05$) than participants who had no training. The nutrient analyses from the three CBHC homes indicated that the majority of the nutrient targets are not being met in an average meal.

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Chapter I: Introduction

Adults with mental and physical disabilities are often a forgotten part of our society. In the past it was common to find a majority of this population in nursing homes and similar institutions. Currently, many adults with physical and mental disabilities are now living in community-based home settings, often referred to as "group homes."

Community-based homes are integrated housing for adults with disabilities, including elders, who may have staff assistance up to 24 hours a day. Living in these group homes allows consumers (residents of the home) more freedom to make their own decisions and provides the opportunity for them to live in a "home-like" environment with security and support they need. Due to the circumstances of group home settings, consumers rely on one or more staff to assist them with daily tasks, including meal planning and meal preparation/cooking. Cleaning, transportation, and personal cares are other common tasks often provided to consumers by staff in group homes. Oftentimes consumers are not able to make decisions on their own, and must place trust in their staff to make decisions in their best interest. This process is called substitute decision-making. Dunn, Clare, and Holland (2010) noted that substitute decision-making is the process by which one or more decisions relating to health care and matters of personal welfare are made on behalf of adults who are judged to lack the decision-making capacity for themselves. In regards to nutritional health, the consumers' diet is held in the hands of the care provider who routinely makes decisions pertaining to grocery shopping, menus, and portion sizes. Substitute decision-making related to their daily diet can greatly impact consumers' health now and in the future.

Kneringer and Page (1999) reported that in institutional settings such as nursing homes, menu development, food storage, and meal preparation are managed by trained food-service

personnel. However, in community residences such as group homes, these responsibilities often fall to consumers and direct-care staff, who may have no training or experience. The lack of staff training or experience may become a serious problem for consumers within the home, particularly with respect to nutritional care. Without proper nutrition, these already vulnerable consumers are at a greater health risk.

The *Dietary Guidelines for Americans, 2010,* released on January 31, 2011, emphasized three major goals for healthy Americans. These goals related to balancing calories with physical activity to manage body weight; consuming more of certain foods and nutrients such as fruits, vegetables, whole grains, seafood, and fat-free and low-fat dairy products; consuming less sodium (salt), saturated fats, *trans* fats, cholesterol, added sugars, and refined grains (United States Department of Agriculture [USDA] and United States Department of Health and Human Services [USDHHS], 2010). These goals for healthy Americans should be no different for healthy individuals living in community-based homes. What is being done within the homes to work towards these healthy goals? In order to improve on these goals, we must first evaluate what is currently being done in each community-based home. The attitudes and perceptions of nutrition within the home will be evaluated to discover what factors may be influencing the nutritional health of the consumers.

Statement of the Problem

Currently very little research exists about nutrition practices in community-based homes. Yet, these facilities are residences for groups known to be at nutritional risk such as older adults and disabled individuals. There is a need to focus on nutrition within community-based housing, due to the vulnerable populations who live in these settings. Literature is lacking on meeting

nutritional needs of residents in community-based housing, and the factors that may influence nutritional choices within the home.

The program managers of community-based homes are responsible for menu planning, grocery shopping and other food-related decisions that influence the nutritional quality of meals for residents/consumers in their homes. Information from this study will help identify the key determinants in program managers' food-related decisions, and factors that may promote or prevent optimal nutrition standards for residents in community-based homes. The results of this research may also provide recommendations for actions that Community-Based Housing Companies (CBHC) can take to help program managers improve the nutritional quality within their homes of operation, thus taking steps toward providing evidence for a need to focus on nutritional well-being of vulnerable populations served.

Purpose of the Study

The purpose of this study is to determine the program managers' attitudes and perceptions of nutrition in community-based homes. This research aims to determine factors that influence the program managers' decisions regarding food or menu choices offered at the home, to determine if nutritional needs of consumers are perceived as being met, and to identify factors that may assist the program managers in improving nutritional quality of meals within the home. The specific research objectives of this study are as follows:

1. Determine what factors influence program managers' menu planning decisions.
2. Determine what factors influence program managers' grocery shopping practices.
3. Determine if program managers perceive nutritional needs of consumers as being met.
4. Identify factors that may assist program managers in improving nutritional quality of meals in community-based homes.

5. Relate fruit and vegetable perceptions, and menu planning, grocery shopping, and food use practices to the educational attainment and nutrition and food training experience of program managers, and to the number of consumers in each home.

6. Determine if nutritional standards for group feeding are being met by comparison of offered food components to a national standard for group feeding programs.

7. Determine if nutritional standards for menus are being met by comparing nutrient analyses of sampled menus to one-third of the daily recommended intakes for consumers having the highest recommendation.

Assumptions of the Study

Several assumptions were made in the preparation of this study involving program managers in community-based homes. The researcher assumed that the participants all had access to email at their work location in order to complete the online survey. Another assumption made was that the program managers of each house were aware of the main factors that influence the grocery shopping, meal planning, and nutritional needs in their specific house operation. Finally, the researcher assumed that program managers understood the questionnaire and responded honestly.

Definition of Terms

The following terms are defined to provide clarity to the content of this study:

Cholesterol. Cholesterol is a sterol found in cell membranes of all animal tissues that is also necessary for production of bile and steroid hormones. The rigid, four-ringed cholesterol molecule is bound into the hydrophobic membrane by its hydroxyl group. The planar rings spread apart and partially immobilize the fatty acid chains near the polar region. The nonpolar hydrocarbon tail contributes to greater fluidity in the interior of the membrane (Mahan & Escott-

Stump, 2008). While the body needs cholesterol to continue building healthy cells, having high blood levels of cholesterol can increase the risk of heart disease (Mayo Clinic, 2011a).

Community-based homes. Community-based homes are integrated housing for people with mental and/or physical disabilities, including young adults and older adults. (Commonwealth of Massachusetts, 2011).

Consumer. Consumer, used in the context of this study, is the person living in a community-based home who purchases the services of the company and staff.

Dietary Guidelines for Americans. Dietary Guidelines for Americans provide science-based advice for making food choices that promote good health, prevent chronic diseases, and advocate a healthy weight; the guidelines are intended for Americans ages 2 years and older, including those at increased risk of chronic disease. (USDA & USDHHS, 2010)

Refined grains. Grains and grain products missing the bran, germ, and/or endosperm; any grain product that is not a whole grain. Many refined grains are low in fiber and enriched with thiamin, riboflavin, niacin, and iron, and fortified with folic acid as required by U.S. regulations (USDA & USDHHS, 2010).

Saturated fat. Saturated fat, also called saturated fatty acids (SFAs), are fatty acids in which all available carbon binding sites are filled with hydrogen (Mahan & Escott-Stump, 2008). Saturated fat is a type of fat that comes mainly from animal sources of food. Saturated fat raises total blood cholesterol levels and low-density lipoprotein (LDL) cholesterol levels, which can increase the risk of cardiovascular disease. (Mayo Clinic, 2011b)

Trans fat. Trans fat, also called trans-fatty acids, are stereoisomers of the naturally occurring cis-fatty acid in which hydrogen is added back across the double bond; through a hydrogenation process. Trans-fatty acids are naturally occurring to a limited extent in milk and in

meat from ruminants, where microflora convert cis- to trans-fatty acids; present to a much greater extent in processed foods (Mahan & Escott-Stump, 2008). Trans fats both raise low density lipoprotein (LDL) cholesterol and lower high density lipoprotein (HDL) cholesterol (Mayo Clinic, 2011b).

Whole grains. Whole grains are grains or grain products that include the entire grain seed or kernel; their bran and germ have not been removed by refining. Whole grains are better sources of fiber, selenium, potassium, and magnesium in comparison to a refined grain (Mayo Clinic, 2011b). Examples include brown rice, popcorn, and whole wheat bread or pasta.

Limitations of the Study

Several limitations were noted during the development of this study. A major limitation was the inclusion of only one specific community-based housing company (CBHC) for sampling of participants in this study. Despite there being many houses within the cooperating Company, it is possible that the Company's structure or training has changed the way the program managers perform the meal planning and related duties in comparison to that of other company-based housing companies. The data were gathered exclusively from the central Wisconsin area homes of the Company. Consequently, this study does not summarize findings for all community-based homes and should not be used to make conclusions or inferences about other companies or similar home settings.

Methodology

Following approval from the University of Wisconsin-Stout Institutional Review Board, this study was conducted during February and March of 2012. A survey was conducted of program managers employed at a central Wisconsin CBHC. An email was sent to all program managers with work email addresses inviting them to participate in the study and informing them

of the nature of it. Those who submitted the online survey were considered as participants of this study. All survey responses were anonymous. Statistical analyses of data were performed using SPSS 18.0.

Chapter II: Literature Review

This chapter includes a discussion of a variety of aspects that shape the nutritional environment of consumers (residents) living in community-based homes. Limited information is available on the nutritional environment of these homes. No studies were found in the literature on the perceptions of program managers or care-providers toward the nutritional environment or dietary intakes of consumers in community-based homes. Similarly, information on nutritional standards specific to community-based homes appears lacking. This chapter includes an overview of community-based homes, personal-care providers, and the nutrition environment of community-based homes to provide background information pertinent to the current research. Since the primary clientele of the homes are the disabled individuals and older adults, this chapter also presents an overview of both populations with emphasis on nutrition and health concerns. The chapter closes with a discussion of dietary standards and guidelines for adult group feeding programs.

Community-Based Homes

Community-based homes are integrated housing for people with disabilities, including elders, with priority for individuals who are in institutions or nursing facilities or at risk of institutionalization (Commonwealth of Massachusetts, 2011). Community-based homes are also known as group homes or residential care homes. The clientele served generally include persons aged 18 years or older who may require extra assistance due to disabilities. The majority of the clientele have physical and developmental disabilities (Aurora Community Services, 2012).

Most community-based homes are standard, single-family houses, purchased by the CBHC and adapted to meet the needs of the consumers. Adaptations may include single level housing, wheelchair ramps, spacious rooms for wheelchair mobility, ceiling lifts, and handicap

accessible house amenities. These homes may not stand out against any others in the surrounding neighborhood; thus promoting the idea of being a part of the community, and enhancing the feeling of a "home-like" environment among the consumers (Encyclopedia of Mental Disorders, 2012). Research has shown that both younger and older adults with intellectual disabilities and other developmental disabilities are able to benefit from living in community settings (American Association on Intellectual and Developmental Disabilities [AAIDD], 2012).

Generally, several services are available to the consumers living in community-based homes. These services include grocery shopping, meal preparation, transportation, medication management, laundry, and assistance with personal cares. The staff in the CBHC assists in the role of assuring that the consumers receive any other services needed as a part of their care plan, such as medical care, physical therapy, occupational therapy, vocational training, education, and mental health services (Encyclopedia of Mental Disorders, 2012). Case managers from a government agency may be assigned to review the services the consumer is provided, and to make recommendations for adjustments in the individual's care.

Each house has staffing based on the number and needs of the consumers. In general, there is a program manager for each home who provides direction and leadership to the team of staff. The program manager is responsible for coordinating many of the household and office duties to ensure the house is meeting the quality standards of the consumers, guardians, and contracting agency (CBHC Program Manager Job Description, 2012). The program managers are responsible for developing weekly meal menus and planning the items to be bought on grocery shopping trips. Program managers are also responsible for managing the monthly grocery budget.

Consumers living in community-based homes may require 24-hour supervision and assistance with personal-care needs such as dressing, grooming and managing medications (North Carolina Division of Aging & Adult Services, 2009). Medication may be given by trained staff, or even managed by the consumer depending on his/her functioning level. Medical care may be provided on occasion but is not routinely needed in these homes. The staff should be professionally trained to assist with consumers' daily care and health needs.

Mealtime is especially important in a community-based home setting. Mealtime provides an opportunity for all consumers and staff to set other projects aside and gather for a family-style meal. Mealtimes structure the day and have been described by consumers, as well as their care-staff and family members as the 'highlight of the day' (Commission for Social Care Inspection, [CSCI], 2006; Philpin, Merrell, Warring, Gregory, & Hobby, 2011). Consumers may assist with the meal preparation as able, which enhances their personal esteem and feelings of usefulness. Whether the task is helping to set the table, dumping ingredients into a mixing bowl, or putting their finished dishes in the sink, the activity establishes a daily routine that consumers become accustomed and gain a sense of pride. To keep the morale high, it is important involve all consumers in the daily activities of running a household.

Personal-Care Providers and Nutritional Environment

Personal-care providers or staff who provide direct-care to individuals are incredibly important to the health and well-being of consumers in community-based homes. Often, consumers in these homes must place trust in a personal-care provider to make decisions in their best interest. This process is called substitute decision-making. Dunn, Clare, and Holland (2010) noted that substitute decision-making is the process by which one or more decisions

relating to health care and matters of personal welfare are made on behalf of adults who are judged to lack the capacity to make such decisions for themselves.

Due to substitute decision-making, the quality of health care for individuals with disabilities depends on the knowledge and skills of their personal-care providers, particularly the capacity of providers to engage disabled individuals in their own health care (U.S. Department of Health and Human Services [USDHHS], 2002). Because of the wide variation of disabilities within this population, providers often try to "do for them," instead of teaching disabled individuals to do for themselves. Every day can provide a learning opportunity for teaching individuals with disabilities healthful lifestyle practices by including them in grocery shopping and meal preparation activities, and offering healthy options for them to choose in their daily diets.

A report by the USDHHS on improving the health of persons with mental retardation (2002) stated that neither caregivers nor individuals with a disability were valued for the potential role they can play in health promotion. The report further stated that direct-care staff in group homes was often impoverished and lacked heath care themselves. Therefore, enhancing nutritional health promotion for individuals with disabilities would require training and provider support for direct caregivers.

Similar to personal health care needs, the consumers' diet is held in the hands of the care provider who makes many decisions on grocery shopping, menus, and portion sizes. Consequently, the staff at each community-based home plays a large role in the nutritional choices and meal preparation methods for consumers. These choices influence the nutritional environment of the home and nutritional health status of the consumer. One staff training issue which occurs in community residences is dietary management. In institutional settings, menu

development, food storage, and meal preparation are managed by trained food-service personnel. However, in community residences, these responsibilities fall to consumers and direct-care staff, who may have no training or experience (Kneringer & Page, 1999). A study by Kneringer and Page (1999) determined the effect of providing training sessions for staff related to menu development and meal preparation on the correct adherence to these tasks. After three 1-hour training sessions, healthy menu development increased from 28% in baseline to 81% after training, and meal preparation adherence increased from 59% at baseline to 98% after training (Kneringer & Page, 1999).

Disabled Adult Population

An estimated 4.5 million Americans have an intellectual or developmental disability (Humphries, Traci, & Seekins, 2009). Developmental disabilities are a group of severe chronic conditions that are due to mental or physical impairments. Mobility, learning, and independence may be areas individuals with developmental disabilities struggle with. Developmental disabilities begin anytime during development up to 22 years of age and usually last throughout a person's lifetime (Centers for Disease Control and Prevention [CDC], 2011).

Few studies are available that update the statistics of the prevalence of developmental disabilities in various settings. In 1995, there were an estimated 346,659 people with mental retardation in residential settings and institutions: 33,943 are in nursing homes; 62,028 are in state institutions; 37,311 reside in private institutions with 16 or more residents; and 213,377 live in other community facilities (National Institute on Disability and Rehabilitation Research [NIDRR], 1996).

