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OBESITY RELATED PERCEPTIONS AND PRACTICES AMONG EDUCATORS IN THE EXPANDED FOOD AND NUTRITION EDUCATION PROGRAM

Thesis

A thesis submitted in partial fulfillment of the
requirements for the degree of Master of Sciences
College of Agriculture
at the University of Kentucky

By

Poonam Mahajan
University of Kentucky
2012

Dr. Janet Kurzynske, Ph.D. (Director)

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ABSTRACT OF THESIS

OBESITY RELATED PERCEPTIONS AND PRACTICES AMONG EDUCATORS IN THE EXPANDED FOOD AND NUTRITION EDUCATION PROGRAM

Childhood obesity has increased significantly in the past decade. The same factors putting adults at risk for obesity apply to children as well. For children, the family environment may be one of the largest factors. Obesity affects both adults and children of low socioeconomic status. It also affects families living in the Appalachian region of the United States more frequently than other regions. The purpose of this study was to examine the relationships between obesity related behaviors and nutrition education among Appalachian participants in the Expanded Food and Nutrition Education Program (EFNEP). For this study eleven educators from the Appalachian region who work with the EFNEP/SNAP-Education program were interviewed by telephone. Their responses to questions were coded according to a pre-prepared answer guide. From answers provided by staff there are some areas that the EFNEP program could focus on more. Some of these areas include educating participants on budgeting and family finance, cooking skill, parenting skills and physical activity. Answers provided by participants in this study suggest that educators feel fairly successful with making changes related to healthy eating but less successful with making changes in participant's physical activity.

KEYWORDS: EFNEP, child obesity, obesity related behaviors, food behaviors, physical activity

Poonam Mahajan

April 16, 2012

OBESITY RELATED PERCEPTIONS AND PRACTICES AMONG EDUCATORS IN THE EXPANDED FOOD AND NUTRITION EDUCATION PROGRAM

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Chapter One
Introduction

What does top ten mean to you? Generally, top ten is a great rank. For health professionals in the Appalachian region top ten does not mean something good. For many of them top ten is representative of their state's obesity ranking. When looking at the top ten obese states, five are considered to be in the Appalachian region and nine are considered to be a part of the southern United States (RWJF, 2008).

Nearly two thirds of Americans fall into the obese or overweight category and these rates are still on the rise. According to the CDC, there were no states with obesity rates over 20% in 1993. In 1997 Indiana, Kentucky, and Mississippi were the first states that crossed that 20% mark, two of these states are a part of Appalachia In 2001, 26 of 50 states crossed this line. Colorado was the last state to cross the 19% mark in 2009. Today, the majority of states have obesity rates greater than 25% of their population and the lowest state rate is 21% (CDC, 2010).

Obesity is quickly becoming one of the largest health issues facing Americans today. At least 20 chronic diseases stem from it: heart diseases, diabetes, and hypertension. People are becoming at risk for these health issues at younger ages, for this reason childhood obesity is receiving more attention than ever. Some children are at greater risk of becoming obese than others.

There are many things that can put a person at risk for becoming obese. Two of the most cited risk factors for obesity were inactivity and poor diet (Drewnoski and Specter, 2008). Poor diet is an increasing problem. In recent years, urban areas have experienced an increase in the number of food service establishments. Quick service food establishments tend to serve foods high in calories and fat (CDC, 2008). When examining employment trends for the twentieth century there has been a transition from small farming and factory work to jobs with higher pay that are more sedentary. There is also been a decline in physical activity over the past two decades. According to the CDC Americans have decreased their physical activity by nearly 30% since 1984. If one examines the 2009 physical inactivity map, over 28% of population in the Appalachian region does not participate in extra physical activity outside of the workplace. The increased availability and popularity of high calorie convenience foods (such as frozen

dinners and take out) combined with decreased exercise lead to weight gain, the average being 5 lbs a decade (CDC, 2008).

Environment is another risk factor for obesity. Individuals make their decisions based on their environment and community. The home and work environments lead to various decisions in lifestyle choices. For example, a cross-sectional study of children 2-18 years was performed in eastern Massachusetts. Each child's address was cross referenced with eight characteristics of the built environment: streets, sidewalks, schools, subway stations, bicycle paths, open spaces, fast food restaurants, and population density. Children who lived in areas with higher population densities and fewer sidewalks, schools and open spaces had higher weight to height ratios also referred to as body mass index (BMI). Presumably, this increase occurs because of an association between BMI and appropriate activity areas (Oreskovic, 2009). Culture in a school or work setting can also have an influence. Would you see more children playing at a school if there was a large yard with playground equipment and field area or if there was a small play area and little equipment? It is important to note the effects of the environment and minimize deterrents to physical activity as much as possible.

Psychological factors also contribute to overweight and obesity. It is common for people to eat in response to emotions such as happiness, depression, stress, or boredom. Food can also become a substitution for another addiction. For example, people who are in the process of quitting smoking have the tendency to gain weight. Nicotine can act as an appetite suppressant and increase a user's metabolism, and this is what the weight gain is attributed to. However, several studies indicate that many quitters significantly increase the amount of carbohydrate rich foods consumed. This is due to the similar neural reaction caused by the digestion of carbohydrates and nicotine (DeLeone, 2005).

Among the various high risk groups for obesity, there is a common thread. Many of the people who fall into high risk groups have low socioeconomic status. This makes low income individuals an at-risk group. This also creates a large focus for a multitude of studies. Why is low socioeconomic status such a risk factor? Food marketing strategies as well as the prices of foods are contributing factors. Glance at a sales flier for a grocery store, the majority of the items on sale are energy dense, nutrient poor foods. These foods are cheaper and are available in larger quantities than fruits and vegetables. Other issues

that may contribute are education issues. Low income areas typically have fewer parks and higher crime rates. These areas statically have lower education rates (CDC, 2010). In addition, there may be a lack of knowledge with regards to nutrition and cooking habits. If one looks at the CDC's obesity maps, the states with the highest obesity rates are in the south. This correlates with income maps from the Census Bureau as these states also have the higher poverty rates and lowest education rates (Census Bureau, 2009).

There are thirteen states that are considered to be in the Appalachian region of the United States. Over half the states in the Appalachian region are considered to be a part of the south. Central Appalachia is considered to consist of Ohio, Kentucky, Tennessee, West Virginia, and Virginia. The national poverty rate for the United States is 12.4% but the poverty rate for Appalachia is 13.6%. In 2007 the national per capita income was $32,930; the Appalachian region of the United States had an average per capita income of $24,360. Alabama's Appalachian counties led all states' Appalachian counties with a 3.8% unemployment rate and a per capita market income of $27,723. Georgia's Appalachian counties had the lowest average poverty rate, 9.2%. Mississippi's Appalachian counties had the highest average unemployment rate at 7.9%, while Kentucky's Appalachian counties had the lowest average per capita market income of $15,690 and the highest average poverty rate of 24.4%. When looking at per capita income, poverty, education and unemployment maps, the central Appalachian region consistently seems to be the most heavily affected (ARC, 2010).

The Appalachian Regional Commission categorizes counties into five categories: distressed, at-risk, transitional, competitive, and attainment. These statuses are based on unemployment rates, per capita income and poverty rates. Counties in economic distress have at least twice the national poverty rate and/or unemployment rate and have a per capita income that is 67% of the national average. Those that are at risk meet two of three criteria: a three year unemployment rate at 125% of national average, per capita income that is 67% or less than the national average or a poverty rate at 125% or more of the national average. Transitional counties are worse than the national average but do not meet the criteria for the at-risk and distressed categories. Competitive counties have unemployment and poverty rates equal to the national average and a per capita income of at least 80% of the national average. Counties that have reached attainment are equal to

the national average on all three indicators. There are 217 counties in central Appalachia, of these one third or 73 counties are considered to be distressed. Two counties in central Appalachia are classified as competitive and only one county has reached attainment (ARC, 2010).

Statement of Problem

Childhood obesity has increased significantly in the past decade. The same factors putting adults at risk for obesity apply to children as well. For children, the family environment may be one of the largest factors. Obesity affects both adults and children of low socioeconomic status. It also affects families living in the Appalachian region of the United States more frequently than other regions.

Purpose of the study

The purpose of this study was to examine the relationships between obesity related behaviors and nutrition education among Appalachian participants in the Expanded Food and Nutrition Education Program (EFNEP).

Objectives

- Conduct a field review of behaviors that contribute to excess weight gain in children ages 4-10 years old.
- Support, reject or revise research-based suggestions on behaviors that influence overweight children in Appalachia.
- Identify individual education practices that are used and believed to be effective in obesity prevention programming.

Research questions

i. What obesity preventative behaviors do EFNEP educators consider most important to emphasize with clients?
ii. What methods are currently used and considered effective for teaching EFNEP participants in the Appalachia region?

Justifications

The traditional development of educational programs starts by basing the program on current research. Rather than continue to create programs that may or may not work, it

would be beneficial to create support for what aspects of current educational programming that works well. The purpose of this study is to examine the relationships between obesity related behaviors and education among participants in the Expanded Food and Nutrition Education Program (EFNEP).

What low income households are able to do and can afford to purchase differs from households of higher socioeconomic status. This study will allow for expansion of available literature. Few multi-state studies exist for obesity, and fewer relate to obesity among children. There is a lack of research using EFNEP paraprofessionals, especially in Appalachia. Most research available about paraprofessionals relates to job burnout and not their influence as educators.

Assumptions/limitations

Several assumptions have been made for this study. The first is that qualitative data is subjective. In order to assist with standardizing data from state to state for the over all study, the responses were coded. The variables in this study were the EFNEP paraprofessionals and the professionals themselves. Cooperative Extension is run county by county. The needs in each county can vary, especially by geographic location. By focusing on several counties in the Appalachian region, the effect of this variance can be minimized. Participation in this study was voluntary. For this reason, the sample size for the study was small (n=11). The entirety of the Appalachian region is not represented; participants for this study were located in central Appalachia.

Chapter Two
Review of Literature

In order to investigate perceptions of obesity related behaviors in families participating in EFNEP, the available literature on a number of topics was reviewed. An overview of obesity among adults and children will be included. Socioeconomic factors that participate in the increase of obesity with low income families and children was examined. An overview of the School Lunch and Breakfast Program and the Supplemental Nutrition Assistance Program was completed. Finally, a review of the Expanded Food and Nutrition Education Program and its educators was performed.

Obesity

Obesity is the largest epidemic in the United States and is among the most costly health conditions to treat. Between 1998 and 2008, the number of Americans considered to be obese increased by 37%. In 2008 nearly two thirds of the U.S. population was considered to be overweight or obese. These individuals spend 42% more on healthcare than their normal weight counterparts. This is due to the number of chronic disease conditions that stem from being overweight or obese. On the list are respiratory diseases likes asthma and sleep apnea, cardiovascular diseases, osteoarthritis, back and knee pains and increased risk factors for hypertension, dyslipidemia, and type II diabetes. Other issues related to low self esteem and depression may be present as well (CDC, 2010).

Obesity in children should be very concerning. Since the 1970's the prevalence of obese children from ages 2 to 5 years had doubled; obesity rates have tripled for children ages 6- 11 years old. Nearly one third of children ages 2-19 are obese while another third are overweight and at risk for becoming obese (CDC, 2010). These children will suffer from the health consequences of obesity earlier in life leading to higher medical costs for themselves and a lower quality of life. The probability of a child who is overweight or obese remaining so into adulthood increases as the child ages. At 4 years old, an overweight or obese child has a twenty percent chance of growing into an overweight or obese adult. The risk is 40% to 80% for adolescents (13 to 19 years old). As the adolescent becomes older, the risk becomes higher (CDC, 2010). Currently, nearly two thirds of the US adult population is considered overweight or obese.

The Robert Woods Johnson Foundation creates health rankings based on county data for health factors and outcomes. These health factors include obesity, access to health care, sexually transmitted infections and teen birth rates. Outcome data examined included premature deaths and number of poor health days. Half the counties located in central Appalachia have access to only one hospital and one in five counties do not have a hospital located within county lines. Even the best ranked counties in any state of central Appalachia have a premature mortality rate and a number of poor health days nearly double the national average. In over half of central Appalachian counties 5.1% to 18.2% of households live more than one mile away from a supermarket and do not have reliable access to a vehicle (RWJF, 2009).

Genetic Factors

There is a theory that suggests there is a genetic predisposition for obesity. This theory is the thrifty gene theory and was used to describe phenomena seen with Native Americans, specifically the Pima Indians, in the United States. Native Americans have been greatly affected by obesity and diabetes since being exposed to the modern American lifestyle. According to the hypothesis, "thrifty" genes were once ideal for people because of periods of prosperity and famine. These "thrifty" genes enabled people to collect and process food to create fat deposits during times of abundance. Those that had these genes would better survive times of famine. In the modern age, this results in widespread and chronic obesity with related health problems (Prentice, 2008).

There are criticisms of the thrifty gene theory, as a response the "predation release" or drifty gene theory arose. Speakerman proposes that obesity occurs because of genetic drift or a change in the frequencies of genes which control the upper limit of body fat. This began occurring because human removed the risk of predators, which was a selecting factor for body fat. His criticism of the thrifty gene theory comes from data collection for thrifty gene theory. Many papers that had been written in the 1980s and 1990s had data that neither supported or refuted the theory and new information on how genes pass on has been developed (Speakerman 2008).

There is support for theories suggesting obesity has a genetic link. By 2006, there were 41 genes identified to be related to obesity. These genes can make weight gain easier and weight loss harder for individuals (Poirier 2006). Having parents that are

overweight will increase the risk that a child will become overweight as well. Nearly 80% of the children of two obese parents are obese. To contrast this less than 10% of children of two normal weight parents are obese (Hodges 2003). Like many other health issues, obesity is related to the interaction of genetic predisposition and environmental factors.

