

6-2011

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Graduate Research Projects. Paper 46.
<http://knowledge.e.southern.edu/gradnursing/46>

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A Teaching Project for the Participants of the Benton Boys & Girls Club to Optimize Nutritional
Health

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June 26, 2011

Masters' Thesis

A Paper Presented to Meet Partial Requirements

For NRS 527

Southern Adventist University

School of Nursing

Abstract

The prevalence of childhood obesity has reached epidemic proportions in the United States. The long-term health problems and co-morbidities that are associated with obesity and increased Body Mass Index (BMI) are numerous and well documented. Recommendations from Healthy People 2020, a government program designed to provide a comprehensive set of disease prevention and health promotion objectives for the nation (U.S. Department of Health and Human Services, 2010) include “Nutrition and Weight Status” as one of the focus areas. Healthy People 2020 also have a list of Leading Health Indicators which will be used to measure the health of the Nation over the next 10 years. One of the Leading Health Indicators is “Nutrition and Weight Status”. The objective of the teaching plan for the Benton Boys & Girls club is to provide information and education regarding healthy food choices. With an increased knowledge of healthy food choices versus unhealthy food choices, the children attending the Benton Boys & Girls Club will be better equipped to make healthier food choices and decrease their chances of being obese.

A Teaching Project for the Participants of the Benton Boys & Girls Club to Optimize Nutritional Health

The problem of childhood obesity in the United States is increasing. Over the past 30 years the prevalence of overweight children has tripled. Nearly 17.1 % of U.S. children are overweight or obese (Centers for Disease Control and Prevention [CDC], 2007b). Healthy People 2020 provide national health objectives to identify the most significant preventable threats to health and to establish goals to increase quality of life and years of healthy life (U.S Department of Health and Human Services [USDHHS], 2010). Nutrition and obesity is one of the 42 leading health concerns. Many comorbid diseases are a result from obesity complications. One of the objectives of Healthy People 2020 is to decrease the proportion of children and adolescents who are overweight or obese to five percent.

Obesity in children is generally defined as a BMI of greater than or equal to 30 kilograms per meter (kg/m; USDHHS, 2001). The over consumption of saturated fats, cholesterol, sugar, and salt have been linked to the four leading causes of death: coronary heart disease, some types of cancer, stroke, and type II diabetes (Pender, Murdaugh, & Parsons, 2002). The prevalence of high BMI among children and teens in the United States ranges from approximately 10 % for infants and toddlers, to approximately 18 % for adolescents and teenagers (Ogden, Carroll, Curtin, Lamb, & Flegel, 2010). Large portion sizes for food and beverages, eating meals away from home, frequent snacking on energy-dense foods and consuming beverages with added sugar are often hypothesized as contributing to excess energy intake of children and teens (CDC, 2007a). Healthy People 2020 (USDHHS 2010) states that through education and example of healthier dietary habits, the trend can be reversed and childhood obesity will decline. Poor eating habits are often learned in childhood and are carried over into adulthood. Improving

eating patterns involves changing attitudes, changing knowledge, and changing the food consumption environment (Pender et al., 2002).

Obesity in childhood substantially increases the risk of being an obese adult, and adults who were obese during childhood have higher risk of developing hypertension, dyslipidemia, metabolic syndrome, diabetes, and coronary heart disease than those who were not obese during childhood (Whitaker, Wright, Pepe, Siedel, & Dietz, 1997). Obesity and overweight also contribute substantially to healthcare spending. Over nine percent of total medical United States expenditure (\$117 billion) is used on direct and indirect costs from obesity-related spending (Finkelstein, Fiebelkorn, & Wang, 2003). Tennessee is twelfth in the nation for obesity-related medical cost at \$1.8 billion a year (Finkelstein, Fiebelkorn, & Wang, 2004).

Healthcare providers are concerned about the increase in childhood obesity because it is well known to be associated with medical and psychological health related conditions. Some of the complications associated with obesity are hyperlipidemia, hypertension, type II diabetes, insulin resistance, sleep apnea, gallbladder disease, asthma, depression, and gastric reflux disease. By educating children about the benefits of a healthy diet early in life, many obesity-related diseases can be decreased later in life. Decreasing the prevalence of chronic diseases such as diabetes type II (DM2), and hypertension would decrease medical spending dramatically. Years of good health can be increased, with a decrease in years of disability.