Nutrition and health concerns. Adults with disabilities are a nutritionally vulnerable group (Bryan, Allan, & Russell, 2000). The literature continues to highlight the prevalence of

malnutrition among older people living in care homes (Elia, Jones, & Russell, 2008). A study by Bryan, Allan, and Russell (2000) confirmed the nutritional vulnerability of adults with learning disabilities and highlighted the unintentional weight loss of underweight clients and weight gain in overweight clients. The study also supported the need for regular screening and dietetic input by professionals for these vulnerable adults.

The USDHHS (2002) reported that children, youth, and adults with communication difficulties were especially at greater risk for poor nutrition, overmedication, injury, and abuse due to the inability to communicate or recognize their needs. Also, this report noted that individuals with mental retardation received fewer routine health examinations, fewer immunizations, less mental health care, less preventative oral health care, and fewer opportunities for physical exercise than did other Americans (USDHHS, 2002). Further, people with developmental disabilities have an increased risk for chronic diseases such as heart disease, obesity, seizures, hearing and vision problems, low bone mineral density, and poor conditioning and fitness (De, Small, & Baur, 2008). Several of these conditions are diet-related and could be prevented or improved with nutrition interventions. The severity of the nutrition problems associated with this population depends on multiple factors unique to each individual, including age, level of functioning, severity of disability, general state of health. Also, environmental, educational, training, work, and social conditions influence the severity of nutritional problems in this population (Van Riper & Wallace, 2010).

The Academy of Nutrition and Dietetics (formerly, the American Dietetic Association) has developed practice guidelines for nutritional care and services specific to the population with disabilities (Van Riper & Wallace, 2010). The Academy recommends comprehensive nutrition services, including anthropometric, biochemical and clinical assessments, as well as an

evaluation of feeding skills, environmental social and educational factors that influence the development of a nutrition intervention and care plan for each individual (Van Riper & Wallace, 2010).

Older adult population. According to Doka and Lavin (2003), less than three decades ago, the developmentally disabled population rarely survived into later life. Now, due to better healthcare and the beneficial results of deinstitutionalization, many with developmental disabilities are aging and reaching older adulthood.

An older adult is defined as persons 65 years of age and older (American Psychological Association, 2012). Now, many of the individuals living in community-based homes are not only dealing with severe health conditions and disabilities, but are now also faced with the effects and complications associated with aging.

The effects of normal aging occur in each individual as a person advances into older adulthood. Normal aging (or primary aging) refers to the universal physical, biological, social and emotional changes that all individuals experience during the aging process (Bernstein & Luggen, 2008). The changes are age-related, but independent of disease.

Nutrition plays an important role in the aging process. As an older adult, not staying well-nourished can quickly lead to malnutrition or dehydration, making older adults even more prone to disease and loss of engagement with life (CSCI, 2006). In extreme cases, this can result in hospitalization or even loss of life. Eighty-five percent of noninstitutionalized older adults have one or more chronic health conditions that could be improved with proper nutrition, and up to half may have clinical evidence of various forms of malnutrition (Bernstein & Luggen, 2010). Nutritional needs also change during the aging process. In general, healthy older adults have a decreased basal metabolic rate, and lean muscle mass, which decreases their energy (calorie)

needs (Bernstein & Luggen, 2008). Yet, their need for vitamins and minerals remains the same or increases in older adulthood. Consequently healthy diets of older adults should emphasize nutrient dense foods in order to achieve their increased nutrient needs with fewer calories.

Meeting the nutritional needs of older adults can be difficult because of the age-related changes that interfere with optimal food intake such as problems with chewing and swallowing, chronic and acute illnesses, and changes in digestion and absorption. Major nutritional components to focus on in this population include fluid, energy, protein, fat, fiber, vitamin B12, calcium, vitamin D, and zinc (Bernstein & Luggen, 2010).

Several nutritional concerns exist in the older adult population. This topic has been thoroughly discussed by Niedert and Dornner (2004). Social isolation, impaired functional status, poor oral health, and chronic disease were related to inadequate energy intake (Niedert & Dorner, 2004). The chronic medication use in older adults has raised concern for drug-nutrient or drug-drug interactions, negatively affecting nutritional status (Niedert & Dorner, 2004). Constipation was another common concern mentioned for the older adult population. An increase of insoluble and soluble fibers, fluid, and physical activity were recommended as an intervention to relieve constipation (Niedert & Dorner, 2004).

More recently, the literature has been critically analyzed by the ADA (Dorner, Friedrich, & Posthauer, 2010). Restricted diets were discussed for diabetes mellitus, cardiovascular disease, chronic kidney disease, and Alzheimer's disease, all of which are common conditions in the older adult population (Dorner, Friedrich, & Posthauer, 2010). Other common nutrition-related health concerns of older adults include osteoporosis, macular degeneration and vision problems, osteoarthritis, cancer, and hypertension (Bernstein & Luggen, 2010).

Factors that influence food intake may include specialized diets, food presentation, and a distracting physical environment (Sloane, Ivey, Helton, Barrick, & Cerna, 2008). Specialized diets, such as pureed or mechanical soft, may be beneficial for those who have difficulties chewing or swallowing, but generally look unappetizing. Efforts should be made to make specialized and regular diets eye appealing and flavorful. Fruits and vegetables may add extra color and nutrient density to any meal.

Focusing on pleasurable eating at mealtimes has potential to improve nutrient intakes in residential dining (Sloane et al., 2008). Noisy and chaotic dining experiences may distract residents from eating. Quiet, small-group environments may stimulate residents to intake an adequate amount of nutrition and fluids during mealtimes.

Current estimates for adults age 60 and over with intellectual disabilities and other developmental disabilities (e.g., cerebral palsy, autism, epilepsy) range between 600,000 and 1.6 million (AAIDD, 2012). The population of older adults with disabilities is growing rapidly as the life-expectancy approaches that of the general population. According to the AAIDD, the factors that impact a person's aging are genetics, lifestyle choices, environmental factors, and attitude (AAIDD, 2012). Life expectancy for individuals with developmental disabilities has increased to the extent that younger adults with developmental disabilities are expected to have little disparity in relation to longevity (Van Riper & Wallace, 2010). For older adults with developmental disabilities, disparities may continue to exist due to the natural process of aging.

Older adults with various developmental disabilities may be more prone to secondary conditions than that of the general aging population. For example, older persons with cerebral palsy may develop chronic pain, osteoarthritis, and osteoporosis, related to their lifelong physical condition (AAIDD, 2012). The AAIDD also noted that older adults with long histories of

medications that help their condition, such as psychotropic or anti-seizure medications, create a higher risk of conditions related to overweight or osteoporosis.

As with younger adults, many of the health conditions in old age are related to long-term lifestyle factors. Although unintentional weight loss is a concern within this population, obesity is also an issue. An imbalance of calorie intake versus energy expenditure can lead to weight gain or weight loss. Obesity among disabled older adults, particularly for females, is higher than for the general population of older adults (AAIDD, 2012). Exercise, proper diet, and weight control need to be promoted to prevent older age-related health disorders, such as type 2 diabetes and coronary heart disease.

Dietary Standards for Adult Group Feedings

National nutritional standards for meals offered in community-based housing are lacking in the literature. However, federally-sponsored meal programs provide standards for group feeding of adults in nonresidential facilities. The federal adult group feeding programs include the Child and Adult Care Food Program (CACFP), and the congregate meal program.

The CACFP is administered through the USDA, Food and Nutrition Service (USDA/FNS) and provides meals and snacks for eligible individuals enrolled in day care settings. The program specifically targets older adults (60 years of age or) and younger adults with disabilities (18 -59 years old). The CACFP provide 112,000 adults in the U.S. nutritious meals and snacks each day as part of their day care routine (USDA/FNS, 2012). These services may be offered by public or private nonprofit adult day care facilities that meet USDA requirements for sponsoring the program. (USDA/FNS, 2012).

Nutrition standards for the CACFP are broadly outlined as meal pattern requirements that adult day care centers must follow for each meal and snack. The meal pattern specifies the minimum food components and quantities that must be offered at each meal or snack. The current CACFP meal pattern requirement is presented in Table 1. The CACFP adult meal pattern provides the food components and serving sizes for breakfast, lunch and supper. In addition, meals must be nutritious and follow dietary guidelines for energy, protein, and fat. The meals must also focus on increasing fiber and reducing sodium intake. To meet vitamin and mineral requirements the participants must be served potassium-rich fruits and vegetables, a variety of fruits and vegetables, and low-fat calcium-rich foods (USDA/FNS, 2012).

Table 1

CACFP Adult Meal Patterns

Meal Pattern	Food Component	Serving Size
Breakfast	1 milk	
	fluid milk	1 cup
	1 fruit/vegetable	
	juice,[a] fruit and/or vegetable	½ cup
	1 grain/bread[b]	
	bread or	2 slices
	cornbread, biscuit, roll, muffin or	2 servings
	cold dry cereal or	1 ½ cups
	hot cooked cereal or	1 cup
	pasta, noodles, grains	1 cup

Table 1 (Continued)

CACFP Adult Meal Patterns

	Food Component	Serving Size
Lunch	1 milk	
	fluid milk	1 cup
	2 fruit/vegetable	
	juice,[a] fruit and/or vegetable	½ cup
	1 grain/bread[b]	
	bread or	2 slices
	cornbread, biscuit, roll, muffin or	2 servings
	cold dry cereal or	1 ½ cups
	hot cooked cereal or	1 cup
	pasta, noodles, grains	1 cup
	1 meat/meat alternate[c]	
	meat, poultry, fish or	2 ounces
	alternate protein product or	2 ounces
	cheese or	2 ounces
	egg or	1 egg
	cooked dry beans or peas or	½ cup
	peanut or other nut or seed butter or	4 Tbsp.
	nuts and/or seeds[d] or	1 ounce
	yogurt[e]	8 ounces

Table 1 (Continued)

CACFP Adult Meal Patterns

	Food Component	Serving Size
Supper	2 fruit/vegetable	
	juice,[a] fruit and/or vegetable	1 cup
	1 grain/bread[b]	
	bread or	2 slices
	cornbread, biscuit, roll, muffin or	2 servings
	cold dry cereal or	1 ½ cups
	hot cooked cereal or	1 cup
	pasta, noodles, grains	1 cup
	1 meat/meat alternate[c]	
	meat, poultry, fish or	2 ounces
	alternate protein product or	2 ounces
	cheese or	2 ounces
	egg or	1 egg
	cooked dry beans or peas or	½ cup
	peanut or other nut or seed butter or	4 Tbsp.
	nuts and/or seeds[d] or	1 ounce
	yogurt[e]	8 ounces

[a] Fruit or vegetable juice must be full-strength.
[b] Breads and grains must be made from whole-grain or enriched meal or flour. Cereal must be whole-grain or enriched or fortified.
[c] A serving consists of the edible portion of cooked lean meat or poultry or fish.
[d] Nuts and seeds may meet only one-half of the total meat/meat alternate serving and must be combined with another meat/meat alternate to fulfill the lunch requirement.
[e] Yogurt may be plain or flavored, unsweetened or sweetened.
Adapted from the CACFP Adult Meal Components (USDA/FNS, 2012).

The Congregate Meal Program is another group feeding program that provides meals and related nutrition services to older individuals in a variety of settings such as senior centers. This program is administered by the U.S. Department of Health and Human Services, Administration on Aging (Administration on Aging [AoA], 2012). The meals served through this program s must meet the most recent Dietary Guidelines for Americans and provide each participant a minimum of one-third of the daily Recommended Dietary Allowances/Adequate Intakes

(RDA/AI) for nutrients if one meal is served, two-thirds of the RDAs/AIs if two meals are served, and 100 percent if three meals are served (AoA, 2012).

Dietary Guidelines for Americans

The Dietary Guidelines for Americans provide information and advice for healthy eating and lifestyle practices for lowering the risk of chronic diseases. The Dietary Guidelines are jointly developed by the USDA and the USDHHS. The Guidelines have been issued every five years since 1980 (USDHHS, 2010). The intent of the Dietary Guidelines is to summarize and synthesize the most recent science-based knowledge about individual nutrients and food components into an interrelated set of recommendations for healthy eating that can be adopted by healthy people 2 years of age or older in the United States (USDHHS, 2010).

The most recent *Dietary Guidelines for Americans, released in 2010,* presented two main concepts, which include maintaining calorie balance over time to achieve and sustain a healthy weight, and focusing on consuming nutrient-dense foods and beverages. Also, the 2010 Dietary Guidelines emphasize three major goals for Americans:

1. Balance calories with physical activity to manage weight
2. Consume more of certain foods and nutrients such as fruits, vegetables, whole grains, fat-free and low-fat dairy products, and seafood
3. Consume fewer foods with sodium (salt), saturated fats, *trans* fats, cholesterol, added sugars, and refined grains.

The current Dietary Guidelines include two specific recommendations of adults: maintaining a healthy weight with calorie balance, and consuming nutrient-dense foods and beverages. Otherwise, all recommendations for the general American population are applicable to healthy

older adults. The Dietary Guidelines made no specific recommendations for persons with disabilities.

Americans currently consume too much sodium and too many calories from solid fats, added sugars, and refined grains (USDHHS, 2010). These dietary components replace nutrient-dense foods and beverages and make it difficult for people to achieve recommended nutrient intake within the sodium and calorie limit. A healthy eating pattern limits intake of sodium, solid fats, added sugars, and refined grains and emphasizes nutrient-dense foods and beverages: vegetables, fruits, whole grains, fat-free or low-fat milk and milk products, seafood, lean meats and poultry, eggs, beans and peas, and nuts and seeds without added sugar, sodium or solid fat (USDHHS, 2010). Consumers in community-based homes are part of the American population, and should therefore be encouraged to follow a healthy eating pattern to avoid chronic diseases that afflict all citizens.

Chapter III: Methodology

The purpose of this chapter is to describe the research methodology used to conduct this study. This chapter will include a description of the population, the sample recruited for this study, the instrument used to collect data, the procedures used for data collection and analysis, and the limitations of the methodology. This research was categorized as exempt from review by the University of Wisconsin-Stout Institutional Review Board for the Protection of Human Subjects (Appendix A).

Subject Selection and Description

Program managers of a Community-Based Housing Company (CBHC) located in central Wisconsin, including Chippewa, Dunn, Eau Claire, Jackson, La Crosse, and Trempealeau Counties, were recruited in February and March of 2012 to participate in this research. Subjects were recruited by an email invitation to participate in the study. At the time of the study, the cooperating CBHC employed about 100 program managers for housing units in the central Wisconsin area; 52 of them had access to email at the worksite (K. Carlsrud, personal communication, February 3, 2012). Each program manager was responsible for managing one housing unit within the CBHC (K. Carlsrud, personal communication, April 25, 2012). The employment policy of this CBHC required that all employees be 18 years of age or older.

An email was sent by the CBHC regional director to each of the 52 program managers with access to email at the worksite inviting program managers to participate in the study. The content of the email was based on information provided to the regional director by the principal investigator of the study. The email described the purpose of the study, the voluntary and confidentiality requirements for the research, and the benefits/risks of their participation as a program manager within the CBHC (see Appendix B for consent form). The email also included

a link (URL) to the online survey, which contained an informed consent statement for individuals to read prior to accessing any survey questions. Program managers were allowed to withdraw from the study at any time during the administration of the survey. However, once the surveys were submitted through the online survey program, individuals could not withdraw from the study, due to the inability to identify the anonymous responses. Individuals who submitted complete survey responses were selected as participants in the study.