Parent Influences

Having a parent who is overweight increases the risk of a child also being overweight or obese. Families have a significant impact on their children. Parents have a large influence in their children's lives and siblings influence one another, even if they do not realize it. Food related behaviors are no different. A study performed by Salvy investigates the effects of peers and siblings on normal weight children and food intake; in this instance the number of cookies consumed was observed. Children, aged five to eleven, were tested alone, with an unfamiliar peer, or with a sibling while playing a sorting task. Children who played alone or with a stranger ate similar amounts of cookies (approximately 120 kcals), but children who ate while playing with a sibling ate nearly 2.5 times more (approximately 280 kcals). This suggests that a child's eating habits can be influenced by others, specifically family members (Salvy, 2008).

Parental feeding practices for children are a reflection of their own eating behaviors (De Lauzon-Guillain, 2009). If one or both parents are overweight, their children are at risk for becoming overweight as well. Parental perceptions play a role in children's weight and feeding practices. In several studies, nearly 80% of parents failed to identify their children as overweight at all. After adjusting for income, maternal education and maternal obesity were associated with this misperception (Hodges, 2003). Perceptions of food are also influenced by parents. In Minnesota, parents and their children, ages eight to thirteen, participated in an intervention geared towards obesity prevention. On average, the children's and parent's perceptions of fruit and vegetables were similar, with high levels of agreement found on fruit and vegetable taste, availability, accessibility and desire to eat fruits and vegetables (De Lauzon-Guillian, 2009).

The more a parent feels responsibility for their child's eating habits, the more likely they are to offer healthier foods. Restrictive feeding practices are related to parental

perceptions of a child's body weight, even after adjusting for BMI (De Lauzon-Guillain, 2009). This stresses the importance of considering perceptions of weight. It is essential to alter the environment in the home rather than focusing on the child's weight alone. To do the latter runs the risk of damaging the child's self-esteem as well as the relationship between the parents and the child (Barlow, 1998). In order to encourage parents to promote healthy food related behaviors, their perceptions and knowledge must be examined.

In Israel, it is typical to perform nutrition interventions with the child only. A study there focused on the reporting of long-term weight change in a child dependent on the type of intervention. In group one the intervention was focused on the children only. In the second, only parents were selected for a family-based approach. By the end of the intervention, 35% of the children of the parent only group obtained a normal BMI while only 14% of the child only intervention managed to do so. After a seven year follow up, 60% of the children in the parent only group compared with 31% of the child only group had normal BMIs (Golan and Crow, 2004).

A field study was performed with participants in the Virginia WIC program to evaluate the benefits of promoting six parental behaviors including: mealtime behaviors, water consumption and fruit and vegetable consumption. The behavior that was most influenced was water consumption. Mothers who were a part of the intervention offered children water three times more often than sweetened beverages than the control group (McGarvey, 2004).

Socioeconomics

Parents have a large impact on what their children eat and what their preferences are. There are a number of factors that influence the choices that parents make for their children. Socioeconomic status is a major influence on what a family can and cannot afford to purchase. Low socioeconomic status is associated with higher obesity prevalence in adults and in children (CDC, 2010). Education and food costs are both factors in influencing a child's weight.

Education

It is interesting to note that in developed countries, such as the United States, it is individuals of lower socioeconomic status that tend to be obese while the opposite is true

in developing countries (Ball & Crawford, 2006). In developed countries, obesity tends to be concentrated in areas of low income and low education. This means that there is a lack of knowledge related to nutrition and cooking habits. If one looks at the CDC's 2010 obesity maps, the states with the highest obesity rates are in the south. This correlates with income maps from the Census Bureau (2000) indicating that southern states also have higher poverty rates and lower education. Using self reported data, a study performed by Mokdad in 2001 found that 26% of high school dropouts were obese, 22% of high school graduates were obese and only 15% of college students were obese. Fourteen percent of white females who lived at four times the poverty threshold were obese compared to 34% of their poor counterparts (Mokdad, 2001). This is consistent with the fact that individuals or families of high socioeconomic status are healthier than those of lower status. The national average for high school graduation is 80.4%, the average for Appalachia is lower with only 76.8% of students attending high school graduating. Approximately half the counties in central Appalachia have a high school graduation rate lower than this ranging from 49.2% to 68.7%.

Food cost

The prevalence of obesity in low income populations can be attributed to the inverse relationship between energy density and the cost of food. Those who have less money have smaller budgets to spend on food. Hence, those living with low socioeconomic factors consume lower quantities of fruits and vegetables (Drewnowski and Specter, 2004). A Seattle based study showed that the cost of potato chips was 20 cents for 1200 kcals, while fresh carrots cost 95 cents for 250 kcals. Soda was 30 cents for 875 kcals while orange juice was $1.43 for 170 kcals. Fats and oils, refined grains, potatoes and beans provide the most energy at the least cost to an individual. Dry foods with a longer shelf life are also less costly than fresh produce (Rolls and Barnett, 2000). A review of literature compiled for the American Economist found similar conclusions. Foods that had a longer shelf life and contained more fat cost less per calorie than fresh produce (Martin, 2005). Additionally, a USDA survey demonstrates that low income families spent the majority of their food budget on energy dense nutrient empty foods (USDA, 2009). The American Economist performed an analysis of the cost of fruits and vegetables between 1985 and 2000. Consider this, in the 15 year time span the inflation

adjusted price of fruits and vegetables increased by an average of 40%. During the same 15 years the cost of soda decreased by 25% (Martin, 2005).

Children's weight

Similar connections can be made with children of low socioeconomic status as with adults of low socioeconomic status. Children who are overweight in the preschool years are more likely to become overweight adolescents and in turn obese adults. A secondary analysis of data resulting from the Panel Study of Income Dynamics was performed. Participants were born between 1968 and 1975 and participated annually in the Panel Study of Income Dynamics. The goal was to estimate the relationship between income and childhood and adult BMI and obesity. The conclusion was that annual family income in prenatal and first year of birth could hold a significant impact on weight during later periods of life. The strongest correlation between income and obesity was found with families whose incomes were less than $25,000 (Ziol-Guest and Duncan, 2009).

National School Lunch and School Breakfast Program Research

The National School Lunch Program provides 1/3 of the days nutritional requirements for children of low income families who participate; the breakfast program provides 1/ 4 of nutrition needs. Nearly 28 million children participate in the National School Lunch and School Breakfast program (USDA, 2009). A study performed in Virginia's public school system that measured BMI and categorized socioeconomic status was based on eligibility for the National School Lunch Program. Approximately 40% of the student body that qualified for the School Lunch Program was overweight (Vieweg et al, 2007).

A food desert is an area with limited access to retail food stores and is generally serviced by fast food or convenience stores. Food deserts are common in low income neighborhoods. A Pennsylvania researcher categorized school districts by what percentage of the student body lived in a food desert. It was found that the higher the proportion living in a food desert, the more students of low socioeconomic status it contained. The lower socioeconomic schools also had higher average BMI for its students and higher participation rates in the School Lunch and Breakfast programs (Schafft, 2009). The conclusion can be made that low socioeconomic status is a factor in childhood and adolescence overweight and obesity.

Supplemental Nutrition Assistance Program (Formerly Food Stamps)

Some people may argue that by simply increasing the portion of the budget spent on food, families will be able to eat healthier. The Supplemental Nutrition Assistance Program (SNAP) does make an impact on the welfare of children in low income households but it only reduces poverty gap between children and the general population by less than 20%. The primary reason is that SNAP does not target children alone but the whole family. An observation was made that there is a need for nutrition education with participants of SNAP that have children (Jolliffe, 2005).

Increasing food security does not mean that healthier foods are being purchased. Several studies show that individuals who receive SNAP benefits have less adequate diets than those who do not receive SNAP benefits. When examining studies performed on SNAP participants, the impact on health status without education does not appear positive. For example, women receiving SNAP benefits are more at risk than men to become obese when compared to their non-participating counterparts. Over a two year period of observing individuals in the program, women were 7% more likely to gain weight and have lower nutritional status than men in the program (Meyerhoeffer & Pylypchuck, 2008).

A study performed by Cason (2002) examined the effect of food assistance on the dietary patterns of households. Data was collected from participants in SNAP and EFNEP in several southern states. The idea was to determine if there is a relationship between participation in SNAP and nutrient intake. Before intervention, SNAP participants had higher intakes of fat and calories than EFNEP participants. SNAP participants also reported more pre-planning of meals but ran out of money more frequently before the end of the month. EFNEP participants reported a higher percentage of desirable food preparation behaviors and nutrition label usage than SNAP participants who were not receiving education. Before educating participants, there are few differences for food behaviors between EFNEP and SNAP participants. The implication of these results is that participating in SNAP, or increasing the budget spent on food, does not in fact increase the quality of food purchased and consumed (Cason, 2002).

General Nutrition Interventions

Simply increasing the budget for food does not impact the types of food purchased. This shows a need for nutrition education. In a study performed in Great Britain, an intervention was performed with children to see the extent to which one behavior could affect weight. Group one received a general intervention that touched on multiple subjects while group two received intervention focusing on one behavior, decreasing soft drink intake. Parents of children in the second intervention group reported decreased consumption of soft drinks without significant differences in the amount of juice or water consumed regularly. These children did not achieve any significant changes in BMI, while children in the control group had an average decrease of one point on the BMI scale (Robinson, 2009). A number of studies similar to these conclude that general nutrition education as a form of intervention has a greater impact on health and weight than targeting one specific behavior.

Expanded Food and Nutrition Education Program (EFNEP)

The relationship between socioeconomic status and health has been around for many years. In the 1960s, the government commissioned several pilot studies to be conducted in a number of states in order to identify ways to approach individuals and families living in poverty and provide educational programs. Based on the results of these recommendations, the Expanded Food and Nutrition Education Program (EFNEP) was initiated in 1969. This program operates through the Cooperative Extension system of land grant universities. Forty years later, this program is still funded and operating in all 50 states as well as all territories. This program has repeatedly shown that it is able to meet its objectives of disseminating nutritional and food safety related knowledge to the underprivileged (USDA, 2009).

Behavior change

Nutrition education is needed in order for high risk individuals to budget better as well as increase the quality of their diet. EFNEP has been shown to increase positive dietary behaviors. According to the 2008 USDA EFNEP overview, the program reached over 500,000 low income individuals and families. Nearly 80% of these participants were living below the poverty threshold. Evaluation for EFNEP generally came in the form of knowledge gained and dietary practices. Graduates from the program did show behavior

changes. Among these changes was an increase in fruits and vegetable servings of 1.5 cups for 92% of participants. Eighty three percent of participants implemented resource management through meal planning and use of a grocery list. These acts resulted in less money spent on better quality foods (USDA, 2009).

Children also have been influenced through this program. The 2008 USDA overview reported that 60% of youth demonstrated an increased ability to select low cost foods that are nutritious. In addition, they improved their food preparation practices. Along with these items, 70% of participants increased their knowledge of nutrition and increase the variety of foods in their diets (USDA, 2009). Many other studies show similar results. Behavior changes were measured from participants in EFNEP including the use of: meal planning, grocery list creation, price comparisons, and the selection of low fat milk, and other low fat foods. All of these categories showed frequency of use improvements by greater than 75% of participants (Sargent, 2006). This supports findings shown by Dickens and associates (2005).

A change in habits can lead to a change in weight over time. One hundred EFNEP clients in Texas were followed over a six session modified curriculum. Over all, clients lost weight and their BMIs decreased. Clients also reported changing dietary behaviors at home which lead to changes in weight for family members as well (Cullen & Smalling, 2009).

Cost benefit analysis

There is plenty of evidence supporting participation in EFNEP produces behavior change and can assist in increasing the health of a family. However, the USDA does not provide fiscal data for the amount of money that can be saved by these changes. This is not provided for several reasons. Primarily, it is because many of the behaviors that health care professionals are interested in are not easily monetized. Several states have chosen to document the fiscal impact of EFNEP in two ways, direct and indirect costs. These states include: Virginia, Oregon and Iowa. Other states have chosen to select behaviors to analyze rather than doing overall analysis. The majority of studies that have elected to perform a cost analysis within the current decade have cited the methodology used in Edwin Lewis's analysis of the Virginia EFNEP program in 1998.

A way of calculating direct benefits for EFNEP, or for any other nutrition education program, looks at the number of dollars saved by preventing or delaying the onset of disease (Lewis, 1998). Below is a blank table listing each disease examined and the various categories that researchers use to categorize these costs (Lewis, 1998).

Disease State	Rate of incidence in population	Incidence caused by diet	Average Age of onset	Average years of survival	Average delayed onset	Cost of treatment per year
Colorectal caner						
Heart disease						
Hypertension						
Osteoporosis						
Diabetes						
Obesity						
Food borne illness						

Each of these categories was filled with the state's percentage rate, resulting in different costs and percentages. Added to these direct costs are the costs of operating the EFNEP program (salaries, building space, utilities, equipment, training costs etc.) and a weight is added based on the percentage of graduates who follow the optimal recommendations. For Virginia in 1996, the cost benefit ratio was $1.00: $9.24; in other words for each dollar put into the program there was a savings of $9.24 in health costs (Lewis, 1998). In Iowa, the direct cost benefit ratio was higher at $1 to $10.56 cents (Weisman, 2000). In Oregon, the cost to benefit ratio is significantly smaller than these two states at $1: $3.63. Part of this difference can be attributed to the small scale of the study, with 400 participants in Oregon versus close to 5,000 in both Virginia and Iowa. The majority of this discrepancy can be attributed to the direct costs of running EFNEP in Oregon. EFNEP equipment, properties and salaries are all much larger percentages of the budget than in the previous two states (Schuster, 2003).

Another way to determine direct cost benefits is to look at the data for savings per family based strictly on monetary expenditures. EFNEP in Tennessee spends an average of $388 on each family in its program. Depending on the household and its frequency in adhering to recommendations, families save $127 to $234 dollars per year (Burney, 2002). Data on food purchases and consumptions were measured by the use of dietary recall as well as collection of receipts. When receipts were analyzed, self-reported

savings were higher than average receipts savings with a statistically significant, unspecified, number families (Burney, 2002).