The USDHHS (2010) released the Surgeon General's Call to Action to Prevent and Decrease Overweight and Obesity that gives suggestions to families, worksites, individuals, communities, government, the media, and schools to work together to build solutions to prevent overweight by discussing topics such as healthy dietary habits. The National Association of Pediatric Nurse Practitioners (2006) has developed the Healthy Eating and Activity Together

(HEAT) Clinical Practice Guidelines and Resource Kit. The American Academy of Pediatrics (2003) has endorsed the policy statement of the American Heart Association on dietary recommendations for children and adolescents (American Heart Association et al., 2006). The American Academy of Pediatrics (2001) has also recommended that television watching be curtailed during mealtimes as a tool to combat obesity. The USDHHS (2010) released the Surgeon General's Call to Action to Prevent and Decrease Overweight and Obesity that gives suggestions to families, worksites, individuals, communities, government, the media, and schools to work together to build solutions to prevent overweight by discussing topics such as healthy dietary habits. The National Association of Pediatric Nurse Practitioners (2006) has developed the Healthy Eating and Activity Together (HEAT) Clinical Practice Guidelines and Resource Kit. The American Academy of Pediatrics (2003) has endorsed the policy statement of the American Heart Association on dietary recommendations for children and adolescents (American Heart Association et al., 2006). The American Academy of Pediatrics (2001) has also recommended that television watching be curtailed during mealtimes as a tool to combat obesity.

The purpose of this project is to provide school-aged children (eight to twelve years of age) nutritional education in an effort to reduce both childhood and adult obesity and its associated problems. One goal of the project is to educate the participants in the number and size of servings per day of fruits and vegetables recommended by the United States Recommended Daily Allowances (USRDA). The second goal of the project is to educate the participants on the consequences of obesity and the related health concerns. With an increased knowledge of healthy food choices versus unhealthy food choices, children will be better equipped to make healthier food choices and decrease their chances of obesity. Having healthy citizens begins with educating the youth in ways to improve their diet, increase their consumption of healthy

foods and decrease their intake of high fat, high sodium, high sugar, or low nutritional value foods.

Introduction of Literature Review

This literature review will report the epidemiology of childhood obesity and discuss recommendations from respected professional, private, and federal organizations Betty Neuman's systems model and how it can be applied to this project will be included as well as the making of good food choices through recognition of healthy foods.

Epidemiology

The most recent statistics generated from the National Health and Nutrition Examination Survey (NHANES) of overweight and obesity in children in the United States are from 2007-2008. Childhood obesity has more than tripled in the past 30 years. The prevalence of obesity among children aged six to eleven years increased from 6.5 % in 1980 to 19.6 % in 2008. The prevalence of obesity among adolescents aged 12 to 19 years increased from five percent to 18.1 % (Ogden et al., 2010). By including children with a BMI at or greater than the 85th percentile, the prevalence of at risk or overweight and overweight children rises to 31 % (Ebbeling & Ludwig, 2008).

Obesity in childhood substantially increases the risk of being an obese adult, and adults who were obese during childhood have higher risk of developing hypertension, dyslipidemia, metabolic syndrome, diabetes, and coronary heart disease than those who were not obese during childhood (Whitaker, Wright, Pepe, Siedel, & Dietz, 1997). Obesity and overweight also contribute substantially to healthcare spending. Over nine percent of total medical United States expenditure (\$117 billion) is used on direct and indirect costs from obesity-related spending

