THE EXPANDED FOOD AND NUTRITION EDUCATION PROGRAM INTERVENTION CONDUCTED IN THE HISPANIC POPULATION OF GEORGIA

by

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(Under the Direction of Silvia Giraudo)

ABSTRACT

The objective of this community-based, statewide intervention is to improve eating behaviors in the Hispanic population of Georgia using a curriculum that was primarily developed for African Americans. The study design was a one-group repeated measure test consisting of 455 women aged 18-61 divided into two groups. Participants completed a pre-test, a series of nutrition education lessons, and a post- test. Several measures showed improvements after the intervention. A 0.7 cup consumption increase of vegetables per day, a 1.1 cup increase in fruit per day, was shown in the Hispanic statewide group (GAEFNEPHispanic10 (n=429)). Clarke-Gwinnett11 (n=26) group showed improvements as well: a 0.8 cup consumption increase of vegetables, a 0.2 cups increase of fruits, and a 0.6 cup increase of milk per day. Both groups showed improvements in nutrition-related behaviors such as thinking about healthy food choices when deciding to feed the family and reading the “Nutrition Facts” labels.

INDEX WORDS: Expanded Food and Nutrition Education Program, Georgia, Hispanic, Intervention, Nutrition Education

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B.S. The University of Georgia, 2009

A Thesis Submitted to the Graduate Faculty of The University of Georgia in Partial Fulfillment of the Requirements for the Degree

MASTER OF SCIENCE

ATHENS, GEORGIA

2011

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August 2011

DEDICATION

I dedicate this project to my loving parents Linda and Saul Rotberg for their encouragement and support throughout my life. Thank you for continuously providing me with the opportunities needed to reach my goals.

ACKNOWLEDGEMENTS

This project would not have been possible without the help and encouragement of many. I would like to take this opportunity to express my gratitude to my major professor, Silvia Giraudo, whose guidance and support was fundamental for this project. I would also like to acknowledge my committee member, Gail Hanula, for the continuous direction and feedback that strengthened this work. Thank you to Mary Ann Johnson, who has been there since the beginning of my graduate career and has always advised and guided me through these two years. The sessions could not have taken place without Judy Hibbs, who assisted with every session. A very special thank you to Ashley Bramlett for assisting me with data analysis. This paper could not have been completed without the help of Tiffany Williams who was there to assist me with all the final details. Finally, I would like to thank my family and friends for their love and support.

The University of Georgia Cooperative Extension Expanded Food and Nutrition Education Program provided data for this study.

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CHAPTER 1

INTRODUCTION

The number of Hispanics in the United States has increased dramatically in recent years and is continuing to increase. Currently, Hispanics are the fastest growing minority group and comprise about 15.8% of the total U.S. population. This number will increase to over 25% in 2050 (Perez-Escamilla et al., 2008). As the composition of the population in the United States changes, research will continue to focus on successful ways to improve quality of life for all ethnic groups.

Nutrition is essential for proper development, healthy pregnancies and reducing chronic diseases. The USDA established The Expanded Food and Nutrition Education Program (EFNEP) in 1968 to assist limited-resource families in acquiring the knowledge, skills, attitudes, and changed behavior necessary for nutritionally sound diets. The National Institute of Food and Agriculture (NIFA), formerly known as the Cooperative State Research, Education and Extension Services (CRSEES) administers the EFNEP program, which operates in all 50 states and U.S. territories including American Samoa, Guam, Micronesia, the Northern Marianas, Puerto Rico, and the Virgin Islands. Pilot studies conducted throughout the United States helped identify effective approaches for contacting, teaching and maintaining education programs for low-income people. Recommendations based on results of these pilot studies were the basis for initiating EFNEP. EFNEP officially began in 1969 and a year later Congress stated that 15-20% of EFNEP funds would be used to support a youth component called 4-H EFNEP with emphasis on youth. EFNEP funds are distributed as follows: 4% for federal administration, 10% equally

among states, and the remainder is allocated to each state based on their population proportion to the total national population living below 125 % of the income poverty guidelines (USDA, 2009). The goals of the program are to increase personal development of the urban and rural youth through nutrition and improve the diet and nutritional status of the entire family through educational programs. By using research-based information, peer educators, and an interactive approach, EFNEP reaches about 500,000 families each year by helping them improve their diets (92%), improve eating practices such as reading nutrition labels (88%), and stretching food dollars (83%) (USDA, 2009). From 2005-2008, an average of 90% of participants in Georgia EFNEP classes made a positive change in their diets. However, about half of Georgia EFNEP participants did not eat any foods from the milk or fruit groups of the USDA MyPyramid food guidelines, even after completing the EFNEP sessions. They also did not eat as many vegetables as recommended by MyPyramid. The curriculum developed in 2008 focused on increasing fruits, vegetables, and low-fat dairy products as adequate intakes of fruits, vegetables, and milk group foods is important for overall health and may lead to a reduction in blood pressure and stroke (AHA, 2010) The intervention showed successful results in 2008 and 2009. EFNEP has helped thousands of participants throughout the country consume a healthier diet, stretch their food dollars, and improve their family's nutrition; as a participant from Maryland expressed, "After my EFNEP classes I understand that eating right can be easy for me and my family. It is just about keeping meals simple." Priority areas for minority groups focus on weight control and the incorporation of high-fiber diets that include fruits and vegetables to decrease the risk of nutrition-related diseases such as type 2 diabetes (Kaiser et al., 2001). Rates for diabetes are 5 times higher for Hispanics than non-Hispanic whites and considering that diabetes is a major risk factor for the development of cardiovascular disease, dietary changes with the help of nutrition

interventions that are safe and compatible with health and quality of life are strongly recommended (Kumanyika and Grier, 2006). Furthermore, EFNEP will be beneficial in the future in decreasing health care costs. In Virginia, the benefit/cost ratio of EFNEP was $10.64/$1.00; indicating that for every dollar spent on the program, the potential exists that over ten dollars may be saved in future health care costs (Rajgopal et al., 1996). Similar benefit/cost ratio has been seen in Tennessee (University of Tennessee, 1998). This study evaluates the ability of this nutrition education program to be conducted and improve fruit, vegetable, milk-group foods, fiber, and vitamin A and C intake and reduce sodium and fat consumption in the Hispanic population using the curriculum that was mainly developed to target African-American EFNEP clients.

CHAPTER II

LITERATURE REVIEW

Nutrition-related disease and prevalence in the Hispanic population

Many ethnic/racial minority populations are socially and politically at a disadvantage and generally have higher rates of nutrition-related health problems such as obesity (Kumanyika, 2006). The Hispanic population comprises the largest minority group in the United States and is currently 15.8% of the population with a projection of over 25% in the next 20 years (Perez-Escamilla et al., 2008). It is estimated that 64% of the Hispanics are of Mexican origin, 9% Puerto Rican, 7.6% Central American, and 5.5% South American (Perez-Escamilla, 2009). Of these, 40% were born outside the United States. Hispanics are considered an underserved population regarding health and nutrition care, with less access to nutritionally adequate and safe foods when compared to non-Hispanic whites (Nord et al., 2007). Limited English proficiency is a barrier to Hispanics when obtaining advice about nutrition and can adversely affect nutrition care (Lopez-Quintero et al., 2010; McCaffree, 2008). Compared to those who speak English, individuals with limited English proficiency experience decreased access to acute care, lengthier hospital stays, lower satisfaction with care, and more misdiagnoses and have poorer understanding of their care (Diamond et al., 2009, Garret et al., 2008 and Heiss et al., 2011). Furthermore, they are usually less educated, unemployed or working high risk jobs, living in poverty, urban areas and larger households, are less active, and have higher rates of depression than non-Hispanic whites, Peer educators have similar characteristics as their audience such as age, education level, and background. Additionally, 15.4% of Hispanic women are food insecure

compared to the national average of 11.1% (HRSA, 2010). Of further concern, very low food security, which occurs when food intake of household members is lowered and usual eating patterns are disrupted, is 6.6% compared to the national average of 4.1% (Perez-Escamilla, 2009). All these factors combined are associated with poorer health status (Ayala et al., 2004).

The overweight (body mass index >25) prevalence for Hispanic men and women in the United States is 31.4% and 75%, respectively. In 2011, 31.4% of Hispanic men and 43.4% of Hispanic women were classified as obese (body mass index >30) (AHA, 2011). In Georgia, 23% or about 1 of 4 Hispanics were obese in 2008 (CDC, 2011). Many of the major causes of high death rates in minority populations are nutrition related, particularly cardiovascular disease (heart disease and stroke), uncontrolled hypertension, and diabetes (McArthur et al., 2004). The percentage of Hispanics with pre-diabetes and diabetes is rising throughout the nation. About 25% of Hispanics are pre-diabetic and 11.8% have diabetes (NIDDK, 2011). Similar prevalence was seen in Georgia. According to the CDC, in 2009 11.9% of Mexican-Americans in Georgia over the age of twenty have type 2 diabetes. The American Heart Association lists the top causes of death for Hispanics by order of prevalence to include heart disease, stroke, cancer, and diabetes. However, recent data indicates that Hispanics are characterized by low levels of hypertension awareness, treatment, and control. The CDC is raising concern that rates of hypertension among Hispanics may increase after the first generation of Hispanics adopt unhealthy habits, including dietary practices. The age-adjusted prevalence of hypertension in the United States in 2007 was 18.9% among Hispanics. In Georgia, 17.7% of Hispanics were diagnosed with hypertension and this number will increase in the future (CDC, 2011). Because poor nutrition poses a risk for each of the diseases mentioned, it is important to have an adequate diet to help treat and prevent these diseases.

Acculturation

Acculturation has been associated with obesity and other nutrition-related diseases. Satia-Abouta et al. (2002) defines acculturation as a "series of distinct, irreversible stages such as contact, competition, accommodation, and assimilation, where completion of each stage is required before moving to the next." Numerous changes can occur with immigration, including access to health care and diet modification. Acculturation occurs at two levels. At the micro (individual) level, acculturation is referred to as "psychological" and is characterized by change in attitudes, beliefs, and behaviors (e.g., diet). At the macro group level acculturation results in physical, biological, political, and cultural changes in the society as a whole. Some Latin countries are already highly influenced by American culture, which means they are more acculturated upon migration to the United States. For example, the majority of women in Latin America initiate breastfeeding immediately after birth, yet Puerto Rican women have lower breastfeeding rates, thus the expectation is that once the women residing in Latin countries move to the United States, the influence of acculturation will be higher (Perez-Escamilla, 2009). Due to dietary acculturation (which is different from acculturation, since dietary acculturation solely focuses on changes in nutritional habits), Hispanics living in the United States usually have poorer eating habits than Hispanics that reside in their country of origin (Kaiser et al., 2001). This term has been used to describe the process of adopting the food behaviors of the host culture. Dietary acculturation is multidimensional, dynamic, and complex and is not a simple process where a person moves linearly from the beginning of the spectrum (being traditional) to the end (acculturated). Research suggests that a new part of acculturation is when immigrants find new ways to use traditional foods, exclude other foods, and consume new foods. For example, Hispanics may start flavoring their traditional foods with side dishes or condiments

(e.g., lettuce with ranch dressing) that were learned in the new culture. Also, unavailability and high cost of traditional foods and ingredients can result in increased consumption of more inexpensive foods from the host culture. Due to this, it may be more convenient and affordable to eat prepackaged dinners or fast food. Studies have shown that immigrant populations indicate these are the most common reasons for acculturation (Satia-Abouta et al., 2002).

Acculturation influence on dietary patterns

Several factors influence whether an individual assimilates into a new society or not. Higher educated immigrants from urban areas and those with similar cultural or physical characteristics such as skin color are less likely to experience isolation or major lifestyle changes (Satia-Abouta et al., 2002). It has been shown that higher degrees of acculturation in the United States correspond to an increase in calories, refined carbohydrates, animal products (saturated and unsaturated), sodium, and processed foods. Furthermore, acculturated Hispanics have lower intakes of complex carbohydrates, rice, and beans. Acculturation to fast foods has led to decreased consumption of fruits and vegetables and has caused Hispanic children to reject more healthful traditional Hispanic foods (Kumanyika and Grier, 2006). Evidence supports protective health effects for dietary patterns high in fruits and vegetables without identifying the exact vitamins, minerals, or nutrients responsible, which is why it is important for Hispanics as well as all others to consume the recommended intake (Basch et al., 1994). A less acculturated diet seems to confer protection against several forms of cancer (colon/rectal, prostate, and breast cancer) as well as other diseases, but more "Americanized" people consume fewer than the recommended servings of fruits and vegetables (Buller et al., 1999). According to Balcazar et al. (1995), less acculturated Hispanics were more than twice as likely to eat fruit, rice, and beans and about half more likely to drink milk and remove skin from the chicken when compared to

non-Hispanic whites. Neuhouser et al. (2004) conducted a study and found that Hispanics who were highly acculturated ate close to half a serving fewer of fruits and vegetables per day compared with Hispanics who were low-acculturated. Also, highly acculturated Hispanics had higher fat scores, corresponding to a higher dietary fat intake. First generation Mexican-American women consume more protein, vitamin A and C, folic acid, fiber, calcium, and iron and also have more of a dietary balance than second generation women. Overall, it can be speculated that the more healthful profile of recent immigrants tends to deteriorate and eventually adapt to that of the mainstream population. Acculturation is seen in many minority groups and shows that the more acculturated the person becomes, the higher risk of developing diseases (Guendelman and Abrams, 1995 and Kumanyika, 2006).