The second category of benefit analysis comes from indirect benefits. Tangible indirect costs are secondary outcomes of a program. These benefits are passed on not only to the participants of the program but to a number of others outside of it including families, employers and the general public in the case of EFNEP. One of the major categories for indirect benefits is related to work (Lewis, 1998). The reason for this is that the longer one is ill, the less time they spend at their job leading to less income generated for the family and taxation.

In order to calculate indirect costs, there are two assumptions. The first is that if participants are able to prevent the onset of illness or disease they will live to the average life expectancy. The second is that these participants will remain in the labor force and will be productive similar to current patterns of individuals of the same background and gender. The premise for this is that some diseases are considered life threatening; by delaying the onset of these diseases, individuals are able to be more productive in their lifetime. If an individual delays the onset of a disease by five years, there is assumed that their time in the work force and time to death is extended by five years. Money lost is based on the earnings lost for days missed from work per year and the mortality benefit is derived from annual salaries lost. Due the target audience of the EFNEP program, the indirect costs are calculated based on an average rate of pay for high school dropouts. Therefore, the rate will vary from state to state. The number of days lost from work is then calculated. The calculated monetary savings are then compared to the direct benefits calculated previously (Lewis, 1998).

Included in healthcare costs were osteoporosis and low birth weight babies. The number of days lost from work due to these two issues is not known and therefore not analyzed. The values used for other disease states are averaged to be two to three days dependent upon the state/study in question. In Lewis's study based in Virginia the largest indirect benefits came from delaying or preventing the onset of hypertension with $800,000 saved; this was followed by food borne illnesses, colorectal cancer and stroke where each had a savings of around $80,000. The resultant ratio for cost savings from indirect costs in Virginia becomes $1.00: $9.83 (Lewis, 1998). A retrospective study

corrected for the lack of data on low birth weight babies and osteoporosis increased this value to $1:$10.64 (Rajgopal, 2002). The Iowa study found a similar value of $1:$10.75 (Weisman, 2000). Oregon did not perform this portion of the cost benefit analysis.

Paraprofessionals

One of the strengths of EFNEP is its approach to reaching low income families through the use of indigenous paraprofessionals. EFNEP paraprofessionals serve as teachers for the educational program. These individuals are trained in a nutrition education curriculum and teach the concepts at the community level to the low income families that are participating. Pilot projects from the 1960's indicated that the most effective educators were people from the same ethnic and cultural backgrounds as the people they were educating. The more similar the attitudes and values shared, the greater the changes in behavior. The indigenous model is key to the success of EFNEP as it acknowledges the importance of hiring personnel of similar backgrounds (USDA Extension Services, 1983).

The EFNEP program delivery methods have changed over time. When the program was first initiated in 1969, the method of instruction was individual instruction with paraprofessionals traveling from home to home. Program emphasis shifted in the 1980's from individual contact to contact with groups of participants in a community setting such as a church, housing complex, WIC offices or other various community centers (Cason, 2002). Changes in delivery methods are attributed to several causes. In 1979 there were several recommendations made by federal evaluators to make the program more cost effective. Included in the report was a recommendation to change from home visits to group classes in public places. This recommendation stemmed from a concern for the safety of the educators and as a way to cut program costs (Gehrt, 1994). In 1996, there were a series of reforms to the welfare program; many typical clients were enabled to join the workforce making it easier to teach classes with pre-existing groups (Cason, 2002). Cason's study concludes that a one on one lesson with paraprofessionals is the most effective method for delivering the program but returning to the methods of the early years of the program could become costly.

Paraprofessionals are effective in the delivery of EFNEP lessons, but there are certain job and personal characteristics needed in order for them to perform their duties

well. Paraprofessionals identified six characteristics as to why the paraprofessional client interaction works so well. First, paraprofessionals operate as a team when developing and delivering programs. Second, the specialized training available with EFNEP conferences allow paraprofessionals to learn more and bring back new ideas to implement in their own community. The combination of paraprofessionals with volunteers and professionals in programming efforts made for a stronger curriculum. Receiving recognition and rewards along with constructive feedback let educators feel recognized and provide them with extra credibility with their families. Paraprofessionals valued the ability to assist with developing training modules for themselves as well as for their supervisors. Support from EFNEP and Cooperative Extension offices assist in decreasing the amount of work related stress they feel. Finally, paraprofessionals felt that keeping the focus of their work on the community assisted in the effectiveness of the program (Gehrt, 1994).

A study of perceived personal attributes and job competencies was conducted among EFNEP professionals supervising the program. Attributes included were both personal and job related. Interpersonal skills were the number one personal attribute ranked followed by a positive attitude and a desire to learn. Significantly lower on the list was the ability to be respectful, trustworthy and persuasive (Wakou et al, 2003).

Job competencies prior to hiring an individual to be a paraprofessional were looked at as well. Identified in the study as the number one competency for a paraprofessional were strong interpersonal and communication skills. Identified as important in Wakou's study was knowledge of community networks, problem solving skills and the ability to work with groups. Miscellaneous job competencies were identified as a third aspect to the study. Being a team player and follow up with families were ranked at the top for this category (Wakou et al, 2003). These are all similar characteristics that paraprofessionals identified in themselves and in their coworkers during a study performed by Gerht (1994). These traits in paraprofessionals are important as EFNEP is based on a participant empowerment model.

Another common characteristic that is shared among paraprofessionals is a lack of organizational skills necessary to meet role requirements. This was acknowledged among many interviewees. Paraprofessionals, like the population they work with, tend to

be concerned about their working conditions and financial reimbursement. They stated that while educational training was done well, they needed more information for themselves in order to complete necessary paperwork properly. The more often the interviewee felt an inadequacy with their own organization skills, the more stress they were likely to feel with their supervisors and this leads to an increase in job dissatisfaction (Gehrt, 1994).

There is an association between nutrition education effectiveness and paraprofessional's perceptions of their own work. A study examining behavior changes in EFNEP showed that the highest behavior-change scores were found at sites whose educators gave high ratings to the value of EFNEP. The stronger the belief that EFNEP was important, the more motivation the educator had to assist families. Educator satisfaction with management practices also influenced behavior change scores. Planning, monitoring, problem solving and clarification of roles and objectives were key aspects to management satisfaction (Dicken, 2005).

Summary

Obesity is a growing issue in the nation. As adults choose what to purchase at the grocery store to bring home, the fact that cheaper foods tend to be the foods that are energy dense and nutrient empty is a major concern. Foods that fall under these categories are what families of low socioeconomic status purchase. Parents have the ability to influence and shape their children's perceptions and behaviors related to food. When they primarily consume energy dense foods, they also feed this to their children. Research indicates that increasing the budget that can be spent on food is not enough to impact what is purchased. Nutrition education can impact this however. EFNEP helps change problematic behaviors and can help stretch a family's resources. This will have a long-term impact on a family's health and weight. Research as demonstrated and supported that the paraprofessionals that are educating families can be credited with these positive changes. The extent that the paraprofessional can impact a family is dependent on their own perceptions and beliefs. For this reason, it is necessary to evaluate what perceptions paraprofessionals hold concerning obesity programming.

Chapter Three
Methodology

This research study is a multi-stage study in which the University of Kentucky, along with 16 other state universities, participated in. Multiple regions of the United States were represented. The Appalachian region has three participating states. The south eastern region, the north eastern region, the midwestern region and south and north western regions were all represented as well.

A standard procedure and training for individuals participating in different portions of the study were developed. There are five sections to the overall study; this was one of three initial studies for the overall project. Subsequent sections are dependent on the data collected and analyzed from these three studies.

An application was submitted to the Institutional Review Board (IRB) of the University of Kentucky, Office of Research Integrity (ORI) in January of 2010 along with a copy of the approved IRB from Washington State University. The survey for both front line staff and supervisors was provided. The project was granted non-medical expedited approval from the University of Kentucky ORI for 1 year based on approval from Washington State University. The study was closed in the spring of 2011 based on completion of data collection.

Research Design

The design of this study was non-experimental qualitative research. It employed a descriptive research method in the form of an interview to allow for probing if the interviewer felt that a question was not answered adequately. This method was thought to produce the largest amount of useful information.

Qualitative studies can be used to better understand a phenomenon that little is known about or to gain new perspectives on phenomenon where plenty is known. Qualitative studies can also shed light on information that can be difficult to obtain quantitatively (Strauss and Corbin, 1990). Another section of this multi-state research project will be identifying variables that may be tested quantitatively. The behaviors identified as related to being overweight and obese will be used to assess parent child interaction in target populations for the third portion of the study.

Population and Sample Selection

The population used for this study was the EFNEP/SNAP-ED educators in the Cooperative Extension System. Both front line staff and professional staff were sampled based upon staffing practices in their county. For the purposes of this study Cooperative Extension professional staff and supervisors will be referred to as agents. Front line staff members are an important group of educators as they are in direct contact with low income families and can provide insight into issues with conducting obesity prevention programs. Educators and front line staff who participated must have worked with families that have one or more children 3 to 10 years of age. In addition, selected educators were located in Appalachia.

Instruments

A recruitment and interview script was developed and tested on a pilot group by the lead state for this study. Members of the pilot group were not allowed to participate in interviews for data collection. An emphasis was placed on questions probing obesity prevention messages and behavioral strategies. Questions addressed the health behaviors the interviewees considered to be important to target, activities they found to effective with families and what families identified as problematic behaviors with regards to health and parenting practices. In total there were 18 questions for both the agents and front line staff. Telephone interviews were recorded on cassette tape and transcribed using the program, Dragon Naturally Speaking 10.0.

Data collection

The surveys were given via telephone by a graduate student. A single, individual in-depth interview was conducted with each participant. After determining educators who met the criteria for participation in this study, an email was sent by the graduate student and an advisor to recruit educators. This email contained a general description of what the project was attempting to accomplish and explained why they had been chosen to participate. Arrangements were made for a date and time to interview the educator. Training was provided for the interviewer prior to the start of interviews. The interview script was read through and several standard probing questions were set. Following this, two practice interviews were performed with different interviewees to ensure the

effectiveness of probes. After interview training, the first interview was monitored to ensure that adequate information was collected. An initial coding training, was performed by conference call. Telephone interviews were recorded on cassette and then transcribed for coding with Dragon Naturally Speaking 10.0. As interviews were transcribed any county names or participant names that were provided by interviewees were replaced with an ellipsis. Transcripts of interviews were used to determine themes for responses of agents and front line staff.

Coding

A coding guide was created by the lead investigating state based on interviews performed there. This guide contained detailed descriptions of what responses should be placed in each content category. Training for use of the coding guide was performed through a conference call. A sample transcript was coded and questions were answered by the lead investigator. Using the coding guide provided by the lead state, one graduate student read through the eleven transcripts and categorized responses to questions. A tally was kept in table form for all coded answers to questions. Once all responses to a question were themed they were placed in the appropriate content category. If an answer fell into multiple categories the determination for which category to place the response in was based on information provided through probing questions. In some cases, responses to questions belonged with other questions; for example a question about physical activity may have included a response for nutritional interventions. When this occurred, the answer was paired with the appropriate question.

Once answers were themed and categorized, quotes were taken from various transcripts to provide support for themes. Tables were created for comparison purposes and were organized by the number of responses starting with the greatest number of responses. This was followed by responses from agents and finally staff members.

Chapter Four
Results

Demographics

The initial recruitment email (Appendix D) was sent to 25 agents and front line staff members in the Cooperative Extension Service. For the final sample eleven participants were interviewed via telephone, seven agents and four front line staff members. Additional attempts to contact and enroll more participants were unsuccessful. Several initial volunteers also opted out of the interview due to time constraints and job turn over. All participants (n=11) were female. The majority of participants (91%) were Non-Hispanic White and with n=1 participant (9%) of African American decent.

Agents and staff members varied in the number of years of experience they had working with EFNEP/SNAP-Ed. For the agents, responses were varied. Two county educators had 10 to 15 years of experience, one agent had 16 to 20 years of experience and four had over 21years of experience. Responses from staff members indicated they had less experience on the job with one staff member that had less than 5 years of experience, one with 5 to 10 years of experience and two with greater than 10 years of experience.

Agents and staff varied in education levels as well. All 7 agents (100%) had graduate degrees. Comparatively, of the four staff members only one reached a Bachelor of Arts or Science. Another staff member reached an Associate's Degree and the final two completed high school.

Continuing education since graduation from high school or college in the form of college classes, workshops, seminars or other trainings are an important part of any position. Categories looked at were: nutrition, physical activity, child development and parenting. All agents (n=7) and staff members (n=4) responded yes to having received additional education in nutrition and physical activity. For continuing education with child development agents' responses were split again, with 4 (57%) agents stating yes they had received additional training and 3 (43%) responding no. Front line staff members also had a split response with only (25%) stating that she had received training in child development and 3 (75%) responding they had not. Additional training in

parenting had been received by 100% (n=7) of agents and had not been received by 100% (n=4) of staff members.

There are three audiences that EFNEP offers programing to: parents/caregivers, children and audience of both parents/caregivers and their children. All agents and staff (n=11) offered programs for all three audiences.

Demographics of participants in any program reached by agents and frontline staff varied between agents and front line staff members. All agents (n=7) reached participants of Non-Hispanic White decent. Of the seven agents, six (86%) reached African- American and Hispanic populations; 57% (n=4) had Asian participants and 28% (n=2) had participants identify themselves as Pacific Islanders. One agent specified that they had participants from East India. No agents had participants of American Indian or Alaskan decent.

Similarly all (n=4) front line staff members had participants of Non-Hispanic White decent. Front line staff members also all had participants of Hispanic origin. Three (75%) front line staff members had African American participants and only 25% (n=1) of front line staff members had participants of the Asian, Pacific Islander and American Indian/Alaskan decent.

Common Themes

Similar questions were asked to both agents and staff members for interviews. For this reason, similarity and variances in response themes can be compared. Agents were asked one additional question from staff members to give them a total of 12 questions while staff members were given 11 questions. Interview guides and content categories for analysis are available in Appendices B and C. Content categories for analysis were determined by participants from the lead state (Washington).

Question 1: What family behaviors do you, as a supervisor, consider most important to target with these participants?