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Literature Review

In the early 1980's the slow but steady increase in children's BMI was gaining attention from healthcare providers and children's health officials. Health reports continued to show a trend toward obesity (Ogden et al., 2010). Guidelines for healthy eating programs were published in many different journals and governmental postings. In an attempt to increase healthy eating habits and reverse the trends of childhood obesity, Weiss & Kien (1987) published nutrition guidelines for a comprehensive school health program. There are seven aspects of the program which have recommendations to improve a school nutrition plan to encourage healthy eating. The aspects are: school policy on nutrition; a sequential, coordinated curriculum; appropriate instructions for students; integration of school food service and nutrition education; staff training; family and community involvement; and, program evaluation. The guidelines were developed by the CDC through meetings with experts in nutrition education, national, federal, and voluntary organizations. The report was based on a synthesis of research on nutrition education at the elementary school level. The guidelines were intended as a resource tool for schools and also for communities trying to improve the health of the children and citizens. Recommendations included increasing fruit and vegetable consumption and decreasing high fat, high sodium, and high sugar consumption. Also included was education regarding obesity-related diseases. However, clearly the recommendations have had no effect on the rising tide of obesity. Health care providers continue to seek effective guidelines, recommendations, and health policies designed to impact the growing trend of obesity.

The Joanna Briggs Institute (2008) published *Effective Dietary Interventions for Overweight and Obese Children*. The interventions consisted of a dietary intervention such as portion control, plus another treatment component such as behavioral therapy. The study participants took part in obesity clinical units, community programs, schools, or camps. Serving sizes were emphasized and participants were given choices in a food group with the appropriate serving for the foods. For example, one serving of the fruits group is one medium-sized apple, eight strawberries, 20 grapes, one half cup of fruit juice, or four dried apricots. Portions appropriate for the meat, fish, poultry, and alternatives group are two small eggs, one third cup of cooked dried beans, one third cup of peanuts or almonds, or a half cup of cubed chicken. Portion control is emphasized and foods are measured. In the studies with a follow up of at least one year, the mean reduction in BMI was -2.6 , $P < 0.01$.

Shariff et al., (2008) conducted a pilot study that found a nutrition education intervention improved nutritional knowledge and practices of primary school children. Nutrition topics included the food pyramid, food choices, snacks, and breakfast. Nutrition concepts were taught through the use of hands-on activities, video presentations, and use of school bulletin boards for nutritional posters. Significant increases in the post intervention mean scores for knowledge, attitude, and practice were seen in the intervention group compared to the control group (see Table 1). The increased knowledge, attitudes, and eating practices support the importance of educating children on nutrition to promote healthy dietary choices and behaviors.

Table 1

Correlations Between Changes in Nutrition Knowledge, Attitude, and Practice

Factors	Intervention (n=168)	Comparison (n=167)	Total (n=335)
	------(r)-----		
			Knowledge
Attitude	0.19**	0.07	0.20**
Practice	0.20**	0.10	0.21**

**p<0.01

In a school food program named “PhunkyFoods” developed by Jennie Crockett’s company, nutrition education is taught in a classroom setting (Teeman, Reed, & Bielby, 2008). The PhunkyFoods program sends enrollees a resource box containing educational materials and everything they need to run the program at their schools. Ms. Crockett claims that the PhunkyFoods program meets the nutritional education needs in schools. The learning experiences include basic food competencies for children, diet and health, consumer awareness, cooking, and food safety. The PhunkyFoods program was evaluated in November 2007 by the National Foundation for Educational Research to study the effect on students, parents, and educators. The qualitative research consisted of detailed focus groups with 18 newly subscribed schools. Teeman et al. (2008), found that the PhunkyFoods program was popular with the school staff, parents/caregivers, and students. The PhunkyFoods program had lesson plans and

resources that were viewed as well-designed, fit for purpose, and easy to use, and fit well into schools' existing health-related activities. Evaluation of the program also found that PhunkyFoods enhanced other health teachings such as the 5-A-Day campaign to promote the eating of five fruits and vegetables a day. Teeman et al., 2008, found that the teaching program helped “expand, embed, and enhance health-related teaching”. The PhunkyFoods program has many benefits to school aged children in helping to decrease childhood obesity by supporting key targets from government policies, offering an evidence-based program, targets childhood obesity without the use of medical resources and funds, and supports schools in meeting guidelines and recommendations.

Rossiter, Glanville, Taylor, and Blum (2007), researched the food practices and nutritional knowledge of prospective teachers to assess for knowledge application of these topics in the classroom. Most of the prospective teachers responded that they had a high fat intake and had mid-to-low levels of nutrition knowledge. Over 90 % responded that they thought good school nutrition was a priority, yet they also responded that they have unhealthy food choices in their classrooms. Knowledge, food behaviors, and attitudes among prospective teachers may be barriers to promoting healthy food choices to future students. More education is needed for the teachers so that they will be able to more effectively teach nutrition to children.

