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Development of an Educational Program to Obtain and Maintain Healthy Weights Among 4th and 5th Grade Students

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This is to certify that the doctoral study by

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has been found to be complete and satisfactory in all respects,
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Walden University
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Abstract

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by

Stephanie D Black

MS, University of Phoenix, 2008

BS, Southwest Baptist University, 2006

Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

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Abstract

Obesity is prevalent in schoolchildren and increases risk of chronic diseases throughout the lifespan. Education in elementary schools targeting the topics of nutritional choices and prevention of obesity, particularly in 4^{th}-5^{th} grade population, is one strategy researchers have identified as effective. This quality improvement project designed an educational toolkit to provide students educational knowledge and assist them to develop and explore how to incorporate healthy habits and choices into their daily lives. The purpose of this project was to develop an educational program for use in a southwestern elementary school to improve and/or maintain the weights of 4th and 5^{th} grade students. The educational tool kit was developed for the school to implement to fill a gap their curriculum identified by school board members and educators. Orem's self-care deficit theory informed the development of this program, the educational toolkit, and all associated supplementary materials. An interdisciplinary project team of community and institutional stakeholders led by the Doctor of Nursing Practice student worked together to review peer-reviewed evidence, consider contextual challenges, and develop a curriculum suitable for the population. Plans for program implementation and evaluation were also developed to provide the school with a turnkey solution to the problem of child obesity. This initiative has great potential to promote positive social change.

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Dedication

This project is dedicated to my four young children. My hope is for a future where people of all ages, especially growing children, to have access to nutritional education and resources that will empower them to make healthy choices for their bodies. I also dedicate this project to school and public health nurses and those working to education our nation's elementary students.

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Section 1: Overview of the Evidence-Based Project

Introduction

In this project, I developed a toolkit for a family-focused nutritional education program in the elementary school setting. This toolkit will meet a need for students and families who currently lack health and nutritional education in the curriculum. The need for nutritional education is evident in current research that has shown children who are exposed to sedentary lifestyles and poor nutrition are more likely to become obese and have a higher risk of developing other diseases such as heart disease and type II diabetes mellitus. This same research shows the importance of parental education simultaneous to student education for optimal outcomes (Sothern, 2004).

My study site was a small and local charter school located in a town outside of Houston, TX. This school had 450 students in grades K-9th during the 2017-2018 school year. The population of study was fourth and fifth grade students in the age range of 9 to 11 year olds. The need for this type of educational information was established at the study site's school board meeting when board members were discussing curriculum for elementary students related to nutritional information. Attention was brought to the district's lack of prevention education related to obesity and sedentary lifestyles.

The Centers for Disease Control (CDC, 2014) have indicated that up to 70% of U.S. youth do not meet the recommendations for daily quantities of fruits, vegetables, and whole grains (2–3 ounces)**,** while they exceed the recommended maximum daily intake of sodium (1,500–2,300 mg each day). They also note that calories from sugars and solid fats make up 40% of daily calories for children and adolescents aged 2–18

years. According to Ogden, Carroll, Ki't, & Flegal (2014) and the National Center for Health Statistics (2011), childhood obesity has more than doubled in children in the past 30 years. The percentage of children aged 6–11 years in the United States who had reached an obese weight increased from 7% in 1980 to nearly 18% in 2012, with more than one third of children classified as overweight or obese.

The CDC (2014) notes that schools can play a significant role in promoting good nutrition for children by establishing a safe and supportive environment with policies and practices that support healthy behaviors. Schools, as learning environments, can provide a culture that promotes learning and practice of healthy nutrition and physical activity. Unfortunately, nutritional-education is lacking in the current curriculum provided by the elementary school (K-5th grade). Health and nutrition concepts that do exist in the curriculum are combined in the physical education courses, which focus heavily on physical activity.

In this project, I investigated peer-reviewed literature relative to nutritional and lifestyle education presented to fourth and fifth grade students on nutrition knowledge and food selection. Content and methods for this project were derived from public access products that were based on current and past research related to effective learning methods and teaching techniques for students in this age and population. Other important resources I used included community and government programs or initiatives. These resources can build off of one another in efforts to offer a well-balanced and effective program allowing participating students and families to reap maximum benefits.

The tool kit I developed carries positive social change implications such as the increased knowledge of students and families within the school related to healthy food choices. A desired ripple effect for a greater social change related to healthy food consumption and ultimately healthier children and adults can begin with this project. Schools can fit this tool kit into their current health education or in place of missing components in their educational curricula.

Background

Nutritional education is lacking in the elementary school's current curriculum. Health and nutrition that does exist in the curriculum is combined in the physical education courses and is heavily focused on physical activity only. This project provides nutritional and lifestyle education on nutrition knowledge and food selection for presentation to fourth and fifth grade students on.

The kids' food pyramid and the MyPlate pyramid are tools that allow students to use a picture for what foods they should select and how those food choices impact their bodies. According to Painter (2002) the improvements made to the traditional food pyramid, now MyPlate, is beneficial for children and now focuses more on portion control as well as healthier food choices needed to eat a balanced diet.

Problem Statement

The problem I addressed in this project is the lack of nutritional education provided in the curriculum at the elementary school. The project site has identified this as a problem, having found higher than average weights among its fourth and fifth grade students. The project site has also identified the need for this education because it does

not have a school nurse on staff. Not having a school nurse within the school system increases the need for supplemental educational tools to provide the needed information related to healthy eating and food choices. The project site has expressed the need for a nutritional education curriculum to assist in the promotion of students' healthy meal choices and with assisting families with this information for home use.

Purpose Statement

The purpose of this project was to provide a developed nutrition educational tool kit for fourth and fifth grade students. The tool kit focuses on educational materials that assist students in making healthy nutritional choices in effort to assist in the prevention of childhood obesity in the student population. I developed the educational materials in the tool kit so that it can be used in future school years.