Table 4.1

Response Content Category		Supervisor	Staff
CC-1			
	Drink choice	2	1
	Fruit/vegetable consumption	1	3
	Snacking	2	

Table 4.1 (continued)

CC-3			
	Food choices	4	2
	Cooking skills	1	1
	Label reading		1
CC-4			
	Food choices	4	2
	Portion size	4	1
	Preparation technique	3	1
	Cooking skills	1	1
CC-6			
	Portion size	4	1
	Snacking	2	
	Hunger cues	2	
	Health priority	1	
CC-7			
	Physical activity	5	3
Other			
	Emotional eating	1	
	Drug use	1	
	Willingness to change		1

Content categories for targeted behaviors are as follows: behaviors related to food or beverage consumed (CC-1), nutrient consumption (CC-2), purchasing food (CC-3), handling or preparing food (CC-4), activities during meals (CC-5), perceptions related to knowledge and education about healthy/unhealthy foods (CC-6), behaviors related to being active (CC-7).

When asked about behaviors to target as a supervisor and as an educator similar answers were provided. The most common response was behaviors related purchasing food (CC-3). Other common responses were related to physical activity (CC-7) and behaviors related to food or beverages consumed (CC-1) with five agents and three front line staff members making statements related to these topics.

With family behaviors related to food or beverage consumption (CC-1) three professionals mentioned a lack of fruits and vegetables in family diets, three mentioned drink preferences and two spoke of snacking habits. “They (participating families) don’t buy vegetables and if they do they are not buying enough” is what one agent stated when

probed. Many times “few children get fresh fruits and vegetables outside of what they get at school” because parents do not purchase them at home. When mentioning beverages many times soda and other beverages high in sugar are mentioned. Another way beverage choice was mentioned was by stating that “they don’t drink enough water and milk.” When probed the response related to soda consumption. Snacking habits mentioned included eating unhealthier foods outside of meal times, instead of snacking on fruits and vegetables families were eating bags of chips.

With family behaviors related to food or beverage consumption (CC-1) three professionals mentioned a lack of fruits and vegetables in family diets, three mentioned drink preferences and two spoke of snacking habits. “They (participating families) don’t buy vegetables and if they do they are not buying enough” is what one agent stated when probed. Many times “few children get fresh fruits and vegetables outside of what they get at school” because parents do not purchase them at home. When mentioning beverages many times soda and other beverages high in sugar are mentioned. Another way beverage choice was mentioned was by stating that “they don’t drink enough water and milk.” When probed the response related to soda consumption. Snacking habits mentioned included eating unhealthier foods outside of meal times, instead of snacking on fruits and vegetables families were eating bags of chips.

Family behaviors related to purchasing food (CC-3) that were mentioned included label reading skills, a lack of cooking skills and food selection. Only one front line staff member mentioned label reading, it was felt that her participants chose less healthy choices because of the quantity of food they could buy and that they had no idea what to look for on labels. Cooking skills and food selection are two that are closely related when probing. Participants cooking skills determine what they select at the grocery store. Many times “they buy premade foods or box things” because they do not know how to prepare these items otherwise. Some parents feel they do not have the time to cook so they purchase meals from the drive through or pre-boxed. Two professionals mentioned cooking skills and four mentioned food choices during interviews.

Family behaviors related to handling or preparing food (CC-4) responses overlap with the previous category. Cooking skills, food choices, preparation techniques, and portion sizes all fall into this category. Cooking skills and food choices are targeted as

mentioned previously. Additionally, food choices are targeted because many participating families choose to "go through the drive-thru because they feel they lack time." Preparation techniques, mentioned by four professionals are targeted because educators believe it is important that these families learn cooking skills that allow them to eat the same foods healthier. Portion sizes consumed were mentioned by five agents and only one front line staff member. It was stated that "portions have become increasingly larger" and that families no longer recognize what a proper serving of food items are.

Several themes fall under perceptions related to knowledge/education of families about healthy and unhealthy foods (CC-6). Food choice, portion size, hunger cues, health priorities and emotional eating were all things educators wanted to target. When it comes to food choice and portion size, professionals feel that many families are unaware that they are making poor health choices. A front line staff member used an example of a home visit, "They were so excited to show me that they had food in the house…they pulled out cans of soda and bags of chips and cookies." Hunger cues are targeted because families "don't realize that their kids can stop eating when they are full." There are many mentions of the "clean plate club" being used with children. Emotional eating was mentioned by one agent because families "use food to make their kids happier maybe when they can't buy them the other things."

With physical activity (CC-7), eight professionals made statements related to sedentary lifestyle choices; a number of professionals mentioned the use of television, computers and video games for entertainment. Others mentioned that it was a lack of prioritization for parents because their concerns lay elsewhere. An agent mentioned the lack of infrastructure in the community and safety concerns for children playing outside alone. One front line staff member stated "they don't feel they have the means to get their kids involved [with soccer or other sports] so they sit and watch TV." An inability to see past finances is something that is brought up numerous times with other questions as well.

For this question an additional category was created for unanticipated responses. There were three responses for this question that did not fit into predetermined categories. A comment was made by one agent that targeting emotional eating behaviors was beneficial because it solved a number of other undesirable behaviors, probing this

statement resulted in responses that fit into other categories primarily food and beverages consumed. Drug use was mentioned with the response that when families decreased drug use, and recognized it in household members, money was freed for purchasing additional foods. Willingness to change was important to target because without a desire to change, participants are not receptive to education.

Question 2A: Can you tell me about a success story from your current program in helping families help their children eat healthfully?

Table 4.2A

Response Content Category		Supervisor	Staff
CC-9			
	Cooking Schools	2	2
	Samples	2	1
	Extension PA promotion program	2	
	Extension weight loss program	1	
	4H health program for girls	1	
	Extension nutrition and exercise program	1	
	Canning programs		1
	Food safety		1
CC-10			
	Increase fruit/vegetable consumption	2	4
	Cooking skills	2	2
	Adding new ingredients	1	1
	Portion size changes	2	
	Snack changes	1	
	Increased exercise	1	
	Breakfast consumption	1	

When asked this question many professionals responded with programs or activities they felt were successful with children and families (CC-9). An Extension physical activity promotion program, an Extension weight loss program, a 4H health program for girls, cooking schools, an extension nutrition and exercise program, providing samples and canning programs were all programs they associated with healthy eating. Topics mentioned in these programs were food safety, weight loss, cooking skills, and recipe modification.

Outcomes from these programs (CC-10) varied. One agent reports they "changed the snacks they (parents) brought to school." These snacks were more focused on fruits, vegetables and dairy than sugar. Two agents report families cutting back portion sizes at meals, 1 agent mentioned increasing exercise even though it was not what was targeted. Four mentioned increasing cooking skills of parents and children. Two agents and four front line staff members had increased consumption of fruits and vegetables as an outcome of a program. Adding new ingredients to foods was an outcome reported by one agent and one staff member. There was also a report of new foods being added to schools by one agent and one staff member. An outcome reported by one agent was an increase in the number of times families ate breakfast.

Probes about these success stories revealed that much of the follow up that happens with these programs and in these cases occurred during other programs or during chance meetings in the community. For example, during the Extension physical activity promotion program "parents would come up to me saying their child brought home a new recipe and taught them something different." One person sees "parents at the grocery store and they've told me they're eating more fruits and vegetables and they have more available in the house" and confirms this with what is in their grocery cart.

Question 2B: How about a success story relative to being physically active?

Table 4.2B

Content Category		Supervisor	Staff
CC-11			
	No response	3	2
	Family walking program	2	1
	Pedometer handouts	2	1
	Brochure	2	
	Extension PA promotion program	2	
	Extension PA promotion program 2	2	
	Extension PA health promotion for the elderly	1	
	4H PA promotion program		2

Similarly to part A, many responses for examples brought up programs. Unfortunately, there were three agents and two front line staff members who chose to not respond or stated they had no success in encouraging physical activity. When probed as to why they had not had success, agents mentioned the time of year that the programs for this were held. “Many times we do these programs (focusing on physical activity) in the fall and the weather is why it is not so successful.” Other agents and front line staff members made similar statements.

Several programs are considered to be successful for creating change by other agents and front line staff members. These programs include: an Extension physical activity promotion program, an Extension PA promotion program 2, an Extension physical activity health promotion for the elderly and a 4H physical activity promotion program. An Extension physical activity health promotion for the elderly “has had the most impact with grandparents who are raising their grandkids” and is more focused on activities that are safer for elderly individuals. Two agents and one front line staff member mentioned family walking programs and pedometer handouts. A 4H physical activity promotion program was mentioned by one front line staff member. An interesting success that was mentioned by two front line staff members was the printing of a brochure to highlight features of a county such as parks, playgrounds and hiking trails.

These family oriented programs are considered to be successful because “families can come in as a team” and can compete with other families in the area. Many times the participants in these programs heard about them from other families or had participated in previous programs with the Extension Office. When a front line staff member started using hula hoops schools, none of the students knew how to use a hula hoop and some were unaware of what it was. Within two years all new students who the program was used with were able to use hula hoops. Children would tell her that their older sibling or family member was who had taught them because they had learned it in the schools. The brochure that was a big success was created because “many people didn’t know what was in the area” that they could use to incorporate physical activity. After the printing of the brochures these agents noticed an increase in the use of playgrounds and parks located near the County Extension Office. These counties have not yet performed any follow up

to determine the number of people using these facilities that have been promoted aside from visuals.

Question 3A: Which program activities used with parents, do you think are most effective for healthy eating?

Table 4.3A

Content Category		Supervisor	Staff
CC-13			
	Cooking schools	7	3
	Taste testing	4	1
	Involve parents and kids	2	2
	DVD library	1	1
	Provide incentive items	1	
	Limiting sign up	1	
	Extension nutrition and exercise program		1
	Serving size		1
	Breakfast		1
	Backpack program		1

When asked about activities and programs that are effective for use with families there were a number of things that were brought up. All seven agents interviewed and three front line staff members mentioned cooking schools. Demonstrations done are interactive and participants cook the food themselves. One agent mentioned a young man who started coming on his own "when he was 11… his parents tell me that he comes home and implements what he learned… that whole family comes now." An Extension nutrition and exercise program was mentioned by a front line staff member because participants "take recipes home to families and make the food items there."

Four agents and one front line staff member mentioned taste testing as an activity. It is considered useful because people get to sample modified recipes. "One woman told me [an agent] if I hadn't had a sample of the recipe out to eat, she never would have thought it would have tasted good." A similar comment was made about participants not wanting to spend money on groceries they are not sure if they are going to like, especially when they are on limited incomes. One agent interviewed performed taste testings at the farmers market. "We are where people go to first. I think the aroma also helps."

Other activities that have worked to encourage healthy eating habits include: involving both parents and children, maintaining a DVD library, providing incentive items, limiting the number of spaces for sign up focus on serving size, focus on breakfast and use of the backpack program.

Activities where parents and children are involved are considered a success for several reasons. A major portion is that doing activities together encourages family time, another is that childcare becomes a non-issue. One person mentioned that they felt that the children are more likely to encourage parents to implement the things that they have learned together. A DVD library is mentioned by an agent because "people watch food network and men and women like food demonstrations." These items are checked out from the local office frequently and families have mentioned making a few of the items that are shown. Incentive items that are used with programs are mainly what come with SNAP grant. Programs where participants know they will get to take an item home seemed to have the best turn outs for this agent.

Limiting the number of participants for a program makes "people want to call and register because they don't want to show up and not be able to get in." The original reason for this was so that the agent could estimate how many supplies to purchase for programs; she was surprised to learn that she had more people register and that they showed up more often.

Serving size is a common focus for many programs. A front line staff member mentioned that this was the one thing she had the most success in because it was one of the few things that families could quantify in dollars saved at the grocery. A front line staff member mentioned that she had great success with focusing on breakfast and breakfast foods. Many of her participants didn't eat anything for breakfast because they felt they didn't need to or didn't have the time to eat.

The backpack program is a program for very low income families where a child is sent home with a backpack of food to get them through the weekend. The front line staff member that mentioned this added recipes for the food items sent home and children would tell her which ones they had made.

Question 3B: What about activities that are most effective for being physically active (PA)?

Table 4.3B

Content Category		Supervisor	Staff
CC-14			
	No response		3
	Extension nutrition and exercise program	4	1
	4-H health program for girls	2	
	Extension PA promotion program 2	1	1
	Gentle chair yoga	1	1
	4-H youth health promotion program		1
	PA as family time	4	1
	Pedometers		1
	Incentive items	1	
	Outdoor classes		1

Three front line staff members gave no response for this section stating that they focused more on nutrition than on physical activity.

Several programs were mentioned for activities that were successful for physical activity these included: an Extension nutrition and exercise program, 4-H health program for girls, an Extension PA promotion program 2, gentle chair yoga and 4-H youth health promotion program. An Extension nutrition and exercise program was considered to be successful because participants "try so many different kinds of physical activities and they choose what works for them." The Extension PA promotion program 2 and the 4-H health program for girls are successful because they encourage family time and "anything that encourages family time will be successful." Gentle chair yoga is good because "people who are overweight can participate without having to walk or run… [or] worry about joint pain." No elaboration was provided for the 4-H youth health promotion program.

Program activities and topics mentioned were: promoting physical activity as family time, using pedometers, and providing incentive items and holding classes outside. It was quoted previously that "anything that encourages family time will be successful."

Participants from the person providing this statement tend to work multiple jobs so that they can cover all expenses and not go into debt, so the amount of time they can spend as a family is limited. Pedometers and other incentive items provide participants and families a way to measure what they are doing or provide them with things they wouldn't have bought on their own. Balls and exercise bands are some things that were mentioned for incentives.

One barrier was mentioned during this, the built environment. One agent mentioned their county "trying to get a YMCA and get walking trails and safe places for physical activity. We are not real conducive as far as sidewalk and things." This is something that will be talked about in a later question.

Question 4: What do families *themselves* seem to recognize as behaviors that are likely to lead to overweight or obesity before enrolling in a program?