How acculturation is measured

Acculturation is currently measured by asking questions regarding residency (i.e length of residency in the host culture), language proficiency and preference, friendship preference and self-identification (Bermudez et al., 2000). However, because acculturation is a dynamic and longitudinal process involving complex interactions, it has been proposed that acculturation has been measured in a linear and unidirectional way by stating that immigrants move away from their culture and adopt the culture of the mainstream population while excluding the possibility that individuals may become multicultural (Perez-Escamilla, 2009). Therefore, it may be useful to have a measureable scale involving that important factor. The scale should encompass assimilated Hispanics (completely giving up their culture and adopting the new one), bicultural Hispanics (retain their cultural habits yet fully integrate into the new one), and separated Hispanics (completely retain their Hispanic culture without attempting to integrate into the new

one). In sum, the current acculturation measure that asks place of birth and time in the United States does not capture the true acculturation level (Perez-Escamilla, 2009).

Positive effects of acculturation

Some factors of acculturation have a positive effect on people's lifestyles. For example, more acculturated women cook with less lard than more traditional women. Also, acculturation is associated with increased physical activity (Ayala et al., 2004). Candelaria et al., 1996 showed that higher acculturation is associated with a stronger belief that diet is related to health among women.

Correlation between length of years residing in the United States, waist circumference and body mass index

The "epidemiological paradox" describes how longer residency in the U.S. among Hispanics has been identified as a risk factor for health-related diseases, such as overweight and obesity, particularly among second and third-plus generation compared to first generation Mexican-Americans (Ayala et al., 2004 and Satia-Abouta et al., 2002). Although most research supports this thesis, a study conducted by Ayala et al. (2004) shows conflicting results. The study recruited a total of 357 women who spoke primarily Spanish and scheduled appointments for a bicultural female to collect 3 days of dietary recall as well as measuring their weight, height, and waist and hip measurements. The mean body mass index (BMI) was 29.7 (overweight) and the mean waist-to-hip ratio (WHR) was 0.86 (over .80 is considered a high risk factor). About 41% of the women were obese. Most women reported living in United States for about 16 years. Results showed that BMI and WHR were positively correlated with number of years in the United States. Bicultural women (Mexican women who retained Mexican identity and integrated more into the Anglo (English) culture) who had lived in the United States for less than 13 years

were less likely to be at risk based on their WHR. On the other hand, traditional women (Mexican women who retained Mexican identity and integrated less into the Anglo culture) living in the United States for more than 13 years were most at risk. A possible explanation could be that these women are more isolated from society because of language and stigma, which is why they encounter more barriers to a healthy lifestyle including a diet high in fruits and vegetables and low in fat. It was also seen that lower levels of central adiposity were associated with better functional integration in the United States among Mexican -American women (Hazuda et al., 1991). However, waist circumference was smaller among Mexican-born women, followed by United States English-speaking women. In conclusion, across both bicultural and traditional women, being in the United States for more than 13 years was associated with obesity. Because of mixed findings, more research is needed in this area, using standardized measures of dietary intake and acculturation (Ayala et al., 2004).

Media influence on dietary patterns

Another factor that is a major influence on dietary habits is the media. In 2002, 72% of consumers named television as their main source of nutrition information (Abbatangelo-Gray et al., 2008). This is even more predominant among the less educated, which often includes minority populations. African American and Hispanic youth spend more time watching TV and playing video games than whites (Kumanyika and Grier, 2006). In the U.S., the average adult Hispanic female watches about 6 hours of television per day, 1.5 more hours than her white counterparts (Abbatangelo-Gray et al., 2008). Abbantangelo-Gray et al. (2008) reveals that there are significantly more beverage advertisements on Hispanic television than on mainstream television. Also, fast food restaurant chains were advertised significantly more often on Hispanic television. However, mainstream television had less nutrient content claims than Hispanic

television when it comes to vitamins, minerals, protein, fiber, fruit, low calorie foods and lean meat, than Hispanic television. In addition, Hispanic television aired more than 2.5 times as many advertisements containing nutrient claims when compared to mainstream television. Because Hispanics' diets deteriorate as they become more acculturated, researchers suggest that there may be a link between television exposure and this trend. Given the heavy media consumption by the more acculturated women, it is reasonable to assume that television food advertisements may affect dietary choices (Abbatangelo-Gray et al., 2008).

Hispanic dietary patterns compared to non-Hispanic white dietary patterns

Gans et al. (2003) showed that when applying a Food Health Questionnaire consisting of 33 questions to whites and Hispanics where the lower the number (1= always performing the behavior (for example, always ate salads without dressing, always ate bread without fat, and ate fish/chicken instead of red meat) and 5 = never performing the behavior), the more often healthy nutrition habits were practiced, whites had an average of 2.44 and Hispanics had an average of 2.61 on a scale of 1 to 5, meaning that Hispanics had unhealthier habits and ate more salads with salad dressings and more bread with fat than whites. Also, Hispanics were less likely to read nutrition labels, eat low-fat frozen desserts, cook without fats and, eat lower-fat cookies and cakes, and were more likely to add extra fat to vegetables and purchase fewer low-fat foods than non-Hispanic whites. Furthermore, Hispanics had lower levels of nutrition knowledge than non-Hispanic whites in the United States (Abbatangelo-Gray et al., 2008).

Family and influencing factors on childhood obesity

Hispanic mothers' poor dietary habits not only make them at risk for nutrition-related diseases but also increase the risk of their children. Because mothers are usually the main household caretakers, their eating patterns are strongly correlated with their children's eating

pattern. Family is of great importance to Hispanics, and it is important to recognize that "familism" (mainly because of the mother) is a strong influence on the health and well-being of other members of the family. Familism incorporates attitudes, behaviors (such as eating habits), and family structures operating within a family (McArthur et al., 2004). In the United States, overweight and obesity is more prevalent among Hispanic children compared to other groups (Snethen et al., 2007). Research has shown that childhood obesity tracks into adulthood and having one obese parent triples the risk of a child being obese, while having both parents obese increases the risk ten times (James et al., 2008). Aside from family influence, other factors regardless of ethnicity that affect childhood obesity include diets high in fat and sugar, low levels of physical activity, patterns of television viewing, and insecure neighborhoods (McArthur et al., 2004).

Mothers' beliefs about their children's weight

Hispanic mothers believe that the heavier the infant is, the healthier it is, causing them to introduce solid foods earlier than the recommended 6 months. They often do not identify their children or themselves as overweight when they are. They often use euphemisms such as "thick" or "big boned" to describe children who qualify as overweight. Some mothers also believe that predisposition to weight is inherited and there is no mechanism to alter it, making them less inclined to alter their families' non-healthy dietary patterns (James et al., 2008). Due to this, they are unlikely to take preventative measures with respect to their children's diet (Gomel and Zamora, 2007). Gomel and Zamora (2007) conducted focus groups with Hispanic mothers and the results showed that many mothers reported eating at fast food restaurants due to schedule/time demands or as positive reinforcements for accomplishments such as doing well in school. This last point teaches the child that whenever he/she has done something well, high fat

and sugar foods are the prize, resulting in a detrimental relationship with food. The majority of mothers stated that their eating habits do influence their children's eating habits, yet none of the focus groups discussed the link between food consumption and health risks. Because of this, it is important for the parents to be positive role models and acquire nutrition knowledge.

Inadequate fruit and vegetable consumption in children

The Centers for Disease Control (CDC) recommends that although "5 –A-DAY" (3 vegetables and 2 fruits a day) was recommended for all adults, children over 2 years of age should progress toward this goal. Basch et al. (1994) studied a sample of 4-5 year old healthy Hispanic children and their mothers who participated in a 3-year observational study. Mother/child pairs completed seven 24-hour diet recalls during the course of 3 years. The measurement for 1 serving of fruit was: 1 piece of fresh fruit, 6 ounces of juice, or 1/4 cup of dried fruit. For vegetables, 1/2 cup of cooked vegetables or 1 cup of leafy vegetables counted as 1 serving of vegetables. Results showed that the mean number of servings of the recommended 5 fruits and vegetables consumed per day was 2.8. Only 14 of the 205 children consumed the 5 or more a day (Basch et al., 1994). Orange juice was the most popular fruit consumed in the sample and dark green leafy, green non-leafy and yellow vegetables were consumed less frequently. There was a significant increase in the intake of vitamin A and C, potassium, iron, protein, and fiber as fruit and vegetable intakes increased. Based on these results, Basch et al. (1994) suggest that dietitians and health professionals advocate for an increase in the consumption of fresh fruit, dark green leafy, non-leafy, and yellow vegetables to children. About 44% of children in the sample were above the 85th percentile of the national norms of body mass index for their age and sex, showing the immense problem regarding childhood obesity in this group. The population used in the study was low-income and there is evidence that lower income is

associated with lower consumption of fruits and vegetables. Older elementary school children exposed to television commercials for sweets and other nutrient dense snacks were more likely to choose candy and sugary snacks than fruit or fruit juice when a snack was offered to them (Kumanyika and Grier, 2006). Also, language barriers can be a problem because many public health campaigns do not reach these groups (Basch et al., 1994).

Targeting parents for effective nutritional outcomes in children

Dietary changes in Hispanic and other ethnic population children should be feasible, but change is difficult because of exposure to targeted marketing of foods with high energy content and low nutritional value and because of the relatively higher cost of some of the recommended foods. Because parents are the major influences in the development of their children's dietary patterns, it is important to target parents since they are the change agents and can model behavioral change by setting goals for themselves and their children (James et al., 2008). James et al. (2008) conducted a nutrition intervention to lower both parent and children BMI and focused on intervening solely with the parents. Results showed a decrease in BMI of both parents and children over 14 weeks, which shows that parental involvement enhances obesity intervention effectiveness for children. Many low-income female Hispanic meal planners are unaware of diet health relationships, but after receiving nutrition education along with behavioral dietary counseling, there was a significant increase in awareness of the diet- health relationship (James et al., 2008).

Education importance for long-term maintenance of dietary changes

Nutrition interventions should not only focus on healthy food recommendations, but should also consist of showing participants how to purchase these foods, appropriate ways to cook them, how to choose healthier options, and reading nutrition labels. Additionally,

interventions should give participants a chance to express their concerns, feelings, and experiences with others to increase participation and interest in the program. Elder et al. (1998) conducted a cardiovascular health intervention that highlighted these concepts. The sample consisted of 87% Hispanics while the rest were other minorities. Recipe modification, smart shopping, classification of foods, and reading food labels as well as savings in time and money were included in the curriculum and were presented by trained English as a Second Language (ESL) teachers. The goal of the program was to bring about changes in the student's nutrition knowledge, attitudes, and behaviors. Because many of the participants were multicultural, the program emphasized the basics of U.S. diets rather than ethnic-specific foods. After 6 months, the participants showed significant positive changes in HDL cholesterol (42.8 to 44.4mg/dL), nutrition knowledge (4.45 to 6.76), and fat avoidance (3.69 to 4.04) when compared with the control group.

Broadly inclusive versus culturally appropriate nutrition interventions

Nutrition interventions can help reduce the risk of chronic diseases (Gans et al., 2003). A culturally appropriate nutrition intervention can be developed and targeted towards a specific population. Patterson (2006) showed that after a nutrition intervention was developed and implemented for low-income Hispanic families including healthy cooking and nutrition classes, there was an increase in 2 or more vegetables consumed per day and increases in fruit portions as well ($P<.05$). There was also an increase in the consumption of raw vegetables. Overall, self-reported food behavior in the community improved such as reading nutrition labels ($P<.05$), purchasing lower-fat foods ($P<.05$) and purchasing fewer fruit drinks($P<.05$).

The following interventions are examples of broadly inclusive interventions, meaning that the same methods were used in different ethnic/racial groups. The Women's Health Trial

Feasibility Study in Minority Populations (WHT: FSMP) delivered a nutrition intervention to white, black, and Hispanic women, which integrated nutritional and behavioral topics, role-playing, food tasting, and nutrition education. Materials were translated into Spanish and the food range was expanded. The Hispanic women were from Miami and the mean energy intake was about 2,000 calories ± 827 calories compared to 1826 ± 605 of calorie intake in the white women and 1763 ± 795 calorie intake in the black women. The nutrition intervention goal was to reduce fat intake to 20% or less of total energy, to increase servings of fruits and vegetables, and to reduce saturated fat intake. A registered dietitian delivered the intervention on a weekly basis. At baseline, the Hispanic women consumed more fat from dairy foods, red meat, and vegetables/salads than African-American and white women. A self-administered dietary habits questionnaire (DHQ) was used to assess food preparation, selection, and purchasing. The DHQ included 23 items (e.g., "avoid fat as flavoring", "replace with fruits and vegetables"). The survey was based on a 4 point scale: 1=usually, 2=often, 3=sometimes, 4=rarely. The baseline score for the Hispanic women regarding fruit and vegetable consumption was 2.92. Post-intervention the score decreased to 2.49. African-American and white women's mean scores also decreased after the intervention from 2.75 to 2.38 and 2.94 to 2.68, respectively. At 6 months, Hispanics fat intake from dairy products lowered from a mean of 15 g per day to less than 10 g per day. Furthermore, there was an increase in the consumption of fruits and vegetables and a decrease of fat intake from vegetables in all 3 groups. The intervention was successful in helping participants with diverse dietary patterns identify and change their behaviors. Also, the intervention program was inclusive of culturally diverse dietary and lifestyle patterns, showing that a single dietary intervention program can work well in a culturally diverse group (Kristal et al., 1999).