Question, Goals, and Outcomes

The organizing question of this project was: If students are provided with educational knowledge and allowed to develop and explore how to incorporate healthy habits and choices into their daily lives, will they potentially have healthier bodies and lifestyles growing up? This project was driven by the need for educational materials available to the students at this particular school, which were lacking as a result of many factors including budget and curriculum development.

The short term goal of this quality improvement project was to create a tool kit to provide to the school administrators and teachers to increase their ability to provide healthy food-related education. In the long term, this could have effects of healthier

students that could be measured in many ways such as weights, academic performance, and overall student satisfaction with their health. My immediate objective for this DNP project was to develop an evidence-based nutrition education program. The tool kit includes an implementation and evaluation plan for the school to use following the completion of this DNP project. I did not collect data other than that provided by research or objectively measure outcomes, but the evaluation plan includes prescriptive suggestions for using data to measure outcomes for the purpose of evaluating the intermediate and long-term efficacy of the program.

Theoretical Bases for the Project

Orem's (McEwen, M., & Wills. E., 2011) self-care deficit nursing theory served as the primary theoretical foundation for this project. Orem developed this by drawing on the different roles she fulfilled in nursing including but not limited to private duty nurse, staff nurse in the hospital setting, and nurse educator in different roles. The *supportive/education system*, which in her theory is interlocked with the *wholly compensatory system* and the *partially compensatory system*, aided me in the development of the products for this project (see McEwen, M., & Wills. E., 2011). Orem theory is related to Parson's structure of social action and Bertalanffy's system theory. Both of these theories can be used to assess the need for nutritional education that is currently missing in the curriculum of the chosen elementary school. I pulled key components from these theories to develop and structure the tool kit and materials (see McEwen, M., & Wills. E., 2011). I also used the plan-do-study-act (PDSA) Model as a secondary model focusing on evidence-based practice. The PDSA model relates to testing

change. In this model the change is directed at a desired effect related to knowledge shared through learning and provided educational materials.

Nature of the Project

For this project, I developed an educational tool kit to provide to the educational system and school with which I partnered. The tool kit was developed based on needs that I identified in the school, which aligned with needs that I identified in evidence-based. The tool kit includes a complete educational program, any necessary materials needed to operationalize the program, an implementation plan, and an evaluation plan. A team of institutional stakeholders were used to inform development of this toolkit.

The rates of childhood obesity have been a topic of interest and concern in American schools for many years now. Researchers have completed many studies regarding behaviors in the younger generations related to nutritional habits, nutritional knowledge, physical fitness, and family structure (Boles, Johnson-Shelton, & Moreno, 2013). The CDC has summarized much of this research on its website under Adolescent and School Health, indicating that childhood nutrition and the incidence of obesity in children are influenced by many entities including families, communities, schools, child care settings, health care providers, faith-based institutions, government agencies, the media, and the food, beverage, and entertainment industries. The CDC has noted that schools play a critical role in supporting nutritional and physical fitness in school children (CDC, 2014). The American Diabetes Association (ADA**,** 2012) has likewise indicated that the health and well-being of our nation's youth does not occur by chance.

Rather**,** it requires a well-designed, community- and family-supported and maintained program within the nation's schools.

Statistics from the CDC (2014) show that childhood obesity has more than doubled in the last 30 years. Since this program will be tested and implemented in the state of Texas, it is relevant to note statistics from the ADA (2012) indicating that Texas is considered the fifth highest state for obesity in children in the United States, with a rate of 36.6% of children falling into the obese child category. Regarding adults, Texas is considered the 19th most obese state, with a rate of 29.2% of adults living in the state falling into the obese category (ADA, 2012). In addition to these statistics**,** the state of Texas has a reported physical inactivity rate of 27.2%, as reported in the same ADA study (Alliance, 2012). This alarming rate is growing, and indicates the need for nutritional education paired with physical education in the school system. It is clear from these statistics that families, although cited as an influence on children's nutritional and physical health status, are not successfully managing their own nutrition and physical fitness (Alliance, 2012). As noted by the CDC, schools can become a strong factor in the campaign to enhance the quality of nutrition and fitness of U.S. children.

This project was a developmental quality improvement initiative for which I buildt a curricular solution to a chronic health problem. By providing a local school the tools necessary to educate children and communities about healthy choices related to nutrition, fitness, and weight, and by providing all materials necessary to operationalize that curriculum, unhealthy weight may be addressed early to promote long-term health benefits for individuals, communities, and society.

Evidence-Based Significance of the Project

Close to 90% of children in the United States are born healthy (ADA, 2012), but many children to not stay healthy for long. The United States comes in 21st out of all industrialized countries in overall child health and safety. Recent studies have shown that close to 80% of high school students do not eat the recommended serving portions of fruits and vegetables a day (ADA, 2012). These statistics are alarming and a call for the nation to become actively involved in preventative and corrective education and care related to health in all areas, especially related to nutrition (ADA, 2012).

Researchers have shown that obesity is a concern noted in practice and surveys of communities and schools across the nation. Obesity is more than being overweight; it results from too much fat on the body. When the body is off balance by consuming too many calories while not exercising enough, there is an imbalance in energy. Diet and exercise can become imbalanced by unhealthy habits, and this can ultimately lead to obesity. When a person becomes obese, their risk for many chronic diseases and co-morbidities increases as well. These diseases can range from type 2 diabetes, high blood pressure, heart disease, many cancers, and various others. These conditions caused by obesity do not come without health consequences. Health issues that can arise include a range of things from disabilities to premature death related to complications. Mental health is also often affected when obesity becomes an issue. Many people who suffer from obesity also suffer from depression and lowered self-esteem, increasing the likelihood that they fall into unhealthy eating patterns or eating disorders in an attempt to lose weight quickly. Often, weight loss efforts are ineffective and unhealthy, and if not

successful, can actually add additional weight to the individual. (Feeding Minds, 2012). If children are overweight, obesity in adulthood is likely to be more sever, increasing the likelihood of any of the above-mentioned consequences.