Table 4. 4

Content Category		Supervisor	Staff
CC-15			
	Will not admit issues	1	2
	Portion control	3	1
	Overeating	3	1
	Lack of exercise	2	2
	Fruits and vegetables	1	1
	Stress eating	1	2
	Lack of cooking skills	2	
	No motivation	1	
	Built environment	1	
	Cost of food		2
	Food as reward		1

There are behaviors that families associate with being overweight and obese. Two front line staff members and one agent stated that they had families who would not admit to issues. "They think they are fine just as they are and are not willing to change," according to one staff member. Portion control and overeating are the two most commonly identified issues by families to agents and educators. This is followed by a lack of exercise because families will admit that "they come home and watch TV or jump onto the computer" instead of doing something that would count as physical activity.

Some families will admit to stress eating or even using food as a reward. Many families view healthier food options as too expensive for them to afford. Front line staff feel that this is because "they don't understand how to budget" and "don't consider that if they lowered to fat or sugar [content] it would be healthier."

Question 5A: What are some of the challenges *you think* these families face in helping their children make healthy food choices?

Table 4.5A

Content Category		Supervisor	Staff
CC-16			
	Cooking habits	4	4
	Abuse of SNAP	3	1
	Knowledge of food	1	3
	Budgeting	1	1
	Time issues	2	
	Ease of food prep	1	
	Literacy		2
	Will not purchase		2
CC-17			
	Not encouraged to try new foods/cooking	2	1
	Single parent homes	2	
	Don't have cooking supplies		1
CC-19			
	Grocery store selection	7	4
	School food	1	
CC-20			
	Food industry	1	1

Barriers for making healthy food choices fall into several categories: Personal/individual (CC-16), Interpersonal/social (CC-17), Organizational/institutional (CC-18), Community (CC-19) and Societal (CC-20). As with several other questions the idea that families do not recognize a problem with food in the home is one that has arisen again. A story is provided that one family was so excited during a house visit to show they had food in their home, they just did not recognize the quality of the foods they were showing (potato chips, popcorn, cookies, TV dinners etc).

The majority of answers fall into personal and individual barriers. Cooking habits and lack of cooking skills is something that has come up quite frequently throughout the

interviews. Responses for this question in particular refer to cooking habits. It was mentioned several times that these families were once farming families are were used to cooking for farm help. These families "have moved jobs and then started to gain weight… they cook the way their parents cooked." Most foods cooked are fried and contain large amounts of butter or sugar. Ease of food preparation also falls into cooking habits. Some families choose items that are easy to prepare intentionally. Another issue is the abuse of SNAP money. There were several reports of parents feeding children minimally because SNAP money was used for other items; no further elaboration was given on how this money was used instead. Refusal to purchase food items is another barrier. "Some parents won't purchase foods whether their child likes it or not," is a statement made by one staff member when talking about barriers.

Lack of budgeting skills is an issue with some of these families as well. "Parents may spend funds on those items [video games, toys, clothes etc] and skip buying fruits and vegetables." There were many reports of families running out of money before the end of the month and improvements made with this after enrolling in EFNEP. There are supervisors and staff who have "families who don't know how to read," or "parents [who] don't do much math" which can make education more difficult. Time restraints also become a problem with families. "Many of our parents leave the area for jobs… it cuts down on the time to do other things." Many of the areas mentioned for jobs are approximately two hours away from the county in which the family lives. Front line staff report that for these families time and no cooking skills, are the primary factors in the foods they choose.

Content category 17 contains interpersonal and social barriers for families. A lack of encouragement to try new foods was mentioned by three people interviewed. This encouragement applies to children as well as parents. Some parents choose not to purchase new food items because they are unsure if they or their children will like them. Single parent homes can be an issue. This primarily relates back to time constraints. Not having help in the home can decrease the amount of time that a parent has to spend on cooking meals for the family. Some families simply do not have what is needed to cook meals. One front line staff member reports having "several families who only have one pot or pan to cook with." For these families single skillet meals are the only option.

There is one community barrier that is identified by all who were interviewed. Grocery stores are lacking in healthier options. There were three mentions of a discount grocery chain being used and the lack of quality foods available there. One agent reports using items in programs and participants returning to say they could not find that item in their grocery store (example provided: whole grain pasta). Many communities only have one grocery store and are located a half hour or more from a large chain store. School food was identified as an issue by one agent. She stated that the schools there do not set an example for students to follow, such as providing fresh fruits and vegetables.

The last barrier is a societal barrier with the food industry. The idea that children will always have poor food options marketed to them can make it difficult for parents to help them choose the correct kind of food option.

Question 5B: How about challenges with helping their children eat the right amount?

Table 4.5B

Content Category		Supervisor	Staff
CC-21			
	Knowledge related to portion size	3	3
	Clean plate "club"	2	2
	Food industry	1	1
	Meal times	2	
	Over availability of food	2	
	Modeling behaviors	2	
	Dishes used in home		2

When probing for challenges about portion sizes the common response is related to knowledge of portion size, most common comment related to application of knowledge. The comment was made that families "understand but they're not willing to follow it… especially when it comes to meat and beans." Other families "never knew what a portion size was, they just filled their plates and ate." Several other responses are related to meal time habits. Many parents tell children to eat what they take and "children have eyes bigger than their stomachs." The result is that the children have taken too much food for themselves. Many families do not have a set meal time and just snack throughout the day. Many families have an over availability of food in the household and children will just grab what they want to eat, when they would like. The last thing is that parents

do not set an example themselves when it comes to portions. There were two comments made about larger plate sizes used in the home. "It is hard to imagine once I [the educator] am gone because they have the 12 inch plates instead of the 8 inch that I use." One of the challenges brought up again is the food industry. Restaurants serve large portion sizes and "food is not purchased or sold in single servings." This is especially a problem when it comes to meats.

Question 6: What are some of the challenges *you think* these parents face in helping their children be physically active?

Table 4.6

Content Category		Supervisor	Staff
CC-22			
	Time restraints	4	3
	Computer/video games	4	2
	Financial resources		2
CC-23			
	Modeling Behavior	3	4
	Safety	2	
CC-24			
	PA in school	1	
CC-25			
	Built environment	4	2
CC-26			
	Youth culture	1	

Content categories for challenges with physical activity are: personal/individual, interpersonal/social, organizational/institutional, community and societal challenges. Personal challenges are the most commonly commented on. Many of these families have many time restraints related to work; again commuting time to work was mentioned. Many staff members and agents feel that entertainment happens to be more important than activity. These families will sit their children down to video games or computer games, instead of sending them outside. Many families don't feel they have the resources to get children involved in activities, one front line staff member stated "the best way around here for the kids to be involved in some kind of sport… money and transportation for that is generally an issue." This is something that also been brought up throughout interviews, a lack of transportation and infrastructure.

At the interpersonal level, “Parents are also sedentary” so they are not modeling the behaviors for their kids. Because parents do not walk places their children do not do so either. An interesting barrier that came up was safety; some parents do not feel that their children are safe playing outside. One agent attributed this to cars, dogs and kidnappings that are shown on the news. Some parents don’t want to let their children walk to parks due to safety issues as well. Part of this issue falls into the built environment and part of it has to do with relationships with people.

An organization that was mentioned was the school district. One agent mentioned the lack of physical activity in schools. The amount of recess time that students are given has been reduced over the years, she comments that many children do not know a lot of games and some even don’t know how to use some play ground equipment.

The only community challenge that was mentioned was the built environment. This was brought up as a challenge several times throughout interviews. Many of these communities are rural and do not have the infrastructure that a city would. Many towns and neighborhoods do not have sidewalks and some areas still have dirt and gravel roads. Because of this two agents began creating brochures for what could be utilized for physical activity and family time.

The final barrier category also only has one item in it: the youth culture. Children are more likely to be sedentary in this generation than in the past, some attribute this to technologies available. Children “don’t visit, don’t walk or ride bikes to the neighbor’s house to play outside.”

Question 7: In your experience, what are some of the ways that *parenting practices* may affect a child’s weight?

Table 4.7

Content Category		Supervisor	Staff
CC-22			
	Parents are sedentary	4	1
	Lack of encouragement to try things	2	3
	Low priority of physical activity	2	
	No structured mealtimes	1	2
	Excess unhealthy snack foods	1	1

Table 4.7 (continued)

	Pass	1	
	Lack of supervision	3	1
	Parent behaviors		1

There are several things that parents do that can affect a child's weight. There were a variety of answers and they focused on negative practices. Only one agent chose to not respond to this question. The first one identified is that parents themselves are sedentary. The parents do not wish to go outside to play with their children and also those parents that stay at home, use "TV and computers for babysitters" so their children will remain occupied. Some parents choose not to make physical activity a priority, so their children do not make it a priority either. Many parents don't encourage children to try new foods or new activities. "Parents already know their kids don't like it, even if they haven't tried it." Some parent's have behaviors that act as a barrier. Parents "will make a face even when their child likes a food, which turns the child against it," according to a front line staff member. The foods kept in the household are generally purchased by parents; one front line staff member noted that one of her families always kept chocolate cake at home. There are many families that keep an excess of unhealthy snack foods for children to pick up and eat when hungry. Some staff members report a lack of parent supervision of children, "kids will just run in and grab chips and a soda" to eat. Parents will not say anything to them even it is close to meal time. Finally a lack of structured meal times prevents children from eating healthy as well. Many of these families eat on the go or let their children eat whenever they would like.

Question 8 (supervisor): What suggestions or tips do you teach frontline staff to use with parents that encourage their children to eat healthfully?

Table 4.8A

Content Category		Supervisor
CC-28		
	Use Extension materials	3
	Taste tests	3
	Customize for family	2
	Portion size	2
	Food presentation	1
	Focus on family feelings	1

Table 4.8A (continued)

	Personal Connection	1
	Hands on demos	1
	Work through children	1
	Food guides	1

The most common advice given to front line staff from agents is to utilize materials provided from Cooperative Extension. A few agents elaborated on this to state that staff should attempt to customize things for families involved in the program as much as possible. One other agent made a comment about focusing on feelings in the family because of the effect that it can have on food choices. Making personal connections with a family was another piece of advice that was given because it means that families are more likely to listen.

Taste testing foods is also advised because "kids and parents don't believe what you're saying until they taste it or try to do it themselves." Hands on demonstrations are encouraged for the same reason. Focusing on portion sizes comes after this because this is one of the contributing factors for over eating. Food guides are used for portion sizes and for teaching the importance of portions from each food group. Teaching parents food presentation is important when it comes to children, the example provided was ants on a log. A child might not eat celery or raisins alone, but presented as ants on a log they will. Advising front line staff to work through children gives a different view point of education. "Kids encourage each other and will try things more readily this way," it was also mentioned that children will encourage parents to purchase and try new things as well.

Question 8 (staff): What suggestions or tips do you give parents to encourage their children to eat healthfully?

Table 4.8B

Content Category		Staff
CC-28		
	Try more than once	3
	Taste Test	2
	Demonstrations	2
	Limit Snacks	2
	Eat as a family	2
	Prepare food as family	1

The advice given to parents was more limited due to sample size of front line staff. Three staff members encourage the families they work with to try foods more than once with their children. They also encourage taste testing, "we tell them, take a hello bite and if you don't like it put it in the napkin and say goodbye." One thing staff emphasized was for parents to demonstrate behaviors for their children. Limiting snacks is advised to make foods seem more like a treat than a part of the regular diet. Encouraging family meal times can create a better food environment for children and encourages family time. By preparing these foods as a family and giving children simple tasks, it makes them more likely to eat the foods served at dinner.

Question 9 (supervisor): What suggestions or tips do you teach frontline staff to use with parents that encourage their children to be physically active?

Table 4.9A

Content Category		Supervisor
CC-29		
	Sedentary family life	3
	Extension programs	2
	Health benefits	2
	Parent child teams	2
	Health Education programs	1
	My pyramid for activity	1

Encouraging families to not live a sedentary lifestyle was the most common response to this question. "Being a good example and participating with [their children] in activities" is a message that many agents attempt to push. Along with this there are a number of programs that the Cooperative Extension Service has available for use with families. The health education programs are what one agent recommends in particular. Two other agents encourage their staff members to promote the health benefits of exercise that families will experience. There were several statements throughout interviews about the number of parents and children who have diabetes. This was also mentioned with this question. Two agents also encourage staff members to create parent/child teams to encourage competition to increase physical activity. Another

encourages the use of the MyActivity side of the food pyramid to show the kinds of physical activity that should be done.

Question 9 (staff): What suggestions or tips do you give parents to encourage their children to be physically active?

Table 4.9B

Content Category		Staff
CC-29		
	Do things as a family	4
	Participate in community activities	2
	Restrict sedentary time for children	1

All staff members encourage their parents to "get involved, walk with [the children], take them outside, do something with them." This encourages family time as well which some staff members feel make parents more likely to encourage physical activity, and to be active themselves. Staff members encourage families to participate in community activities. This makes families more aware of what is available in the community to do as a family that is not sedentary. One staff member encourages parents to "restrict time with TV or playing video games and the phone too" as these are all sedentary activities as well.

Question 10: For the families you and your staff work with, what are some of the differences you notice between those who are at healthy weights and those who are not?

Table 4.10

Content Category		Supervisor	Staff
	No answer	2	
CC-30			
	Physical activity	3	
	Habits	1	1
	Drug abuse	1	
	Cooking	1	
	School involvement	1	
	Food preparation techniques	1	
	Portion size		1

Table 4.10 (continued)

CC-31			
	Conscious of food eaten	5	2
	Food selection	2	1
	Depression	2	1
	Interest in health		1
CC-32			
	Government supplements	1	
	Home gardens	1	

Content categories for comparing families at healthy weights to others relate to: behavioral differences, perception based differences and situational differences between families. Two agents chose to not respond to this question. One of these agents stated "I don't know that it's more behaviors, I haven't really observed."