Buller et al. (1999) conducted a randomized peer education trial to test the effectiveness of increasing fruit and vegetable consumption among lower socio-economic, multicultural labor employees. The intervention consisted of 46% whites, 42% Hispanics, 4% Native Americans, and 7% African-Americans. Participants completed a pre-test and post-test 24-hour diet recall to measure fruit and vegetable intake. The basis of the intervention was the Five-a-Day Education Program where an employee recruited a peer educator from the group to teach the information. The curriculum contained culturally appropriate nutrition information and Spanish translations as well as graphics, stories, recipe books, and calendars. Post-intervention showed an increase in knowledge of the number of fruit and vegetable servings needed per day, awareness of the Five-a- Day Program, and an increase in fruit and vegetable consumption (about half a cup for each). Kumanyika (2006) highlights this concept well by suggesting that, "Given the limited information regarding nutrition interventions for minority groups there is nothing to prove that a method used in a certain ethnic group will not work in another group." The most influential aspect of nutrition education in minority populations such as Hispanics is the health educator. The use of a peer nutrition educator to whom the group can relate has a positive influence on increasing general nutrition knowledge and dietary intake behaviors among Hispanics (Perez-Escamilla et al., 2008). The person providing the information must be culturally and linguistically competent (Heiss et al., 2011). Peer educators or paraprofessionals are more effective in achieving dietary change among lower socioeconomic, multicultural populations than when the instructor is dissimilar from the group or is someone the group cannot relate to on a personal basis (Buller et al., 1999). In conclusion, because the Hispanic population is increasing rapidly and will comprise one fourth of the population in the next 20 years, health care professionals anticipate the population will increase not only in numbers but in body size as

well and important measures should be taken to control the progression of nutrition-related diseases (Perez-Escamilla et al., 2008 and McArthur et al., 2004). Federal and state-based programs such as the Expanded Food and Nutrition Education Program (EFNEP) can be successful in helping combat the obesity epidemic as well as increase positive nutrition practices (CDC, 2011).

The Health Belief Model and the Hispanic population

The Health Belief Model (HBM) is one of the most widely used conceptual frameworks for understanding health behavior. The HBM explains the reasons why individuals engage, or do not engage, in health-related actions as well as the maintenance of health related behaviors (Janz and Becker, 1984). It is based on the understanding that a person will take a health-related action if that person feels that a negative health condition can be avoided, has a positive expectation that by taking a recommended action he/she will avoid a negative health condition, and believes that he/she can successfully take a recommended health action (Glanz et al., 1997)**.** The constructs from the HBM include: perceived susceptibility (one's belief regarding the chance of getting the condition), perceived severity (one's belief in how serious a condition and its sequelae are), perceived benefits (one's belief in the efficacy of the advised action to reduce risk or seriousness of impact), and perceived barriers (one's belief about the tangible and psychological cost of the advised action) (Janz and Nancy, 1984). Few studies have shown the application of the Health Belief Model in the Hispanic population (Rodriquez-Reimann et al., 2004). Yeh et al. (2008) found that although many Hispanics knew the health benefits of consuming a diet high in fruits and vegetables as well as the health implications of fast foods, they did not act on this knowledge. Furthermore, Hispanics had knowledge regarding the vitamins lost in vegetables by over-cooking them and noted the negative impact of the U.S.

culture on their health. Many barriers to the consumption of fruits and vegetables were found in the Hispanic population with the most prevalent regarding the high cost of fresh produce as well as lack of time to prepare them. Yeh et al. (2008) also indicated that a barrier to the consumption of fruits and vegetables for the Hispanic population was that most food-related commercials depicted more appealing advertisements such as McDonald's, Wendy's, and Pizza Hut and not fruits and vegetables. Furthermore, Hispanics in the United States found fruits and vegetables to be less accessible in the United States than in their home country as well as the scarcity of certain items such as plantains or their poor quality. Additionally, Hispanic immigrants mentioned that in their country, they lived on or close to farms and had more access to fresh fruits and vegetables. Lack of energy, time, and familiarity with certain fruits and vegetables in the United States and how to appropriately prepare these was also seen as a major barrier. Furthermore, they preferred fresh fruits and vegetables to canned and frozen ones and stated that children had an influence on whether fresh fruits and vegetables were available in the household. Upbringing and familial influence was a determinant factor because the women are the nutritional gatekeepers of the family and the family ate whatever she cooked. Lastly, if the participants consumed fruits and vegetables as a child, then they were more inclined to continue this practice into adulthood. In conclusion, although the Hispanic population was aware of the positive health benefits of fruits and vegetables, many did not adhere to the USDA recommendations due to the barriers explained above. There is a need to improve the availability and access of fresh fruits and vegetables commonly known to the Hispanic immigrant (Yeh et al., 2008)

CHAPTER III

THE EXPANDED FOOD AND NUTRITION EDUCATION PROGRAM INTERVENTION CONDUCTED IN THE HISPANIC POPULATION OF GEORGIA[1]

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Abstract

The objective of the Expanded Food and Nutrition Education Program (EFNEP) intervention of whether a Health Belief Model based intervention designed to decrease dietary risk factors for hypertension in African American EFNEP participants by addressing benefits of, barriers to, and self-efficacy for consuming hypertension-protective foods will also be effective in the Hispanic population. In 2009, 23% of Hispanics in Georgia were obese and 77.4% of Hispanics consumed less than 5 fruits and vegetables per day (CDC 2011). The study design was a one-group repeated measure consisting of 455 women aged 18-61 assigned in to two groups (GAEFNEPHispanic10 and Clarke-Gwinnett11). Participants acquired information regarding the importance of consuming adequate amounts of fruits, vegetables, low-fat milk group foods, and sodium as well as information about proper nutrition practices and safe food preparation practices. Measurable objectives of the study include increased positive nutrition practices and consumption of fruits, vegetables and milk group foods closer to the recommended levels of MyPyramid. After the six-week intervention, results showed 0.7 cup increase of vegetables per day (P <.0001), a 1.1 cup increase of fruits per day (P<.0001), and a 0.7 cup increase of milk per day (P <.0001) in the GAEFNEPHispnic10 group (n=429). Clarke-Gwinnett11 (n=26) showed a 0.8 cup increase of vegetables per day (P<.0001), 0.2 cup increase of fruits per day, and 0.6 cup increase of milk per day, the latter of which were not statistically significant but have practical implications. Furthermore, both GAEFNEPHispnic10 and Clarke-Gwinnett11 showed statistically significant (P<.0001) improvements in nutrition-related behaviors such as thinking about healthy food choices when deciding what to feed the family and reading the "Nutrition Facts" labels when making food choices.

Introduction

In the past 30 years the percentage of people consuming the recommended "five a day" fruits and vegetables has increased by only 10%. In 1980 about 9% of United States residents consumed 3 servings of vegetables and 2 servings of fruits a day. About 23% of adults in the U.S. consumed the adequate five servings a day in 2009 (CDC, 2011). Dietary intakes of minorities are also inconsistent with the national goals. The percent of Hispanics in Georgia who consumed less than five fruits and vegetables per day in 2009 was 77.4% (CDC, 2011).

Because Hispanics are the fastest growing segment of the total population and the largest immigration group, they make up a large percentage of the U.S. population (15.8%). Georgia is one of the five states with the largest increase in Latino population in recent years (Perez-Escamilla, 2009). Currently Hispanics, as well as other ethnic groups are also affected by the obesity epidemic which can be seen by an overweight/obesity prevalence of 72.3% in Mexican-American women as compared to 62.1% of the general female population (HRSA, 2010). Furthermore, from 2003-2006, Mexican-American women were 30% more likely to be overweight compared to non-Hispanic whites (HHS, 2009).

Acculturation has affected lifestyle and health outcomes and has played a part in the reduction of the consumption of nutrient-dense foods in the Hispanic population immigrating to the United States (Perez-Escamilla, 2009). Because acculturation has been used to describe the process of adopting the food behaviors of the host culture, Hispanics in the U.S. have found new ways to use their traditional foods, exclude other foods, and consume new foods. A higher degree of acculturation is linked to an increase in calories, refined carbohydrates, animal products (saturated and unsaturated) sodium, and processed foods. Nevertheless, when Hispanics

become acculturated to the habits of their new residence, they have lower intakes of complex carbohydrates, beans, fruits, and vegetables. (Satia-Abouta et al., 2002; Basch et al., 1994).

National strategies to increase consumption of fruits and vegetables and reduce health disparities may not reach lower socio-economic and minority populations since they cannot access traditional healthcare due to limitations such as language barriers, lack of access to media (internet), health insurance, transportation, and wellness programs (Buller et al.,1999). Because of this trend, nutrition interventions are important for this group.

Existing research recommends that dietitians and health care professionals encourage Hispanics to maintain healthy eating habits in regard to fruit and vegetable consumption while adjusting to a new culture (Neuhouser et al., 2004). Current studies have examined the effects of culturally appropriate intervention programs for Hispanic families, and suggest that further research and intervention studies are necessary (Kumanyika, 2006).

The proposed research will fill in the gaps of whether a Health Belief Model-based intervention designed to decrease dietary risk factors for hypertension in African-American EFNEP participants by addressing benefits of, barriers to, and self-efficacy for consuming hypertension-protective foods will also be effective in the Hispanic population. Faculty and staff and The University of Georgia developed the curriculum, "Food Talk," and currently it has shown an increase in the consumption of fruits, vegetables, and milk group foods in EFNEP participants in Georgia in 2010, 64% of whom were African-American, 13% of whom are Hispanic, and 23% of whom are white (NEERS5, 2010). This curriculum is innovative because it consists of experiential and dialogue-based learning and explores the barriers as to why certain dietary behaviors are not practiced and ways to overcome these practices.

Purpose, Hypothesis and Specific Aims

Purpose

Determine if a nutrition intervention developed to improve dietary behaviors and decrease dietary risk factors for hypertension in the African-American population is effective in the Hispanic population of Georgia.

Overall hypothesis

The nutrition intervention developed to improve dietary behaviors and decrease dietary risk factors for hypertension in the African-American population will be effective in the Hispanic population of Georgia.

Specific Aims

Specific Aim 1. Increase nutrition practices important to consuming a healthy diet including reading nutrition labels, planning meals ahead of time, and thinking about healthy food choices. It is hypothesized that nutrition practices, including reading nutrition labels, planning meals ahead of time, and thinking about healthy food choices will increase post-intervention.

Specific Aim 2. Increase the consumption of fruits, vegetables, and milk group foods. It is hypothesized that there will be an increase in the consumption of vegetables, fruits and milk group foods post-intervention.

Specific Aim 3. Decrease consumption of sodium and fat and increase consumption of fiber and vitamins A and C. It is hypothesized that participants will decrease the amount of sodium and fat consumed per day and increase the fiber, vitamins A and C intake following the intervention.

Methods

The University of Georgia Institutional Review Board on Human Subjects approved this project on January 31, 2008 as an amendment to Project Number 2007-10317-2, an on-going Family and Consumer Sciences Extension Evaluation of Education Programs. The amendment met the criteria for administrative exempt review procedures so written consent from participants was not required. Britt Rotberg was added as a co-investigator and this was approved October 19, 2010, revised Project Number 2007-10317-7.

The project was an evaluation of a community nutrition education program in the state of Georgia. The overall sequence began with the training of Britt Rotberg and The University of Georgia Cooperative Extension faculty and staff members from Gwinnett County Cooperative Extension. Following training, participants were recruited and the administration of baseline instruments was conducted. UGA Cooperative Extension graduate student Britt Rotberg, Gwinnett and Clarke County Extension personnel, and Casa de la Amistad (which provides Hispanics with social services, referrals, translations, education, and advocacy) aided in the recruitment of the participants. The participants were contacted on a weekly basis in order to remind them of the time and day of the lessons. Also, the UGA Cooperative Extension graduate student, Britt Rotberg, was available by telephone to answer any questions or problems throughout the study. The lessons were open to all EFNEP clients, however, the inclusion criterion for data analysis was limited to Hispanic women 18 years and older. The reason women

were targeted was because they are typically in charge of food preparation and make most of the food-related decisions (Eakin et al., 2007). All interested persons were given an oral description of the study including requirements to graduate from the program, procedures, and benefits of the study. The participants were informed of the right to withdraw from the study with no detrimental effects of the services they receive from EFNEP or Casa de la Amistad. Furthermore, it was communicated that they did not have to provide any personal information they did not desire nor did they have to complete the food behavior checklist and/or 24-hour diet recall to remain in the program. The number of Hispanic women 18 years and older recruited was 26. Nine participants were from Athens-Clarke County and the remaining 17 were from Lawrenceville/Gwinnett County. The women from Athens were clients of The Special Supplemental Nutrition Program for Women (WIC), Infants and Children and Casa de la Amistad. The EFNEP agent recruited the women from Lawrenceville through the Alford Elementary School in Gwinnett County. The sample needed was a total of 44 participants when accounting for 20% attrition, so the number increased to 53 participants needed to complete the study. Due to the fact that this number of participants was not attained, data from clients who identified themselves as Hispanic in the Georgia EFNEP program fiscal year 2010 was analyzed (GAEFNEPHispanic10). Data from a total of 455 Hispanic women were analyzed in this study and they were assigned to two different groups: Clarke-Gwinnett11 (n=26) and GAEFNEPHispanic10 (n=429).

Clarke-Gwinnett11 consisted of 6 one-hour sessions that were conducted in two different groups. The first 17 women attended a classroom for parents at a local elementary school in the fall. The second group's sessions took place also in the fall at an agency serving Hispanic clients. The groups received one weekly lesson and the intervention lasted for 6 continuous weeks. In

session one, participants completed the EFNEP entry form, 24-hour diet recall, and the food behavior checklist (APPENDIX A).