Instrumentation

Data were collected through the use of a survey questionnaire (Appendix C). The survey was designed by the researcher specifically for the purpose of this study. No measures of validity or reliability have been documented since this survey was designed specifically for this study. The survey included 27 questions to be completed individually by each participant (program manager). The time frame set to complete the survey was five to ten minutes.

The survey instrument consisted of items pertaining to the demographics of consumers in the housing unit (questions 1-2), specifically the number of consumers and their age category. The purpose of determining the number of consumers in each house was to determine if program managers' decisions were affected by the number of people they serve. Two age categories (50 years and under, and 51 and older) were used to describe the majority age of the consumers in the household, and for selecting the initial targets for nutrient analysis.

Factors influencing menu planning decisions and grocery shopping practices within the household were included (questions 3-7). These questions were designed to determine the main factor that influenced grocery shopping and menu planning, as well as the most helpful one in making healthy improvements with these tasks. The other questions were designed to determine

the main personnel who had the most influence on food-related decisions. Also, these questions aimed to help make recommendations to directly benefit the cooperating CBHC.

The following set of questions (8-13) was designed to identify what meals were being served at each house, as well as which food groups were included in each meal. These questions provide a better understanding of the meal structures within each home. Questions 8 through 13 were also designed to compare meals offered to group feeding standards.

The next sets of questions (14-20) were designed to determine the frequencies of food groups offered daily: vegetables, fruits, proteins, grains, and dairy products. Also, questions determined the frequency of daily offering of dark leafy green vegetables and whole grains.

Participants were then asked to identify their agreement/disagreement about there being a variety of fruits and a variety of vegetables offered daily (questions 21-22) on a four-point Likert scale: strongly agree, agree, disagree, or strongly disagree. Similarly, questions 23 and 24 used the same scale to determine the program managers' agreement/disagreement with statements regarding whether or not consumers were meeting the dietary recommendations for fruits and recommendations for vegetables. These questions were designed to determine if program managers perceive consumers nutrition-related needs as being met.

Demographic questions pertaining to the participants (program managers) were placed at the end of the survey (questions 25-27) in an effort to help participants feel comfortable answering several types of questions before answering any about themselves. Years of experience as a program manager provided background information on the participants. Their level of educational attainment and nutrition and food-related training experience were included to determine if these factors influence food-related decisions and perceptions of nutrition within the home.

Data Collection Procedures

Data collection occurred during the months of February and March of 2012. After receiving company approval, the regional director first sent out an email (February 3, 2012) containing the survey link to each of the 52 program managers with an individual email address at the worksite. A follow-up email was sent on February 21, 2012 to remind non-respondents to take the survey. Qualtrics was the online survey program used in this study which provided anonymous responses, as well as tabulated the number of responses for each survey question.

During the data collection period the researcher obtained weekly menus (seven days) from three individual CBHC houses for nutritional analysis. The researcher was provided with a random list of four telephone numbers for homes in the Menomonie, Wisconsin area by a local program manager. This list represented four of the seven CBHC homes in Menomonie (K. Carlsrud, personal communication, April 25, 2012). The researcher called each of the random four numbers to request the house fax their weekly menus to the researcher for purposes of this study. Three of the houses faxed in their menus. The supper meal was the one consistent meal requiring a weekly menu by all three houses, and was selected for nutritional analysis. Each seven-day supper menus was analyzed using Food Processor to compare the average nutrient and energy values to a nutritional target used in the study. The target set for comparison was one-third of the daily Recommended Dietary Allowance (RDA)/Adequate Intakes (AI) for the age/gender group with the highest values established for adults aged 18 and older by the *Dietary Reference Intakes* (DRIs) (Food and Nutrition Board, Institute of Medicine, 2010). The target set for energy comparison was one-third of the average estimated energy requirement (EER) for adults aged 18 and older (USDA & USDHHS, 2010). The highest values among the DRI age-gender groups for 18 years and older were used because the cooperating CBHC required that all

consumers residing in its homes be at least 18 years old, and the homes served older adults. The majority of the highest values came from males, aged 71 years and older. A meal target of one-third of the highest value would cover dietary recommendations for all male and female consumers.

Data Analysis

A few statistical tests were used to evaluate program managers' responses on the Qualtrics survey. The results from the survey were analyzed using the Statistical Program for Social Sciences (SPSS), version 18.0. Cross tabulations, frequencies, and percentages of responses were determined for numerous survey questions due to an insufficient number of observations for statistical analysis. The Mann-Whitney U Test and independent samples t-tests were used on survey data to determine differences between nutrition and food-related training groups in relation to fruit and vegetable perceptions and food use practices. To perform the Mann-Whitney U Test and independent samples t-tests, the nutrition and food-related training groups were collapsed from the original five groups into two groups: those with "no training" related to food and nutrition, and those with "some training." The educational attainment groups and number of consumers in the home were not able to be collapsed into meaningful categories with enough participants in each group to run statistical tests (S. Greene, UW-Stout Statistician, personal communication, April 25, 2012).

The factors that influenced program managers' menu planning decisions and grocery shopping practices were analyzed by using frequency and percentage of responses to determine common trends. The frequencies were further used in cross tabulation to relate multiple factors to one another.

Frequency and percentage of responses were used to determine if program managers perceived the nutritional needs of consumers as being met. The frequencies were further used in cross tabulation to relate multiple factors to one another.

To identify factors that may assist program managers in improving the nutritional quality when menu planning and grocery shopping for community-based homes, frequency and percentage of responses were used to determine common responses. The categories of the highest frequency of responses were used to determine what tools would be most effective in assisting program managers improve the nutritional quality of meals.

Cross tabulation was used to relate fruit and vegetable perceptions, menu planning, grocery shopping, and food use practices to the educational attainment and nutrition and food training of program managers, and to the number of consumers in each home. Cross tabulation shows the combined distribution of two variables, where the data for each variable is in categories. To relate all of these factors to one another, the objective was broken down into three questions:

1. Does educational attainment influence nutritional perceptions, menu planning, grocery shopping, and food use practices?
2. Does nutrition and food-related training influence nutritional perceptions, menu planning, grocery shopping, and food use practices?
3. Does the number of consumers in the home influence nutritional perceptions, menu planning, grocery shopping, and food use practices?

Each question had several cross tabulation charts further breaking down the categories. The first set of cross tabulations related educational attainment to nutritional perceptions, menu planning, grocery shopping, and food use practices. The second set of cross tabulations related

nutrition and food-related food training to nutritional perceptions, menu planning, grocery shopping, and food use practices. The third set of cross tabulations related the number of consumers in the household to nutritional perceptions, menu planning, grocery shopping, and food use practices. Frequencies and percentages of responses were used from the cross tabulation charts to determine common patterns.

Additional statistics were run for the collapsed nutrition and food training groups. The collapsed group with "no training" included participants who reported they had no training related for food and nutrition, and those with work-related training. The collapsed group with "some training" included participants who reported they had participated in staff development training classes related to food and nutrition, formal coursework related to food and nutrition, and a two-year degree or higher related to food and nutrition. The Mann-Whitney U Test was performed to determine a relationship between the "no training" and "some training" groups and food use practices. The independent t-test was used to determine a relationship between the two training groups and fruit and vegetable perceptions. A standard of $p < .05$ was used as the significance level for all tests conducted. There was not enough data from each collapsed training group to perform statistical testing to determine differences in perceptions related to menu planning and grocery shopping practices.

To determine if nutritional standards for group feeding were being met, participants' responses to questions on the food groups offered at breakfast, lunch and supper daily (questions 9, 11, and 13) were used in comparison to the USDA national meal standards for group feedings in the CACFP (USDA/FNS, 2012). Since the CACFP meal requirements combine fruits, vegetables, and juices together as one food component, and specifies the number of food items to offer at each meal, participants' responses for fruits and vegetables were combined to determine

if the requirements were met. The frequency and percentage of responses by participants were determined for meeting each CACFP food component requirement for breakfast, lunch, and supper meals.

Each of the weekly menus from the three community-based homes was analyzed using Food Processor, a nutrient analysis program. The supper meal of each house was chosen to analyze because all houses consistently offered a supper meal. The entire week's menus were entered into Food Processor using standard serving sizes for each menu item. The nutritional content of seven-day weekly meals were then divided by seven using Microsoft Excel to determine the average nutritional content for one day's meal. The average nutrients and energy values were then compared to the nutritional targets used in this study.

Limitations

A limitation of this study is the small numbers of participants. The cooperating CBHC employs approximately 100 program managers, yet only 52 had email addresses and were accessible to the researcher by the sampling methods used in this study. Of those 52, 31 submitted a survey and 29 of those were useable for data analysis. Even with a response rate of 55.8% statistical tests on data were limited due to an insufficient number of observations. Statistical tests were able to be run on the nutrition and food-related training groups by collapsing the original categories. Attempts were made by the UW-Stout statistician to collapse the other categories to meet objective 5 of this study: "Relate fruit and vegetable perceptions, and menu planning, grocery shopping, and food use practices to the educational attainment and nutrition and food training experience of program managers, and to the number of consumers in each home." However, meaningful categories were unable to be established for statistical analysis of this objective.

Another limitation of the study was the sampling procedures of the study. Although participants were selected from the same CBHC in the central Wisconsin region, the population for this study was those with email addresses at their worksite. Consequently, results cannot be generalized to all community-based homes in the cooperating CBHC or to CBHCs in the central Wisconsin region. These results are intended to be used by the CBHC to determine what tools would be helpful in assisting program managers in making healthier improvements in each home. Similarly, weekly menus for nutrient analysis were obtained from a sample of local community-homes, and results are neither representative of all homes within the cooperating CBHC nor similar homes within the region or elsewhere. Additionally, the sample of menus listed no beverages or serving sizes for any of the houses. Although standard serving sizes were used for nutritional analyses, the nutrient content of each meal can only be considered an estimate. These results provide some objective data on the nutritional value of menus and evidence of current menu practices in the homes. Also, these findings may be useful in helping program managers in assessing and improving the nutritional quality of meals within the home.

Another limitation of the nutritional analysis concerns the age groups and male/female population within each home. The survey for this study did not address the sex of the consumers in each home, only broad age categories. Males and females, as well as adult age categories have varying nutrient recommendations. The DRI age/gender group with the highest recommended intakes (RDA/AI) and average adult EER were chosen for nutritional comparisons in order to assure that the nutrient targets set would meet the recommendation for all adult consumers who could be living in the home.

Chapter IV: Results

This chapter summarizes the results of this research designed to determine the factors that influence the program managers' decisions regarding food or menu choices offered at the home, determine if nutritional needs of consumers are perceived as being met, and identify factors that may assist the program managers in improving nutritional quality of meals within the home. This research was completed based on the following seven objectives:

1. Determine what factors influence program managers' menu planning decisions.
2. Determine what factors influence program managers' grocery shopping practices.
3. Determine if program managers perceive nutritional needs of consumers as being met.
4. Identify factors that may assist program managers in improving nutritional quality of meals in community-based homes.
5. Relate fruit and vegetable perceptions, and menu planning, grocery shopping, and food use practices to the educational attainment and nutrition and food training experience of program managers, and to the number of consumers in each home.
6. Determine if nutritional standards for group feeding are being met by comparison of offered food components to a national standard for group feeding programs.
7. Determine if nutritional standards for menus are being met by comparing nutrient analyses of sampled menus to one-third of the daily recommended intakes for consumers having the highest recommendation.

This chapter presents the demographic characteristics of the sample of participants. Next, data are presented for the frequency of responses for the main factor that influenced menu planning decisions and grocery shopping practices, fruit and vegetable perceptions, followed by the results for the relation of fruit and vegetable perceptions, menu planning, grocery shopping,

and food use practices to the educational attainment, nutrition and food training experience of program managers, and to the number of consumers in each home. The remainder of the chapter includes the findings related to the menu and nutritional evaluations made in this study, comparison of the menus from three CBHC homes to nutritional targets, and comparison of the breakfast, lunch, and supper food group component responses to CACFP adult group feeding standards.

Description of the Sample

The participants in this study were program managers employed at a cooperating CBHC and had an email address at their worksite. Of the 52 program managers accessible by email at their workplace, 31 submitted a survey for participation in the study. Two (2) surveys were omitted from data analysis because of the absence of a response to most questions. The remaining 29 surveys were utilized for data analysis. Ocassionally, participants may have omitted their response to a question, and the sample size was noted accordingly.

All 29 participants in this study were 18 years of age or older and had attained a minimum of a high school diploma. Table 2 presents a frequency distribution of demographic characteristics of the participants. The majority of the participants (75%) had completed at least some college or a technical school, and the remaining 25% marked their highest level of education as a high school diploma or GED. The two largest groups of participants had been program managers for either 3-4 years (28%) and 7 or more years (28%). Nearly a quarter (24%) of the participants had been a program manager for less than one year. Most participants gained their nutritional and food-related experience from either work experiences (48.3%), or staff development and other community workshops (31%).

Table 2

Demographic Characteristics of Participants Related to Education, Program Manager Experience, and Food and Nutrition-Related Experience

Characteristic	Frequency	Percent (%)
Education level (*n* = 28)		
High school diploma or GED	7	25.0
Some college/technical school	13	46.4
College degree or higher	8	28.6
Program manager experience (*n* = 29)		
Less than 1 year	7	24.1
1-2 years	4	13.8
3-4 years	8	27.6
5-6 years	2	6.9
7 or more years	8	27.6
Food/nutrition/culinary experience (*n* = 29)		
No training or work experience	3	10.3
Work experience related to nutrition, foods or culinary arts	14	48.3
Staff development sessions, workshops individual consultations, community classes, videos, online sessions, other self-study sessions	9	31.0
Formal coursework in nutrition, foods, or culinary arts	2	6.9
Two-year degree or higher in nutrition, foods, or culinary arts	1	3.4

Table 3 includes the characteristics related to consumers living in the homes managed by participants in this study. Most participants (82.8%) worked in a house with 1-4 consumers. The remaining 17.2% worked in a house with 5-8 consumers. The two age groups of consumers examined in this study, was almost equally distributed among participants, with 51.7% of participants reporting that the majority of consumers in the home were 18-50 years old, and the other 48.3% of participants reported working in a home the the majority of consumers were 51 years or older.

Table 3

Particpiant Responses of Household Characteristics (n = 29)

Characteristic	Frequency	Percent (%)
Number of consumers in the home		
1-4	24	82.8
5-8	5	17.2
Majority age group of consumers in the home		
18-50 years	15	51.7
51+ years	14	48.3

Factors that Influence Menu Planning Decisions, Grocery Shopping Practices, and Other Food-Related Decisions

Participants were asked to choose from a list of factors which one had the most influence on the menu planning decisions, and grocery shopping practices in the home they managed, and to identify the factor that would be most helpful in making healthy improvements in these tasks.

Also, participants were asked to identify "who" had the most influence in food-related decisions in their home of operation.