Fornieris et al. (2010) studied positive behaviors related to healthy eating in which high school students would teach 6th grade students these positive behaviors. In preparation for this study high school students attended a course on how to instruct the sixth grade students. This randomized controlled trial took place in rural settings and included 31 schools, (23 in Virginia and eight in New York). The experimental educational project was received at 12 of the schools, with the other 11 schools serving as the control. Teaching took place once a week for the trial

period of 12 weeks. Sixth graders ($n=2120$ baseline) from all schools were surveyed at four time points: preintervention (T1), post intervention (T2), one year follow up (T3), and two year follow up (T4). Six primary outcomes were measured; self-efficacy to eat healthy food, perceived taste of low fat foods, fat and fiber knowledge, fat intake, fiber intake, and fruit and vegetable intake. Of the students in the 6th grade, males reported less confidence in their ability to make healthy choices, and that the taste of low fat foods was worse than females, and that African Americans had less confidence in their ability to eat healthier than Caucasians. Forneris et al. (2010) found significant change patterns over time ($p < .05$) across the four assessment points in the predicted direction for healthy eating-related efficacy and fat and fiber knowledge. The pattern for retention of knowledge was typical for a longitudinal behavioral study suggesting that the changes fade after two years. The intervention group had a return to preintervention levels of self-efficacy (T1) at the two year follow up point (T4) (See table 2).

Table 2. Descriptive Statistics for Self-Efficacy, Perceived Taste, Knowledge, and Dietary Intake*

Variable	Inter (T1)		Cont (T1)		Inter (T2)		Cont (T2)		Inter (T3)		Cont (T3)		Inter (T4)		Cont (T4)	
	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
Self-efficacy	6.64	0.06	6.70	0.09	7.06 [†]	0.06	6.87 [†]	0.06	6.84 [†]	0.07	6.70 [†]	0.08	6.85	0.07	6.75	0.09
Low fat tastes good	6.82	0.07	7.03	0.08	7.22	0.08	7.33	0.08	6.97	0.07	7.12	0.08	6.97	0.08	7.02	0.08
Knowledge	7.88	0.11	8.21	0.12	8.81 [†]	0.12	8.57 [†]	0.13	9.67 [†]	0.13	9.35 [†]	0.14	9.57	0.15	10.15	0.17
Food frequency																
Fat	4.03	0.02	4.05	0.02	4.01	0.02	4.04	0.03	3.85	0.03	3.86	0.03	3.84	0.03	3.86	0.04
Fiber	2.41	0.02	2.45	0.02	2.39	0.02	2.44	0.02	2.28	0.02	2.30	0.02	2.26	0.02	2.29	0.03
Fruit and vegetable	1.32	0.02	1.33	0.02	1.30	0.02	1.32	0.02	1.23	0.02	1.21	0.02	1.20	0.02	1.22	0.03

* Log-transformed food frequency score—range = 1-7 (never to 3 or more times a day); attitude response range = 1-8 (strongly disagree to strongly agree); fat-related and fiber-related knowledge score range = 0-7 (number correct). Total fat and fiber knowledge score range = 0-14 (addition of fat and fiber-related scores). M = mean; SE = standard error. T1 = preintervention; T2 = 3-month postintervention; T3 = 1-year follow-up; T4 = 2-year follow-up.
[†] Indicates significant differences between intervention and control at that specific time point.

Khan et al., (2009) published 24 recommended strategies to help prevent obesity in the United States in an effort to help communities decrease obesity. The report was guided by expert opinion and included a systematic review of the published scientific literature. The 24 recommended strategies are grouped under six headings:

- To promote the availability of affordable healthy food and beverages.
- To support healthy food and beverage choices.
- To increase breastfeeding.
- To encourage physical activity or limit sedentary activity among children and youth.
- To create safe communities that support physical activity.
- To encourage communities to organize for change.