Post-intervention data was completed at week 6. All data was self-reported. The EFNEP entry form questioned participants about their age, number and age of children, number of household members, ethnicity, government assistance, pregnancy and breastfeeding status, etc. The EFNEP exit form questioned participants about their monthly income and their thoughts on the program, as well as the basic information they provided in the entry form such as age, number of children, etc. The study tools used were the 24-hour diet recall, the entry and exit form, the food behavior checklist, the curriculum "Food Talk," and materials from the lessons. The 24-hour diet recall measures dietary intake and the respondents recorded the entire food and beverage intake consumed in the past 24 hours of the previous day such as each item eaten, portion sizes, and the number of times the food item was eaten during the previous day. When probing for portion sizes, the paraprofessionals used the USDA 5-step multiple pass method. The food behavior checklist was used to assess behavioral changes and was divided into 3 parts: food safety, food resource management, and nutrition practices.

a) Curriculum for the Intervention

"Food Talk" featuring "Meals in Minutes" was the curriculum used in the intervention. It was developed by Gail Mooney Hanula (2008) and was based on the Health Belief Model (HBM). The curriculum emphasizes the constructs of the HBM including the benefits and barriers of consuming a diet high in fruits, vegetables, and low-fat dairy products as well as one's confidence in one's ability to perform certain diet-related behaviors (self-efficacy) (Janz et al., 1984). The intervention was not developed for Hispanics, but mainly to target the African-American population since roughly 70% of EFNEP participants are African-American (Hanula,

2009). Only minor changes were made to the curriculum to enhance the appeal to Hispanic participants. Food examples that would be better known by the Hispanic population such as tamarind juice and horchata beverage were substituted for turnip root and collard greens during a discussion in lesson one. Fictional characters who had American names such as LaToya were changed to Spanish names such as Natalia in lesson two. The actual content of the lessons and recipes were not altered. The alterations were done in the Clarke-Gwinnett11 group and it is not known if these modifications took place in the GAEFNEPHispanic10 group since different paraprofessionals taught the curriculum in the Georgia counties throughout the year.

The curriculum contains 6 lesson plans:

1) EFNEP Introduction (Your Food, Your Choice). The goal of session one is to help the participants feel comfortable with the paraprofessionals as well as amongst themselves in order to encourage participation and an active learning environment. At the end of the session, participants completed the baseline evaluation.

2) Planning meals in advance to help reduce stress and maintaining a healthy blood pressure (Stress-Free Mealtimes). Session two includes activities such as Natalia's Mealtime Madness where the participants help a fictional character by the name of Natalia come up with ways to improve her hectic daily life in order to have time to prepare a healthy meal for her family. Furthermore, this session encompasses an activity called "Salty Dog," allowing participants to make a meal using food models and sum up the amount of sodium in order for them to have a clear idea of the amount of sodium intake per meal. The second session emphasizes the importance of having low blood pressure and ways to achieve it.

3) Help participants recognize the value of consuming fruits and vegetables and economic ways to purchase these (Color Me Healthy). Session three includes an activity called the "The Right Price," where participants estimate the cost of different fruits and vegetables in to realize that eating healthy doesn't need to break their budget.

4) Session four shows how to make more nutritious meals in a short amount of time, select more nutritious food choices at fast food restaurants, and the advantages of consuming low-fat dairy products (Winning Ways with Fast Foods). The participants learn the differences between lactose intolerance and milk allergies so they can identify if they may have one of those conditions. Also, there is an activity called, "First Things First," which emphasizes the importance of eating healthy foods such as fruits and vegetables before consuming unhealthy foods. The main message is that there is always have space for "junk food," but it is important to feed one's body the nutrients it needs before anything else.

5) Session five shows the importance of physical activity and proper food safety habits (Keep Yourself Well). Participants learn that physical activity can be fun by doing an activity called, "It's Your Move," where they dance to music so they begin thinking about physical activity in a positive way. Also, the women take a self-quiz to see if their current food habits are safe or hazardous. Furthermore, they learn how to keep foods fresh for longer periods of time by acquiring knowledge about food temperatures, cooking meats thoroughly, refrigerator temperatures, and temperature danger zones.

6) In session six, participants reflect on the progress they have made and talk about the benefits and barriers of what they have learned by participating in a game called, "Jeopardy," where they answer questions about the past 5 lessons (Keep Your Health Out of Jeopardy).

All 6 lesson plans included recipe preparation and each week a different recipe from the recipe book, “Meals in Minutes” was made. The recipes included fruits, vegetables, and low-fat dairy products. There were two recipes per session, one that included vegetables and one that was composed of low-fat dairy-like milk or yogurt. Only one recipe was required to be made in each lesson. In session one, Turkey and Curly Noodles was made and included two different vegetables. During session two, the food recipe was Cinnamon Dip, made with plain non-fat yogurt, brown sugar, and cinnamon, and served with apple slices. In session three, Peach Crumble was made incorporating canned peach slices and plain non-fat yogurt. Fiesta Quesadillas incorporating red peppers, cucumbers, and low-fat cheese was demonstrated during session 4. Pyramid Sundaes were made in session five since they contained low-fat yogurt and different berries. In the last session, participants were allowed to bring a recipe to share with the class as long as it incorporated vegetables, fruits, and/or low-fat dairy products. The recipe made for session six was the Festive Tuna Salad, which used non-fat plain yogurt instead of mayonnaise for dressing. Food demonstrations were a critical part of the curriculum to enhance self-efficacy in order for the women to feel empowered to reproduce the recipe at home. The participants also tasted the meals since taste is an influential factor that determines if the recipes will be prepared. If the participants attended all the lessons, they received a certificate of completion. If the participants did not receive the certificate of completion due to missed sessions, they were informed they could finish the program successfully by attending the lessons needed in a future EFNEP program.

Regardless of participation, all participants received a recipe book (Meals in Minutes) at the end of the intervention, which included the recipes demonstrated throughout the 6 weeks as

well as other healthy and quick recipes to encourage maintenance of healthy eating habits. Participants also were given a 2011 calendar with additional recipes.

Throughout the sessions the participants received educational extenders they could use at home. For example, session two, "Stress Free Mealtime" participants learned how to make a grocery list using a reusable plastic grocery list sheet where the items that need to be bought would be marked with a pencil so it could be erased and used again at the next grocery trip. Participants also received a measuring spoon with a message stating that the recommended amount of sodium intake per day is 2,300 mg so every time they use it, they remembered to keep their sodium intake down. In session three, "Color Me Healthy," a magnet with a picture of an apple served as a reminder to eat fruit and vegetables. Participants learned that 8 oz. is a cup with a measuring cup in lesson 4, "Winning Ways with Fast Food," since the lesson talks about calcium intake and the recommended 3 cups a day of milk. In the second to the last session, "Keep Yourself Well," participants learned how to use a refrigerator thermometer to keep food safe since the lesson included information regarding safe food practices and proper temperature for the refrigerator. All 6 lessons incorporated many low-literacy graphics, stories, and visuals that were emphasized throughout the intervention since some may not have been able to read or write. Furthermore, explanations and games in groups with minimal writing or where the groups chose a person to be the speaker and captain aided in making the sessions as nonthreatening and interactive as possible and less like a classroom setting. Furthermore, EFNEP practices, "Voice by Choice," which is communicated to the groups every week, stating that the paraprofessionals will never call on any individual to answer a question and that any participation and information provided by the participants is welcomed and appreciated, but completely optional.

Statistical Analysis

The proposed design was a one-group repeated measure (pre- and post t-test). From previous research conducted in similar populations in 2009 (n=3324), actual data at the pre-test used total intake of fruits and vegetables as 2.0 ± 2.2 cups daily (mean ± SD). The post-test resulted in 2.9 ± 2.4 cups of fruits and vegetables per day. To detect the same increase of 0.9 daily cups, a sample size of approximately of 44 was calculated to provide an 80% power using a statistical significance of $P \leq 0.05$ (one-tailed) (http://www.dssresearch.com/toolkit/sscalc/size_a1.asp). The power analysis was based on fruit and vegetable intake because there is a possibility that the Hispanic participants may have adequate dairy consumption and data on milk group foods may not vary much post-intervention.

In order to analyze the quantitative data collected, including the 24-hour diet recall, enrollment data, and exit data information was entered into The Nutrition Education Evaluation and Reporting System (NEERS5), version CRS5.1. NEERS5 is the evaluation software used nationally by EFNEP (USDA, 2011). Pared t-tests were used to compare the baseline information and the changes in the outcome variables. General descriptive statistics analyses were carried out using PASW version 18.0 to determine if the changes in the consumption of fruits, vegetables, milk group foods, fiber, vitamin A and C, fat, calcium, sodium and food behavior checklist results were significant. Other variables calculated include the food behavior checklist and the Healthy Eating Index Score (HEI) for fruits, vegetables, fat, sodium and overall. The HEI is a tool developed by USDA and is based on a ten component system composed of five food groups (fruits, vegetables, grains, meats and milk), four nutrients (total fat, saturated fat, sodium, cholesterol) and a measure of variety food intake. It measured the degree to which a person's diet conforms to the servings recommended by MyPyramid (Kennedy

et al 1995). NEERS5 assigns each participant a HEI number that ranges from 1=very poor to 10= excellent at the beginning of the intervention and after the intervention. The overall (dietary intake) HEI is a value given from 1 to 100 and indicates the overall healthy eating score average of each participant. HEI was analyzed to see if there was relationship between the increase in fruits and vegetables and a decrease in sodium and fat with each variable's HEI following the intervention.

Results

All 455 participants enrolled in the study were EFNEP clients who identified themselves as Hispanic and attended an EFNEP program in Georgia. Out of all of the participants, 429 were enrolled in EFNEP in 2010 thus belonging to the GAEFNEPHispanic10 (fiscal year 2010) group Table 1). The remaining 26 were enrolled as part of the 2011 fiscal year data and were from two counties in Georgia (Clarke-Gwinnett11 group). All participants were female and the distributions of ages found in the GAEFNEPHispanic10 data were the following: 28% were ages 21-29, 44% of women were ages 30-39, 12% were ages 40-49, 5% were ages 50-59, and 5% did not report their age. In the Clarke-Gwinnett11 data, 15% were ages 21-29, 42% were ages 30-39, 27% of participants were ages 40-49, and 15% did not report their age. The mean number of children for both groups was similar, as GAEFNEPHispanic10 it was 2.1 and Clarke-Gwinnett11 was 2.3. However, in Clarke-Gwinnett11, 19% of women had 4 children compared to 9% in GAEFNEPHispanic10. Most (over 90%) of the women did not report household income. The GAEFNEPHispanic10 data showed that 13% completed grade 6 or less, 15% completed from grade 7 to grade 11, 20% completed 12th grade or the GED, 7% attended some college, 5% graduated from college, and 38% did not report that information. In the Clarke-Gwinnet11 groups, 4% completed grade 6 or less, and 12% completed to grade 9, 4% completed grade 11,

and 4% graduated from a 2-year college. However, many women in Clarke-Gwinnett11 group did not respond to that question (73%).

The percent of Clarke-Gwinnett11 participants who participated in the Child Nutrition program (free or reduced school meals) was 62%, Supplemental Nutrition Assistance Program (SNAP) 19%, and WIC 15%. Seventy three percent of Clarke-Gwinnett11 participants were enrolled in one or more food assistance programs at the beginning of the intervention. Forty two percent of GAEFNEPHispanic10 participants indicated that they received Child Nutrition, 31% received SNAP and 25% were enrolled in WIC at baseline.

a) 24- Hour Diet Recall Results

Data indicates improvements in fruit, vegetable, and milk group food consumption as well increases in fiber and vitamin A and C were seen and can be found in Table 2A and 2B. Clarke-Gwinnett11 vegetable consumption increased from 0.8 ± 0.6 cups per day to 1.6 ± 0.8 cups per day (P<.0001) and fruit intake increased from 0.5 ± 0.5 cups per day to 0.7 ± 0.7 cups per day, but was not statistically significant. Milk group food consumption increased from 1.0 ± 0.9 cups per day to 1.6 ± 1.5 cups per day which is a positive trend but not statistically significant.

Clarke-Gwinnett11 participants' (n=26) average intake for vitamin A was 45% of the Recommended Daily Allowance (RDA) at baseline. Following the intervention, this percentage increased to 69.5% of the RDA for vitamin A (P=.019). The 26 participants' average intake for vitamin C was 57.6% of the RDA at the beginning of the intervention; post- intervention, this number increased to 104.2% of the RDA for vitamin C (P=.034) (Table 3A). GAEFNEPHispanic10 participants' (n=429) average intake for vitamin A was 61.4% of the

RDA at the beginning of the intervention and 100% of the RDA for vitamin A post-intervention. Vitamin C also increased: participants' average intake was 87.5% of the RDA at baseline and 155% of the RDA after the intervention (Table 3B).

GAEFNEPHispanic10 showed significant increases ($P<.0001$) in fruits, vegetables, and milk group foods. Fruit consumption increased from 0.6 ± 0.8 cups per day to 1.7 ± 1.5 cups per day ($P<.0001$) and vegetable consumption increased from 1.2 ± 1.2 cups per day to 1.9 ± 1.5 cups per day ($P<.0001$). Milk consumption increased from 1.0 ±1.1 cups per day to 1.7 ±1.2 cups per day ($P<.0001$). Congruent with milk group food intake, the percent of Clarke-Gwinnett11 participants who consumed between 70-99% of the RDA for calcium increased from 11.5% (n=3) to 30.8% (n=8) ($P=.031$) (Table 3A). GAEFNEPHispanic10 showed a similar trend: milk consumption increased from 1.0 to 1.7 ($P<.0001$) cups per day, and the percentage of participants who met over 99% of the RDA for calcium after the intervention was 35% (n=9) compared to 16% (n=4) at baseline (Table 3B). Overall, GAEFNEPHispanic10 participants showed improvement in the consumption of fruit, vegetable, and milk group foods. Based on a sample size of n=26 for Clarke-Gwinnet11 and a sample of n=429 for GAEFNEPHispanic10, this study had a 100% power to detect an effect size of 0.7 and 0.8 cup increase of vegetables, respectively.