Menu planning. Table 4 presents a frequency distribution of responses for the 29 participants regarding the main factor that influenced the menu planning decisions in each home. The majority (50%) of participants reported the nutritional needs of consumers was the most influential factor affecting menu planning decisions. Monthly budget and consideration of special diets were the second most influential factors, each reported by 17% of the participants. Those who chose "other" as a response had the option to write-in comments. Three write-in comments were observed: *both the tastes of consumers and nutritional value of the food; combination of nutritional needs, budget, and diet;* and *physician orders.* Convenience, and personnel, equipment, and storage facilities were not chosen by any participant.

Table 4

Frequency of Responses Regarding the Main Factor that Influences Menu Planning Decisions (n = 29)

Factor	Frequency	Percent (%)
Convenience	0	0
Nutritional needs of consumers	15	50
Monthly grocery budget	5	17
Taste preferences of consumers	1	3
Consideration of special diet	5	17
Personnel, equipment, storage facilities	0	0
Creativity/variety	1	3
Other	3	10

When participants were asked to select from a list of factors the one that would be most helpful in making healthier improvements in menu planning in their household, 28 participants responded. Table 5 presents the frequency and percentage of responses for each factor. The majority of participants (42.9%) believed that getting recipes for healthy menu items would be the most helpful in making healthier improvements in weekly menu planning. Several participants (17.9%) considered staff development classes to be most beneficial; a template of healthy meals, and basic guidelines for meals were each identified as most helpful by 14.3% of participants; while the least number of participants (10.7%) considered pamphlets on healthy menu planning tips to be the most helpful means of improving weekly menu planning.

Table 5

Frequency of Responses Regarding the Most Helpful Factor in Making Healthier Improvements in Weekly Menus (n = 28)

Factor	Frequency	Percent (%)
Pamphlets on healthy menu planning tips	3	10.7
Staff development classes/education	5	17.9
A basic template of healthy meals	4	14.3
Recipes for healthy menu items	12	42.9
Basic guidelines for meals	4	14.3

Grocery shopping. Table 6 presents the frequency distribution of the main factor reported to influence grocery shopping practices in each home. The majority (44.8%) of participants reported the weekly menu plan as the most influential factor affecting grocery

shopping practices. The monthly grocery budget was the second most frequently reported factor (24.1%). The remaining factors were mentioned by fewer than 15 percent of the participants.

Table 6

Frequency of Responses Regarding the Main Factor that Influences Grocery Shopping Practices (n = 29)

Factor	Frequency	Percent (%)
Time available	4	13.8
Weekly menu plan	13	44.8
Monthly grocery budget	7	24.1
Food sales/bargains	3	10.3
Reading nutrition labels	1	3.4
Buying fresh fruits and vegetables to last the week	1	3.4

When participants were asked to select from a list of factors the one that would be most helpful in making healthier improvements for grocery shopping practices, 26 participants responded. Participants most frequently reported (42.3%) a better understanding of nutrition labels as being the most helpful in making healthier improvements on grocery shopping practices. Several participants (38.5%) considered grocery shopping tips in the corporate wellness pamphlet to be most beneficial; staff development classes were identified as most helpful by 19.2% of the participants; while no participant considered a grocery store tour to be helpful.

Other food-related decisions. Results pertaining to who had the most influence on food-related decisions at the community-based home of operation revealed that the consumer

was most often considered to the main influence. Of the 29 participants, the consumers at the home was the most frequently mentioned response (34.5%), while program managers was the second most frequently reported factor (24.1%). The remaining factors selected by participants to a lesser extent included doctor's orders (17.2%), "other" (13.8%), and other staff within the home (10.3%). Four write-in comments were observed, with each comment reported by one respondent. The comments were: *all staff involved; combination of; program managers and consumers; sometimes a preplanned menu other times the staff decides.*

Perceptions Regarding Fruits, Vegetables, and Food Use Practices

To determine the perceptions of participants in regards to nutritional needs of consumers, participants were asked to indicate their agreement/disagreement with statements related to their feelings about there being a variety of fruits and vegetables offered daily, and that the consumers were meeting the dietary recommendations for fruit and vegetable intakes., Participants responded on a four-point Likert scale of: strongly disagree, disagree, agree, or strongly agree.

Fruit and vegetable perceptions. All participants agreed that a variety of fruits were offered daily within the house, with nearly equal numbers for those who agreed (48.3%) and strongly agreed (51.7%) (Table 7). With respect to vegetable intakes, there was more variance in responses to the variety of vegetables offered. The majority of participants agreed (58.6%), 37.9% strongly agreed, and only one participant (3.4%) disagreed that there was a variety of vegetables offered. No respondents strongly disagreed a variety of vegetables were offered daily at the house.

Table 7

Frequency of Participants' Perceptions Related to the Variety of Fruits and Vegetables Offered Daily (n = 29)

	Disagree	Agree	Strongly Agree
Variety of fruits offered	0	14 (48.3)	15 (51.7)
Variety of vegetables offered	1 (3.4)	17 (58.6)	11 (37.9)

Note: Numbers in parentheses are percentages (%) of population (n = 29). There were no responses for" strongly disagree."

The frequency of responses to whether participants perceived that the consumers were meeting the dietary recommendations for fruit and vegetable intakes is shown in Figure 1. The majority of the participants either agreed or strongly agreed that the dietary recommendations were met for both fruits and vegetables. No participants strongly disagreed that consumers were meeting the dietary recommendations for fruits and vegetables.

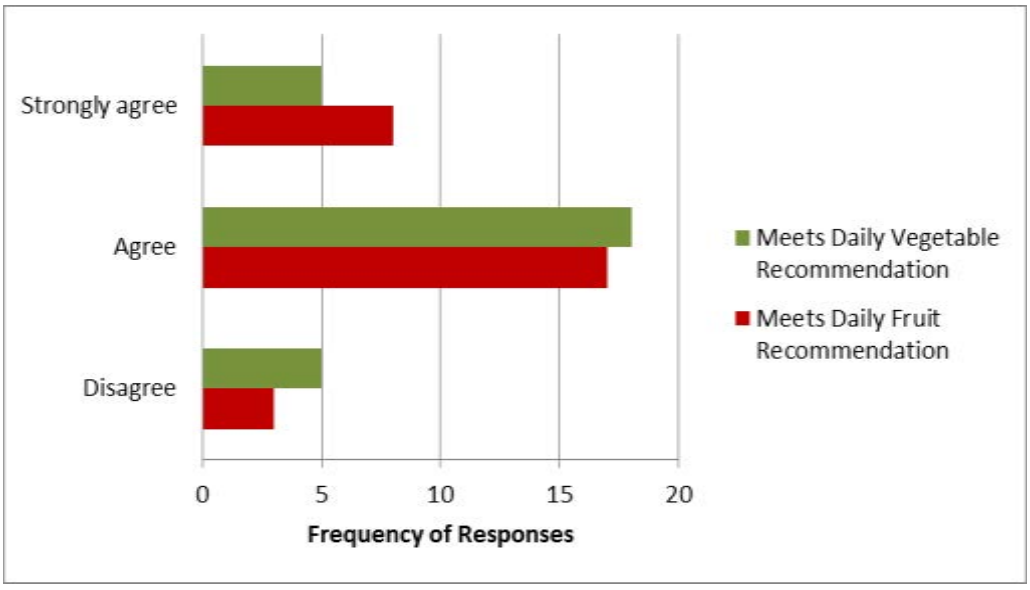

Figure 1. Participants' perceptions of consumers toward meeting the dietary recommendations for fruit and vegetable intakes (n = 28). There were no responses for "strongly disagree."

Food use practices. Figure 2 displays the perceptions of food use practices in the homes participants manage, as reported by the frequency of responses for how many times each food group is served in each program managers' house. Results show that dairy products, grains, proteins, fruits, and vegetables were commonly served 2-3 times each day. Whole grains were commonly served 2-3 times each day. Dark green leafy vegetables were generally served 0-1 times each day.

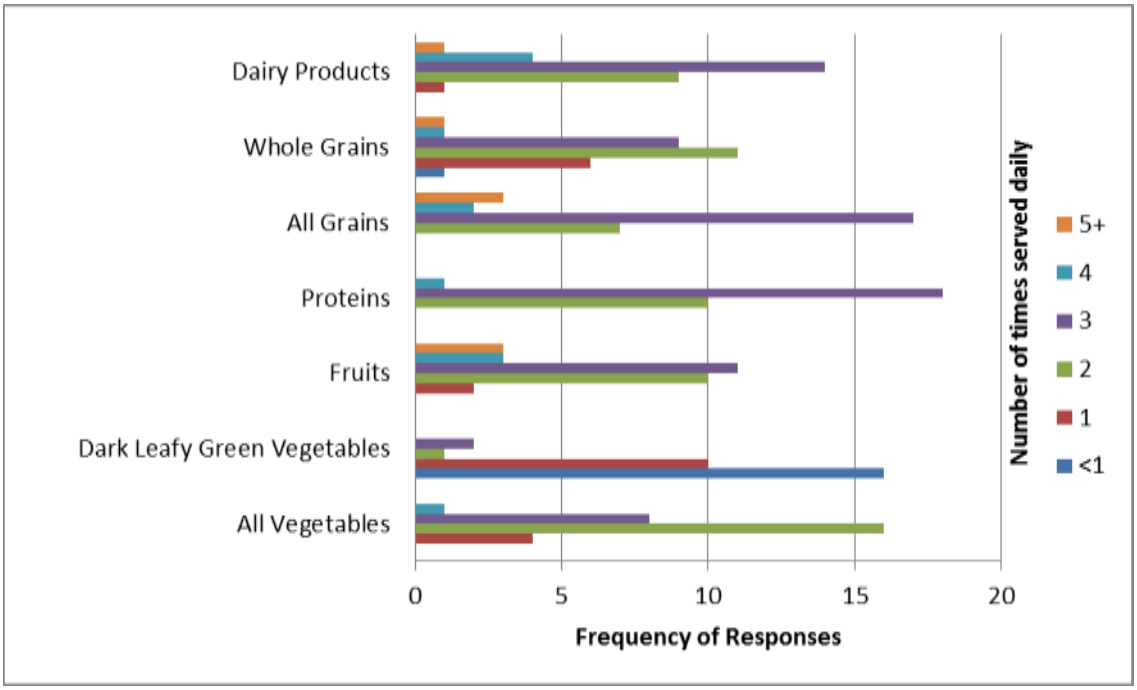

Figure 2. Frequency of participants' responses for daily food group offerings at their home. (n = 29).

Educational Attainment of Program Managers in Relation to Fruit and Vegetable Perceptions, Menu Planning, Grocery Shopping, and Food Use Practices

Participants were grouped by educational attainment to compare their perceptions of there being a variety of fruits and vegetables offered daily, and their perceptions toward the consumers meeting the recommendations for fruit and vegetable intakes. The main factor

influencing menu planning and grocery shopping practices, and food use practices were also compared among educational attainment groups.

Fruit and vegetable perceptions. Table 8 presents these results for fruits. All educational attainment groups agreed that there was a variety of fruits offered daily within the house. Similarly, the majority of participants at each educational level agreed that the consumers were meeting the recommended intake for fruit. Those with a high school diploma had the highest percentage within their educational attainment groups to strongly agree to both statements that there was a variety of fruits offered and that the consumers were meeting the dietary recommendations for fruit intakes. Those with a college degree or higher had the highest percentage of participants in their group (25.0%) to disagree that the consumers were meeting the fruit recommendations compared to the other two educational attainment groups.

Table 8 also indicates the breakdown of perceptions regarding vegetables among participants grouped by educational attainment. The majority of participants from each educational attainment group agreed that there was a variety of vegetables offered daily. The college degree group had no responses (0%) to strongly agree that there was a variety of vegetables offered while the other two groups did. The college degree group was also the only group to not have any participants to strongly agree that the consumers' vegetable intakes were being met. The college degree group had the most participants in their group (50%) to disagree that the consumers were meeting the vegetable recommendations. Participants in the high school diploma group were the only group to not disagree with any of the statements in Table 8.

Table 8

Frequency of Participants' Perceptions towards Fruits and Vegetables by Educational Attainment

Educational Attainment Group	A Variety of Fruit is Offered (*n* = 28)	Consumers' Fruit Intakes Meet Recommendations (*n* = 27)	A Variety of Vegetables is Offered (*n* = 28)	Consumers' Vegetable Intakes Meet Recommendations (*n* = 27)
High School Diploma/GED (*n* = 7)				
Disagree	0	0	0	0
Agree	3 (42.9)	3 (42.9)	4 (57.1)	4 (57.1)
Strongly Agree	4 (57.1)	4 (57.1)	3 (42.9)	3 (42.9)
Some College (*n* = 13)				
Disagree	0	1 (8.3)	0	1 (8.3)
Agree	6 (46.2)	8 (66.7)	6 (46.2)	9 (75.0)
Strongly Agree	7 (53.8)	3 (25.0)	7 (53.8)	2 (16.7)
College Degree or higher (*n* = 8)				
Disagree	0	2 (25.0)	1 (12.5)	4 (50.0)
Agree	5 (46.2)	5 (62.5)	7 (87.5)	4 (50.0)
Strongly Agree	3 (37.5)	1 (12.5)	0	0

Note: Numbers in parentheses indicate percentages (%) of responses within each educational attainment group. One participant in the "some college" group did not respond to the questions regarding consumers meeting the fruit and vegetable recommendations. There were no responses for "strongly disagree."

Menu planning. Findings for the most influential factor affecting menu planning decisions are presented in Table 9 according to educational attainment groups. The nutritional

needs of consumers remained the most influential factor in menu planning decisions across all educational attainment groups. Those with a college degree had the highest number of participants in their group (25.0%) to believe monthly grocery budget was the most influential factor compared to the group with some college (15.4%) and high school diploma group (14.3%). As mentioned previously, convenience, and personnel, equipment, and storage facilities were not chosen by any participant as being the most influential factor. For those who chose "other" as a response their write-ins were: *both the tastes of consumers and nutritional value of the food; combination of nutritional needs, budget, and diets;* and *physician orders.*

Table 9

Frequency of Participants' Responses for the Main Factor that Influences Menu Planning by Educational Attainment (n = 28)

Factor	Educational Attainment Group		
	High School Diploma (n = 7)	Some College (n = 13)	College Degree (n = 8)
Convenience	0	0	0
Nutritional needs of consumers	5 (71.4)	6 (46.2)	4 (50.0)
Monthly grocery budget	1 (14.3)	2 (15.4)	2 (25.0)
Taste preferences of consumers	0	0	1 (12.5)
Consideration of special diet	1 (14.3)	2 (15.4)	0
Personnel, equipment, storage facilities	0	0	0
Creativity/variety	0	1 (7.7)	0
Other	0	2 (15.4)	1 (12.5)

Note: Numbers in parentheses are percentages (%) of responses within each educational attainment group.

Grocery shopping. The most influential factor affecting grocery shopping practices related to educational attainment groups is represented in Table 10. The weekly menu plan was selected as the most influential factor that affected grocery shopping practices by most participants with a high school diploma (42.9%) and college degree (50.0%). For those with some college, 38.5% believed the weekly menu plan to be most influential, and another 38.5% believed the grocery budget to be the most influential factor affecting grocery shopping practices. Reading nutrition labels and buying fresh produce to last through the week were the least common responses for all three groups.