The recommended strategies presented were developed as a result of a systematic process grounded in available evidence for each strategy, expert opinion, and detailed documentation of the project process and decision making rationale. To identify strategies for obesity prevention the team searched PubMed for reviews and meta-analyses published during January 1, 2005 to July 3, 2007. The team completed a full review of 94 articles and seven seminal documents. The document review yielded 791 potential obesity prevention strategies. Similar and overlapping strategies were combined to have a final total of 179 environmental or policy-level strategies for the prevention of obesity.

Khan et al.'s (2009) systematic review recommended that the sale of high fat, high sodium, and high sugar foods in schools and in government buildings should be prohibited. Vending machines and cafeteria foods should be screened for nutritional content to decrease the amount of unhealthy foods for sale. Portions should be limited for any entrée, by either

decreasing the size of portions, or by offering the reduced portion sizes along with standard portion sizes. Another recommendation was that child care facilities should be banned from serving sugar-sweetened beverages and should limit the amount of 100 percent juice drinks given to children. For students to be able to make healthy food choices, healthier, lower-fat foods need to be made available to them.

French, Story, Fulkerson, & Hannan (2004) conducted a two year randomized controlled trial of a school-based environmental intervention that increased the availability of low-fat foods in school cafeterias. Results indicated that sales of low-fat foods increased among adolescents exposed to the low-fat choices the first year (10 % increase in intervention group, versus 2.8% in the control group, $p = .002$), and a higher percentage increase in sales of low-fat foods the second year (33.6 % intervention group versus 22.1 % in the control group, $p = .04$).

Cole, Waldrop, D'Auria, and Garner (2006), conducted an integrated research review to identify effective strategies for school-based overweight interventions. The social cognitive theory was the stated or implied theory in eight of the 10 studies conducted. Healthy dietary habits have been identified as modifiable variables that influence school age children with overweight and at-risk for overweight. One intervention included lunches that were graded by peers after being examined for content of fat, salt, sugar, nutritional value, and overall health benefits. Healthy food choices education included specific lessons including increasing vegetable and fruit intake, and decreasing consumption of high fat foods. Cole, Waldrop, D'Auria, and Garner (2006) found that the demonstration of healthy food choice behaviors and the opportunity to rehearse the behaviors improve overweight in school aged children. Children need to have the opportunity to rehearse, organize, and recall new behaviors to have a lasting impact.

Edmunds, Waters, and Elliott (2001), explored many databases for evidence of intervention programs that effectively prevent and treat overweight and obesity in school aged children. They found that obesity prevention programs have a promising effect and need to be reinforced. “Inculcating healthy eating habits is better than restricting diet (Edmunds, Waters, & Elliott, 2001, p. 9.)” to decrease overweight and obesity in school aged children.

Collins, Warren, Neve, McCoy, & Stokes (2007), performed a systematic review in an effort to identify the best available evidence on the optimal dietetic treatment for children and adolescents who are overweight or obese. One finding of the review was that dietary modification is a key factor in the successful treatment of obesity and overweight, but other factors such as acquiring behavioral modification skills, including portion control, are also important and integral in decreasing obesity and overweight.

Summary

With education, community change, and example, today’s youth can gain more information, and improved eating habits and attitudes about food (see Forneris et al. [2010]; French et al. [2004]; Khan et al. [2009]; and Teeman et al. [2008]). Children can be taught healthy food choices, whether in a community-based program, through the schools, or with a combination of both. Knowledge and application of knowledge in a comprehensive nutrition teaching plan is one way of equipping today’s adolescents with the tools that they will need to make healthy food choices for the rest of their lives.

Theoretical Framework

Nursing Theory

The Neuman's system model, a conceptual framework for nursing, works well with healthcare by taking a wellness-oriented approach, and involving clients in their own healthcare with prevention as intervention (Neuman 1995). The Neuman's system is considered a predominantly wellness-oriented and wholistically focused model. The model helps clients build lines of resistance to disease and other stressors. The model is used to treat acute problems using secondary prevention. At this level, the caregiver prioritizes the client's needs and carries out actions aimed at stabilizing the system by conserving client energy or purposefully manipulating stressors or reactions to stressors. Education regarding options of good food choices during snack times and while dining out enhances the clients' ability to make good food choices and eliminates stressors during those times. Tertiary level interventions include increasing motivation, modifying maladaptive behavior, and reeducation. Identifying stressors, building lines of resistance and protection, and teaching the client how to respond to those stressors will increase optimum wellness and stability (Knight, 1990). By using Neuman's systems model of Prevention as Intervention, the nurse's role will complement and enhance other health efforts to reduce the number of children with increased BMI through better food choices.