Sodium decrease was an important aspect of the curriculum and was emphasized heavily throughout the sessions since the curriculum was developed primarily for African Americans and 32.5% of African-American women are currently diagnosed with hypertension (CDC 2010). In regard to sodium intake, the percent of participants who consumed the recommended intake of sodium per day (no more than 2,400 mg) increased from 19.2% (n=5) to 50% (n=13) in Clarke-Gwinnett11 ($P=.0004$) and the mean reduction of sodium intake was 177 mg per day (2376 ±

904mg to 2199 ± 631mg). GAEFNEPHispanic10 showed less improvement in sodium intake. Participants who did not exceed the recommended 2,400mg of sodium per day increased from 26.1% (n=111) at baseline to 31.9% (n=137) post-intervention (Table 3A), and there was a mean increase in 285 mg of sodium per day (2469 ± 1460mg to 2754± 1397mg) (Table 2B).

The percent of Clarke-Gwinnett11 participants who consumed between 16-24 grams of dietary fiber per day at baseline was 3.8% (n=1); following the intervention, this increased to 30.8% (n=8) (P<.0001) (Table 3A). Table 2A shows that the average intake of fiber at post-intervention was 14.7 ± 6.4 grams per day compared to 9.7 ± 5.8 grams per day at baseline, for an increase of 5 grams per day (P<.0001). GAEFNEPHispanic10 showed that post- intervention, 29.8% of participants consumed 16-24 grams of fiber a day versus 20.3% at the pre-intervention (Table 3B). The total grams of fiber increased from 14 ± 11 grams to 21 ± 11.1 grams per day, for an increase of 7 grams per day (Table 2B); however, data on fiber intake per participant was also not available in order to calculate significance.

Following the intervention, 7.7% (n=2) of Clarke-Gwinnett11 participants consumed more than 39% of their calories from fat compared to 26.9% (n=7) at baseline (P=.022) (Table 3A). Fat grams decreased from 44.8 ± 21.1 grams per day to 32.8 ± 13.6 grams per day (P=.033) (Table 2A). The GAEFNEPHispanic10 group also decreased their percent of calories from fat; 23.9% of participants consumed over 39% of their calories from fat at baseline versus 14.9% after the intervention (Table 3B). However, their mean fat intake increased from 52.6 ± 33.6 to 59.8 grams ± 32.1 grams per day (Table 2B). Calorie intake in the Clarke-Gwinnett11 group decreased an average of 85 calories per day (1,175 ± 394 to 1,090 ± 349) and GAEFNEPHispanic10 participants consumed an average of 302 (1,384 ± 698 to 1,686 ± 684) more calories a day (Table 2A and 2B respectively).

The Healthy Eating Index (HEI) component was also analyzed and outcomes can be found in Tables 2A and 2B. HEI for fruits, vegetables, fat, sodium, and overall HEI were analyzed. Results show congruency with the increase of fruit and vegetable intake. The results were the following: Clarke-Gwinnett11 HEI for vegetables increased from 3.1 ± 2.3 to 6.2 ± 2.4 (P<.0001) and GAEFNEPHispanic10 HEI for vegetables increased from 4.0 ± 3.3 to 6.1 ± 3.2 at the post-test (P<.0001). HEI for fruits was 2.7 ± 3.0 at the pre-test and 3.6 ± 3.4 at the post-test for Clarke-Gwinnett11, yet was not statistically significant. GAEFNEPHispanic10 showed a HEI for fruit to be 3.6 ± 3.5 at baseline and 6.8 ± 3.8 post- intervention (P<.0001). HEI for total fat also improved in both groups showing an increase of 6.1 ± 3.6 to 8.7 ± 2.4 for Clarke-Gwinnett11 (P<.0001) and 6.5 ± 3.7 to 7.4 ± 3.3 for GAEFNEPHispanic10 (P<.0001). HEI for sodium increased the least out of all HEI scores for Clarke-Gwinnett11 (8.4 ± 2.3 to 9.5 ± 1.1) and decreased for GAEFNEPHispanic10 (7.7 ± 3.4 to 7.4 ± 3.4), which correlates with the increase in total sodium post-intervention. Overall HEI for Clarke-Gwinnett11 increased from 55.8 ± 14.2 to 68.4 ± 13.3 (P<.0001) and 57.0 ± 13.6 to 69.8 ± 13.4 for GAEFNEPHispanic10 (P<.0001). Both GAEFNEPHispanic10 and Clarke-Gwinnett11 showed a positive change in all of the food groups following the intervention (98.8% and 100% respectively).

GAEFNEPHispanic10 and Clarke-Gwinnett11 showed several similar as well as disparate correlations. These correlations are represented in Tables 5A and 5B. Both groups showed a positive correlation between the participants reading nutrition labels and thinking about healthy food choices when feeding the family. Clarke-Gwinnett11 indicated a positive moderate to strong correlation (P<.01) and GAEFNEPHispanic10 showed a positive weak to moderate correlation (P<.01). There was a positive strong correlation between calories eaten per day and fat grams consumed (P<.01). Additionally, Clarke-Gwinett11 had a positive moderate

correlation between the consumption of sodium and fat per day, and calories and sodium per day ($P<.01$). A strong positive correlation was found between calories per day and fiber grams consumed per day ($P<.01$). A negative moderate correlation was seen when it comes to cups of vegetables per day and fat grams per day ($P<.01$). Clarke-Gwinnett11 indicated a positive weak to moderate correlation between planning meals ahead of time and the highest school grade completed *(*$P<.05$). There was a weak to moderate positive correlation seen in the amount of cups of vegetables per day and the number of children in the household *(*$P<.05$).

GAEFNEPHispanic10 showed dissimilar correlations from the ones found in the Clarke-Gwinnett11 group. There was a moderate to strong correlation between planning meals ahead of time and thinking of healthy food choices when feeding the family ($P<.01$) and a weak to moderate correlation between planning meals ahead of time and reading the nutrition facts label on foods ($P<.01$). There was a positive weak correlation found between lesson type (individual versus group setting) and planning meals ahead of time, cups of fruit and vegetables per day and children eating within 2 hours of waking up ($P<.01$). Also, there were also weak positive correlations found between thinking of healthy food choices when feeding the family, fruit and vegetable consumption, and feeding the children within 2 hours of waking up ($P<.01$). Another correlation found in GAEFNEPHispanic10 was a weak positive correlation between planning meals ahead of time and cups of fruit and vegetables per day ($P<.01$). Lastly, there was a positive weak correlation between the number of children in the household and if they ate within 2 hours of waking up *(*$P<.01$).

b) Food Behavior Checklist Results

GAEFNEPHispanic10 and Clarke-Gwinnett11 improved in nutrition-related behaviors and each question's pre- and post-data can be found in Tables 4A and 4B. There were 5

questions relating to nutrition practices. The first question was, “How often do you plan meals ahead of time? Clarke-Gwinnett11 results indicated that about 19% of participants stated in the pre-test that they never planned meals ahead of time and 19% said they planned meals ahead of time most of the time. In the post-test, 50% of participants stated they planned meals ahead of time most of the time (*P*<.0001). GAEFNEPHispanic10 did not show such a vast increase with 28% of participants never planning meals ahead of time in the pre-intervention to 39% almost always planning meals ahead of time post-intervention (*P*<.0001). The second question asked was, “When deciding to feed your family, how often do you think of healthy food choices?” Clarke-Gwinnett11 results showed that 8% of the participants almost always thought about healthy food choices in the pre-test compared to 42% in the post-test (*P*<.0001). GAEFNEPHispanic10 showed similar results with 18% almost always thinking about healthy food choices at baseline compared to 47% in the post-test (*P*<.0001). The next question asks, “How often do you prepare foods without adding salt?” Clarke-Gwinnett11 data showed a small improvement when it comes to participants cooking without salt. Exactly 35% of participants never prepare foods without adding salt and 35% said they seldom prepared foods without adding salt. In the post-test, 12% stated they never prepared foods without adding salt, 19% seldom prepare foods without salt, 12% stated most of the time they prepared foods without salt (*P*<.0001). GAEFNEPHispanic10 showed a higher increase in participants preparing foods without salt. At baseline, 52% never cooked without salt compared to 10% post-intervention (*P*<.0001).

The fourth question asks, “How often do you use the ‘Nutrition Facts’ on the food label to make choices?” GAEFNEPHispanic10 and Clarke-Gwinnett11 showed a large improvement. Clarke-Gwinnett11 increased from 4% of the participants almost always reading nutrition labels

to 42% reading labels most of the time and 42% reading labels almost always ($P<.0001$). At baseline, 10% of GAEFNEPHispanic10 participants read labels most of the time and 8% read labels almost always. Post-intervention, 32% read labels most of the time and 42% read labels almost always ($P<.0001$). The last question is related to childhood nutrition and asks, "How often do your children eat something in the morning within 2 hours of waking up?" The pre-test for Clarke-Gwinnett11 shows 19% of parents almost always feed their children within 2 hours of waking up and 27% most of the time feed their children within a short time of waking up. The results for post-test were constant, indicating that 38% of parents answered almost always and 38% stated that most of the time they fed their children within 2 hours of waking up ($P<.0001$). GAEFNEPHispanic10 data showed that 30% of parents answered most of the time and 24% stated they almost always fed their children within 2 hours of walking up. The post-test showed that 20% answered most of the time and 62% answered almost always ($P<.0001$). Overall Clarke-Gwinnett11 results showed that 60% of participants more often planned meals in advance ($P<.0001$), 81% of participants more often thought about healthy food choices when deciding to feed their family ($P<.0001$), 73% of participants more often prepared meals without adding salt ($P<.0001$), 80% more often used the "Nutrition Facts" labels to make food choices ($P<.0001$), and 43% reported that their children ate breakfast more often ($P<.0001$) in the post-data (Table 4C). GAEFNEPHispanic10 data results indicated that 67% of participants more often planned meals ahead of time ($P<.0001$), 57% of participants more often thought about healthy food choices when deciding to feed their family ($P<.0001$), 71% of participants more often prepared foods without adding salt ($P<.0001$), 77% more often used the "Nutrition Facts" labels to make food choices ($P<.0001$), and 58% reported that their children ate breakfast more often ($P<.0001$) once the intervention was completed (Table 4D).

Table 1. Distribution of age, children, family size, highest grade completed and program assistance.

Description	*GAEFNEPHispanic10* **n=429**	*Clarke-Gwinnett11* **n=26**
Age	n (%)	n (%)
20 or below	23 (6)	0 (0)
21-29	121 (28)	4 (15)
30-39	190 (44)	11 (42)
40-49	50 (12)	7 (27)
50-59	21 (5)	0 (0)
Number of Children	n (%)	n (%)
0	34 (8)	2 (8)
1	103 (24)	4 (15)
2	142 (33)	11 (42)
3	92 (21)	3 (12)
4	37 (9)	5 (19)
5	16 (4)	1 (4)
6+	5 (1)	0 (0)
Family size	n (%)	n (%)
1	23 (5)	2 (8)
2	38 (9)	1 (4)
3	81 (19)	4 (15)
4	121 (28)	5 (19)
5	89 (21)	4 (15)
6	47 (11)	7 (27)
7	18 (4)	1 (4)
8+	12 (3)	2 (8)
Highest grade completed	n (%)	n (%)
Not supplies	162 (38)	19 (73%)
Grade 6 or less	54 (13)	1 (4)
Grade 7	5 (1)	0 (0)
Grade 8	8 (2)	1 (4)
Grade 9	32 (7)	3 (12)
Grade 10	8 (2)	0 (0)
Grade 11	12 (3)	1 (4)
Grade 12 or GED	86 (20)	0 (0)
Some college	28 (7)	0 (0)
Graduates 2 year college	13 (3)	1 (4)
Graduated College	21 (5)	0 (0)
Post- graduate	0 (0)	0 (0)
Program Assistance	n (%)	n (%)
Child nutrition	179 (42)	16 (62)
Food Stamps	131 (31)	5 (19)
WIC	108 (25)	4 (15)
Other	60 (14)	0 (0)

Table 2A. Clarke-Gwinnett11 (n=26) nutrient increases at pre-intervention and post-intervention

Nutrient amount per day	***Pre-test*** **n=26** **Mean ± SD**	***Post-test*** **n=26** **Mean ± SD**	***P value***
Fruit servings (c)	0.5 ± 0.5	0.7 ± 0.7	NS
Vegetable servings (c)	0.8 ± 0.6	1.6 ± 0.8	<0.001*
Milk group servings (c)	1.0 ± 0.9	1.6 ± 1.5	NS
Vitamin A (IU)	3600 ± 1744	5568 ± 3416	0.019*
Vitamin C (mg)	34.5 ± 40	62.5 ± 47	0. 034*
Sodium (mg)	2376 ± 904	2199 ± 631	NS
Fiber (g)	9.7 ± 5.8	14.7 ± 6.4	<0.001*
Fat (g)	44.8 ± 21.1	32.8 ± 13.6	0.033*
Calories	1175 ± 394	1090 ± 349	NS
HEI fruit[a]	2.7 ± 3.0	3.6 ± 3.4	NS
HEI vegetable[a]	3.1 ± 2.3	6.2 ± 2.4	<0.001*
HEI sodium[a]	8.4 ± 2.3	9.5 ± 1.1	NS
HEI fat[a]	6.1 ± 3.6	8.7 ± 2.4	<0.001*
HEI overall[a]	55.8 ± 14.2	68.4 ± 13.3	<0.001*

[a]HEI = Healthy Eating Index for each fruit, vegetables, sodium and fat ranges from 1=very poor to 10= excellent. Overall HEI encompasses ten nutrients and ranges from 1 = very poor to 100= excellent

Table 2B. GAEFNEPHispanic10 (n=429) nutrients increase at pre-intervention and post intervention.