Many national and international initiatives and studies have been developed to address the problem. In 2008, the Robert Wood Johnson Foundation (RWJF) and the Institute of Medicine (IOM) launched a 2-year initiative to respond to the need to assess and transform the nursing profession (IOM, 2010). A portion of that initiative placed a large focus on not only the education of nurses, but also the education they are providing to the public in both inpatient and community settings. Nurses with higher educational backgrounds can directly supply the expertise and connections needed to address the gap in nutritional education for the school system under discussion.

The Affordable Care Act (ACA) puts a strong focus on nutritional education for the community with an emphasis on youth. The ACA calls for more education and training for healthcare professionals, which includes nursing professionals. This call is to equip these healthcare professionals so that they are able to deliver valuable information into the schools, communities, and other health care areas where there is noted gap in public education and understanding related to nutritional health (DiMaria-Chalili, 2014).

Definitions of Terms

I used the following definitions to guide this project during the developmental stage.

Educational Toolkit: The toolkit to be developed, including educational program, any required additional resources, implementation plan, and evaluation plan.

Health Nutrition: "The World Health Organization defines nutrition as: an adequate, well balanced diet combined with regular physical activity- is a cornerstone of good health" (WHO, 2013). This project is focuses on the nutritional side of this definition.

Health Education: For purposes of this project, health education is to be defined as the education that students in the perspective grades are receiving related to nutritional education, food choices and the effects of different types of food choices on the human body related to growth and development.

Curriculum: Within the proposed project the term curriculum will refer to the academic content that is provided within the school system students are a part of. Curriculum is delivered through a series of lessons, activities and provided skills.

Assumptions

Assumptions are statements taken for granted or considered true, even though they have not been scientifically tested (Grove, Burns, & Gray, 2013). This project included a few assumptions. Identifying assumptions was necessary when I was focusing the literature review to aid in toolkit development. I assumed:

1. Elementary students do want to learn what is best for them and their bodies and they desire to be healthy and feel good.
2. Fourth and fifth graders (ages 9-11 year olds) already have a base knowledge of foods and how to categorize them into healthy and not healthy choices.
3. This program of education will build on the basic principles of health knowledge that they already possess.

Scope and Delimitations

In this project, I focused developing an educational tool kit for 4th and 5th grade students at one elementary school near Houston, Texas. The final product—a fully developed toolkit—will be staying with the single school for it to use and distribute. Intermediate and long term success of the program may, in the future, inform other health education programs on a wider scale. However this health promotion effort is delimited to the scope of a single school in order to best represent the contextual needs of that individual school.

Limitations

Limitations are theoretical and methodological restrictions or weaknesses in a work of scholarship (Grove, Burns, & Gray, 2013). The current project includes several limitations:

1. The curriculum developed in this quality improvement (QI) project is focused on the developmental level of only fourth- and fifth-grade students.
2. The curriculum was designed for one individual institution.
    a) While the educational program is derived from peer-reviewed literature, it has also been contextualized to the need of the individual school. Therefore the primary product of this project will likely need adjustment before being adapted to different contexts or different institutions.
    b) The implementation plan in this QI project is not generalizable to another location or elementary school because of its individualized

curriculum plans. Plans to use the toolkit at other schools may require significant modification.

I noted no biases with regard to the limitations of this project. Limitations are based on the limited scope of the project. I did not seek to create generalizable knowledge or curricula, but rather sought to offer a solution to a chronic health problem within a defined context.

Significance

In the United States today, chronic disease is the leading cause of morbidity and mortality (Collis et al; 2009). This alarming fact relates many of these diseases back to improper nutrition and lack of proper physical exercise. The CDC reports that although work on the developmental origins of chronic disease is cutting edge, we have known for years that behaviors established during childhood are critical for lifelong health, including nutritional habits and choices. Many chronic diseases are established much earlier than previously thought. For example, the CDC found that obese children aged 5 to 8 years already have an average of two or more cardiovascular disease markers, such as high blood pressure or high cholesterol (Collis et al; 2009). In addition to early disease processes, obesity predisposes children to the most severe forms of obesity in adulthood; nearly 40% of obese children become morbidly obese as adults (Collis et al; 2009). Many schools, including the one for this project, do not have the budget to pay a school nurse on staff. This is leaving students with a gap in nutritional and health education (ADA, 2012). In the traditional role, school nurses provide general education to students related

to age group and topic, and to students and families with specific needs as they are referred to them.

In 2006, the United States spent near $7,000 per person in activities such as marketing nutritional programs and providing health care education that could improve the health of individuals (ADA, 2012). This expense was far more than any other country in the world allocated to the health care of individual citizens. Statistically, only 18% of adults in the United States follow the most basic recommendations for preventing obesity and cardiovascular disease: not smoking, exercising regularly, and maintaining a healthy weight (ADA, 2012).

Why is childhood obesity and inactivity a concern now? Researchers have shown that there is no single reason why this is a pressing concern for the nation's children. Children and adolescents who are obese are likely to become obese adults and be at higher risk for many more co-morbid conditions and diseases. These diseases include cardiovascular disease, heart attack, type-2 diabetes, many types of cancers, and osteoarthritis. In addition to these diseases, several cancers have been linked to obesity and the increased risk from obesity that began in childhood and continued into adulthood. These types of cancer include cancer of the breast, colon, endometrium, esophagus, kidney, pancreas, gall bladder, thyroid, ovary, cervix, and prostate, as well as multiple myeloma and Hodgkin's lymphoma (CDC, 2013).