Table 10

Frequency of Participants' Responses for the Main Factor that Influences Grocery Shopping Practices by Educational Attainment (n = 28)

Factor	Educational Attainment Group		
	High School (*n* = 7)	Some College (*n* = 13)	College Degree (*n* = 8)
Time available	2 (28.6)	1 (7.7)	1 (12.5)
Weekly menu plan	3 (42.9)	5 (38.5)	4 (50.0)
Monthly grocery budget	0	5 (38.5)	2 (25.0)
Food sales/bargains	1 (14.3)	1 (7.7)	1 (12.5)
Reading nutrition labels	0	1 (7.7)	0
Buying fresh fruits and vegetables to last the week	1 (14.3)	0	0

Note: Numbers in parentheses are percentages (%) of responses within each educational attainment group.

Food use practices. The food use practices for the three educational attainment groups are indicated in Table 11. Vegetables were reported to be offered the least amount of times in

the college degree group. Those with a high school degree had the most participants in their group (57.1%) to report offering vegetables 3 times a day compared to the other two groups. Dark leafy green vegetables were reported as being offered the least times each day by all three educational attainment groups out of any of the food groups. Those with a college degree had the highest percentage of responses in their group (87.5%) to offer dark leafy green vegetables less than once per day compared to the responses of those with some college (46.2%) or a high school degree (42.1%). The college degree group had the highest percentage of responses (75.0%) who reported offering dairy products 3 times each day compared to those with a high school diploma (42.9%) or with some college (38.5%).

Table 11

Frequency of Participants' Responses for Daily Food Group Offerings by Educational Attainment (n = 28)

Educational Attainment/Number of times food group offered per day	Vegetables	Dark Leafy Green Vegetables	Fruits	Proteins	Grains	Whole Grains	Dairy
High School Diploma/GED (*n* = 7)							
<1	0	3 (42.9)	0	0	0	0	0
1	2 (28.6)	2 (28.6)	0	0	0	1 (14.3)	1 (14.3)
2	1 (14.3)	1 (14.3)	2 (28.6)	1 (14.3)	0	1 (14.3)	1 (14.3)
3	4 (57.1)	1 (14.3)	2 (28.6)	5 (71.4)	5 (71.4)	5 (71.4)	3 (42.9)
4	0	0	2 (28.6)	1 (14.3)	1 (14.3)	0	1 (14.3)
5+	0	0	1 (14.3)	0	1 (14.3)	0	1 (14.3)
Some College (*n* = 13)							
<1	0	6 (46.2)	0	0	0	1 (7.7)	0
1	1 (7.7)	6 (46.2)	1 (7.7)	0	0	3 (23.1)	0
2	7 (53.8)	0	5 (38.5)	5 (38.5)	5 (38.5)	6 (46.2)	6 (46.2)
3	4 (30.8)	1 (7.7)	5 (38.5)	8 (61.5)	7 (53.8)	2 (15.4)	5 (38.5)
4	1 (7.7)	0	1 (7.7)	0	0	0	2 (15.4)
5+	0	0	1 (7.7)	0	1 (7.7)	1 (7.7)	0

Table 11 (Continued)

Frequency of Participants' Responses for Daily Food Group Offerings by Educational Attainment (n = 28)

Educational Attainment/Number of times food group offered per day	Vegetables	Dark Leafy Green Vegetables	Fruits	Proteins	Grains	Whole Grains	Dairy
College Degree or higher (*n* = 8)							
<1	0	7 (87.5)	0	0	0	0	0
1	1(12.5)	1 (12.5)	1 (12.5)	0	0	2 (25.0)	0
2	7 (87.5)	0	2 (25.0)	4 (50.0)	1 (12.5)	3 (37.5)	1 (12.5)
3	0	0	4 (50.0)	4 (50.0)	5 (62.5)	2 (25.0)	6 (75.0)
4	0	0	0	0	1 (12.5)	1 (12.5)	1 (12.5)
5+	0	0	1 (12.5)	0	1 (12.5)	0	0

Note: Numbers in parentheses are percentages (%) of responses from each educational attainment group.

Nutrition and Food-Related Training of Program Managers in Relation to Fruit and Vegetable Perceptions, Menu Planning, Grocery Shopping, and Food Use Practices

Frequency data and cross tabulation was used to relate fruit and vegetable perceptions, menu planning, grocery shopping, and food use practices to the nutrition and food-related training of participants. Statistical analyses were used to compare collapsesd groups with "no training" and "some training" in relation to fruit and vegetable perceptions and food use practices. There was not enough data for statistical testing to relate the groups with no training and some training to menu planning and grocery shopping practices.

Fruit and vegetable perceptions. Participants were asked to indicate their agreement/disagreement about the use of a variety of fruits offered daily in their homes and about consumers meeting the fruit recommendations. The frequencies of responses by food and nutrition-related training are shown in Table 12. Participants in all groups agreed there were a

variety of fruits offered daily and the majority agreed the consumers were meeting the fruit recommendations. However, 15.4% of the group with work experience and 11.1% of the group with staff training session experience, disagreed that consumers were meeting the fruit recommendations.

Participants were asked to indicate their agreement/disagreement about the use of a variety of vegetables offered daily in their homes and about consumers meeting the vegetable recommendations. The frequencies of responses by food and nutrition-related training are shown in Table 12. The majority of participants in all training groups agreed there were a variety of vegetables offered daily, with only one participant (11.1%) in the staff training experience group who disagreed. However, there were more participants who disagreed that the consumers were meeting the vegetable recommendations. Two (15.4%) participants from the work experience group, two (22.2%) from the staff training experience group, and one (50.0%) from the formal coursework group disagreed that the consumers were meeting the recommendations for vegetables.

Table 12

Frequency of Participants' Perceptions towards Fruits and Vegetables by Food and Nutrition-Related Training

Food and Nutrition Training Group	A Variety of Fruit is Offered (*n* = 29)	Consumers' Fruit Intakes Meet Recommendations (*n* = 28)	A Variety of Vegetables is Offered (*n* = 29)	Consumers' Vegetable Intakes Meet Recommendations (*n* = 28)
No training (*n* = 3)				
Disagree	0	0	0	0
Agree	2 (66.7)	2 (66.7)	3 (100.0)	3 (100.0)
Strongly Agree	1 (33.3)	1 (33.3)	0	0
Work experience (*n* = 14)				
Disagree	0	2 (15.4)	0	2 (15.4)
Agree	7 (50.0)	8 (61.5)	9 (64.3)	9 (69.2)
Strongly Agree	7 (50.0)	3 (23.1)	5 (35.7)	2 (15.4)
Staff training sessions (*n* = 9)				
Disagree	0	1 (11.1)	1 (11.1)	2 (22.2)
Agree	5 (55.6)	5 (55.6)	4 (44.4)	4 (44.4)
Strongly Agree	4 (44.4)	3 (33.3)	4 (44.4)	3 (33.3)
Formal coursework (*n* = 2)				
Disagree	0	0	0	1 (50.0)
Agree	0	2 (100.0)	1 (50.0)	1 (50.0)
Strongly Agree	2 (100.0)	0	1 (50.0)	0
Two-year degree or higher (*n* = 1)				
Disagree	0	0	0	0
Agree	0	0	0	1 (100.0)
Strongly Agree	1 (100.0)	1 (100.0)	1 (100.0)	0

Note: Numbers in parentheses indicate percentages (%) of responses within each educational attainment group. One participant in the group with work experience related to food and nutrition did not respond to the questions regarding consumers meeting the fruit and vegetable recommendations. There were no responses for "strongly disagree."

An independent samples t-test was run to compare the fruit and vegetable perceptions of the collapsed group with no training (n = 17) and the collapsed group with some training (n = 12). No significant differences were found between groups in relation to their perceptions of their being a variety of fruit and a variety of vegetables offered daily. Similarly, no significant differences were found between groups in relation to their perceptions of consumers meeting the recommendations for fruit intakes and the recommendations for vegetable intakes.

Menu planning. Table 13 presents findings for the main factor that influenced menu planning according to the nutrition and food-related training groups. The nutritional needs of consumers was perceived to be the main factor influencing menu planning decisions in the nutrition and food-related training groups of: no training, work experience, staff training sessions, and a two-year degree or higher. However, 50% who had formal coursework related to food and nutrition perceived the nutritional needs of consumers to be the most influential, and the other 50% perceived the monthly grocery budget to be the most influential. Two participants (22.2%) from the staff training sessions group perceived monthly grocery budget to be the main factor. Several participants in work experience training group (21.4%) perceived the consideration of special diets as being the most influential regarding menu planning.

Table 13

Frequencies for the Main Factor that Influences Menu Planning by Nutrition and Food-Related Training of Participants (n = 29)

Factor	Nutrition and Food-Related Training Group				
	No training (*n* = 3)	Work experience (*n* = 14)	Staff training sessions (*n* = 9)	Formal coursework (*n* = 2)	Two-year degree or higher (*n* = 1)
Nutritional needs of consumers	2 (66.7)	5 (35.7)	6 (66.7)	1 (50.0)	1 (100.0)
Monthly grocery budget	0	2 (14.3)	2 (22.2)	1 (50.0)	0
Taste preferences of consumers	0	1 (7.1)	0	0	0
Consideration of special diet	0	3 (21.4)	1 (11.1)	0	0
Creativity/variety	0	1 (7.1)	0	0	0
Specify Other	1 (33.3)	2 (14.3)	0	0	0

Note: Numbers in parentheses are percentages (%) of responses from each nutrition and food-related training group. Convenience, personnel, equipment, and storage facilities were not chosen by any participants as being the most influential factor. The rite in responses of those who chose "other" were: *both the tastes of consumers and nutritional value of the food; combination of nutritional needs, budget, and diets;* and *physician orders.*

Grocery shopping. Table 14 includes the main factor that influenced grocery shopping practices for the nutrition and food-related training groups. The weekly menu plan was perceived by the majority in the staff training and formal coursework groups to be the most influential factor affecting grocery shopping practices. Several (42.9%) in the work experience group and 33.3% in the group with no training perceived the weekly menu plan to be the most influential factor. Monthly grocery budget was the most influential factor on grocery shopping for the one participant (100%) with formal coursework and six (42.9%) with work experience

related to food and nutrition. Time available was perceived by 33.3%, 7.1%, and 22.2% of the participants with no training, work experience, and staff training sessions, respectively, to be the most influential factor affecting grocery shopping practices.

Table 14

Frequencies for the Main Factor that Influences Grocery Shopping Practices by Nutrition and Food-Related Training (n = 29)

Factor	Nutrition and Food-Related Training Group				
	No training (*n* = 3)	Work experience (*n* = 14)	Staff training sessions (*n* = 9)	Formal coursework (*n* = 2)	Two-year degree or higher (*n* = 1)
Time available	1 (33.3)	1 (7.1)	2 (22.2)	0	0
Weekly menu plan	1 (33.3)	6 (42.9)	4 (44.4)	2 (100.0)	0
Monthly grocery budget	0	6 (42.9)	0	0	1 (100.0)
Food sales/bargains	1 (33.3)	1 (7.1)	1 (11.1)	0	0
Reading nutrition labels	0	0	1 (11.1)	0	0
Buying fresh fruits and vegetables to last through the week	0	0	1 (11.1)	0	0

Note: Numbers in parentheses are percentages (%) of responses from each nutrition and food-related training group.

Food use practices. Food use practices were examined by asking participants to indicate how often they offered each of the food groups daily in their house of operation. The food groups examined were: grains, dairy, protein, vegetables, and fruit.

Figure 3 shows the number of times daily each food group is offered in the homes of participants in each nutrition and food-related training group. Grains, dairy, and fruit were the

food groups offered most frequently in the group with no nutrition-related training. Dairy, protein, and grains were the food groups offered most frequently in the group with food and nutrition-related work experience. In the group with staff training sessions related to food and nutrition, vegetables and protein were most often offered 2-3 times a day, and dairy and grains most frequently offered 3 or more times a day. Grains were the most frequently offered food group for those who had formal coursework related to food and nutrition. Fruits were the most offered food group for the participant with a two-year degree or higher related to food and nutrition.

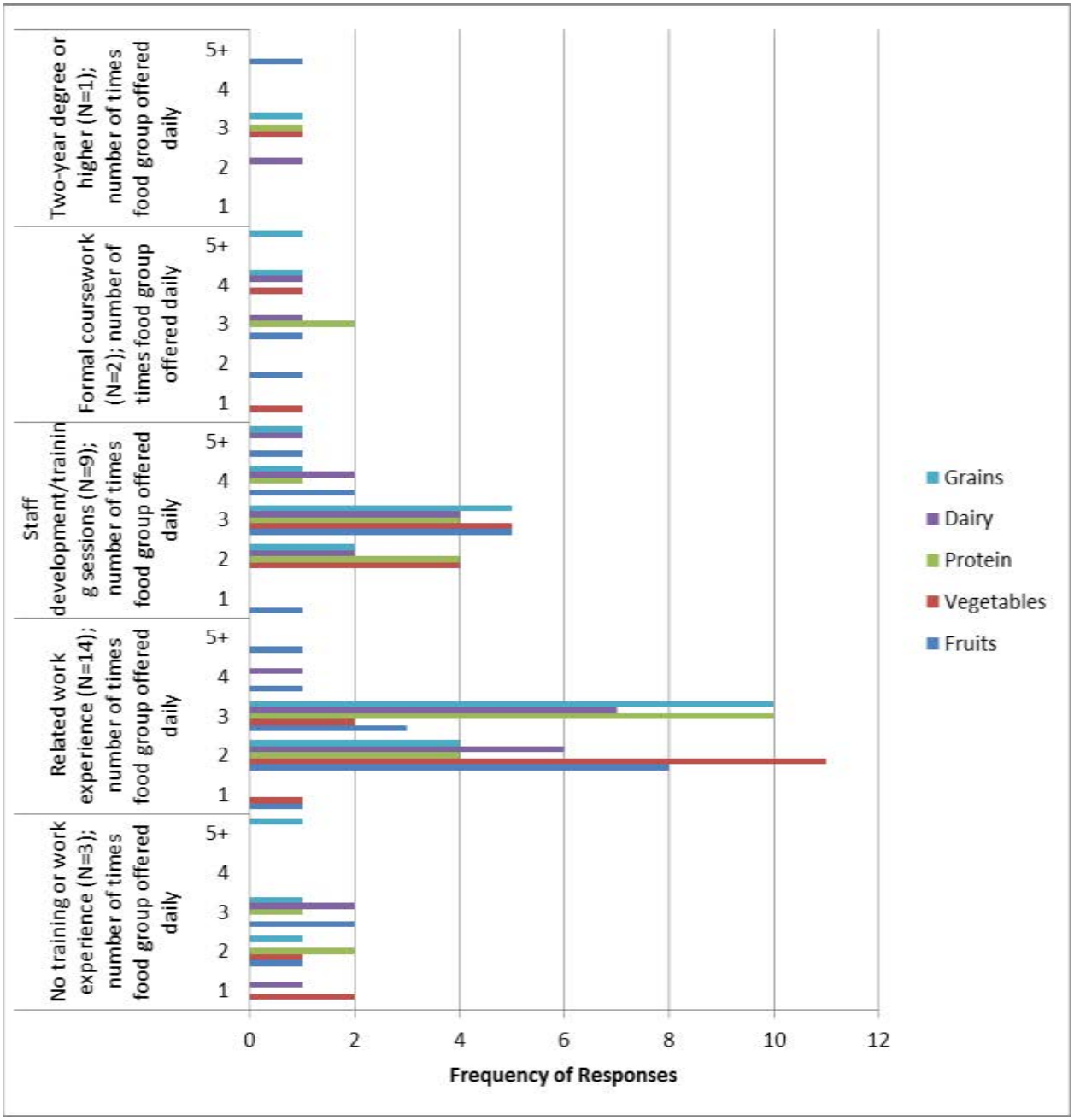

Figure 3. Comparison of the nutritional and food-related training of participants to the number of times each food group was offered daily. (n = 29)

The Mann-Whitney U test was performed on the collapsed groups with no training (n = 17) and some training (n = 12). A standard of $p < .05$ was used as the significance level for all tests conducted. When the training groups were collapsed into two groups, i.e., no training (n = 17), and some training (n = 12), the Mann-Whitney U analysis showed significant ($p < .05$) difference between training groups and the number of times food groups are offered daily. The group with some training reported offering vegetables significantly more frequently ($p < .05$) than the group with no training. When participants were asked about how many of the vegetables offered daily were dark leafy green vegetables, the group with some training reported offering dark leafy green vegetables significantly more often ($p < .05$) than participants with no training. A nearly significant ($p = .059$) difference was found in the number of times fruit was offered daily in each group. Participants with some training reported serving fruits more times daily than those with no training. No other statistically significant differences were found between training groups and the number of times food groups were offered daily.