Nutrient amount per day	***Pre-test*** **n=429** **Mean ± SD**	***Post-test*** **n=429** **Mean ± SD**	***P value***
Fruit servings (c)	0.6 ± 0.8	1.7 ± 1.5	<0.001*
Vegetable servings (c)	1.2 ± 1.2	1.9 ± 1.5	<0.001*
Milk group servings (c)	1.0 ± 1.1	1.7 ±1.2	<0.001*
Vitamin A (IU)	4912 ± 891	8056 ± 12776	[b]N/A
Vitamin C (mg)	52 ± 63	93 ± 99	[b]N/A
Sodium (mg)	2469 ± 1460	2754± 1397	[b]N/A
Fiber (g)	14 ± 11	21 ± 11.1	[b]N/A
Fat (g)	52.6 ± 33.6	59.8 ± 32.1	[b]N/A
Calories	1384 ± 698	1686 ± 684	[b]N/A
HEI fruit[a]	3.6 ± 3.5	6.8 ± 3.8	<0.001*
HEI vegetable[a]	4.0 ± 3.3	6.1 ± 3.2	<0.001*
HEI sodium[a]	7.7 ± 3.4	7.4 ± 3.4	NS
HEI fat[a]	6.5 ± 3.7	7.4 ± 3.3	<0.001*
HEI overall[a]	57.0 ± 13.6	69.8 ± 13.4	<0.001*

[a]HEI = Healthy Eating Index for each fruit, vegetables, sodium and fat ranges from 1=very poor to 10= excellent. Overall HEI encompasses ten nutrients and ranges from 1 = very poor to 100= excellent.

[b]N/A Indicates data could not be calculated for statistical significance due to inaccessibility of records from Georgia counties.

Table 3A. Clarke-Gwinnett11 (n=26) participants meeting RDA for calcium, vitamin A, vitamin C, sodium, fiber and fat at pre-intervention and post-intervention.

Nutrient	*Clarke-Gwinnett11 Pre-test* **n=26**	*Clarke-Gwinnett11 Post-test* **n=26**
Calcium	%	%
<69% RDA	76.9	50.0
70-99% RDA	11.5	30.8*
>99% RDA	11.5	19.2
Vitamin A	%	%
<69% RDA	80.8	65.4
70-99% RDA	19.2	15.4
>99% RDA	0.0	19.2*
Vitamin C	%	%
<69% RDA	76.9	42.3
70-99% RDA	11.5	15.4
>99% RDA	11.5	42.3*
Sodium (mg)	%	%
1500-2400	19.2	50.0*
2401-3300	34.6	30.8
>3300	19.2	3.8
Fiber (g)	%	%
5-15	73.1	57.7*
16-24	3.8	30.8*
>24	3.8	7.7
Fat (percent of calories from fat)	%	%
<29%	38.5	61.6
30-34%	11.5	23.1
35-39%	23.1	7.7*
>39%	26.9	7.7*

Table 3B. GAEFNEPHispanic10 (n=429) participants meeting RDA for calcium, vitamin A, vitamin C, sodium, fiber and fat at pre-intervention and post-intervention.

Nutrient	*GAEFNEPHispanic10 Pre-test* **n=429**	*GAEFNEPHispanic10 Post-test* **n=429**
Calcium	%	%
<69% RDA	63.4	39.4
70-99% RDA	20.5	25.6
>99% RDA	16.1	35.0
Vitamin A	%	%
<69% RDA	72.3	45.2
70-99% RDA	15.4	22.6
>99% RDA	12.4	32.2
Vitamin C	%	%
<69% RDA	57.1	32.7
70-99% RDA	9.6	10.3
>99% RDA	33.3	57.1
Sodium (mg)	%	%
1500-2400	26.1	31.9
2401-3300	22.1	23.5
>3300	23.3	29.4
Fiber (g)	%	%
5-15	48.0	29.8
16-24	20.3	29.8
>24	14.7	35.7
Fat (percent of calories from fat)	%	%
<29%	34.7	43.8
30-34%	25.4	25.9
35-39%	16.1	15.4
>39%	23.8	14.9

Table 4A. Clarke-Gwinnett11 (n=26) Food Behavior Checklist results at the pre-intervention and post-intervention.

Question Description	***Pre-test*** **n=26**	***Post-test*** **n=26**	***P value***
How often do you plan meals ahead of time?	n (%)	n (%)	<0.001*
No response	1 (4)	0 (0)	
Do not do	5 (19)	0 (0)	
Seldom	3 (12)	2 (8)	
Sometimes	9 (35)	7 (27)	
Most of the time	5 (19)	13 (50)	
Almost always	3 (12)	4 (15)	
When deciding to feed your family, how often do you think of healthy food choices?	n (%)	n (%)	<0.001*
No response	0 (0)	0 (0)	
Do not do	2 (8)	0 (0)	
Seldom	5 (19)	0 (0)	
Sometimes	11 (42)	1 (4)	
Most of the time	6 (23)	14 (54)	
Almost always	2 (8)	11 (42)	
How often do you prepare foods without adding salt?	n (%)	n (%)	<0.001*
No response	4 (15)	0 (0)	
Do not do	9 (35)	3 (12)	
Seldom	9 (35)	5 (19)	
Sometimes	3 (12)	9 (35)	
Most of the time	0 (0)	6 (23)	
Almost always	1 (4)	3 (12)	
How often do you use the “Nutrition Facts” on the food label to make choices?	n (%)	n (%)	<0.001*
No response	1 (4)	0 (0)	
Do not do	8 (31)	0 (0)	
Seldom	5 (19)	0 (0)	
Sometimes	6 (23)	4 (15)	
Most of the time	5 (19)	11 (42)	
Almost always	4 (42)	11 (42)	
How often do your children eat something in the morning within 2 hours of waking up?	n (%)	n (%)	<0.001*
No response	3 (12)	0 (0)	
Do not do	1 (4)	1 (4)	
Seldom	6 (23)	2 (8)	
Sometimes	4 (15)	3 (12)	
Most of the time	7 (27)	10 (38)	
Almost always	5 (19)	10 (38)	

Table 4B. GAEFNEPHispanic10 (n=429) Food Behavior Checklist results at the pre-intervention and post-intervention.

Question Description	***Pre-test*** **n=429**	***Post-test*** **n=429**	***P value***
How often do you plan meals ahead of time?	n (%)	n (%)	<0.001*
No response	11 (13)	3 (1)	
Do not do	118 (28)	4 (1)	
Seldom	59 (14)	19 (4)	
Sometimes	118 (28)	68 (16)	
Most of the time	64 (15)	169 (39)	
Almost always	59 (14)	166 (39)	
When deciding to feed your family, how often do you think of healthy food choices?	n (%)	n (%)	<0.001*
No response	11 (13)	8 (2)	
Do not do	45 (10)	6 (1)	
Seldom	33 (8)	6 (1)	
Sometimes	125 (29)	30 (7)	
Most of the time	136 (32)	179 (42)	
Almost always	79 (18)	200 (47)	
How often do you prepare foods without adding salt?	n (%)	n (%)	<0.001*
No response	22 (5)	7 (2)	
Do not do	223 (52)	43 (10)	
Seldom	101 (24)	79 (18)	
Sometimes	52 (12)	165 (38)	
Most of the time	17 (4)	82 (19)	
Almost always	14 (3)	53 (12)	
How often do you use the “Nutrition Facts” on the food label to make choices?	n (%)	n (%)	<0.001*
No response	12 (3)	8 (2)	
Do not do	180 (42)	14 (3)	
Seldom	63 (15)	18 (4)	
Sometimes	95 (22)	71 (17)	
Most of the time	44 (10)	136 (32)	
Almost always	35 (8)	182 (42)	
How often do your children eat something in the morning within 2 hours of waking up?	n (%)	n (%)	<0.001*
No response	24 (6)	15 (3)	
Do not do	59 (14)	17 (4)	
Seldom	33 (8)	14 (13)	
Sometimes	79 (18)	31 (7)	
Most of the time	129 (30)	87 (20)	
Almost always	105 (24)	265 (62)	

Table 4C. Clarke-Gwinnett11 (n=26) Food Behavior Checklist improvement, unchanged and decreased results at the pre-intervention and post-intervention.

Question Description	*Improvement*	*Unchanged*	*Decreased*	*P value*
How often do you plan meals ahead of time?	60%	24%	16%	<0.001*
When deciding to feed your family, how often do you think of healthy food choices?	81%	15%	4%	<0.001*
How often do you prepare foods without adding salt?	73%	23%	5%	<0.001*
How often do you use the "Nutrition Facts" on the food label to make choices?	80%	20%	0%	<0.001*
How often do your children eat something in the morning within 2 hours of waking up?	43%	52%	4%	<0.001*

Table 4D. GAEFNEPHispanic10 (n=429) Food Behavior Checklist improvement, unchanged and decreased results at the pre-intervention and post-intervention.

Question Description	*Improvement*	*Unchanged*	*Decreased*	*P value*
How often do you plan meals ahead of time?	67%	24%	9%	<0.001*
When deciding to feed your family, how often do you think of healthy food choices?	57%	32%	11%	<0.001*
How often do you prepare foods without adding salt?	71%	24%	5%	<0.001*
How often do you use the "Nutrition Facts" on the food label to make choices?	77%	14%	9%	<0.001*
How often do your children eat something in the morning within 2 hours of waking up?	58%	31%	12%	<0.001*

Table 5A. Clarke-Gwinnett11 (n=26) correlations found between nutrition related behaviors.

	Thinking of healthy choices	Planning meals ahead of time	Vegetable servings per day	Calories per day	Sodium (mg) per day	Percent of calories from fat
Reading nutrition labels	.610**					
School grade completed		.411*				
Number of children in the household			.427*			
Calories per day			-.454*			
Sodium(mg) per day				.516**		
Fiber (g) per day				.631**		
Fat (g) per day			-.500**	.758**	.572**	.662**

*Correlation is significant at *P<.05 (2-tailed)
**Correlation is significant at *P<.01 (2-tailed)

Table 5B. GAEFNEPHispanic10 (n=429) correlations found between nutrition related behaviors.

	Planning meals ahead of time	Vegetable servings per day	Fruit servings per day	Children eating within 2 hours of waking up	Thinking of healthy food choices
Reading nutrition labels	.441**				.438**
Thinking of healthy food choices	.515**	.129**	.216**	.244**	
Planning meals ahead of time		.140**	.271**	.184**	.215**
Number of children in the household				.175**	
Lesson type (group or individual)		.302**	.137**	.171**	

*Correlation is significant at *P<.05 (2-tailed)
**Correlation is significant at *P<.01 (2-tailed)

Discussion

The past 20 years have witnessed a great deal of research that demonstrated the positive impact of nutrition interventions. Most of that literature has focused on white, middle-class populations, and tells us little about how to deliver an intervention to low-income, ethnic-minority populations who have a higher incidence of nutrition-related diseases (Eakin et al., 2007). Although a high number of Caucasians in the United States do not consume the adequate five fruits and vegetables per day (75.7%), Hispanics and African-Americans have the highest percentage (78.5% in both populations). In Georgia, the percentage of Hispanics who do not consume the adequate five fruits and vegetables per day is higher when compared to Caucasians and African-Americans (77.4%, 75.9% , and 74.4%, respectively) (CDC, 2011). Due to these numbers, nutrition interventions are urgently needed. Most research on nutrition interventions in minority populations has been done focusing on culturally appropriate programs and further research is needed to find out if methods used in one group will work in another (Kumanyika and Grier, 2006). Therefore, this intervention is of great value for both the well-being of the Hispanic population of Georgia and for the state in its quest to provide nutrition education and services to this population. Furthermore, it addresses low-income and Spanish-speaking participants' dietary improvements due to an intervention that was somewhat culturally modified but not developed for that precise population.

This study was successful and the data supports the hypothesis that a nutrition intervention developed to improve dietary behaviors and decrease dietary risk factors for hypertension in the African-American population will be effective in the Hispanic population of Georgia. The major outcomes were: 1) decrease in perceived barriers to eating healthfully, 2) increase in vegetable, fruit and milk group foods cups per day, 3) increase in fiber and RDA for

vitamin A and C and decrease in the percentage of calories from fat and grams of fat, and 4) overall positive changes in behavioral factors relating to nutrition. The underlying messages for the EFNEP lessons emphasized increasing fruit, vegetable, and low-fat dairy consumption and decreasing sodium intake. Clarke-Gwinnett11 showed an increase in vegetable intake of 0.8 cups a day ($P<.0001$) and an increase in fruit by an average of 0.2 cups per day, which was not statistically significant, but is nutritionally meaningful in that 53.8% of people improved their intake. Similar to fruit intake, the increase in milk group foods did not show statistical significance yet 61% increased their intake following the intervention. GAEFNEPHispanic10 showed statistically significant increases in all three food groups: vegetable intake increased 0.7 cups per day ($P<.0001$), fruit increased an average of 1.2 cups per day ($P<.0001$), and milk group foods increased 0.7 cups per day ($P<.0001$). The main difference seen between the two groups was fruit intake. Factors that could contribute to the discrepancy between the fruit intake of GAEFNEPHispanic10 versus Clarke-Gwinnett11 is that the curriculum was taught at different times of the year and where the availability and cost of fresh produce may have differed. Fresh fruit availability is very seasonal, whereas most vegetables are available throughout the year. GAEFNEPHispanic10 was taught from October 2009 to August 2010, and included the summer months when the temperature is warmer and more popular fresh fruit is readily available such as strawberries, blueberries, melons, peaches, pineapples, red grapes, raspberries, Valencia oranges, papaya, mango, kiwi, and watermelon (CDC, 2009). Clarke-Gwinnett11 was taught from October 2010 to November 2010 when fresh fruit is less available and generally more expensive.