There are several factors influencing the rise in childhood obesity, including: television and media, marketing of unhealthy foods, limited access to healthy affordable foods, lack of daily physical activity, increased portion size, and higher consumption of

sugary beverages including soda and juices (Alliance, 2012). According to the WHO, school-based nutritional programs are essential and need to begin early on in educational curriculum. Nutritional education is vague at best, while often combined with physical educational classes and lacking in information. Prevention of unhealthy behaviors and the forming of unhealthy habits is key to establishing a more likely and positive outcome for the students (WHO2, 2013). The CDC (2013) has warned of many health effects related to poor nutrition and obesity. Immediate health effects for obese youth include increased level of risk factors for cardiovascular disease related to high blood pressure and higher cholesterol levels. Obese youth and adolescents are at higher risk for developing pre-diabetes, and then at an even higher risk for developing diabetes. Children and adolescents who are obese are at greater risk for bone and joint problems, sleep apnea, and social and psychological problems such as stigmatization and poor self-esteem.

Indeed, these social implications should not be underestimated. Brownell has found overweight people are 26 times more likely to report discrimination than their normal-weight counterparts. Brownell (as reported in Neighmond, 2010) has noted that overweight kids are far more likely to report being teased. Puhl's study found that chronically overweight people were more likely to be single, on welfare, and unemployed. They were also statistically not as likely to pursue a degree past a high school diploma and more likely to suffer from depression. Change in the environment is a key to changing the situation for these individuals and it begins in childhood (Neighmond, 2010). As Brownwell noted, "Overweight children feel inferior and they

tend not to aspire to such heights because they don't believe they deserve it" (quoted in Neighmond, 2010, p. 162.

Summary

Researchers have shown the negative impact on the future of individual and public health when school-aged children do not have effective nutrition education or the skills needed to make healthy food choices when given options. Providing a research-based nutritional education program for a sample group of school-aged children in the practicum site will give statistical data needed to identify the direction to take in a larger project in the future geared toward developing educational materials aimed at healthy lifestyle habits for the future generation. In Section 2, I review literature showing support for the relevance of the educational toolkit that I developed.

Section 2: Review of the Scholarly Literature

Introduction

I conducted a literature review to explore relationships between the lack of educational material and student knowledge related to health and nutrition, and the prevalence of obesity among fourth and fifth grade students. The scholarly literature available today abundantly shows the need for more focused education and hands-on learning in the areas of nutrition, healthy lifestyle choices, and the prevention of childhood obesity. I reviewed literature that, in aggregate, showed the need for the educational tools like the toolkit I developed for this project study.

There are many programs for children related to nutritional and healthy lifestyle education and support. Some of these programs are privately funded, some are research-based, and others are government or state funded. *Let's Move* is one specific program funded by the United States government. The catchy slogan for the program is, "America's move to raise a healthier generation of kids." Many programs are supported within this organizational group.

The specific nutrition program that falls into the Let's Move group is the National School Lunch Program (NSLP). More than 31 million children currently participate in this program, and over 11 million of those students participate in a breakfast program offered by the school (NSLP, 2010). When serving lunch, schools must meet certain requirements set in the Dietary Guidelines for Americans. These guidelines outline calorie counts that must be maintained, and balancing out the full nutritional amount for the meal including protein, iron, calcium, and vitamins. These guidelines ensure that the

students receiving meals prepared by the schools are receiving a balanced meal with minimum calorie levels and one-third of the recommended dietary allowances for protein, vitamin A, vitamin C, iron, and calcium (NSLP, 2010).

Schools are reimbursed for participating in the program and meeting all requirements for each meal served specific to the NSLP and SBP. Schools are reimbursed based on the number of students participating in the free and reduced lunch programs and how many meals they serve in these programs. Eligibility for the free and reduced lunch programs are based on family income. Children from lower-income families are eligible for free meals when their income falls at or below 130% below the federal poverty level. Families who have incomes up to 185% of the federal poverty level are eligible to sign their children up for reduced meals in the program (Let's Move, 2011). This means schools sitting in a lower-income area with families who are signing their children up to participate in the program will receive more benefits than schools with fewer qualifying students (Let's Move, 2011).

Additional meal service programs include: The Summer Food Service Program (SFSP) and Team Nutrition. The SFSP sets out to meet the need of so many children who use the valuable resources during the school year and then are often in need during the summer months. In 2011, summer meals were reported to have assisted more than 2.1 million children by providing healthy meals and encouraging active programs to stay healthy over summer break (Let's Move, 2011).

The USDA Food and Nutrition Service supports the child nutrition programs by providing resources to families that fall into the above listed low-income category. These

resources include nutritional education that is available to families and children in the program. They also offer support and training to the school system that services the students and families falling into the low-income category (Let's Move, 2011).

Literature Search Strategy

In the literature review search, I initially focused on nutritional education and the need for education given the evidence of a lack of appropriate nutritional education for children. Topics expanded into branches of undesired effects related to this lack of nutritional education. Question defined as noted in Section One of the project.

I began the search using academic databases that I accessed via Walden University Library. These included PubMed, Google Scholar, and Medline through OVID. Review of over 1,000 abstracts of articles that were related to the search question and topics surrounding nutritional education, health education and food choices, nutritional education related to children and adverse effects of lack of available nutritional education within elementary school curricula. In what follows, I synthesize findings and identify themes from my review of the literature.

Learning Readiness of 9- to 11-Year-Olds

Most of the time, children come to school ready and expecting to learn. However, this is not the case for all children. The school system is expected to provide children information when they are capable of processing the information. Some are not at the same point and ready to learn because of many issues. Poor nutrition can lead to poor learning conditions and concentration levels for many children.

Children transition easily into the next instructional grade or level when the school environment acknowledges their diverse backgrounds and provides community supports when necessary. This is particularly true for the elementary-aged student. Promotion of learning occurs when provisions to allow the school to follow school's readiness to educate young children, as well as support each child's readiness (AAP, 1995).