Number of Consumers in the Home in Relation to Fruit and Vegetable Perceptions, Menu Planning, Grocery Shopping, and Food Use Practices

Participants who managed a home with 1-4 consumers were compared to participants who managed a home with 5-8 consumers. The two consumer house size groups were compared to participants' perceptions of there being a variety of fruits and vegetables offered daily, and their perceptions toward the consumers meeting the recommendations for fruit and vegetable intakes. The main factor influencing menu planning and grocery shopping, and food use practices were also compared among house size groups.

Fruit and vegetable perceptions. Figure 4 shows the comparison of the fruit and vegetable perceptions of participants who managed houses with 1-4 consumers (n = 24), to those

with 5-8 consumers (n = 5). Data indicate that some of the participants who managed homes with 1-4 consumers had disagreed that there was a variety of vegetables offered daily, that the consumers were meeting the vegetable recommended intake, and that the consumers were meeting the recommended fruit intake. In contrast, participants who managed homes with 5-8 consumers did not disagree with any of these statements.

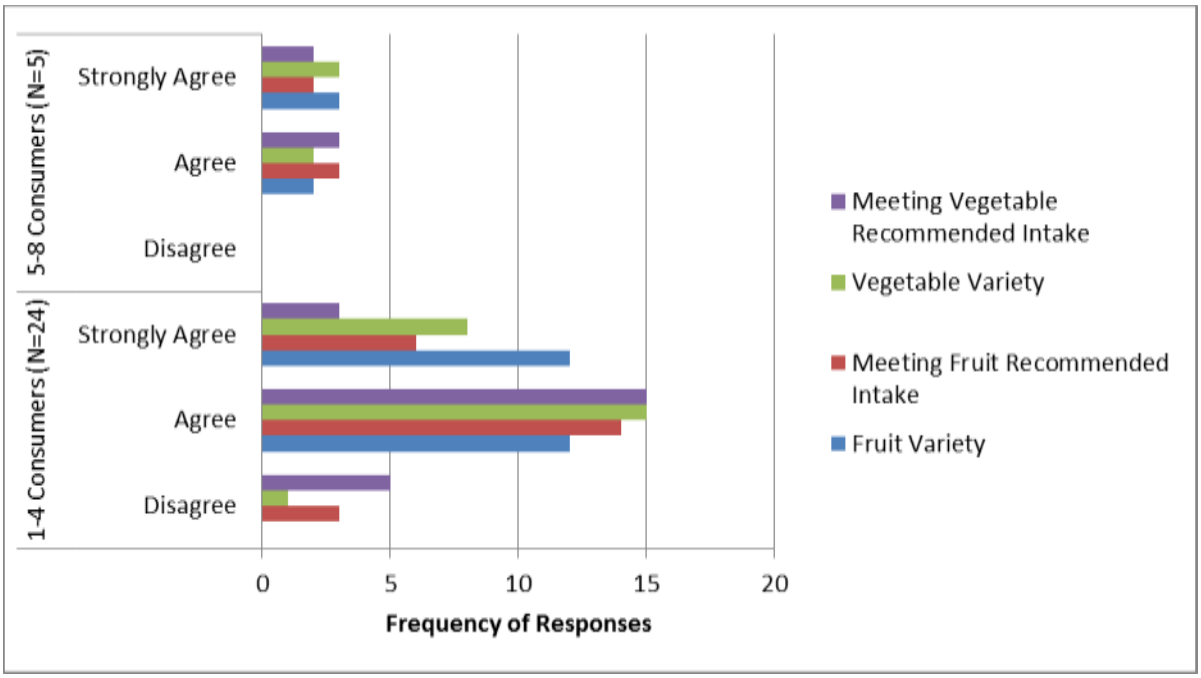

Figure 4. Comparison of participants who manage houses with 1-4 and 5-8 consumers to perceptions of meeting the recommended dietary intakes of fruits and vegetables, and offering a variety of fruits and vegetables daily within the home.

Menu planning. The data in Table 15 include the responses of participants who manage houses with 1-4 and 5-8 consumers regarding what they perceived as the most influential factor affecting menu planning in the home. The majority of participants in houses with 1-4 consumers (50.0%) and the majority with 5-8 consumers (60.0%) responded that the nutritional needs of consumers was the most influential factor for menu planning. Monthly budget was perceived by 20.8% of participants who manage homes with 1-4 consumers as the most influential factor,

whereas no participants who managed houses with 5-8 consumers perceived monthly budget as the most influential. As noted previously, convenience, and personnel, equipment, and storage facilities were not chosen by any participants as being the most influential factor. For those who chose "other" as a response their write-ins were: *both the tastes of consumers and nutritional value of the food; combination of nutritional needs, budget, and diets;* and *physician orders.*

Table 15

Frequencies for the Main Factor Influencing Menu Planning Decisions for Participants by Size of Households (n = 29)

Factor	Household Size Participants Manage	
	1-4 Consumers (*n* = 24)	5-8 Consumers (*n* = 5)
Convenience	0	0
Nutritional needs of consumers	12 (50.0)	3 (60.0)
Monthly grocery budget	5 (20.8)	0
Taste preferences of consumers	1 (4.2)	0
Consideration of special diet	3 (12.5)	1 (20.0)
Personnel, equipment, storage facilities	0	0
Creativity/variety	1 (4.2)	0
Other	2 (8.3)	1 (20.0)

Note: Numbers in parentheses are percentages (%) of responses within each house size participants manage.

Grocery shopping. Participants were asked to respond to the main factor that influences their grocery shopping practices. The results for participants who manage houses with 1-4 and 5-8 consumers are presented in Table 16. The weekly menu plan was perceived to be the main factor influencing grocery shopping by the majority of participants who manage houses with 1-4

consumers (41.7%) as well as those who manage 5-8 consumers (60.0%). Several participants who manage houses with 1-4 consumers (29.2%) perceived the monthly grocery budget to be the most influential, whereas no participants who manage houses with 5-8 consumers perceived the budget to be the most influential factor influencing grocery shopping.

Table 16

Frequency of the Main Factor Influencing Grocery Shopping Practices for Participants by Size of Household (n = 29)

Factor	Household Size Participants Manage	
	1-4 Consumers (n = 24)	5-8 Consumers (n = 5)
Time available	3 (12.5)	1 (20.0)
Weekly menu plan	10 (41.7)	3 (60.0)
Monthly grocery budget	7 (29.2)	0
Food sales/bargains	2 (8.3)	1 (20.0)
Reading nutrition labels	1 (4.2)	0
Buying fresh fruits and vegetables to last the week	1 (4.2)	0

Note: Numbers in parentheses are percentages (%) of responses within each house size participants manage.

Food use practices. Figure 5 displays the frequency of responses for how many times each food group is served in each household size participants manage. Participants who manage homes with 1-4 consumers responded that grains, fruit, dairy, and protein foods were most frequently offered 3 or more times daily, and vegetables were most frequently offered 2 times daily. Participants who manage homes with 5-8 consumers responded that all five food groups

are offered two of more times daily, whereas there were a few participants who manage homes with 1-4 consumers who reported offering vegetables, fruits, and dairy only once per day.

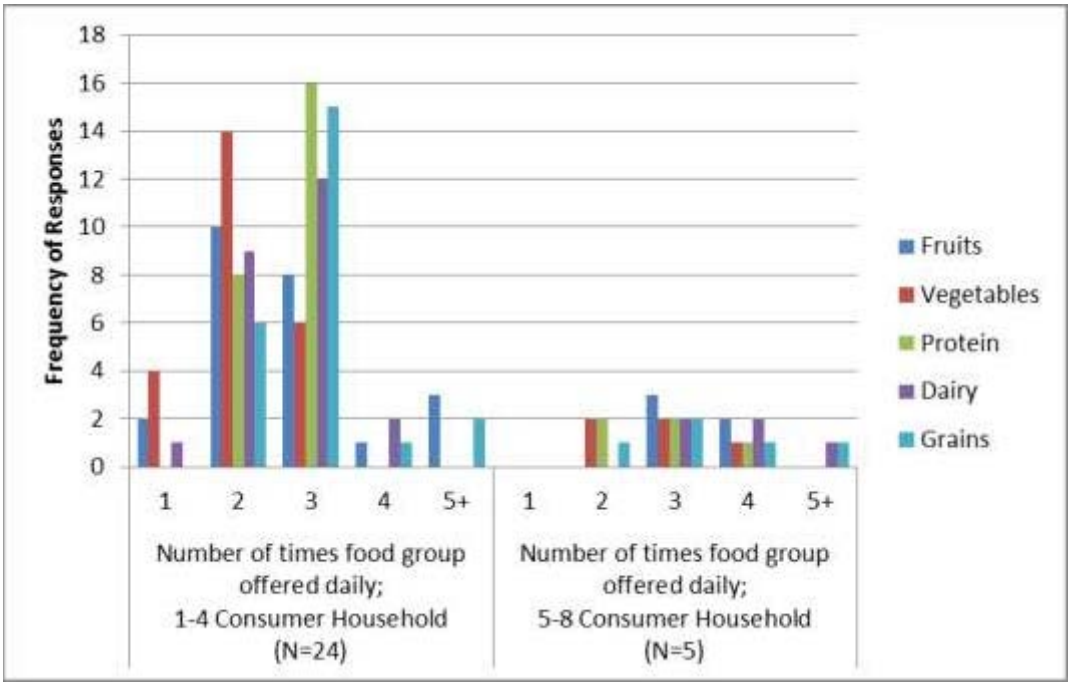

Figure 5. Participants' household size comparison to the responses for daily food group offerings.

Group Feeding Standards

Participants' responses to which food group groups were included (Questions 9, 11, and 13) at breakfast, lunch, and supper were used to determine if meals were meeting the CACFP meal component requirements in the homes they managed. Table 17 presents the meal components required to meet the CACFP guidelines and the frequency and percentage of responses that met these standards. Because the survey design determined meal components only, and not the amount offered, it is unknown whether at least two grains were offered at breakfast, lunch, or supper as required by the CACFP. Findings for the fruit, vegetable, or juices component reflect at least two food items from this component because data were collected for each food group served at a meal.

Results indicate that the vast majority of homes (96.6 to 100 %) met the breakfast food component requirements. The lunch requirement was met less consistently, with less than half (48.3%) of participants reporting offering the milk component for lunch. Nearly 80% of homes met the fruit /vegetable/juices component, which was the second least often component met at lunch of participants reported serving food from this component. Data indicate that the supper meal requirement was met by nearly all homes for the meat/meat alternate (97%) and 100 percent met the grains component, while 2 fruits/vegetables/juices requirement were included in the supper meal by 69.0%.

Table 17

CACFP Meal Components Met in Homes (n = 29)

CACFP Meal Components	Frequency	Percent (%)
Breakfast		
1 milk	29	100.0
1 fruit, vegetable, or juice	28	96.6
2 grains[a]	29	100.0
Lunch		
1 milk	14	48.3
2 fruits, vegetables, or juice	23	79.3
2 grains[a]	28	96.6
1 meat/meat alternate	27	93.1
Supper		
2 fruits, vegetables, or juice	20	69.0
2 grains[a]	29	100.0
1 meat/meat alternate	28	97.0

[a]Unknown whether at least two grains were offered at these meals. Participants who reported offering grains at these meals will count as meeting the grain requirement.

Nutritional Standards of House Menus

The average vitamin, mineral, macronutrient and food energy values of weekly supper menus from each of three houses were compared to the nutritional targets set for the meal. The nutritional targets established for the meal was one-third of RDAs/AIs, based on the on the highest values for adults 18 years and older, and one-third of the average EER for adults.

Table 18 includes the average vitamin comparisons of the supper meal at each of the three houses. All three houses exceeded the target value for vitamin A. Houses 1 and 2 met the standards for vitamin $B_{12,}$ while House 3 was the only menu to meet the niacin target. For all houses, at least 50% of the target RDA/AI was met for vitamin A, vitamin C, thiamin, niacin, and vitamin B_{12}. The majority of values for all three house menus failed to meet one-third of the RDA/AIs. Vitamin D values were the lowest of any vitamin with House 1, 2 and 3 meeting 0.1%, 1.2%, and 1.3% of the meal target respectively.

Table 18

Average Vitamin Content of Supper Menus Compared to the RDA/AI Target[a]

Vitamins	RDA/AI Target	Average Values		
		House 1	House 2	House 3
Vitamin A (µg/d)	300	537.64 (179.2)	867.29 (289.1)	607.26 (202.4)
Vitamin C (mg/d)	30	25.70 (85.7)	15.48 (51.6)	27.75 (92.5)
Vitamin D (µg/d)	6.67	0.01 (0.1)	0.08 (1.2)	0.09 (1.3)
Vitamin E (mg/d)	5	0.94 (18.8)	0.58 (11.6)	1.04 (20.8)
Vitamin K (µg/d)	40	9.36 (23.4)	15.14 (37.9)	5.54 (13.85)
Thiamin (mg/d)	0.4	0.23 (57.5)	0.21 (52.5)	0.23 (57.5)
Riboflavin (mg/d)	0.43	0.26 (60.5)	0.20 (46.5)	0.23 (53.5)
Niacin (mg/d)	5.33	3.99 (74.9)	3.39 (63.6)	6.34 (118.9)
Vitamin B_6 (mg/d)	0.57	0.24 (42.1)	0.22 (38.6)	0.26 (45.6)
Folate (µg/d)	133.33	58.71 (44.0)	28.35 (21.3)	31.40 (23.6)
Vitamin B_{12} (µg/d)	0.8	1.05 (131.3)	1.12 (140.0)	0.70 (87.5)
Patothenic Acid (mg/d)	1.67	0.49 (29.3)	0.50 (30.0)	0.42 (25.1)
Biotin (µg/d)	10	0.53 (5.3)	0.71 (7.1)	0.85 (8.5)
Choline (mg/d)	183.33	0.40 (0.2)	6.23 (3.4)	3.15 (1.7)

[a]RDA/AI target equals 1/3 of the highest daily recommended intake for the life stage group for 18 years and older as established by the Dietary Reference Intake (Food and Nutrition Board, Institute of Medicine, 2010). Source includes 2010 updated recommendations for vitamin D for adults 70 years and older

Notes: The numbers in parentheses are percentages of the RDA/AI target.