Out of 429 participants in the GAEFNEPHispanic10 group, 36% (n=155) were taught in an individual one-to-one setting with a paraprofessional which may contribute to a larger increase in fruit and vegetable consumption since the paraprofessional could assist the

participants with more individualized attention. The participant could have learned more information since she had the educator to herself and perhaps asked more questions relevant to her needs. A total of 64% (n=274) were taught in a group setting. When analyzing the results of the participants taught in groups versus those taught individually, the increase in fruit and vegetable intake of the participants taught in groups averaged out to be 1.5 cups per day, an increase from 1.4 ± 1.4 to 2.9 ± 2.1 cups per day ($P<.0001$). The participants who were taught individually had a higher increase in fruit and vegetable consumption, 2.5 cups per day, and increased from 2.3 ± 1.4 to 4.8 ± 2.0 cups intake per day ($P<.0001$). GAEFNEPHispanic10 increased their fiber intake by an average of 7 grams per day.

The importance of the consumption of lower-fat foods was emphasized during food demonstrations in the intervention (e.g., ground turkey instead of ground beef, 2% milk cheese, non-fat yogurt) and both groups decreased their percentage of calories from fat. Clarke-Gwinnett11 results indicated that the percent of calories from fat decreased from 39% to 27% following the intervention, and the GAEFNEPHispanic10 group decreased their percentage of calories from fat from 34% to 32%. One of the major goals of the curriculum was to improve food behaviors, which were measured by the food behavior checklist. Both GAEFNEPHispanic10 and Clarke-Gwinnett11 had statistically significant increases with a *P* value of less than .0001 for all the behavior checklist questions. The majority of the participants stated that after the intervention they planned meals ahead of time, made healthy food choices, prepared foods without adding salt, read nutrition labels more, and more often prepared breakfast for their children than before the intervention. The fact that every question yielded a significant increase in both groups supports the effectiveness of this curriculum in improving food related behaviors of Hispanic participants.

The curriculum used in this intervention, ¨Food Talk¨ (Hanula, 2008), was based on the Health Belief Model. The constructs of benefits, barriers, and self-efficacy were addressed in regard to eating a diet high in fruits, vegetables, and low-fat dairy foods. Because of the dialogue-based nature of the EFNEP sessions, participants were able to discuss the barriers they encountered to consuming these foods and planning means. They also had the opportunity to increase self-efficacy for preparing these foods through food demonstrations and tasting sessions.

Other interventions have shown dietary improvements in the Hispanic population with an intervention that was not developed for that precise population and was implemented in different populations. Buller et al. (1999) conducted a randomized peer education trial to increase fruit and vegetable consumption among Caucasians, Hispanics, Native Americans, and African-Americans using the Five a Day Education Program. Results showed an increase in both fruit and vegetable consumption. Spanish-speaking peer educators led the educational sessions for the Hispanic participants and used the same Five a Day Guidebook as the other groups. Peer educators have similar characteristics to their audience such as age, education level, and background. Buller et al. (1999) states that "peer health educators are an effective way to communicate health information to underserved populations such as Hispanics an… that peer education influenced diet more broadly than a health and wellness community campaign." Peer educators are effective in providing nutrition information to the community because they modify the environment to an informal setting and demonstrate a commitment to the group since the educators and individuals have an understanding of one another. Also, the participants could reciprocate peer educators support by adopting their recommendations and healthy behaviors. These conclusions support that this intervention conducted by a peer educator and someone with

similar characteristics to the group was effective even though it was developed targeting a different minority population.

Food Talk was developed for low-income adults who may also have low literacy. The intervention was delivered in Spanish when Food Talk was conducted with Hispanic individuals and groups that were predominantly Hispanic. It is critical that the nutrition educator who works with Spanish-speaking clients is prepared to provide culturally and linguistically appropriate information to this growing segment of the population, since language has been recognized as one of the most influential factors in quality of care (Heiss et al., 2011; Lopez-Quintero et al., 2009). Eakin et al. (2007) conducted an intervention among Latinos to change dietary behaviors and physical activity. Resembling the Georgia intervention, Eakin et al. (2007) had a large percentage of Hispanic participants who had low education levels and had completed elementary and some high school, which is why, similar to Food Talk, the Resources for Health Trial intervention was also adapted and translated into Spanish and included many low-literacy visuals. In this intervention, there was also a positive change in the participants' dietary behaviors. In order for a program to be successful, it is crucial for the educator to know the literacy level of his/her group and for the program to be linguistically appropriate.

The study had some limitations. The intervention was relatively low dose and could explain the small magnitude in changes in some foods and nutrients. In Georgia, EFNEP requires a minimum of 6 one-hour sessions, generally conducted once a week for six weeks. Although the 24-hour diet recall is the EFNEP nationally-mandated evaluation measure, it may not be the best indicator of a person's dietary habits since the day the information was collected may have been a day when the participant did not follow her normal dietary pattern. Because the 24-hour diet recalls were derived from measures of a single day, the group means were inflated because it

estimated the prevalence of inadequate or excessive intake (Dodd et al., 2006). Additionally 24-hour diet recalls rely solely on memory and omission of food items is more common than additions. This is also true when assessing usual intake: under-estimation of portion sizes is more common than over-estimation and 24-hour diet recalls tend to under-estimate intake by over 10% (varies among individuals). Over-estimation of portion sizes is greater among individuals who ate smaller portions and under-estimation is more prevalent among individuals who ate larger portions. Lastly, the greatest difficulty in estimating portion sizes could be associated with items that could not be visualized separately (Willett, 1998).

A limitation of the Clarke-Gwinnett11 portion of the study was the low number of participants. Only 26 participants were recruited for the program in Clarke-Gwinnett11. Therefore, data from all participants who identified themselves as Hispanic in Georgia in FY10 was analyzed (GAEFNEPHispanic10 (n=429). Multiple instructors teaching the program and administering the evaluation may be considered a limitation of the study as instruction may vary among the different paraprofessionals, although the same instructor did administer both pre and post evaluations to each group. Furthermore, there was a 10% dropout rate in Clarke-Gwinnett11once the intervention began, so it was not possible to determine if behavior change occurred among these participants. Because the author of this paper did not teach the curriculum to GAEFNEPHispanic10, she was not aware of how it was taught, if the 24-hour diet recall kit was appropriately used to educate the participants on proper documentation of food intake, if any additional information was provided to the participants, if any program information was omitted, etc. All these factors could have contributed to an increase or a decrease in the effectiveness of the evaluation.

There are adjustments that can be made for the future success of this program. With respect to data analysis and record keeping, staff should be more comprehensively trained regarding the entry of data from 24-hour diet recall to NEERS5 to ensure accuracy due to the fact that there are 7,215 items representing 60,000 nutrient values and confusion can often occur when entering the food items (NEERS5, 2011). Participants often do not document accurate portion sizes in the 24-hour diet recall, so the program assistants should be trained on how to appropriately estimate serving sizes. The latter is to stress to the staff that they should remain conscientious of the need to properly collect and enter data.

Healthy People 2010 emphasized the need for interventions using nontraditional settings to encourage informal information sharing within communities through peer social interaction. Therefore, effective nutrition education programs for Hispanics that target healthy eating behaviors and barriers to the consumption of fruits and vegetables are needed to increase the percentage of Hispanics in the United States who consume five fruits and vegetables a day, which is currently only 21.5% (CDC, 2011). This intervention was successful in achieving these goals and supports the use of the "Food Talk" curriculum with the Hispanic population in Georgia, this meeting an important social need.

CHAPTER IV

CONCLUSIONS

The overall objectives of this evaluation were to: 1) decrease the barriers to why Hispanic women are not thinking about healthy food choices when feeding themselves and their family, and 2) determine if a nutrition education curriculum designed to decrease dietary risk factors for hypertension in African American EFNEP participants would be effective in improving dietary behaviors of Hispanic EFNEP participants.

Major Findings

Results from baseline data indicated that this sample of 455 Hispanic women between the ages of 18 and 61 were low-income and receiving food assistance. Their dietary intake of fruits, vegetables, milk group foods, vitamins A and C, and fiber were below recommendations. Health behaviors such as planning meals ahead of time, thinking of healthy options to feed their family, and reading nutrition labels were low.

The nutrition intervention utilizing the Georgia EFNEP "Food Talk" curriculum yielded many positive results. The first major outcome was an increase in vegetables ($P<.0001$), fruits ($P<.0001$), milk group foods ($P<.0001$), vitamins A and C, and fiber consumption in GAEFNEPHispanic10. Clarke-Gwinnett11 data resulted in an increases in vegetable ($P<.0001$), vitamin A ($P=0.019$), vitamin C ($P=0.034$), fiber ($P<.0001$) and a decrease in fat ($P=.033$), sodium ($P=0.266$), and calories ($P=0.472$). The second finding was improvements in nutrition-related health behaviors. The five nutrition questions asked improved by a minimum mean of one and a maximum mean of two units ($P<.0001$), taking into account the following: 0 = no

response, 1 = do not do, 2 = seldom, 3 = sometimes, 4 = most of the time, and 5 = almost always. Clarke-Gwinnett11 increased from a mean of to 2.3 to 4.2 regarding the question about reading nutrition labels. The highest number a group could achieve in the post-test would be a mean of 5 indicating that all of the participants almost always read nutrition labels.

Barriers to consuming fruits, vegetables, and low-fat dairy products were addressed in the curriculum through activities, games, and food demonstrations. Time constraints and barriers to preparing healthy meals were discussed in the sessions, as well as ways to overcome these in order to increase self-efficacy when it comes to feeding their families a healthful diet.

Following the intervention, feedback forms from participants were collected after the assessment to measure how well the program met their needs and what they learned from the program. Overall, the participants were pleased with the program and the paraprofessionals, which indicated that they acquired many benefits from the lessons. Some of the comments (translated into English) written by the participants can be found in APPENDIX B.

Implications

The results of the evaluation show that Hispanic women who participate in the EFNEP program in Georgia are responsive towards nutrition programs. This group of women is not only interested in obtaining methods to improve their diets and reduce food expenses, but also acquiring nutrition information and nutrient content of foods in order to reduce the risk of nutrition-related diseases such as diabetes, cholesterol, high blood pressure, and osteoporosis. These women also want to learn different exercises and how to prepare new, healthier foods. Additionally, the results from the EFNEP study suggest that a health belief model-based intervention, though not developed to target the Hispanic population, can be successfully

delivered in a community health care context to low-income Spanish-speaking clients. Minimal modifications were made to the curriculum such as being taught in Spanish by a Hispanic paraprofessional, and replacement of food items unknown to this population with culturally-appropriate foods. These conclusions are supported by Eakin et al., 2007 with the following statement: "There is merit in adapting and evaluating existing evidence-based health behavior interventions with Latino or other high risk groups."

Future research should focus on educating health professionals and peer educators to become culturally competent with minority groups in order to have the knowledge to target behavior changes and improve nutritional status. In addition, generalization to other disadvantaged groups needs to be addressed as well as long-term maintenance of outcomes. Behavior reinforcement such as follow-up phone calls, newsletters, or questionnaires could be sent out to participants following the completion of a nutrition education intervention in order to know if the participants maintained their improved dietary behaviors. Educational and nutrition interventions play an important role in reaching Healthy People 2010 objectives. With the use of government and state programs, nutrition educators can intervene in the steps of the acculturation process most strongly associated with unhealthful dietary changes to result in better health outcomes and increased quality of life. As Perez-Escamilla (2009) states, "Hispanic culture needs to be protected so they don't 'wash out' as the individuals and families get more exposure to the U.S. 'mainstream' culture."

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APPENDIX A

EFNEP CLIENT ENROLLMENT FORM

Food Talk

Today's Date: _____

Name: _____

Street Address: _____

_____

City: _____ **Zip Code:** _____

Phone Number: _____

Age: _____

Sex: ☐ **Male** ☐ **Female**

Are you Pregnant? ☐ **Yes** ☐ **No**

Are you Nursing? ☐ **Yes** ☐ **No**

How many children usually live with you? _____

What are their ages? _____

How many other adults live with you? (do not count yourself) _____

Do you consider yourself Hispanic/Latino?

☐ Yes
☐ No

Which race category do you identify with? (check all that apply)

☐ American Indian or Alaskan Native
☐ Asian
☐ Black or African American
☐ Native Hawaiian or Other Pacific Islander
☐ White

Last Grade Completed:

☐ 6 or less
☐ 7
☐ 8
☐ 9
☐ 10
☐ 11
☐ 12 or GED
☐ Some College
☐ Graduated 2 year college
☐ Graduated College
☐ Post Graduate

Where Do You Live?