Parent involvement is a critical component in educating children about nutrition. Educating parents about the nutritional curriculum and activities their child will be participating in provides a bridge between home and school, giving families the opportunity to be involved in their student's learning. This also provides education to the parents that they may not have had prior knowledge of (California Alliance for Elementary Education, 1996). Parental involvement encourages higher participation throughout all aspects of the child's life, including their nutritional education and health. Parents show higher levels of participation and involvement when they are treated as partners in the process. Educators who strive to involve parents throughout the process while sharing knowledge as a team member find higher levels of success in communicating with and educating their students (California Alliance for Elementary Education, 1996). The sharing of educational materials between home and school is an important piece of the puzzle in enhancing public health.

Food can directly affect the way a child learns, feels, and thinks. After all, a child is more likely to be alert and ready to learn after eating a protein-packed salad versus devouring a deep-fried chicken patty served with fries. Nutrition has long been identified

as a critical component to learning and development at any age; allowing children to skip breakfast and eat fat-laden lunches and snacks after school can greatly impact the way they think, learn, and process information. Students often do influence their parents/caregivers on what types of foods to buy and pack into their school lunches. The lunches are a meal that the children have 5 days a week. If these meals were substituted with healthier choices, students would be at an advantage in the short and long term (Brozak & Media, 2013).

Children are likely to influence their families with what they are learning in the school setting. By striving to make learning a fun and interactive experience, educators can increase the likelihood of students being engaged, which will positively impact families' interest as well. This may also promote larger-scale positive social change.

Evidence of Childhood Obesity

Researchers have conducted many studies showing that childhood obesity and the issue of improper nutritional education is contributing to the mass numbers of obese adults who are presenting and suffering from multiple co-morbidities (ADA, 2012). One such study by Strauss (2000) showed a significant relationship between obesity and changes in self-esteem during early adolescence. Other factors of contribution were related to decreased levels of physical activity, increased levels of depression, and poorer home environments. These things may all contribute to lower self-esteem levels in obese adolescents (Strauss, 2000).

The School Nutrition Association (2013) reported on a Bridge to Wellness program that includes teachers in the process of educating students on healthy nutritional

habits. Bridge to Wellness sets out to work with teachers to deliver nutrition education lessons that connect the cafeteria and the classroom for students in grades 5-10. Nutrition background resources and communication tools are provided to help teachers and school nutrition professionals' work better together. Lessons also provide cafeteria connections to engage students in applying nutrition education concepts at school (School Nutrition Association, 2013).

Recently, there have been many programs developed in an effort to meet the needs of students who do not have resources to access food outside of the school system. One good example of these types of programs is Child Nutrition Services, which strives to:

1. Provide leadership for the Child Nutrition meal programs through advocacy, assistance, and administration.
2. Administer the Child Nutrition programs by assisting program sponsors and managing the program resources for the benefit of recipients.
3. Advocate for good nutrition by incorporating nutrition education in all phases of services.
4. Provide nutrition and physical activity resources for educators, students and parents (K12, 2012).

A study in 2007 showed the comparison between structured physical activity and the increase of weight loss in obese children. Though this study did not focus solely on nutrition, it does provide some incredible statistics related to the rates of childhood obesity related to different variables such as cultural background. The researchers found

Mexican-American children to be at an increased risk for childhood obesity related not only to lack of physical activity, but also related directly to dietary options and foods consumed at home (Fullerton et al., 2007).

In 2001 a study focusing on dietary intake related to the side effects it had on children being obese or becoming overweight. In this study thirty couples (pairs) of obese parents and non-obese adolescents 6 to 11 years of age were selected and completed participation in the study. The desired goal for the study was to conclude the effect of comprehensive, parent-focused behavioral intervention. Radom selection of participants were conducted and the focus on the nutritional information and program provided to them was for one group to increase fruits and vegetables in their routine diet while another group ~~to~~ decreased food high in fat and sugar content. In the end, results showed that the group focusing on increasing the fruits and vegetables in their daily intake had a significantly lower BMI in comparison to the group focused on decreasing fat and sugar content in their diets. This sample size was not large and was a simple study. It did show that a change in dietary intake can decrease the BMI of an individual (adult or child) as well as prevent the greater risk for obesity (Epstein et al., 2001). Research as recent as 2012 shows us the epidemic of childhood obesity in North America still exists and is also been seen in other countries. Worldwide there are estimated to be over 22 million children considered to be overweight under the age of 5 years old. In the United States the number of current overweight children and teens has doubled in the last three decades and does not show signs of significantly slowing down.

The awareness of medical conditions that are associated with childhood obesity continue to be a threat to these age groups. These conditions can include elevated blood pressure, dyslipidemia, insulin resistance and type 2 diabetes as well as increased risk of morbidity and mortality. Obesity in children at a young age puts that child at a higher risk for being obese in their adult life as well.

With epidemic levels of childhood obesity being reached in the United States and many other areas worldwide the effects are being seen in children at younger ages as well as into adulthood. Children who are obese are more likely to be overweight and even obese in their adult years. Impacts have shown to be significant on health in all areas including psychological and physical (AAP, 2014).

Causes of Obesity

In searching for a studies related to childhood obesity and the root causes for this disease and increasingly common occurrence among children many areas found. Some research will point to the possibility of genetics and studies on basal metabolic rates which have shown to hold some possibility of cause for obesity in a number of children who were reviewed (Gupta, 2009). A large majority of research points to many similar factors that are controllable and can be related to lack of knowledge and resources. These areas include; increase in sugary beverages, snack foods with little nutritional value, inappropriate portion sizes, decreased physical activity level, environmental factors, socio-culture factors, and family factors which can be related to things younger children may not have in their realm of control. An example of family factors could include

children not having control as to what is being served for meals at home or what is purchased at the grocery store (CDC, 2010).

The literature also points to areas of psychological factors that are potentially impacting the prevalence of childhood obesity. Often psychological factors were found with the comparison of obese children related to children of the same age who fell into normal weight categories. Some of the psychological factors include; depression and anxiety, self-esteem, body dissatisfaction, eating disorder symptoms, and emotional problems (Kapil, 2014).