Another theory used is Pender's health promotion model (Pender et al. 2006). Pender's theory can be used to describe any health behavior that is not motivated by a threat. The health behavior for this program is diet modification and the target audience is children not facing an immediate threat. The motivation is health promotion and disease prevention.

The health promotion model (HPM) is comprised of eight variables that determine the outcome of a health behavior. The first is individual characteristics and experiences. This variable describes individual experiences that affect subsequent actions. One example of this variable is: past changes did not help me, so this one will not either. The second variable is prior

behavior. This variable is supported by research that indicates the best predictor of behavior is the frequency of the same or similar behavior in the past. An example of this is a child stating that they have eaten biscuits and gravy every morning all of their life and they are not fat. The third variable is personal factors. This variable characterizes personal factors such as biologic, psychosocial, and sociocultural. This variable takes into account age, BMI, aerobic capacity, strength, agility, and balance. An example of this is not to expect all participants to lose weight at the same rate due to differing metabolisms, age, and fitness level. The fourth variable is behavior-specific cognitions and affect. This variable is considered to have major motivational significance because it constitutes a critical core for intervention. The fifth variable is perceived benefits of action. In the HPM perceived benefits are proposed to directly motivate behavior through determining the extent of commitment to a plan of action. Beliefs in benefits have generally been shown to be a necessary condition to engage in a specific health behavior. The sixth variable is perceived barriers to action. Anticipated barriers have been found to affect intentions to employ a particular behavior. The barriers may be real or imagined. They consist of perceptions concerning the unavailability, inconvenience, expense, difficulty, or time-consuming nature of a particular action. Overcoming the real or perceived barriers is essential to achieving and maintaining a behavioral change. The seventh variable is perceived self-efficacy. This variable is the judgment of a persons' ability to organize and carry out a particular course of action. Perceptions of skill and competence in a particular area motivate individuals to engage in those behaviors in which they excel. The eighth variable is activity-related effect. This variable is the subjective feelings associated with the behavior. When these variables are altered, the next step in the model is a commitment to a plan of action, or a behavioral change. The goal of this

model is the health behaviors that are desired and for these teachings plan that is the ability of the participants to have the knowledge to make healthy food choices.

Chapter 3

Design

Nutrition education for children can be successful in a variety of settings including schools, after school programs, and churches. Good food choices is a behavior that can be taught, and with proper reinforcement from government and school leaders, change in food choices to more healthier choices can begin to decrease the nationwide epidemic of childhood obesity.

The design of the project is a nutrition teaching plan that takes place at the after school program named Benton Boys & Girls Club. Three different topics related to increasing healthy food choices were presented. The teaching incorporates Erickson's stages of development for age-appropriate material. Healthy foods were used to demonstrate principles of the teachings. Portion control, fat content, and consequences of an unhealthy diet were explored.

The sample used for the teaching plan is children aged eight to fourteen that attend the Benton Boys & Girls Club. The setting is at the Benton Boys & Girls Club in Polk County, Tennessee. Polk County is a rural, economically disadvantaged community in southeast Tennessee. The majority of land in Polk County is owned by the federal government in the form of the Cherokee National Forest. National Forests pay no property taxes to the community in which they lie. As a result of this, Polk County has a very limited tax base from which to

provide goods and services to the citizens. Tax money is scarce for schools and educational programs.