☐ Farm
☐ Small Town (< 10,000)
☐ Town of 10,000-50,000
☐ Large Town (50,000 +)

Check which you or your children receive:

☐ Child Nutrition (Free or Reduced Price Lunch)
☐ Food Stamps/SNAP
☐ Head Start
☐ TANF
☐ Temporary Emergency Foods or Commodity Foods
☐ WIC

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EFNEP Entrevista de cliente para EFNEP

Food Talk

Fecha de Hoy: _____

Nombre: _____

Dirección: _____

_____

Ciudad: _____ **Código Postal:** _____

Edad: _____

Teléfono: _____

Sexo: ☐ **Masculino**

☐ **Femenino**

¿Está embarazada? ☐ **Sí** ☐ **No**

¿Está dando pecho? ☐ **Sí** ☐ **No**

¿Cuántos niños normalmente viven con usted? _____

¿Qué edad tienen? _____

¿Cuántos otros adultos viven con usted? _____
(no se incluya)

¿Se considera Hispana o Latina ?

☐ Sí

☐ No

¿Con qué raza se identifica? (Puede marcar más de uno)

☐ India Americana/ Nativo de Alaska

☐ Asiático (a)

☐ Negro(a) o Africano(a) Americano(a)

☐ Nativa de Hawái u de Otra Isla Pacifica

☐ Blanco (a)

Ultimo año escolar que completó:

☐ 6 o menos ☐ 12 o GED

☐ 7 ☐ Algo de Universidad

☐ 8 ☐ Universidad de 2 años

☐ 9 ☐ Universidad de 4 años

☐ 10 ☐ Maestría o Doctorado

☐ 11

¿Dónde vive?

☐ Rancho

☐ Pequeña Ciudad (menos de 10,000)

☐ Ciudad de 10,000-50,000 personas

☐ Ciudad grande (50,000 +)

Marque qué recibe usted o sus hijos:

☐ Nutrición Infantil (Lonche escolar gratis o rebajado)

☐ Sellos de Comida (Food Stamps)

☐ Empiezo Adelantado (Head Start)

☐ TANF

☐ Comida de Emergencia Temporal

☐ WIC

Con la cooperación de la Universidad de Georgia y la Universidad de Ft. Valley State, el Departamento de Agricultura de los Estados Unidos y condados del estado. La Extensión Cooperativa y las Facultades de Ciencias Agrícolas y del Medio Ambiente y Ciencias de la Familia y del Consumidor de la Universidad de Georgia ofrecen programas educativos, asistencia y materiales a todas las personas sin distinción por raza, color, origen, edad, sexo o discapacidad.
Dedicados a la presencia de diversidad en los trabajadores.
Una organización para la igualdad de oportunidades y acción afirmativa comprometida a procurar diversidad en sus empleados.
Publicación #**FDNS-NE 3001 SP** Fecha **Septiembre 2010**

Client's 24-Hour Diet Recall

Name:_____

Date Taken:_____

Taking Nutritional Supplements: ☐ Yes ☐ No

If yes, list type: _____

Amount Spent on Food last month:_____

Check which food record:

☐ Entry

☐ Exit

Activity Level:

☐ Less than 30 min.

☐ 30-60 minutes

☐ More than 60 min.

MEAL TYPE MEAL TYPE:

Morning = 1
Mid-Morning = 2
Noon = 3
Afternoon = 4
Evening = 5
Late evening = 6

SERVING ABBREVIATIONS:

TBSP = tablespoon
c = cup
tsp = teaspoon
lb = pound
oz = ounce
sl = slice

10. What did client eat and drink in last 24 hours? (Be thorough.)

Foods and Beverages consumed. Describe in detail. List one food per line.	AMOUNT EATEN	MEAL TYPE

Alimentos Ingeridos en 24-Horas

Nombre: _____

Fecha: _____

Embarazada: ☐ Sí ☐ No

Amamantando: ☐ Sí ☐ No

¿Toma vitaminas?: ☐ Sí ☐ No

¿Si es sí, que tipo:? _____

¿Cantidad gastada en alimentos el mes anterior?:_____

Marque un historial de alimentos:

☐ Entrada

☐ Salida

Nivel de Actividad:

☐ Menos de 30 min.

☐ 30-60 minutos

☐ Más de 60 min.

Tipo de comida:
1 = Mañana
2 = Media/mañana
3 = Mediodía
4 = Tarde
5 = Tarde/Noche
6 = Tarde en la noche

Abreviaturas para porciones:

Cucharada	= TBSP
Taza	= c
Cucharadita	= tsp
Libra	= lb
Onza	= oz
Rebanada	= sl

¿Qué comió y tomó el cliente las pasadas 24 horas? (Sea preciso.)

Alimentos y bebidas consumidos. Describa detalladamente. Liste un alimento por línea.	**Cantidad consumida**	**Tipo De comida**

EFNEP Eating Right Survey

Name: _____

Date: _____

This is a survey about ways you plan and fix foods for your family. As you read each question, think about the recent past. This is not a test! There are not any wrong answers.

For these questions, think about how you usually do things. Please put a check in the box that best answers each question.	Not Applicable 0	Do Not Do 1	Seldom 2	Sometimes 3	Most of the Time 4	Almost Always 5
1. How often do you plan meals ahead of time?						
2. How often do you compare prices before you buy food?						
3. How often do you run out of food before the end of the month?						
4. How often do you shop with a grocery list?						
5. This question is about meat and dairy foods. How often do you let these foods sit out for more than two hours?						
6. How often do you thaw frozen foods at room temperature?						
7. When deciding what to feed your family, how often do you think about healthy food choices?						
8. How often have you prepared foods without adding salt?						
9. How often do you use the "Nutrition Facts" on the food label to make food choices?						
10. How often do your children eat something in the morning within two hours of waking up?						

For Office Use Only:

Extension Staff Member: _____ Check Type of Recall: ☐ Entry

Client ID #: _____ ☐ Exit

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Dr. Scott Angle, Dean and Director
Released by: Gail M. Hanula, UGA Extension EFNEP Coordinator
Publication No. FDNS-NE 3003 **September 2006**

EFNEP Encuesta de Comer Bien

Nombre :_____

Fecha: _____

Esta es una encuesta sobre maneras que usted planea y prepara las comidas para su familia. Mientras usted lee cada pregunta, piense en el pasado reciente. ¡ Esto no es un examen ! No hay respuestas incorrectas. Si no tiene niños, solamente responda las preguntas que son aplicables para usted.

Para estas preguntas, piense en como usted hace cosas usualmente. Por favor marque el cuadro que mejor conteste cada pregunta.	**0 No Aplicable**	**1 No Lo hace**	**2 Rara Vez**	**3 A Veces**	**4 Mayor Parte del Tiempo**	**5 Casi Siempre**
1. ¿Cuántas veces planea comidas por adelantado?						
2. ¿Cuántas veces compara los precios antes de Comprar los alimentos ?						
3.¿Cuántas veces se agota la comida antes del fin del mes ?						
4. ¿Cuántas veces va a la tienda con una lista de compras?						
5. Esta pregunta es sobre la carne y productos lácteos. ¿Cuántas veces permite que estos alimentos se queden sin refrigerar por más de dos horas?						
6. ¿Cuántas veces descongela los alimentos congelados a temperatura ambiente?						
7. Cuando decide que alimentos darle de comer a su familia, ¿Cuántas veces piensa en opciones sanas de alimentos?						
8. ¿Cuántas veces ha preparado comidas sin añadir sal?						
9. ¿Cuántas veces usa los "Datos Nutritivos" en las Etiquetas de comida par escoger un alimento sano?						
10.¿Cuántas veces sus niños desayunan dentro de dos horas después de despertarse ?						

For Office Use Only:

Extension Staff Member: _____ Check Type of Recall: Entry

Client ID #: _____ Exit

Con la cooperación de la Universidad de Georgia y la Universidad de Ft. Valley State, el Departamento de Agricultura de los Estados Unidos y condados del estado. La Extensión Cooperativa y las Facultades de Ciencias Agrícolas y del Medio Ambiente y Ciencias de la Familia y del Consumidor de la Universidad de Georgia ofrecen programas educativos, asistencia y materiales a todas las personas sin distinción por raza, color, origen, edad, sexo o discapacidad. Dedicados a la presencia de diversidad en los trabajadores.

Una organización para la igualdad de oportunidades y acción afirmativa Comprometida a procurar diversidad en sus empleados.

Emitido para el avance del trabajo de la Extensión Cooperativa, Actas del 8 mayo y 30 junio, 1914, con la cooperación de las Facultades de Ciencias Agrícolas y del Medio Ambiente y Ciencias de la Familia y del Consumidor de la Universidad de Georgia y del Departamento de Agricultura de los Estados Unidos.

Dr. J. Scott Angle, Decano y Director Interino

Lanzado cerca : Gail M. Hanula, UGA Extensión Coordinador de la EFNEP

Publicación # FDNS NE-SP 3003 **Febrero 2007**

EFNEP Exit Interview

Food Talk

Today's Date: _____

Name: _____

Street Address: _____

_____

City: _____

Zip Code: _____

Phone Number: _____

What is your reason for leaving the program?

- ☐ Graduated/completed the program
- ☐ Returned to school
- ☐ Took a job
- ☐ Family concerns
- ☐ EFNEP Staff vacancy
- ☐ Moved
- ☐ Lost interest
- ☐ Other: _____
- ☐ Other obligation
- ☐ Lost contact

As a result of participating in EFNEP are you now receiving any of the following? (check all that apply)

- ☐ Child Nutrition/Free or Reduced Price School Lunch
- ☐ Food Stamps/SNAP
- ☐ Head Start
- ☐ TANF
- ☐ Temporary Emergency Foods/Commodity Foods
- ☐ WIC

Could you please show with an "X" your monthly income?

$0 $900 $1200 $1500 $1800+

1. What is the most important thing you learned while enrolled in EFNEP?

2. How has this program changed your life?

3. Are there any other comments you would like to share? (if more room is needed, write on back)

4. Would you recommend this program to a friend? ☐ Yes ☐ No ☐ Unsure

The University of Georgia and Ft. Valley State University, the U.S. Department of Agriculture and counties of the state cooperating.
The University of Georgia Cooperative Extension and the Colleges of Agricultural and Environmental Sciences & Family and Consumer Sciences offer educational programs, assistance and materials to all people without regard to race, color, national origin, age, sex or disability.
An Equal Opportunity Employer/Affirmative Action Organization
Committed to a Diverse Work Force
Publication No. FDNS-NE 3004 September 2010

EFNEP ENTREVISTA DE SALIDA

Food Talk

Fecha de Hoy: _____

Nombre: _____

Dirección : _____

_____

Ciudad: _____

Código Postal : _____

Teléfono: _____

¿Cuál es la razón por la que se va del programa?

- ☐ Me gradué del programa/lo completé
- ☐ Regresé a la escuela
- ☐ Perdí interés
- ☐ Conseguí trabajo
- ☐ Otra razón: _____
- ☐ Preocupaciones familiares
- ☐ Otras obligaciones
- ☐ Falta de trabajadores
- ☐ Perdí el contacto
- ☐ Me mudé

¿Debido a que participé en EFNEP, ahora estoy recibiendo cualquiera de los siguientes? (marque todos los que esté recibiendo)

- ☐ Nutrición Infantil/Lonche escolar gratis o rebajado
- ☐ TANF
- ☐ Sellos de Comida (Food Stamps)
- ☐ Comida de Emergencia Temporal
- ☐ Empiezo Adelantado (Head Start)
- ☐ WIC

Por favor marque con una X su salario mensual

$0 | $900 | $1200 | $1500 | $1800+

1. ¿Qué es la cosa más importante que usted aprendió estando en el programa de EFNEP?

2.¿Cómo ha cambiado su vida este programa?

3. ¿Algún otro comentario que usted quisiera escribir? (si necesita más espacio puede escribir detrás de la hoja)

4. ¿Usted recomendaría este programa a alguna amiga? ☐ Sí ☐ No ☐ No Sé

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Dedicados a la presencia de diversidad en los trabajadores.
Una organización para la igualdad de oportunidades y acción afirmativa comprometida a procurar diversidad en sus empleados.
Publicación # **FDNS-NE 3004** Septiembre 2010

APPENDIX B

Comments made by Clarke-Gwinnett11 participants regarding the Food Talk lessons:

¨The most important thing I learned in EFNEP is to love yourself and what you put in your body. This program has changed my life in ways that I never knew mattered. I am a strong believer in healthy eating and staying consistent with following nutrition guidelines for myself. I would like to thank the instructor for making a difference in multiple families.¨ T

"I learned that we should eat whole grain cereals, fruits, and vegetables. I also learned which meats to eat and that there are many cheap and nutritious things to buy. Also, sodas and juices have a lot of sugar and that fast food is unhealthy and fattening. This program has caused me to think better about my food choices and drink more water since I do not drink much. I also need to put more vegetables on my plate." G

¨It showed me how to avoid salt and what I can do to lower my salt intake. The class was beneficial to a person like myself who has health issues and no health benefits. I have lost 6 pounds since the start of this program.¨ M

"I learned about the portions and how much to eat and the importance of eating fruits, vegetables, and whole grains and how to feed my children in order for them to be healthy. The

program has changed my life because I had many questions and I got the answers here. Thank you to the teacher Britt and everyone who makes this program possible because it helps us a lot and advises us on how to have a healthier life. ” E

¨The program has changed my life immensely and I feel physically healthier.¨ S

“More than anything I learned to balance my meals, the importance of eating fruits and vegetables, and to include dairy, fiber, and good protein in our daily diet.” L

“I mainly learned how to eat a balanced diet and select the appropriate foods for my health. I also learned the problems that too much fat, salt and sugar can cause. The program has changed my life in a positive way for my family and myself and has given me the knowledge to provide a healthy diet to my family.” I

¨I need to eat healthy, and more fruits and vegetables are the way to do it.¨ Ana Maria

¨I learned how to eat healthy and eat more dairy, fruits, and vegetables so I can feel energetic and enthusiastic.¨ B

¨I learned how to eat healthier and show my children how to choose healthy foods.¨ C