For behavioral differences between families at healthy weight and others the most frequent response related to physical activity. Unhealthy families will be more sedentary and "make excuses. They will claim their knees hurt, or I get out of breath." One agent and front line staff member made a generalization about healthier habits. "They eat their vegetables fresh, they grill, they do a lot of different things than families that are obese." One agent mentions food preparation and makes a mention of the amount of butter and bacon grease that unhealthy families will add to foods. Another observation is that healthy families cook more at home than others. One front line staff member picks out portion sizes of foods with comments on how unhealthy families will have large portion sizes of foods, especially with fried items.

Indirectly related to food were two behaviors. Children who come from healthier families tend to be more involved at school than those from unhealthy families. Families who were of an unhealthy weight also seemed to have more problems with drugs.

Perception based differences between families at healthy weight and others included two comments about food. The most common answer is that healthy families seem to be more conscious about the foods that they eat, there were 7 comments related to this. "They eat a variety while others are leaving out some things. They eat mostly beans and meat." Another comment was that healthier families "drink more water and juice," there was also a comment about the effort that is put into making sure children have fruit and vegetables in their diet. Food selection at the grocery was also noticed.

"Some families think the foods that they are grabbing are healthy for them," but those families that are healthier purchase more fruits and vegetables and eat less fat.

Another thing that was noticed were the rates of depression in unhealthy families, "Healthy families take care of their appearance and they just look happier" is what one agent mentioned. One front line staff member noticed that healthy families are more interested in their health. She also mentioned that "people that live more in the country are more resistant to change than the ones that live around town."

The final category relates to situational differences between families at healthy weights and other families. There were only two mentions for this category. One agent observed that families that were on government subsidies tended to be more unhealthy and obese. An agent also noticed that families that were healthier also tended to have land so they could grow a garden in the summer.

Question 11 (supervisor): For future programming, what strategies do you think would be most effective for obesity prevention with children and their families?

Table 4.11

Content Category		Supervisor
CC-33a		
	Education for portion size	1
	More incentives	1
CC-33b		
	Focus more on cooking skills	1
	Increase visuals	1
	Add budgeting and finance	1
	Focus on children	1
	Introduction of fruits and vegetables	1
CC-34		
	Parents modeling behaviors	3
	Market programs as quality family time	2
	Stages of change	1
	Infrastructure in community	1

Strategies for existing Extension programs are broken down into two subcategories: continuation of current activities and changes to current activities or implementation of new information, activities strategies and programs. The other category relates to strategies for other programs related to obesity prevention with

families. For this question there was not a large amount of consensus by agents as what should be done.

For existing programs there are some activities that should be continued. Education for portion sizes and incentives for families that participate in programs seem to work well. Activities that needed to be changed seemed to be increasing the focus on what the item was rather than removing things from programs. One agent believed that there needed to be an increase in the focus on cooking skills for participants. Another wanted the addition of more family budgeting and finance skills. Another agent wanted to introduce more fruits and vegetables to families, but noted that it would require an increase in budget to purchase these fruits and vegetables for families. Another response was to focus on educating children more than adults. The reason for this was "if we teach the children, they will know the difference, a lot of adults are set in their ways" and are hard to change.

Additional suggestions and strategies for other programs were collected as well. Three agents mentioned that programs should focus more on parents modeling behaviors (for food or physical activities) for their children. Two agents wanted to focus on marketing programs as family quality time. One agent wanted education on stages of change so that educators could make a greater impact in the community. Another agent wanted programs that focused on changing the infrastructure in communities to encourage more physical activity.

Question 12(supervisor)/ 11(staff): Based on your experience working with families, is there anything else we should know about effective ways to help low income families eat healthy, be active, and prevent obesity among children?

Table 4.12

Content Category	Supervisor	Staff
No suggestions	1	
Purchase healthier foods	3	1
Keep encouraging	2	2
Food preparation	2	1
Understand family dynamics	1	
Farmers market and gardens	1	
Build self esteem	1	
Change SNAP purchases		1

Table 4.12 (continued)

Continue home visits		1
More visuals		1
Grocery store access		1

All answers to this question related to other categories that have been previously discussed. Only one agent declined to add suggestions for this question. The most common response to preventing obesity in families was to discover ways to encourage families purchase healthier foods. Another response was to keep encouraging families, it was noted that many times families seem to quit because they have encountered their first roadblock. Education on food preparation techniques for families was brought up again. Workshops on family dynamics were suggested by one agent; similarly an agent believed that teaching members of families to build self esteem would help. Another believed that encouraging the use of farmers markets and home gardens would help to increase fruit and vegetable consumption. There was some concern by one front line staff member that home visits would no longer be done, her suggestion was to continue them because they are more effective in making changes with families. A front line staff member believed that more visuals and different kinds of visuals needed to be created for use with families. Another front line staff member believed that changes to the Supplemental Nutritional Assistance Program to make it more like the Women Infants and Children program would help with obesity prevention. Additionally, increased grocery store access would promote healthy weight families.

Chapter Five

Discussion

The purpose of this study was to examine the relationships between obesity related behaviors and nutrition education with participants in the EFNEP program. This study is the first to focus on obesity related behaviors with participants from the Appalachia region. Questions asked to educators and staff members were designed to help identify targeted behaviors, education techniques and impressions of participants. All responses were fit into the categories determined prior to interviews taking place. From the data collected, there was support for the research based suggestions influencing weight in children. The data was also able to identify obesity preventative behaviors that educators consider important to target as well as teaching methods that are considered effective. Additionally, suggestions can be made to improve upon existing programs for education of participants.

Many of the behaviors mentioned by agents and staff were targeted by programs used in Cooperative Extension. The common responses from educators and front line staff related to portion size of foods eaten, the selection of foods eaten and the lack of physical activity by participants. The portion size of foods consumed was a theme in a number of interviews. Several educators and front line staff members felt that some families knew they were eating too much of some foods but choose not to change. The selection of foods eaten included targeting the amount of fruits and vegetables consumed, targeting beverages consumed and decreasing fat and sodium in the diet. Targeting physical activity involves encouraging participants to become active in any way possible. There were a two targeted behaviors such as cooking skills and budgeting that were mentioned more frequently during later portions of interviews that are not mentioned as target behaviors by educators and staff.

There are educational techniques for behavior modification for healthy eating which educators and staff members prefer to use. Many examples provided for successes with behavior changes happened in programs that were felt to be successful. Home visits are mentioned as something that should not be done away with by front line staff. This method of education was examined in cost-benefit studies as an item that could change in order to lower the costs of education. The concern from front line staff members was that

moving away from home visits would reduce participation due to transportation issues and that participants would learn less because they would be too timid to speak up about things that they did not understand. Another useful educational technique is the use of taste testing to encourage families to modify their recipes. Educators and staff noticed that this encourages families to make foods in ways they would not have otherwise chosen. Encouraging meal and physical activity time to become family time was felt to work when encouraging cooking and physical activity. To go along with taste testing, the use of cooking classes, such as the 4-H cooking school, was something that all but one participant mentioned as very useful. The use of visuals by educators in programs was beneficial to display comparisons of participant habits and recommended guidelines, primarily in the area of portion size. Visuals utilized include plates and food models.

Several challenges that clients face for eating healthy were also identified. Time constraints for parents were identified as a challenge because food selection for these families is based on convenience and ease of preparation. The result of these selections is that children eat fast food and convenience foods that are high in fat, sodium and calories. Educators suggest that these time constraints might relate to cooking skills; some families cook foods based on ease of preparation while other families lack the cooking skills necessary to prepare healthier foods. Traditional southern cooking habits were also a barrier for healthy eating because of the high fat content, many families that participate in EFNEP are resistant to change from this traditional cooking style. Portion sizes of foods consumed is a habit that educators and staff have had success in changing but several still identify it as a challenge to healthy eating. Having children clean their plate is identified because the portion sizes are too large for children. Several interviewees mentioned that some parents do not monitor what their children eat and that clients do not eat meals as a family and will allow children to eat whatever they desire. Motivation or a desire to change eating and cooking habits is a challenge that educators and staff identified as an obstacle. Grocery store selection was a challenge identified by all but one staff member. Many stores in the interviewees' areas do not carry healthier options of foods; there are reports of counties that have only one small grocery store.

When it comes to physical activity, many educators and staff felt that they were unsuccessful in effecting change. The Extension nutrition and exercise program was a

program that was mentioned frequently for successfully changing behaviors related to physical activity. Several educators and staff mentioned pedometer use by EFNEP participants as beneficial. Brochures were mentioned by two educators as beneficial for advertising areas in the community for physical activity. Follow up for usage of these facilities is needed to see if the brochures do increase the use of facilities advertised. Several success stories that were shared by educators and staff relating to physical activity involve the entire family. A common complaint was the time of year that physical activity programs were held. Many agents and staff stated that their physical activity programs occur during the fall, a time of year when the weather is not always conducive for participation.

While several educators and staff were unable to provide successes related to physical activity they were able to identify several challenges. Motivating participants was a common challenge; educators mentioned that many participants are aware of what they should be doing but simply choose not to. Time constraints are not only a problem related to food habits but for physical activity. Educators and staff acknowledged that many parents commute to and from work and have little time or energy left for exercise. Educators and staff believe that parenting skills create a challenge. Parents do not model behaviors for their children for physical activity. Parental supervision of activities is also a problem; some parents have told educators and staff that some areas outside are not safe for children to play alone. Rather than supervise their children at outdoor activities, parents are likely to allow the use of sedentary indoor entertainment like video games and televisions. The built environment in Appalachia is common challenge for communities according to educators. Many areas lack sidewalks and parks for children to play.

There were a number of reoccurring responses from which suggestions for programs and trainings for agents and staff can be drawn. A common response to questions related to food selection, portion size and physical activity is the lack of behavior modeling for children. This topic is something that could be addressed with sessions focused on parenting skills. Budget limitations of families are consistent with all EFNEP participants. While there was a mention of abuse of SNAP money, a common concern was that families were unable to budget food money throughout the month. Several families would forgo fruits and vegetables due to cost. Increasing the

consumption of fruits and vegetables with participants is something that educators and staff feel they have been able to do. However budget constraints related to physical activity were identified as a concern for families as well. Another common complaint was community infrastructure was not conducive to physical activity. One answer to this that seems to have been successful was to create a brochure for free facilities currently available in the county, primarily parks, playgrounds and hiking trails. Grocery store selection was a common complaint as well; there were three mentions of the discount grocery chain food selection in particular. Several individuals mentioned that in order to get better grocery selections, families may have to drive about 30 minutes to get to another grocery chain. The observation was made by a participant that healthier families had land and grew gardens. Container gardening programs could address this environmental limitation. Addressing cooking skills with participants is also a common theme for interviews. Educators and staff state that many parents do not have skills to cook meals so they purchase convenience foods. Educators and staff have held cooking classes as groups and individually to change this. Many families have been observed to still cook food in the traditional southern manner which increases fat and calories in foods. Teaching families to modify how they cook foods was also addressed. The most commonly addressed topic in EFNEP is portion size of foods. This is also something that educators and staff feel that they have been successful; this is also a topic that research has shown EFNEP to be effective.

Additional suggestions to improve EFNEP were also solicited from educators and staff. An increased focus on cooking skills was identified as a need based on the interviews; it was suggested by only one educator, however. To better support efforts made by staff, the creation of a booklet of modified common recipes would be beneficial to go with more cooking schools. EFNEP's focus is predominantly nutrition; however more budgeting and family finance skills need to be taught to this population based on comments by the study participants. From interviews it can be inferred that an increase in parenting skills is a need in this population as well. To make programs relating to healthy eating and physical activity more successful, the way programs and education is presented should focus on spending time together as a family. Drug use is not something covered by EFNEP; it is something that may need to be addressed through training and

programs in counties. Concerns presented by educators and staff regarding the built environment of their counties cannot be addressed specifically by EFNEP, but it may show a need for more grant writing education for agents.

Limitations, Bias and Future Research

There are several limiting factors to note that may have affected the outcome of the study. The study population was rather small and contained more educators than front line staff members. Answers provided by each group differed and could have been biased by number of years spent working with the population. Answers provided to some questions may have been provided because these were known to be targeted behaviors from other research that had been read by the interviewee. The data collection method used in this study was qualitative. It served as a useful first look at what agents and staff feel successful with. When coding these responses human error was also a limitation. The coding of responses was done by one person only, so there is a possibility that answers may not have been included into all categories they may have fit. Categorization of responses may also have been affected by the subjective nature of responses to questions.

In future studies a focus should be placed on recruitment only of front line staff members rather than on educators or a combination. Questions for front line staff may need modification so that they are more understandable. The creation of brochures to advertise areas for physical activity is something that could be studied for its impact in use of local facilities. Examining the way programs are marketed to a population may result in an increase in participation of Cooperative Extension Programs.

Conclusion

Obesity is a challenge that is faced throughout the United States across multiple age groups and socioeconomic classes. The EFNEP program targets families who are of a lower socioeconomic class. The first step in improving programs is to identify what works. Targeting behaviors related to fruits and vegetables and portion sizes of foods works well for educators. Teaching cooking skills to the population also has an impact on the health families participating in EFNEP. Taste testing modified recipes leads to more implementation of new cooking methods in the home according to educators and staff. With physical activity, what seems to work to change these habits is to encourage it as

family time. Time constrains of parents and a lack of parenting skills seems to be the largest challenges for educators.

A few changes could be made in order to make programs more successful. More cooking programs could be developed, specifically cooking programs that are child oriented to increase their acceptance of foods. Programs that are geared to promote physical activity should occur earlier in the year when the weather is more conducive to participation. It is clear that additional training is needed in certain areas. Staff members need formal training with parenting skills and child development, especially since they are the ones most likely to be working with families. Agent participation in trainings for grant writing should be encouraged along with participation in trainings for child development.

In conclusion, answers provided by participants in this study suggest that agents and their staff feel fairly successful with making changes related to healthy eating but less successful with making changes in participant's physical activity. As childhood obesity numbers increase, new ways to promote physical activity and healthy eating patterns must be found to promote healthy adults.