The Polk County Department of Education (Polk County Department of Education, n.d.) is using the Tennessee Coordinated School Health Program (Tennessee Department of Education, 2010) which has many links to educational and informational websites and databases regarding topics such as drug abuse prevention, increasing physical activity levels, healthy eating, bullying prevention, and dental health. According to the Tennessee Coordinated School Health (TCSH) website (Tennessee Department of Education, 2010), TCSH is a coordinated and comprehensive approach to health. The Polk County Schools website has links to the body mass index/blood pressure report for 2008-2009, links to the TCSH toolkit, links to government websites, and links to obesity websites. Polk County schools also celebrates health week held every fall in which topics as exercise, nutrition, hand washing, and personal hygiene are concentrated on. According to the Tennessee Coordinated School Health Program (Tennessee Department of Education, 2010), 43 % of all Tennessee students are at risk for overweight or overweight (obese). The school system follows the nutritional guidelines mandated by the state and incorporates healthier food choices available to students.

The fit of the findings are appropriate to the setting of the Benton Boys & Girls Clubs in that the teaching plan takes place in a population struggling with overweight and obesity issues. Much teaching is needed in the community to decrease the rate of overweight and obese citizens. The sample of children in the Benton Boys & Girls Club is a representative sample of children in the United States. The characteristics of the sample are similar to the population in general for that age group in the United States. Limitations of the teaching plan are not being able to control

the number of children participating and the time limit. A longer, more comprehensive educational plan would be of benefit.

Chapter 4

Teaching Plan

The target population for this study is the children aged eight to 12 enrolled in the Benton Boys & Girls Club in Benton, Tennessee. Benton, Tennessee is a town in a rural county with Appalachian roots in southeast Tennessee. The county is mostly lower income families with little ethnic diversity. Then majority of the students enrolled in Polk County schools are on reduced price or free meal tickets. A teaching project at the Benton Boys & Girls Club was chosen for the site of this project due to its' proximity to the author's home, the availability of participants aged eight to 12 and that the percentage of obese children in Polk County, TN is representative of the nation's. A program that is successful and has "buy-in" has to be started at the local level for it to be readily accepted by the community.

In keeping with goals for Healthy People 2020, a teaching program for the children of the Benton Boys & Girls Club was presented to educate the students in making healthy food choices. The teaching plan helps clients build lines of resistance to overweight and obesity by education regarding healthy food choices and good dietary habits. The lesson plan incorporates the USRDA for each food type. Nutrition topics included the food pyramid, food choices, snacks, and breakfast. Nutrition concepts were taught through the use of hands-on activities, video presentations, and use of school bulletin boards for nutritional posters. Alternative options and suggestions will be given for high fat, high sodium, or high sugar foods. The focal point of the

teaching was interactive and “hands on” allowing the children to have a more concrete understanding of the concepts. Bowls, plates and measuring devices were used to enable the children to see, feel, and have a better understanding of portion control and of what a serving size is. Posters and handouts were used for children to color, mark on, and observe. The participants intermittently worked as teams to help each other learn the dietary information and to reinforce to each other the things that they have learned and how to put the learning to immediate use.

The lesson plan involves 3 teaching points. Teaching point one is educating the participants on what a correct portion size is. Teaching point 2 is to educate the participants in correctly identifying which foods are healthy and nutritious versus fatty, high sugar, high salt, or of no nutritional value. Teaching point 3 is to educate the participants on the consequences of obesity.

Teaching point one: how much is a portion? The objective of teaching point one is: The children will be able to correctly describe and measure a portion size. In order to achieve the objective of teaching point one, the children visualized what four kinds of different foods look like when it is portioned into different measurements. Grapes, cooked noodles, baby carrots, and cereal were used to assist in visualization. There are four stations, each with the goals of teaching of what a portion is. Measuring cups were used to measure a one cup portion, one-half cup portions, one-third cup portions, and one-fourth cup portions. The children were able to use the measuring cups to simulate what a balanced meal should look like by plating the foods. By seeing, touching, and smelling the different foods, the children got a chance to play with their

food by making an appropriate balanced meal. The use of everyday foods showed the children that eating healthy is easy, once they know what a correct portion size is.

Posters displayed during the teaching plan include a healthy choices comparison chart, a SuperFoods for a Super You poster, and a food pyramid printout from Mypyramid.gov. Discussion included the food pyramid and what “serving size” means on food labels. The children were able to relate what a serving size is after playing with the different sized measuring devices.