Table 19 presents the results for mineral comparison of the supper meal at each house to one-third of the RDA/AI targets. Sodium was the only mineral to exceed 100% of the target value in all three houses, with 158.8%, 192.3%, 252.1% of the target met at House 1, 2 and 3, respectively. Values meeting at least 50% of the RDA/AI target for all three houses include phosphorus, selenium, and sodium. For the majority of minerals, values for all three houses failed to meet one-third of the recommended targets.

Table 19

Average Mineral Content of Supper Menus Compared to the RDA/AI Target[a]

Mineral	RDA/AI Target	Average Values		
		House 1	House 2	House 3
Calcium (mg/d)	400.00	157.31 (39.3)	73.84 (18.5)	166.61 (41.7)
Chromium (µg/d)	11.67	0.56 (4.8)	0.39 (3.3)	0.06 (0.5)
Copper (µg/d)	300.00	254.29 (84.8)	105.71 (35.2)	184.29 (61.4)
Fluoride (mg/d)	1.33	---	---	---
Iodine (µg/d)	50.00	---	0.10 (0.2)	3.12 (6.2)
Iron (mg/d)	6.00	4.46 (74.3)	2.78 (46.3)	2.74 (45.7)
Magnesium (mg/d)	140.00	42.56 (30.4)	27.04 (19.3)	31.06 (22.2)
Manganese (mg/d)	0.77	0.29 (37.7)	0.20 (26.0)	0.32 (41.6)
Molybdenum (µg/d)	15.00	0.81 (5.4)	1.60 (10.7)	0.82 (5.5)
Phosphorus (mg/d)	233.33	203.89 (87.4)	168.47 (72.2)	188.43 (80.8)
Selenium (µg/d)	18.33	16.30 (88.9)	15.39 (84.0)	16.59 (90.5)
Zinc (mg/d)	3.67	3.18 (86.6)	2.43 (66.2)	1.64 (44.7)
Potassium (g/d)	1.57	0.90 (57.3)	0.42 (26.8)	0.38 (24.2)
Sodium (mg/d)	500.00	793.90 (158.8)	961.71 (192.3)	1260.74 (252.1)
Chloride (g/d)	0.77	---	- --	---

[a]RDA/AI target equals 1/3 of the highest daily recommended intake for the life stage group for 18 years and older as established by the Dietary Reference Intake (Food and Nutrition Board, Institute of Medicine, 2010). Source includes 2010 updated recommendations for calcium for adults 70 years and older.

Notes: The numbers in parentheses are percentages of the RDA/AI target. There were missing values for fluoride and chloride for all house menus, and the iodine is missing for House 1.

Table 20 includes a comparison of the average macronutrient content of supper menus at each house to the RDA/AI target. The average protein content for all three houses exceeded the target value. The carbohydrate target was met in House 1 with 119.3% of the target value, and House 3 with 104.4% of the target value. House 2 averaged 88.7% of the target value for carbohydrate. All three houses were at 55.5% of the target or below for fiber content. The average energy content of supper menus at each house were also compared to nutritional standards in Table 20. All three houses were 68.3% of the nutritional standard or below for energy content.

Table 20

Average Macronutrient and Food Energy Content of Supper Menus Compared to Nutritional Targets

Macronutrients and Food Energy	Nutritional Target	Average Values		
		House 1	House 2	House 3
Carbohydrate[a] (g/d)	43.33	51.68 (119.3)	38.43 (88.7)	45.22 (104.4)
Total Fiber[a] (g/d)	12.67	7.03 (55.5)	4.84 (38.2)	5.71 (45.1)
Fat (g/d)	Not determined	16.01	15.26	16.97
Protein[a] (g/d)	18.67	26.64 (142.7)	22.42 (120.1)	24.83 (133.0)
Energy[b] (kcal)	667	456 (68.4)	378 (56.7)	430 (64.5)

[a]RDA/AI target equals 1/3 of the highest daily recommended intake for the life stage group for 18 years and older as established by the Dietary Reference Intake (Food and Nutrition Board, Institute of Medicine, 2010).
[b]Energy standards equal 1/3 of the average EER for adults 18 years and older (USDA & USDHHS, 2010).
Notes: The numbers in parentheses are percentages of the RDA/AI target.

Chapter V: Discussion

This study was conducted to determine the factors that influenced program managers' decisions regarding food or menu choices offered at the home, to determine if nutritional needs of consumers are perceived as being met, and to identify factors that may assist the program managers in improving nutritional quality of meals within the home. The nutritional perceptions, menu planning, grocery shopping, and food use practices were compared among groups of educational attainment, nutrition and food training experience, and number of consumers in the home to determine any relationships. This study also compared breakfast, lunch, and supper meal component responses to group feeding standards, and house menus to recommended nutrient targets to determine if meeting the standards aligned with the program managers' perceptions of meeting standards and to offer objective data for nutrient content of meals. This chapter begins with a summary of the limitations of this study. Next, the chapter discusses the results of the study and relates findings to group feeding and nutrient target recommendations. The chapter ends with recommendations for nutrition in community-based homes and recommendations for future research.

Limitations

Several limitations were noted during this study. The limitations of this study have been discussed in detail previously in Chapter III. The first limitation was related to the study participant numbers. Even though there was a high response rate (55.8%) for the available population, the sample size (N = 29) was insufficient to permit statistical analysis on most variables and it was difficult to collapse the variables into meaningful groups with enough participants in each group for statistical tests. Consequently interpretation of findings is limited to descriptive information only. Also, the population for this study consisted of employees of a CBHC in central Wisconsin area including Chippewa, Dunn, Eau Claire, Jackson, La Crosse,

and Trempealeau Counties. The results of this study should not be generalized to the other CBHCs.

The second limitation was the inability to obtain weekly menus from all participants and relate their perceptions of nutrition to the actual nutritional content of their menu. Another limitation regarded nutrient analyses was the lack of beverages and serving sizes listed on all three weekly menus. Further, a limitation related to nutritional analyses was the need to use the highest RDA/AI values set by the DRIs for adults 18 years and older and an average EER for adults. Although a common practice for group feeding programs, the small number of consumers within each house in the present sample could have allowed analyses using RDAs/AIs and EER values more specific to their age-gender group. The Food Processor software used to analyze the nutritional content of the meal may also have been a limitation regarding the nutrient values of each menu item, due to limited data on the nutrient content of some foods. Finally, in regard to meal comparisons to the CACFP guidelines, data provide estimates of the meal item requirements only. Quantities of meal items offered were not collected. From the survey results, it was unknown if the minimum 2 servings of grains were included in lunch and supper meals, as required by the CACFP.

A major limitation to the interpretation of this entire project was the lack of previous studies performed on this topic. There is little to no research specifically on nutrition related to community-based homes for disabled or elderly adults. There are especially no previous research findings available to this author on comparing the nutritional content of group home menus to national standards. Since there are no meal requirements for community-based homes, the menus and perception responses had to be compared to various other standards available, such as RDA/AI and EER target values, and group feeding program standards.

Conclusions

Several conclusions may be drawn from this study. Conclusions pertaining to all program managers' responses are discussed first. Next, conclusions pertaining to the breakdown of responses by educational attainment, nutrition and food-related training, and the number of consumers in the home will be presented. Finally, the conclusions for meeting group feeding standards and RDA/AI targets will be discussed.

All program managers' responses. According to this survey, it may be suggested that program managers most frequently consider the consumers as being the most influential factor on food-related decisions in their household. Program managers, themselves, were considered to be the second most influential in food-related decisions. This finding suggests that the focus should be on teaching both consumers and program managers how to make healthier food choices for improvement.

Most program managers gained their nutrition and food-related experience from either work experiences, or staff development and other community workshops. These results indicate the importance of the initial training of staff, as well as the continuing staff development sessions related to food and nutrition.

According to the results of the survey, the weekly menu plan was considered to be the main factor affecting grocery shopping practices. These results seem to indicate that making changes to the weekly menu plan would affect what is bought at the grocery store. Therefore, making healthier improvements on the weekly menu plan may influence healthier grocery shopping practices.

The nutritional need of consumers was considered by most participants as the most influential factor affecting menu planning. This result seems to indicate that program managers

have the needs of consumers in mind when making food-related decisions. The problem may be ensuring the nutritional needs of consumers are being met in the process of planning the menu.

Overall, the majority of program managers in this study perceived the fruit and vegetable needs of the consumers as being met. All program managers agreed there was a variety of a fruit offered daily; however, the agreement appear to be less strong for there being a variety of vegetables offered each day. Further, findings suggest that most program managers perceive that the dietary recommendations were met for both fruits and vegetables.

Dairy products, grains, proteins foods, and fruits were commonly served 2-3 times per day. General guidelines for an adult healthy diet include three (8 oz.) servings of dairy products, 6-8 ounces (3-4 servings) of grains, 5-6 ounces (2-3 servings) of protein foods, and 2 cups (two 1-cup servings, or four ½-cup servings) of fruit (USDA, MyPlate, 2012). Vegetables were commonly served twice a day, and the general recommendation for adults is 2.5 -3 cups (two and a half to three 1 cup servings, or five to six ½ cup servings) (USDA, MyPlate, 2012). Vegetables seemed to be offered fewer times each day compared to fruits. Of the vegetables offered each day, most participants reported that one or less of them was usually a dark leafy green vegetable. For grains, it appears less likely for the daily servings to be whole grains. Dark leafy green vegetables and whole grains are important components to include in a healthy diet, yet it appears these foods are being offered less frequently.

Educational attainment. In relation to educational attainment, those with a high school diploma/GED appeared to strongly agree with the statements regarding variety and meeting recommendations for fruits and vegetables compared to participants with a college degree or higher. It appears that participants with a high school diploma perceived their homes to be

meeting nutritional recommendations, whereas participants with a college degree did not feel as strongly about meeting recommendations.

Nutrition and food-related training. The nutritional needs of consumers remained the most important factor affecting menu planning for the majority of participants in all nutrition-related training groups. The monthly grocery budget appeared to play a larger influence on menu planning and grocery shopping in participants who had formal coursework related to nutrition or a two-year degree or higher related to nutrition compared to the other training groups.

Based on results of this study, it appears that nutrition and food-related training may favor offering vegetables in these homes. The results of the Mann-Whitney U test revealed that participants in the group with some training related to food and nutrition reported offering all vegetables as well as dark leafy green vegetables significantly more frequently ($p<.05$) than the group with no training. Similarly, participants with some training appeared to offer fruits more times daily than those with no training. This difference approached statistical significance ($p=0.059$).

Also it is notable that participants with some training related to food and nutrition appear to offer several food groups more frequently than those with no training. These groups included: dairy products, grains, and whole grains.

Number of consumers in the home. The nutritional needs of consumers remained the most influential factor affecting menu planning for the majority of participants who manage houses with 1-4 consumers and 5-8 consumers. Participants who managed homes with 1-4 consumers appeared more likely than participants who manage homes with 5-8 consumers to

disagree with meeting fruit and vegetable recommendations, as well as with offering a variety of vegetables daily. Vegetables seemed to be offered less frequently in houses with 1-4 consumers.

The weekly menu plan was considered the most influential factor affecting grocery shopping practices by participants who managed houses with 1-4 consumers and 5-8 consumers. The monthly grocery budget appeared to influence menu planning and grocery shopping practices of participants who managed homes with 1-4 consumers more than those who managed homes with 5-8 consumers.

Meeting group feeding standards. Findings suggest that meeting the milk component requirement at lunch may be the most concerning problem in menus at these homes based on the CACFP standards for group feeding. The CACFP standards require 1 serving (8 oz.) of fluid milk at breakfast and lunch. The majority of the homes failed to offer fluid milk for lunch. All of the other meal components appeared to be offered for the majority of the households. The results of this study suggest that the required food components were offered; however it is not known if the CACFP required quantities were met.

Meeting nutritional targets. Findings suggest that the nutritional value of the supper meal falls short supplying its share of nutrients for meeting the daily recommended intakes of consumers with the highest nutrient recommendations. For all three homes, **t**he majority of nutrient values for the menus did not meet one-third of the RDA/AIs for adults 18 years of age and older with the highest recommended intakes. All three houses met the target value for Vitamin A only, and exceeded the sodium recommended intake. The vitamin D content of menus appeared to be especially low and the furthest vitamin away from meeting the target value. Chromium appeared to be the mineral furthest away from meeting the target value.

In regards to the macronutrient analyses, all three houses met the target for protein content of one meal. Two of the houses met the standards for carbohydrates. The fiber content from all three samples was far below the recommended values for both age groups. From this macronutrient analysis, it appears that fiber should be a focus area when creating menus for these homes. Focusing on including a variety of fruits, vegetables, and whole grains would increase both the nutrient content and fiber content of the meals.

The food energy analyses indicated that the average energy content of supper menus at each house were below the energy requirements to meet the needs of an average adult. However, beverages were not included in the supper analyses, which could potentially account for some of the calories. If all meals are below the recommended energy requirement, the focus should be to either increase the energy in the meals, or ensure snacks are provided frequently between meals.

Recommendations for Nutrition in Community-Based Homes

Following the Dietary Guidelines for Americans should be no different for healthy consumers in community-based homes than the rest of the population. Two of the goals of the Dietary Guidelines were to consume more nutrient dense foods such as fruits, vegetables, whole grains, fat-free, and low-fat dairy products, and to consume fewer foods with sodium, saturated fats, *trans* fats, cholesterol, added sugars, and refined grains (USDA & USDHHS, 2010). According to the analyses in this study, most community-based homes could be including more whole grains and vegetables, and reducing the amount of sodium in their meals to meet these goals.

The majority of the staff responded that the nutritional need of consumers was the most influential factor in relation to their menu planning practices. Another common response was that the consumers had the most influence on food-related decisions within the home. The

nutritional decisions made within the home appeared to be geared toward the interest of the consumers. Nevertheless, based on the nutrient analysis of supper menus at a few homes, actions should be taken to assure that the menus served within the homes are meeting the specific needs of all household members. Further nutritional analyses of menus from a representative number of homes within the CBHC are recommended to better assess the nutritional value of meals. Further, it is recommended that menus emphasize additional nutrient dense foods to help achieve nutrient recommendations and still stay within the calorie range of consumers. Serving whole grains, fortified and enriched grains/cereals, as well as foods fortified with calcium and vitamin D may help meet some of these recommendations.

The weekly menu plan seemed to be the most influential factor affecting grocery shopping practices. The weekly menu plan is based on the recipes; therefore if the recipes are for healthy items, the weekly menu plan will be based on healthy items. Making the menu plan detailed and clear, such as indicating when to use low-fat options or other healthy alternatives, would put the grocery shoppers on the right path to meeting the nutritional needs of consumers. A better understanding of nutrition labels and grocery shopping tips in the corporate wellness pamphlet were determined by many participants to be the most helpful in aiding program managers in making healthy improvements during grocery shopping.