Appendix A
Terms

BMI: a number calculated from a person's weight and height. BMI is a fairly reliable indicator of body fatness for most people. BMI does not measure body fat directly, but research has shown that BMI correlates to direct measures of body fat (CDC, 2010)

Empowerment model: learning theory based on participants taking responsibility for their own actions and decisions in order to improve their health status (Gehrt, 1994)

Food desert: an area with limited access to retail food stores generally serviced by fast food or convenience stores (Schaft, 2009)

Indigenous: describes individuals with the insider orientation. These individuals are similar ethnically, socio-economically, and experientially (USDA, 2009)

Nutrition Education: a broad range of activities that promote healthy eating behaviors (USDA, 2009).

Obesity: an adult who has a BMI of 30 or higher or a child with BMI at or above the 95th percentile for children of the same age and sex (CDC, 2010)

Overweight: An adult who has a BMI between 25 and 29.9 or a child with a BMI at or above the 85th percentile and lower than the 95th percentile (CDC, 2010)

Paraprofessional: a person: whose position is either instructional in nature or who delivers direct services to students and or their parents; and who serves in a position for which a teacher or another professional has ultimate responsibility for the design and implementation of individual education programs and other services (USDA, 2009).

Appendix B

Interview Guide for Frontline Staff

I would like you to think about the work that you do on obesity prevention in families with *young and elementary school age children*.

Q1. What family behaviors do *you, as an educator*, consider most important to target with these participants?

Probe: What are some of the reasons for targeting these behaviors?

[If respondent says he/she doesn't work in obesity prevention, than ask the following]: What do you do with these families that relates to healthy eating and being physically active?

Q2. Can you tell me about a success story from your current program in helping families help their children eat healthfully?

How about a success story relative to being physically active?

Q3. Which program activities used with parents, do you think are most effective for healthy eating?

What about activities that are most effective for being physically active?

Now let's think about the *families* in your programs.

Q4. What do families *themselves* seem to recognize as behaviors that are likely to lead to overweight or obesity before enrolling in a program?

Q5. What are some of the challenges *you think* these families face in helping their children make healthy food choices? *[Note: be sure to probe for all possible answers, while not leading the respondent.]*

How about challenges with helping their children eat the right amount?

As we move to the next questions, just a reminder that I am asking about your work with parents of *young and elementary school age children.*

Q6. What are some of the challenges *you think* these parents face in helping their children be physically active?

Now let's think about some broader issues with *parents.*

Q7. In your experience, what are some of the ways that *parenting practices* may affect a child's weight?

Q8. What suggestions or tips do you give parents to encourage their children to eat healthfully?

Q9. What suggestions or tips do you give parents to encourage their children to be physically active?

Q10. For the families you work with, what are some of the differences you notice between those who are at healthy weights and those who are not? *[Note: be sure to probe; e.g.: Could you give me an example of what you just said? Could you explain that further?]*

Q11. Based on your experience working with families, is there anything else we should know about effective ways to help low income families eat healthy, be active, and prevent obesity among children?

Now, I'd like to ask you a few questions about *your background*.

Q12. How many years of experience do you have as a staff member with EFNEP and/or SNAP-Ed? ____ yrs

Q13. What is the highest level of education that you completed? [circle number of respondent's answer]

1. Less than high school
2. Some high school
3. High school completed
4. Some college credits
5. Associate Degree
6. BA or BS ----------[If yes] What was your major?
   _____
7. Some graduate credits
8. Graduate degree------[If yes] What was your major?
   _____

Q14. After receiving your degree or diploma, have you taken a college course, workshop, seminar or other training (including on-line training) in any of the following areas:

Nutrition	yes	no
Physical Activity	yes	no
Child Development	yes	no
Parenting	yes	no

Q15. I'd like to know, which audiences you currently offer Nutrition Education programming to within EFNEP and/or SNAP-Ed. For the following list, please tell me *yes* you offer it or *no* you do not:

Programming for Parents/Caregivers?	yes	no
Programming for Children?	yes	no
Programming which includes both parents/caregivers and children?	yes	no

Q16. I'd like to read you a list of ethnic groups, and I'd like you to tell me yes or no if your *program participants* are in any of these ethnic groups, regardless of their ages:

1	American Indian or Alaska Native	yes	no
2	Native Hawaiian or Pacific Islander	yes	no
3	Asian or Asian American	yes	no
4	Black or African American	yes	no
5	Hispanic or Latino	yes	no
6	Non-Hispanic White or Caucasian	yes	no
7	Other, please describe:_____		

Q17. I'm going to read you the same list of ethnic groups and I'd like you to tell me which one or ones describe *you the most*: [circle number for respondent's answer]

1 American Indian or Alaska Native
2 Native Hawaiian or Pacific Islander
3 Asian or Asian American
4 Black or African American
5 Hispanic or Latino
6 Non-Hispanic White or Caucasian
7 Other, please describe: _____

Interview Guide for Supervisors

I would like you to think about the work that you do on obesity prevention with EFNEP/SNAP-Ed families with *young and elementary school age children*.

Q1. What family behaviors do *you, as a supervisor,* consider most important to target with these participants?

Probe: What are some of the reasons for targeting these behaviors?

[If respondent says he/she doesn't work in obesity prevention, than ask the following]: What do you and your staff do with these families that relates to healthy eating and being physically active?

Q2. Can you tell me about a success story from your current program in helping families help their children eat healthfully?

How about a success story relative to being physically active?

Q3. Which program activities used with parents, do you think are most effective for healthy eating?

What about activities that are most effective for being physically active?

Now let's think about the *families* in your programs.

Q4. What do families *themselves* seem to recognize as behaviors that are likely to lead to overweight or obesity before enrolling in a program?

Q5. What are some of the challenges *you think* these families face in helping their children make healthy food choices? *[Note: be sure to probe for all possible answers, while not leading the respondent. E.g.: What about other challenges? Any others?]]*

How about challenges with helping their children eat the right amount?

As we move to the next questions, just a reminder that I am asking about your work with parents of *young and elementary school age children.*

Q6. What are some of the challenges *you think* these parents face in helping their children be physically active?

Now let's think about some broader issues with *parents.*

Q7. In your experience, what are some of the ways that *parenting practices* may affect a child's weight?

Now I'd like you to think about how you mentor and support your front-line staff.

Q8. What suggestions or tips do you teach frontline staff to use with parents that encourage their children to eat healthfully?

Q9. What suggestions or tips do you teach frontline staff to use with parents that encourage their children to be physically active?

Q10. For the families you and your staff work with, what are some of the differences you notice between those who are at healthy weights and those who are not? *[Note: be sure to probe; e.g.: Could you give me an example of what you just said? Could you explain that further?]*

Q11. For future programming, what strategies do you think would be most effective for obesity prevention with children and their families?

Q12. Based on your experience working with families, is there anything else we should know about effective ways to help low income families eat healthy, be active, and prevent obesity among children?

Now, I'd like to ask you a few questions about *your background.*

Q13. How many years of experience do you have as a staff member with EFNEP and/or SNAP-Ed? ____ yrs

Q14. What is the highest level of education that you completed? [circle number of respondent's answer]

1. Less than high school
2. Some high school
3. High school completed
4. Some college credits
5. Associate Degree
6. BA or BS ----------[If yes] What was your major? _____
7. Some graduate credits
8. Graduate degree ---- [If yes] What was your major? _____

Q15. After receiving your degree or diploma, have you taken a college course, workshop, seminar or other training (including on-line training) in any of the following areas:

Nutrition	yes	no
Physical Activity	yes	no
Child Development	yes	no
Parenting	yes	no

Q16. I'd like to know which audiences you currently offer Nutrition Education programming to within EFNEP and/or SNAP-Ed. For the following list, please tell me *yes* you offer it or *no* you do not:

Programming for Parents/Caregivers?	yes	no
Programming for Children?	yes	no
Programming which includes both parents/caregivers and children?	yes	no

Q17. I'd like to read you a list of ethnic groups, and I'd like you to tell me yes or no if your *program participants* are in any of these ethnic groups, regardless of their ages:

1	American Indian or Alaska Native	yes	no
2	Native Hawaiian or Pacific Islander	yes	no
3	Asian or Asian American	yes	no
4	Black or African American	yes	no
5	Hispanic or Latino	yes	no
6	Non-Hispanic White or Caucasian	yes	no
7	Other, please describe:_____		

Q18. I'm going to read you the same list of ethnic groups and I'd like you to tell me which one or ones describe *you the most*: [circle number for respondent's answer]

1. American Indian or Alaska Native
2. Native Hawaiian or Pacific Islander
3. Asian or Asian American
4. Black or African American
5. Hispanic or Latino
6. Non-Hispanic White or Caucasian
7. Other, please describe: _____

Appendix C
Content Categories for Interviews with Frontline Staff

Question 1:

CC-1: Family behaviors related to the food or beverage consumed: Behaviors of adults and/or children targeted by the program, or that the staff states are important, that relate to *selecting and consuming certain foods, beverages or food patterns*, at home or at various places away from home, that are perceived as negative or positive for health or healthy eating. "Targeted by the program" means that the behaviors are presented in written or verbal form as part of programming activities. Please make sure to include locations of foods consumed, if available. Examples of "foods" may include fruits and vegetables, sweetened drinks, or fried foods, etc.

CC-2: Family behaviors related to nutrient consumption: Behaviors of adults and/or children targeted by the program, or that the staff states are important, that relate to *consuming certain nutrient(s) or patterns of nutrients*, at home or at various places away from home, that are perceived as negative or positive for health or healthy eating. Please make sure to include locations of nutrients consumed, if available. Examples of "nutrients" may include calcium, sodium, etc.

CC-3: Family behaviors related to purchasing food: Behaviors of food purchasers and others in the home targeted by the program, or that the staff states are important, that relate to decision-making about food purchases, point-of-purchase behaviors. Behaviors may include label reading, expenditures related to food, and managing household resources/finances

CC-4: Family behaviors related to handling or preparing food: Behaviors of adults and/or children targeted by the program, or identified by the staff, that relate to how the household's food supplies are handled from store to table. Behaviors may be related to the storage, preparation, and serving of food.

CC-5: Family behaviors related to activities during meals: Behaviors and interactions of individuals or the family targeted by the program that occur *during mealtime or snack time*, at home or away from home. Refers to behaviors *other than* food intake (CC-1,2), handling, or preparation (CC-4). Behaviors may include eating meals together, TV on while eating, etc.

CC-6: Perceptions related to knowledge/education of families about healthy/unhealthy foods: Beliefs or attitudes of parents and/or children, as identified by the staff, related to information or understanding about healthy and unhealthy foods and beverages; may include misconceptions about what is healthy/unhealthy.

CC-7: Family behaviors related to being active: Behaviors of adults and/or children separately or together related to physical activity at home or away from home.

Question 1 Probe:

CC-8: Reasons for targeting behaviors in the program: Reasons or explanations for selecting, addressing, or emphasizing target behaviors in the program related to adults and/or children, including individual, family, community, or societal reasons. Reasons may include parental lack of knowledge/education, parental role or responsibility, etc.

Question 2:

For success stories of healthy eating and physical activity, look for and save particularly outstanding exemplars of successes from the interviews.

CC-9: "A Success Story About Eating Healthfully" – Program topics: Descriptions of program topics or messages that were associated with success with children and/or parents in promoting, teaching, or encouraging healthful eating.

CC-10: "A Success Story About Eating Healthfully" – Program outcomes: Descriptions of change in attitudes, perceptions, or behaviors of adults and/or children in association with specific program activities or program stages that the staff considers to be successful impacts or outcomes, or positive indicators or trends of change related to families eating healthfully. These may include incorporation of healthy foods and/or removal of unhealthy foods, etc.

CC-11: "A Success Story About Being Physically Active" – Program topics: Descriptions of topics or messages related to physical activity that were associated with success with children and/or parents in promoting, teaching, or encouraging being physically active.

CC-12: "A Success Story About Being Physically Active" – Program outcomes: Descriptions of change in attitudes, perceptions, or behaviors of adults and/or children in association with specific program activities or program stages that the staff considers to be successful impacts or outcomes, or positive indicators or trends of change related to families being physically active. These may include an increase in physical activity and/or decrease in sedentary activity.

Question 3:

CC-13: Effective program activities for healthy eating: Descriptions of program activities such as uses of materials or curriculum, and teaching and learning activities that relate to healthful eating and that were reported as effective or successful by staff when working with adults and/or children. These may include interactive demonstrations, food preparation, etc.

CC-14: Effective program activities for being physically active: Descriptions of program activities such as uses of materials or curriculum, and teaching and learning activities, that relate to being physically active and that were reported as effective or successful by

staff when working with adults and/or children. These may include in class activities or games, etc.

Question 4:

CC-15: Behaviors families associate with overweight or obesity: What parents reportedly said to staff, supervisors, or other parents, or reported in program evaluations, about behaviors of adults and/or children that relate to being overweight or unhealthy/less healthy, becoming overweight or less healthy, or that are negative or health risk factors for the family. Behaviors can include decision-making, intakes of foods or supplements, food or meal handling or purchasing, or mealtime or snack time activities, and can relate to the parent's family or others, and common misconceptions about healthy/unhealthy foods, beverages and practices related to body weight

Question 5:

CC-16: *Personal/Individual* barriers for family members in helping their children make healthy food choices: what the staff reports as parent or adult attitudes, beliefs, perceptions, values, knowledge or skills about food and health that have a demonstrated or potential negative influence on children making healthy food choices.

CC-17: *Interpersonal/Social* barriers for families helping children make healthy food choices: what the staff identifies as familial, friendship, or other social challenges that have a demonstrated or potential negative influence on children making healthy food choices, including family and social norms.

CC-18: *Organizational/Institutional* barriers for families helping children make healthy food choices: what the staff reports as challenges at the organizational and institutional level in the lives of families that have a demonstrated or potential negative influence on children making healthy food choices. These may be related to daycare/school, work, church and other organizations/institutions.

CC-19: *Community* barriers for families helping children make healthy food choices: what the staff reports as challenges related to the neighborhood, built and natural environment, availability and access that have a demonstrated or potential negative influence on children making healthy food choices.