A study published in *Obesity Research* found that there may be relation gene-nutrient interactions that could be related to maternal health. Although these differences in gene-nutrient interactions may contribute to obesity, the role of cultural and socioeconomic variables is still a major factor in contributions to obesity. Socioeconomic variables were also proven to play a large role in the increased risk of obesity (Deckelbaum & Williams, 2012). The same study by Deckelbaum and Williams identified the possibility of the mother's role in childhood obesity starting in pregnancy. They stated that the prevention of obesity could be enhanced by women of child-bearing age having a healthy weight gain during pregnancy and by breast-feeding their baby (Deckelbaum & Williams,2012).

Poor dietary behavior is noted in many different studies as a direct link to childhood obesity. Studies point to many factors in the society and environment surrounding today's youth. The ease of purchasing meals for family dinner at a fast food restaurant is a convenience taken advantage of by many in our country. These fast food

dinners contain increased portion-sizes and high-level consumption of sugar in both meals, drinks, and additives. Studies are showing that over consumption of sugar and products in laden with sugar actually cause the body to crave only more sugar and less fruits, vegetables and healthy proteins (Lake & Townsend). The fat content in fast food meals is also out of proportion for what anyone should be consuming on a daily basis and is especially harmful to the health of a child. These are some of the factors proving to drastically increase the rapid rates of childhood obesity in the United States and worldwide.

Efforts have been made to decrease the prevalence of these types of foods in the diets of youth with a few marketing techniques. Many fast-food restaurants now offer what they consider to be a healthier option in their kid's-meal selections. For example, instead of fries, a parent can order their child apples or a salad. Instead of a sugar filled soda drink they can have milk or water. (Williams et al., 2002).

Many schools are making a more dedicated effort in serving foods that are a healthier option. Some of these decisions came about after the 2004 Child Nutrition and Women Infant Child Reauthorization Act which mandated all schools to engage and be involved in the national school free and reduced lunch program. This program developed and implemented wellness programs aimed at improving dietary intake and increasing physical exercise beginning in the 2006-2007 school year. On average during this time schools were found to not be serving the most healthy food choices (Delva, O'Malley, & Johnson, 2007). During this study, research found that out of 37,000 students from 345 schools 70% of middle school students and 60% of high school students participated in

current school lunch programs that were not serving healthy food choices. This puts this group of students at higher risk for obesity based on availability of food choices (Delva, O'Malley, & Johnson, 2007).

Children develop their nutritional behavior often before they even arrive at the age to attend school. A parent or adult in the home is the child's role model for many important life behaviors including nutritional choices. A study conducted in Israel found that parents play a major role in managing the weight of young children and found that educating parents would be an effective way to increase knowledge and healthy eating behaviors for children. The study involved parents of 50 children ages 6-11 who were overweight. Researchers found that educating the parents on how to successfully change eating habits and available foods in their homes decreased BMI of many of the children. The study also recognized that parents and families are the key food providers and the main influence on their children's eating habits and food choices (Edwards & Poff, 2008).

Predictive Theory

Predictive theory guides the created implementation and evaluation tools to be conducted by the educational team at the elementary school. Predictive theories are intended to predict a specific relationship between any number of variables. In this case, the knowledge base related to nutrition that school aged students possess is hypothesized to be increased by the nutritional education program which is the intervention in this study. Predictive theory moves beyond simply explaining the predication of relationships between characteristics among different groups or topics. Predicative theories are

generated and tested by experimental research. Typically, experimental research involves the manipulation of one phenomenon to determine how it affects a characteristic of another phenomenon.

As discussed in Section One Orem's Self-Care Deficit Nursing Theory was a baseline theory for the developed educational toolkit and the identified need of nutritional education. A review of literature on the topic shows support for the need on increased nutritional education as well as potential desired positive outcomes related to the implementation of structured and purposeful education focused at the level of the learner in the elementary school.

Background and Context

The desire for the developed project to take life and hold future implementation for the noted students is a passion directly related to the DNP student and their nursing career as well as personal path in life. While working with many schools on a volunteer basis and also as a community nursing educator with pre-licensure nursing students the DNP student noted many instances where there was a notable lack in nutritional education in many of the school systems.

Many schools do not have a nurse on staff as an effect of budgetary cuts or lack of funding in general circumstances. When noting a school nurses was available there was often little time for them to implement education as their role was stretched among several schools across a district or even shared between districts in many rural areas. In these cases the nurse only had time for mandatory tasks to be reported to states such as

heights, weights and hearing and vision screenings. This left little to no time for development or implementation of nutritional educational programs.

The DNP student has worked in many volunteer commitments both in the United States and abroad related to assisting children and families in need. Nutritional education in particular has always been a stand out need and a desire to make a difference for the student.

Summary

In summary, there is significant evidence in the literature that childhood obesity is a current issue in our society that is growing at a rapid pace. Lack of proper nutritional education; specifically in the elementary school setting; may be contributing to this noted problem. Increasing education on nutritional choices to both children and their parents along with care takers has shown in many research articles to be successful in the decrease of obesity statistics and overall health of the child and potentially future generations as the knowledge gained will hopefully be retained and passed on. The research provided supports with evidence the need for the implementation of the developed educational toolkit for the students at this school.

The DNP student shares a direct connection for the desire to increase knowledge related to nutritional education and assist in filling curriculum gaps within the chosen school of participation. Section Three will provide the overview of the chosen approach to the development of the educational toolkit to be utilized and customized in the school system. The initial toolkit is related to a 4^{th} and 5^{th} grade learning level.

Section 3: Approach

Introduction

The purpose of this quality improvement project was to develop an educational program and tool kit that can be implemented at the fourth and fifth grade level at the elementary school that served as my project site. This educational toolkit consists of a program, additional educational materials as necessary, and implementation and evaluation plans. I will provide the materials to the school for use in the future and parent and community distribution. This section will share detail about the plan that guided development of a project team and the process of the development of the proposed toolkit.