Teaching point two: fats or fabulous? The objective for teaching point two is for the children to be able to correctly identify different foods as high fat, high sodium, high sugar, good food, or of no nutritional value. In order for the children to be able to make healthy food choices, they need to be able to recognize which foods are healthy and which foods are not.

Using poster boards with “High Fat,” “High Salt,” “Good Food,” “High Sugar” or “No Nutritional Value” written on them, the children rated pictures of foods. The pictures are of french fries, carrots, birthday cake, fried fish, grilled fish, hot dogs, candy bars, and other food choices. After the picture of the food is shown, the children raised the poster board that best described the food. There will be more than one poster board that will apply to each picture. For example, a picture of a hot dog will elicit a raising of the “High Fat” poster board along with the “High Salt” board and the “No Nutritional Value” poster board.

After working with pictures of unhealthy foods, the children gave examples of foods for others to rate. Along with rating the unhealthy foods the children were given examples of healthy alternatives. After the first hour, the children were able to give their own examples of

healthy alternatives. Some of the healthy alternatives are fruits, nuts, vegetables, and low-fat substitutes such as salsa instead of guacamole. Utilizing the healthy eating posters, the children were able to identify healthy foods from unhealthy foods.

Teaching point three: The consequences of obesity. The objective of teaching point three is: The children will be able to list two possible consequences of obesity. Lists of what unhealthy people have to do including taking medications, frequent provider visits, shopping at special stores that have their clothing size, wearing oxygen, and using wheelchairs were made. Also listed are psychological factors such as depression, not enjoying basic activities because they have no energy, and not being able to catch their breath.

The children listed things they can do if they eat a healthy diet. For example, riding a bike, going on hikes, riding horses, having foot races, and rafting the Ocoee River are things that healthy people can do. The children then come up with their own lists of what fun activities can be enjoyed by eating a healthy diet and maintaining a healthy weight.

The obesity comorbid diseases discussed are heart disease, Type II diabetes, hypertension, cancer, and stroke. Group discussion will be “What is diabetes?,” “What is hypertension?,” “What is heart disease?,” and “What is cancer?”. Along with the “What is...?” was information regarding the ways to avoid the illnesses. Healthy eating was reviewed for portion sizes and food choices. “Superfoods” such as blueberries, strawberries, and almonds were discussed as a beneficial part of any healthy diet.

Conclusion

The obesity rate in the United States is at epidemic proportions. Decreasing the BMI of every child in the U.S. to less than 30 is a goal for Healthy People 2020. Communities, schools, healthcare providers, parents, and teachers need to understand the importance of teaching healthy eating to America's youth. Healthy habits that are started in childhood carry over into adulthood. Schools alone cannot stem the growing problem of obesity; it takes concerned citizens and parents to help fight the problem. Children learn by example and it is up to the adults in this country to set a good example by having healthy eating habits.

Follow up evaluations annually would be beneficial to track efficacy of nutrition teaching. Yearly BMI monitoring would be helpful in determining the efficacy of the interventions and need for further reinforcement of nutritional teaching. Dietary change is needed in the United States to prevent overweight and obesity from becoming a bigger problem. Starting with school-age children, education and the reduction of the American BMI must become a national priority. The primary goal for weight loss is the permanent change in eating patterns to maintain a lifelong reduction in BMI and therefore the reduction in obesity-related diseases.

Responsibility and accountability for this problem must be assumed by a variety of disciplines. Initiating and continuation of BMI reducing programs are needed from schools, healthcare providers, communities, government, and from parent involvement in order to make progressive and sustained progress. With concern, dedication, and commitment from all parties involved, the rising trend of childhood obesity will be reversed leading to healthier children, a healthier population and a healthier nation. America's youth is increasingly obese and through

education and example healthcare providers, parents, teachers and community leaders can stem the rising tide of childhood obesity.

Teaching children healthy eating habits is the key to decreasing obesity rates. With a declining obesity rate, other obesity-related diseases such as heart disease and hypertension will also decline. Healthier eating habits are one of the tools that children can use to stay well and obesity-free. Children need to understand the difference between what healthy food is and what high fat, high sugar, and high sodium food is. By teaching good nutrition choices, children will be able to identify healthy food choices and healthy portions.

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Appendix A