CC-20: *Societal* barriers for families helping children make healthy food choices: what the staff reports as challenges related to societal norms, policies at the local, state, or national level that have a demonstrated or potential negative influence on children making healthy food choices.

Question 5 Probe:

CC-21: Challenges for parents helping children eat the right amount: what the staff reports to be issues at the household, community, or societal levels with parents and/or

children in relation to parents guiding children *to eat the right amount*. Includes staff's own perceptions, what he/she reports as parent and/or child behaviors or perceptions, and staff's statements addressing eating the right amount in program curriculum or activities. These challenges may also relate to proper portion sizes for children.

Question 6:

CC-22: *Personal/Individual* challenges for family members in helping their children be physically active: what the staff reports as parent or adult attitudes, beliefs, perceptions, values, knowledge or skills about children being physically active that have a demonstrated or potential negative influence on children's physical activity or children being active together with parents.

CC-23: *Interpersonal/Social* challenges for families helping children be physically active: what the staff identifies as familial, friendship, or other social challenges for children being physically active alone or with parents, including family and social norms.

CC-24: *Organizational/ Institutional* challenges for families helping children be physically active: what the staff reports as challenges that have a demonstrated or potential negative influence on children's physical activity or children being active together with parents, related to daycare/school, work, church and other organizations/institutions.

CC-25: *Community* challenges for families helping children be physically active: what the staff reports as challenges that have a demonstrated or potential negative influence on children's physical activity or children being active together with parents, related to the neighborhood, built and natural environment, including availability and access to parks, play grounds.

CC-26: *Societal* challenges for families helping children be physically active: what the staff reports as challenges that have a demonstrated or potential negative influence on children's physical activity or children being active together with parents, related to societal norms, policies at the local, state, or national level.

Question 7:

CC-27: Ways parenting practices affect a child's weight: The staff's reported ideas about parenting practices – including parent behaviors, beliefs, or attitudes – and their links to child body weight and other weight-related outcomes such as attitudes, beliefs, or behaviors of children, short or long-term. Examples may include modeling, pressure, restriction, permissiveness and other practices related to food, feeding and physical activity.

Question 8:

CC-28: Guidance given to parents to encourage their children's healthful eating : what staff reports as education or training, advice, or other written or verbal information or support given to parents by any program staff, including philosophical or attitudinal approaches, learning activities, messaging, referrals, or communication guidelines for use with children, relating to healthful eating.

Question 9:

CC-29: Guidance given to parents to encourage their children to be physically active : what staff reports as education or training, advice, or other written or verbal instructions or support given to parents from any program staff, including philosophical or attitudinal approaches, learning activities (e.g., PA demonstrations), messaging, referrals, or communication guidelines for use with children, relating to being physically active.

Question 10:

CC-30: Behavioral differences between families at healthy weights versus others: what staff report as behaviors characteristic of or demonstrated by families at healthy weights (and/or those who are not), including adult and/or child behaviors related to diet, physical activity, or other health promotion or health seeking behaviors.

CC-31: Perception-based differences between families at healthy weights versus others: what staff report as attitudes, beliefs, or knowledge of adults and/or children that is characteristic of or demonstrated by families at healthy weights (and/or those who are not).

CC-32: Situational differences between families at healthy weights versus others: what staff report as household, community, or environmental factors that differentiate families, including resource access or availability, geographic location, public assistance, or medical factors.

Question 11:

Information obtained from this question should fall under one of the above categories.

Content Categories for Interviews with Supervisors

Question 1:

CC-1: Family behaviors related to the food or beverage consumed: Behaviors of adults and/or children targeted by the program, or that the supervisor states are important, that relate to *selecting and consuming certain foods, beverages or food patterns*, at home or at various places away from home, that are perceived as negative or positive for health or healthy eating. "Targeted by the program" means that the behaviors are presented in written or verbal form as part of programming activities. Please make sure to include locations of foods consumed, if available. Examples of "foods" may include fruits and vegetables, sweetened drinks, or fried foods, etc.

CC-2: Family behaviors related to nutrient consumption: Behaviors of adults and/or children targeted by the program, or that the supervisor states are important, that relate to *consuming certain nutrient(s) or patterns of nutrients*, at home or at various places away from home, that are perceived as negative or positive for health or healthy eating. Please make sure to include locations of nutrients consumed, if available. Examples of "nutrients" may include calcium, sodium, etc.

CC-3: Family behaviors related to purchasing food: Behaviors of food purchasers and others in the home targeted by the program, or that the supervisor states are important, that relate to decision-making about food purchases, point-of-purchase behaviors. Behaviors may include label reading, expenditures related to food, and managing household resources/finances

CC-4: Family behaviors related to handling or preparing food: Behaviors of adults and/or children targeted by the program, or identified by the supervisor, that relate to how the household's food supplies are handled from store to table. Behaviors may be related to the storage, preparation, and serving of food.

CC-5: Family behaviors related to activities during meals: Behaviors and interactions of individuals or the family targeted by the program that occur *during mealtime or snack time*, at home or away from home. Refers to behaviors *other than* food intake (CC-1,2), handling, or preparation (CC-4). Behaviors may include eating meals together, TV on while eating, etc.

CC-6: Perceptions related to knowledge/education of families about healthy/unhealthy foods: Beliefs or attitudes of parents and/or children, as identified by the supervisor, related to information or understanding about healthy and unhealthy foods and beverages; may include misconceptions about what is healthy/unhealthy.

CC-7: Family behaviors related to being active: Behaviors of adults and/or children separately or together related to physical activity at home or away from home.

Question 1 Probe:

CC-8: Reasons for targeting behaviors in the program: Reasons or explanations for selecting, addressing, or emphasizing target behaviors in the program related to adults and/or children, including individual, family, community, or societal reasons. Reasons may include parental lack of knowledge/education, parental role or responsibility, etc.

Question 2:

For success stories of healthy eating and physical activity, look for and save particularly outstanding exemplars of successes from the interviews.

CC-9: "A Success Story About Eating Healthfully" – Program topics: Descriptions of program topics or messages that were associated with success with children and/or parents in promoting, teaching, or encouraging healthful eating.

CC-10: "A Success Story About Eating Healthfully" – Program outcomes: Descriptions of what adults and/or children said or did in association with specific program activities or program stages that the supervisor considers to be successful impacts or outcomes, or positive indicators or trends of change related to families eating healthfully. These may include incorporation of healthy foods and/or removal of unhealthy foods, etc.

CC-11: "A Success Story About Being Physically Active" – Program topics: Descriptions of topics or messages related to physical activity that were associated with success with children and/or parents in promoting, teaching, or encouraging being physically active.

CC-12: "A Success Story About Being Physically Active" – Program outcomes: Descriptions of what adults and/or children said or did in association with specific program activities or program stages that the supervisor considers to be successful impacts or outcomes, or positive indicators or trends of change related to families being physically active. These may include an increase in physical activity and/or decrease in sedentary activity.

Question 3:

CC-13: Effective program activities for healthy eating: Descriptions of program activities such as uses of materials or curriculum, and teaching and learning activities, that relate to healthful eating and that were reported as effective or successful by supervisors when working with adults and/or children. These may include interactive demonstrations, food preparation, etc.

CC-14: Effective program activities for being physically active: Descriptions of program activities such as uses of materials or curriculum, and teaching and learning activities, that relate to being physically active and that were reported as effective or successful by supervisors when working with adults and/or children. These may include in class activities or games, etc.

Question 4:

CC-15: Behaviors families associate with overweight or obesity: What parents reportedly said to staff, supervisors, or other parents, or reported in program evaluations, about behaviors of adults and/or children that relate to being overweight or unhealthy/less healthy, becoming overweight or less healthy, or that are negative or health risk factors for the family. Behaviors can include decision-making, intakes of foods or supplements, food or meal handling or purchasing, or mealtime or snack time activities, and can relate to the parent's family or others, and common misconceptions about healthy/unhealthy foods, beverages and practices related to body weight

Question 5:

CC-16: *Personal/Individual* barriers for family members in helping their children make healthy food choices: what the supervisor reports as parent or adult attitudes, beliefs, perceptions, values, knowledge or skills about food and health that have a demonstrated or potential negative influence on children making healthy food choices.

CC-17: *Interpersonal/Social* barriers for families helping children make healthy food choices: what the supervisor identifies as familial, friendship, or other social challenges that have a demonstrated or potential negative influence on children making healthy food choices, including family and social norms.

CC-18: *Organizational/Institutional* barriers for families helping children make healthy food choices: what the supervisor reports as challenges at the organizational and institutional level in the lives of families that have a demonstrated or potential negative influence on children making healthy food choices. These may be related to daycare/school, work, church and other organizations/institutions.

CC-19: *Community* barriers for families helping children make healthy food choices: what the supervisor reports as challenges related to the neighborhood, built and natural environment, availability and access that have a demonstrated or potential negative influence on children making healthy food choices.

CC-20: *Societal* barriers for families helping children make healthy food choices: what the supervisor reports as challenges related to societal norms, policies at the local, state, or national level that have a demonstrated or potential negative influence on children making healthy food choices.

Question 5 Probe:

CC-21: Challenges for parents helping children eat the right amount: what the supervisor reports to be issues at the household, community, or societal levels with parents and/or children in relation to parents guiding children to eat the right amount. Includes supervisor's own perceptions, what he/she reports as parent and/or child behaviors or perceptions, and supervisor's statements addressing eating the right amount in program curriculum or activities.

Question 6:

CC-22: *Personal/Individual* challenges for family members in helping their children be physically active: what the supervisor reports as parent or adult attitudes, beliefs, perceptions, values, knowledge or skills about children being physically active that have a demonstrated or potential negative influence on children's physical activity or children being active together with parents.

CC-23: *Interpersonal/Social* challenges for families helping children be physically active: what the supervisor identifies as familial, friendship, or other social challenges for children being physically active alone or with parents, including family and social norms.

CC-24: *Organizational/ Institutional* challenges for families helping children be physically active: what the supervisor reports as challenges that have a demonstrated or potential negative influence on children's physical activity or children being active together with parents, related to daycare/school, work, church and other organizations/institutions.

CC-25: *Community* challenges for families helping children be physically active: what the supervisor reports as challenges that have a demonstrated or potential negative influence on children's physical activity or children being active together with parents, related to the neighborhood, built and natural environment, including availability and access to parks, play grounds.

CC-26: *Societal* challenges for families helping children be physically active: what the supervisor reports as challenges that have a demonstrated or potential negative influence on children's physical activity or children being active together with parents, related to societal norms, policies at the local, state, or national level.

Question 7:

CC-27: Ways parenting practices affect a child's weight: Supervisor's reported ideas about parenting practices – including parent behaviors, beliefs, or attitudes – and their links to child body weight and other weight-related outcomes such as attitudes, beliefs, or behaviors of children, short or long-term. Examples may include modeling, pressure, restriction, permissiveness and other practices related to food, feeding and physical activity.

Question 8:

CC-28: Guidance given to frontline staff for helping parents encourage children's healthful eating: what supervisor reports as training, advice, debriefings, or other written or verbal instructions or support given to frontline staff for use with parents, including philosophical or attitudinal approaches, curriculum, messaging, or communication guidelines, relating to healthful eating.

Question 9:

CC-29: Guidance given to frontline staff for helping parents encourage children to be physically active: what supervisor reports as training, advice, debriefings, or other written or verbal instructions or support given to staff for use with parents, including philosophical or attitudinal approaches, curriculum, messaging, or communication guidelines, relating to being physically active.

Question 10:

CC-30: Behavioral differences between families at healthy weights versus others: what supervisors report as behaviors characteristic of or demonstrated by families at healthy weights (and/or those who are not), including adult and/or child behaviors related to diet, physical activity, or other health promotion or health seeking behaviors.

CC-31: Perception-based differences between families at healthy weights versus others: what supervisors report as attitudes, beliefs, or knowledge of adults and/or children that is characteristic of or demonstrated by families at healthy weights (and/or those who are not).

CC-32: Situational differences between families at healthy weights versus others: what supervisors report as household, community, or environmental factors that differentiate families, including resource access or availability, geographic location, public assistance, or medical factors.

Question 11:

CC-33: Strategies for existing Extension programs in support of obesity prevention with children and families: supervisor's ideas or plans for program changes, or program implementation or promotion, that support adults' and/or children's attitudes and behaviors toward healthy eating, being physically active, being healthy, or living healthfully.

a. Continuation of current activities, strategies, programs.
b. Changes to current, or implementation of new information, activities, strategies, programs.

CC-34: Strategies for other programs in support of obesity prevention with children and families: supervisor's ideas for changes in approach, promotion, or implementation of other programs outside Extension, or community or societal level changes or strategies, that support adults' and/or children's attitudes and behaviors toward healthy eating, being physically active, being healthy, or living healthfully.

Question 12:

Information obtained from this question should fall under one of the above categories.

Appendix D

Recruitment Script for Final Individual Interview: *Email Contact*

Dear [ ]:

I'd like to invite you to be interviewed in a one-time phone call to help us understand how to support young families with eating better, staying physically active, and preventing obesity. We are a national research group that is conducting this study in numerous states, and we are asking you to participate as an experienced educator from WA State who knows families and who has delivered nutrition education programs to families with a focus on these behaviors. Our plan is to develop a national grant application for testing new programs for families that support healthy eating, physical activity, and obesity prevention. We would appreciate your help!

I'm asking if you are willing to schedule a one-time telephone interview of 30 to 60 minutes where I'll ask you questions about what has been your educational focus with families related to healthy eating and physical activity, and what has been your experience as a result. We also ask additional questions for background information, like your education and training. You do not have to answer any question that you do not wish to answer, and you can stop the call at any time. As a thank you, I'll send you a thank you letter copied to your supervisor and a certificate of appreciation.

Your participation and your information will not be used in any way to affect your position or workplace, or the services that your clients receive.

If you are interested in participating, we thank you very much!
Please indicate below dates and times in the next two weeks so that we can schedule your 30 to 60 minute interview:

Phone number: _____

Thank you for your time.

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