Overall Approach/Rational

I began to develop the nutritional toolkit for educational purposes while conducing the literature review and noting the significance of the problem. I did not collect or analyze any data was for this project because it was a quality improvement project for which I developed the toolkit. However; Information collected within the process of research did play a large part in the development of the education toolkit and material.

I identified team of selected individuals and gathered them to discuss my DNP project. This project did not include the implementation phase; however it did include a plan for implementation for the school and community to use. The educational toolkit was specifically designed for use at the single elementary school, but can be modified according to the needs of other educational or community agencies or groups.

Ethical Considerations

While this project was not research-based and involved no data collection, I nonetheless submitted all necessary paperwork and obtained approval from Walden University and the sponsoring health system's Internal Review Board (IRB) prior to developing and the nutritional educational toolkit.

Interdisciplinary Project Team

I selected members of the interdisciplinary project team on their understanding, expertise, ability, and interest in advancing the project within the institution, a charter elementary school located in Texas.

The recruitment for this project was focused on both the community and institutional side. For the community I sought to recruit a doctoral-prepared nurse educator with expertise in both pediatric nursing and community nursing education. A school nurse from another institution (as the chosen school does not have a nurse on staff) was recruited to relate any suggestions and potential barriers to educating students in a school setting. I also recruited an administrator from the practicum facility where the pilot implementation occured. Other identified educators within the school served as consultants and be will involve in the planned facilitation process at the discretion of the institution. My role has been that of team leader, organizer, and writer of this project. I collaborated with each team member and ensured communication across the team as the tool kit was development.

The timeline for delegated and assigned responsibilities of project team members was defined at the initial team project meeting. The initial meeting was conducted via

Webex so that all members could join electronically given that some were in different areas of the city. During the initial meeting, team members were provided with background information, evidence, and a description of the purpose of the project. Further, I gave team members the opportunity to share their expertise and background knowledge with the team.

Weekly meetings took place to discuss progress and gather feedback related to the development of project tools. Team members were given the remaining week to review and provide feedback on the evidence, related topics, or suggestions presented in the previous meeting. This feedback was brought back to the team in the following weekly meeting and voted on for changes to the toolkit development.

Review of Evidence

After conducting an extensive review of literature, I developed the components of the nutritional program based on the needs of the institution and in alignment with the mission and philosophy of the facility. I identified the goals and objectives of the program with input from the multidisciplinary team. This nutritional program has the capacity to advance nursing practice by educating children at an early age about making healthier nutritional decisions.

Products of Program

Products were built to fit into the current elementary school curriculum. Curriculum material were focused on nutrition education for children, specifically those in fourth and fifth grades. Different types of materials included education for parents and children on how to make healthy food choices with what they have available in the home,

or for the parents at local grocery stores. Students will be guided through the curriculum on how to tell if they are choosing healthy options that are good for their bodies when eating. Materials agreed upon by the project team include games, journaling activities, and informational material for parents/guardians on what the children are learning in the program at school.

Implementation Plan Development

I developed the implementation plan in concert with the team of experts listed above. The implementation plan of materials was decided and planned with the core members of the school. The team determined a process for how the development of the toolkit would be phased and divided. The plan for future implementation by the institution was also developed and decided upon within the project team.

Evaluation Plan Development

Development of the evaluation plan occurred with the same team of experts listed above in the implementation plan. The evaluation plan was divided into short, intermediate, and long-term steps. These were divided up within the current school year, a year out, and then farther out as decided by the school/institution. The evaluation will not collect data, but rather look at objective evidence that will tell the school/institution that the plan and implementation made a difference. This can be provided by surveying families and students during and after the implementation process. I worked with the project team to develop a method of evaluation and a plan for the school to use with its findings in the future after implementation of the project. The evaluation toolkit is to be left with the developed materials for the school to use throughout the curriculum.

Data and Participants

No data was collected related to this quality improvement project or development of the toolkit. I obtained approval from Walden University's IRB to develop the toolkit with the understanding that I would not be obtaining data or participating in the implementation process. I designed an evaluation plan to provide guidance for the school's evaluation of the developed products; however that evaluation is a long-term process and is integrated as a component of this DNP Project.

Summary

After completion and approval of this quality improvement project and development of an educational toolkit, I sought and obtained clearance from the Walden University IRB and then moved forward with the composing of the project team. In Section 4, I offer a detailed outlines of the toolkit development process and the project team's process. The products and materials complied into the toolkit also provide a plan for implementation to the school board of the elementary school. Future plans for the developed educational toolkit will be at the determination of the school and educators.

Section 4: Discussion and Implications

Introduction

This project centered on the development of a family-focused nutritional education program in the elementary school setting. This nutritional education program is relevant, based on current research, which has shown that children who are exposed to sedentary lifestyles and poor nutrition are more likely to become obese and have a higher risk of developing other diseases such as heart disease and type 2 diabetes mellitus. This same research has shown the importance of parental education parallel to the time of student education for optimal outcomes (Sothern, 2004).

The problem I addressed in Sections 1-3 is the lack of nutritional education provided in the curriculum at my project site. The clinical site has identified this as a problem, having found higher than average weight among fourth and fifth grade students at the school. The school has also identified the need for this education due to this particular school does not have a school nurse on staff. Not having a school nurse within the school system increases the need for supplemental educational tools to provide the needed information related to healthy eating and food choices. The school has expressed the need for a nutritional education curriculum to assist in the promotion of healthy choice consumption of meals as well as how to assist families with this information for home use.

The purpose of this project is to provide a nutrition educational tool kit for fourth and fifth grade students. The tool kit focuses on educational materials that will assist students how to make healthy nutritional choices in effort to provide education to assist in

the prevention of childhood obesity in the student population. Educational material within the tool kit have been developed so that they can be used in future school years.