Most program managers gained their nutritional and food experience from either work experiences or staff development and other community workshops. Considering that this is where the majority of managers are gaining their experience, it is important to include valuable training related to nutrition, label reading, and other food practices during work-related training sessions. Despite that several program managers gained their experience from work-related experience and training sessions, staff development classes were not oftenly reported as helpful

in making healtheir improvements on the weekly menu. Program managers seemed to be most interested in getting recipes to make their menus healthier, which could be distributed during other company gatherings or mailings.

During intial training the staff should be taught the value of nutrition in their home, and the role they play in these decisions. Learning to read nutrition labels and including grocery shopping tips for healthy foods would be valuable in staff training sessions. Training could also include examples of weekly menu plans with the recipes for each meal item. Healthy recipes, nutritional, and grocery shopping tips can be sent periodically to each house, such as in a staff newsletter, to assist program managers in incorporating a variety of healthy foods into their menus.

Recommendations for Future Research

Very little research is available on nutrition for adults living in community-based homes. Future research is needed to provide evidence for specific nutritional recommendations in community-based homes. Design of further studies that takes into consideration the methodological limitations of the present study is recommended. Adults with physical and mental disabilities are a nutritionally vulnerable group who deserve to have their nutritional needs met to live a long and healthy life. Recommendations for future research would include studies useful for determining specific meal component standards or nutrient targets for community-based homes.

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Appendix A: Institutional Review Board Approval Letter

STOUT
UNIVERSITY OF WISCONSIN

Research Services
152 Voc Rehab Building

University of Wisconsin-Stout
P.O. Box 790
Menomonie, WI 54751-0790

715/232-1126
715/232-1749 (fax)
http://www.uwstout.edu/rs/

December 22, 2011

RE: Program Managers' Attitudes and Perceptions of Nutrition in Community-Based Homes

Dear Nicole, Nelson:

The IRB has determined your project, " *Program Managers' Attitudes and Perceptions of Nutrition in Community-Based Homes"* is **Exempt** from review by the Institutional Review Board for the Protection of Human Subjects. The project is exempt under **Category 2** of the Federal Exempt Guidelines and holds for 5 years. Your project is approved from **December 22, 2011**, through **December 21, 2016**. Should you need to make modifications to your protocol or informed consent forms that do not fall within the exemption categories, you will need to reapply to the IRB for review of your modified study.

If your project involved administration of a survey, please copy and paste the following message to the top of your survey form before dissemination:

> **This project has been reviewed by the UW-Stout IRB as required by the Code of Federal Regulations Title 45 Part 46**

If you are conducting an **online** survey/interview, please copy and paste the following message to the top of the form: **"This research has been reviewed by the UW-Stout IRB as required by the Code of Federal Regulations Title 45 Part 46."**

Informed Consent: All UW-Stout faculty, staff, and students conducting human subjects research under an approved "exempt" category are still ethically bound to follow the basic ethical principles of the Belmont Report: 1) respect for persons; 2) beneficence; and 3) justice. These three principles are best reflected in the practice of obtaining informed consent from participants.

If you have questions, please contact Research Services at 715-232-1126, or foxwells@uwstout.edu, and your question will be directed to the appropriate person. I wish you well in completing your study.

Sincerely,

Susan Foxwell

Susan Foxwell
Research Administrator and Human Protections Administrator,
UW-Stout Institutional Review Board for the Protection of Human Subjects in Research (IRB)

C: Dr. Esther Fahm

Appendix B: Implied Consent Statement

Consent to Participate in UW-Stout Approved Research

Title: Program Managers' Attitudes and Perceptions of Nutrition in Community-Based Homes.

Description: The purpose of this study is to determine the program managers' attitudes and perceptions of nutrition in community-based homes. The focus of this research is to determine factors that influence the program managers' decisions regarding food or menu choices offered at the home, to determine if nutritional needs of consumers are perceived as being met, and identify factors that may assist the program managers in improving nutritional quality of meals within the home.

Risks and Benefits: The study poses no anticipated risk beyond that experienced in subject's everyday life and work experiences. Each participant has the opportunity to complete the survey at the time and location of his/her choosing during the study period to allow for optimal individual comfort.

The major benefits to be expected include identifying factors that influence nutritional choices within the home and discovering what factors may assist program managers in improving nutritional quality within their homes. The results from this study will help us better understand what factors may be promoting optimal nutritional standards as well as barriers to optimal standards in community-based homes. Currently very little research exists on nutrition within group home settings. This study will serve as a stepping stone for further research on nutritional quality within these facilities.

Time Commitment: This survey will take approximately 5-10 minutes to complete thoroughly.

Confidentiality: Your name will not be included on any documents. Your responses are anonymously sent back to the researcher. We do not believe that you can be identified from any of this information.

Right to Withdraw: Your participation in this study is entirely voluntary. You may choose not to participate without any adverse consequences to you. You have the right to stop the survey at any time. However, should you choose to participate and later wish to withdraw from the study, there is no way to identify your anonymous responses after it has been submitted to the investigator. Once you submit your responses, the data cannot be linked to you and cannot be withdrawn.

IRB Approval: This study has been reviewed and approved by The University of Wisconsin-Stout's Institutional Review Board (IRB). The IRB has determined that this study meets the ethical obligations required by federal law and University policies. If you have any questions,

concerns, or reports regarding your rights as a research subject, please contact the IRB Administrator.

Investigator: Nicole E. Nelson
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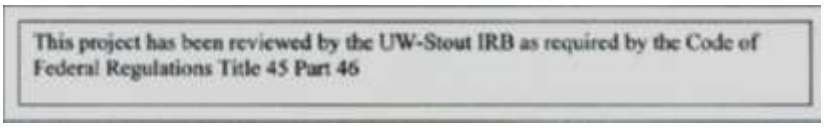
Statement of Consent:
By completing the following survey you agree to participate in the project entitled Program Managers' Attitudes and Perceptions of Nutrition in Community-Based Homes.

Appendix C: Survey



General Instructions:

1. Please do not write your name, group home address, or any identifying information on this survey.
2. Please answer the following questions honestly and to the best of your ability.
3. Focus your responses on the past week only.
4. When completely finished with the survey, your anonymous responses will automatically be sent to the researcher at the University of Wisconsin-Stout.

Q1 How many consumers currently live in your house operation? (Select one)

- ❍ 1-4 (1)
- ❍ 5-8 (2)
- ❍ 9 or more (3)

Q2 The majority of the consumers in the household are:

- ❍ 51 years of age or older (1)
- ❍ 50 years old or younger (2)

Q3 What is the main factor that influences menu planning within your house operation? (Select one)

- ❍ Convenience (1)
- ❍ Nutritional needs of consumers (2)
- ❍ Monthly grocery budget (3)
- ❍ Taste preferences of consumers (4)
- ❍ Consideration of special diet (5)
- ❍ Personnel, equipment, storage facilities (6)
- ❍ Creativity/variety (7)
- ❍ Specify other: (8) _____

Q4 What would be most helpful to aid in making healthier improvements on your weekly menu? (Select one)

- ❍ Pamphlets on healthy menu planning tips (1)
- ❍ Staff development classes/education (2)
- ❍ A basic template of healthy meals (3)
- ❍ Recipes for healthy menu items (4)
- ❍ Basic guidelines for meal (5)

Q5 What is the main factor that influences grocery shopping practices for your house operation? (Select one)

- ❍ Time available (1)
- ❍ Weekly menu plan (2)
- ❍ Monthly grocery budget (3)
- ❍ Seasonal availability of foods (4)
- ❍ Food sales/bargains (5)
- ❍ Food storage facilities (6)
- ❍ Reading nutrition labels (7)
- ❍ Buying fresh fruits and vegetables to last through the week (8)

Q6 What would be most helpful to aid in making healthy improvements during grocery shopping? (Select one)

- ❍ Grocery shopping tips in the corporate wellness pamphlet (1)
- ❍ A staff development class on food safety and grocery shopping (2)
- ❍ A better understanding of nutrition labels (3)
- ❍ A grocery store tour (4)

Q7 In your opinion, who has the most influence on food-related decisions for your house operation? (Select one)

- ❍ Program Manager (1)
- ❍ Consumers (2)
- ❍ Consumer family requests (3)
- ❍ Other staff within the house (4)
- ❍ Dietitian (5)
- ❍ Doctor's orders (6)
- ❍ Nurse (7)
- ❍ Specify other: (8) _____

Q8 Is breakfast typically offered at the house?

- ❍ Yes (1)
- ❍ No (2)

If No Is Selected, Then Skip To Is lunch typically offered at the hou...

Q9 What food group(s) are typically included in the breakfast meal? Select all that apply.

- ❑ Fluid milk (includes fluid milk of all types, soy milk , lactose-free, others) (1)
- ❑ Grains (breads, cereals, pasta, rice, other) (2)
- ❑ Fruit (includes 100% fruit juices) (3)
- ❑ Vegetable (includes potatoes and vegetable juices) (4)
- ❑ Meat or Meat alternate (includes dairy products, except fluid milk; meat, fish, poultry, dried beans/peas, eggs, nut/seeds/nut butters) (5)
- ❑ Margarines/butters/oils (6)
- ❑ Sweets (jelly, jams, pastries, donuts, desserts) (7)
- ❑ Water (8)
- ❑ Coffee, tea, other beverages (9)

Q10 Is lunch typically offered at the house? (also includes packed lunches)

- ❍ Yes (1)
- ❍ No (2)

If No Is Selected, Then Skip To Is supper/dinner typically offered at...

Q11 What food group(s) are typically included in the lunch meal? Select all that apply.

- ❑ Fluid milk (includes fluid milk of all types, soy milk, lactose-free, others) (1)
- ❑ Grains (breads, cereals, pasta, rice, other) (2)
- ❑ Fruit (includes 100% fruit juices) (3)
- ❑ Vegetable (includes potatoes and vegetable juices) (4)
- ❑ Meat or Meat alternate (includes dairy products, except fluid milk; meat, fish, poultry, dried beans/peas, eggs, nut/seeds/nut butters) (5)
- ❑ Margarines/butters/oils (6)
- ❑ Sweets (jelly, jams, pastries, donuts, desserts) (7)
- ❑ Water (8)
- ❑ Coffee, tea, other beverages (9)

Q12 Is supper/dinner typically offered at the house?

- ❍ Yes (1)
- ❍ No (2)

If No Is Selected, Then Skip To How many times each day are v...

Q13 What food group(s) are typically included in the dinner/supper meal? Select all that apply.

- ❑ Fluid milk (includes fluid milk of all types, soy milk, lactose-free, others) (1)
- ❑ Grains (breads, cereals, pasta, rice, other) (2)
- ❑ Fruit (includes 100% fruit juices) (3)
- ❑ Vegetable (includes potatoes and vegetable juices) (4)
- ❑ Meat or Meat alternate (includes dairy products, except fluid milk; meat, fish, poultry, dried beans/peas, eggs, nut/seeds/nut butters) (5)
- ❑ Margarines/butters/oils (6)
- ❑ Sweets (jelly, jams, pastries, donuts, desserts) (7)
- ❑ Water (8)
- ❑ Coffee, tea, other beverages (9)

Q14 How many times each day are vegetables typically offered? Please select one.

- ❍ Less than once a day (1)
- ❍ 1 time a day (2)
- ❍ 2 times a day (3)
- ❍ 3 times a day (4)
- ❍ 4 times a day (5)
- ❍ 5 or more times a day (6)

Q15 Of the vegetables offered each day, how many times are dark green leafy vegetables typically offered? (Arugula, broccoli, kale, romaine lettuce, spinach, dandelion greens, collard greens, etc.) Please select one.

- ❍ Less than once a day (1)
- ❍ 1 time a day (2)
- ❍ 2 times a day (3)
- ❍ 3 times a day (4)
- ❍ 4 times a day (5)
- ❍ 5 or more times a day (6)

Q16 How many times each day are fruits typically offered? Please select one.

- ❍ Less than once a day (1)
- ❍ 1 time a day (2)
- ❍ 2 times a day (3)
- ❍ 3 times a day (4)
- ❍ 4 times a day (5)
- ❍ 5 or more times a day (6)

Q17 How many times each day are proteins typically offered? (eggs, poultry, beef, etc.) Please select one.

- ❍ Less than once a day (1)
- ❍ 1 time a day (2)
- ❍ 2 times a day (3)
- ❍ 3 times a day (4)
- ❍ 4 times a day (5)
- ❍ 5 or more times a day (6)

Q18 How many times each day are grains typically offered? (bread, cereal, pasta, rice, etc.) Please select one.

- ❍ Less than once a day (1)
- ❍ 1 time a day (2)
- ❍ 2 times a day (3)
- ❍ 3 times a day (4)
- ❍ 4 times a day (5)
- ❍ 5 or more times a day (6)

Q19 How many times each day are whole grains typically offered? (includes: oatmeal, whole wheat bread, whole grain cereal, whole grain rice, etc) Please select one.

- ❍ Less than once a day (1)
- ❍ 1 time a day (2)
- ❍ 2 times a day (3)
- ❍ 3 times a day (4)
- ❍ 4 times a day (5)
- ❍ 5 or more times a day (6)

Q20 How many times each day are dairy products offered? (includes: milk, soy milk, yogurt, cheese, etc.) Please select one.

- ❍ Less than once a day (1)
- ❍ 1 time a day (2)
- ❍ 2 times a day (3)
- ❍ 3 times a day (4)
- ❍ 4 times a day (5)
- ❍ 5 or more times a day (6)

Q21 For the following statements, please check the box most related to your feelings about the statement. There are a variety of fruits offered daily within the house.

- ❍ Strongly agree (1)

- Agree (2)
- Disagree (3)
- Strongly disagree (4)

Q22 There are a variety of vegetables offered daily within the house.

- Strongly agree (1)
- Agree (2)
- Disagree (3)
- Strongly Disagree (4)

Q23 The consumers are meeting the dietary recommendations for fruit intakes.

- Strongly agree (1)
- Agree (2)
- Disagree (3)
- Strongly Disagree (4)

Q24 The consumers are meeting the dietary recommendations for vegetable intakes.

- Strongly Agree (1)
- Agree (2)
- Disagree (3)
- Strongly Disagree (4)

Q25 How many years have you been a program manager for this company? (Select one)

- Less than 1 year (1)
- 1-2 (2)
- 3-4 (3)
- 5-6 (4)
- 7 or more (5)

Q26 Please select the highest level of education you completed. (Select one)

- No high school diploma (1)
- Received high school diploma or GED (2)
- Some college/Technical School (3)
- College degree or higher (4)

Q27 Please check the response that best describes your training or experience in nutrition, food, or culinary arts. (Select one)

- No training or work experiences (1)
- Work experience related to nutrition, foods, or culinary arts (2)

- Participant in training/staff development sessions related to nutrition, foods, or culinary arts (include job-site workshops/training sessions; individual consultations; community classes; videos, online sessions, other self-study sessions). (3)
- Formal coursework in nutrition, foods, or culinary arts (4)
- A two-year degree or higher degree in nutrition, foods, or culinary arts (5)

Thank you for participating in this survey process! Please click the >> button and your anonymous responses will be sent to the researcher.