The goal stated for this project is to create a tool kit to provide to the school to increase their ability to provide healthy food related education. The effects of healthier students that could be measured in many ways such as weights, academic performance and overall student satisfaction with their health. Students show results of maintained healthy weight, appropriate gain for healthy growth, or healthy loss based on healthy growth. The long term goal could be defined in terms of weight and other outcomes of health as mentioned. The school will be provided this completed toolkit along with a plan for implementation and evaluation.

Products

The toolkit includes products listed below to allow the school to complete a seamless implementation of the nutritional education program.

- Curriculum overview (Appendix A).
- Complete curriculum; including weekly lessons and activities (Appendix B).
- Implementation plan (Appendix C).
- Pre/post survey of knowledge (Appendix D).
- Evaluation plan (Appendix E).

Discussion of Project Products

Curriculum Overview

Appendix C is an outline for of the curriculum overview. It provides high level description of each weekly lesson plan as well as the corresponding activity for each lesson. This is provided in detail within the developed educational toolkit.

Complete Curriculum

Appendix D is the completed curriculum. As I described in the introduction, this curriculum is a detailed plan of lessons to be implemented in a time span of 5 weeks. Each lesson is set to take place in the classroom, and there is one per week with discussion of each week building upon that in the previous week.

Implementation Plan

Appendix A is the implementation plan to be included in the product toolkit given to the school for its use. My purpose for developing this implementation plan was to provide an outline and timeline for necessary tasks, and to assign responsible parties to each of the tasks, which have specific desired outcomes. A 10-week time frame is provided for the entire implementation of the toolkit to include evaluation at the end of the phase. The implementation plan also provides a list of physical resources required for proper implementation of the plan.

Pre/Post Survey of Knowledge

Appendix B is a survey tool provided with permission by the University of Missouri Extension Office. This tool has been validated by the university and is used for the last 5 years across the state of Missouri while implementing nutrition-based educational programs in the public school system. The Missouri program is funded in part by the USDA's SNAP program (MU, 2017).

For purposes of this project, the survey tool will be provided to the students by the class faculty prior to the first lesson of the educational program. This survey will take place during the third week of the 10-week implementation plan. The faculty member will collect and review the results along with the project team leader and nutritionist. During the fifth week of the project, students complete the survey tool.
This will occur in week 9 of the implementation plan. Again the team of project team leader, faculty and nutritionist will reconvene and discuss results.

Evaluation Plan

The evaluation process will address the following question: Does the development and implementation of a nutritional educational curriculum increase knowledge related to personal nutrition among fourth and fifth grade students? This developed evaluation plan will be provided to the school along with the written tool kit which includes the weekly lesson plans and activities. By implementing the evaluation plan, school leaders will be able to identify areas in the program that are showing as strengths for their specific students as well as areas that could be adjusted or improved.

I developed the evaluation plan to assess areas within the provided week to week curriculum for alignment to the project goal. By assessing the student's self-reported knowledge and behaviors, the evaluator will be able to determine if knowledge was gained as a desired outcome. Knowledge would indicated by student's providing "how to knowledge" related to information shared in the weekly curriculum. How to knowledge is knowledge that will assist the students in making healthier life and nutritional choices moving forward in comparison to just retained memorization of knowledge.

Implications

In the United States, today chronic disease is the leading cause of morbidity and mortality (Collis et al; 2009). This alarming fact relates many of these diseases back to improper nutrition and lack of proper physical exercise. The CDC reports that although work on the development origins of chronic disease is cutting edge, we have known for years that behaviors established during childhood are critical for lifelong health, including nutritional habits and choices. Many chronic diseases are established much earlier than previously thought. For example, the CDC found that obese children aged 5 to 8 years already have an average of 2 or more cardiovascular disease markers, such as high blood pressure or high cholesterol (Collis et al; 2009). In addition to early disease processes, obesity predisposes children to the most severe forms of obesity in adulthood; nearly 40% of obese children become morbidly obese as adults (Collis et al; 2009). Many schools, including the one for this project site, do not have the budget to pay a school nurse on staff. This is leaving students with a gap in nutritional and health education (ADA, 2012). In the traditional role, school nurses provide general education to students related to age group and topic as well as students and families with specific needs as they are referred to them.

There are several factors influencing the rise in childhood obesity issues including; television and media, marketing of unhealthy foods, limited access to healthy affordable foods, lack of daily physical activity, increased portion size, and higher consumption of sugary beverages including soda and juices (Alliance, 2012).

According to the World Health Organization (WHO) school based nutritional programs are essential and need to begin early on in educational curriculum. Nutritional education is vague at best while often combined with physical educational classes and lacking in information. Prevention of unhealthy behaviors and the forming of unhealthy habits is key to establishing a more likely and positive outcome for the students (WHO, 2013). The CDC (Center for Disease Control) warns of many health effects related to poor nutrition and obesity (CDC, 2013). Immediate health effects for obese youth include increased level of risk factors for cardiovascular disease related to high blood pressure and higher cholesterol levels. Obese youth and adolescents are at higher risk for developing pre-diabetes and then at an even higher risk for the development of diabetes. Children and adolescents who are obese are at greater risk for bone and joint problems, sleep apnea, and social and psychological problems such as stigmatization and poor self-esteem.

Implications of the short and long term effects of this project have the potential to change the behavior and trend of nutritional behaviors in 4th and 5th grade students at this school. The desire would be for students to share that knowledge at home and to start a ripple effect into the community and improve nutritional knowledge.

Strengths and Limitations of the Project

With the development of any project, product or tool we should be able to identify strengths and limitations and share what we as the scholar have gained in personal knowledge in the process. This in turn supports the growth of future projects so that others may learn from the experiences of other individuals on a similar journey.

Throughout this process a stand out strength to begin with would be the rich amount of supporting literature that supports a need for increased knowledge in our school aged children' related to nutritional education. The Affordable Care Act (ACA) puts a strong focus on nutritional education for the community with an emphasis on youth. The ACA calls for more education and training for healthcare professionals which includes the nursing profession. This call is to equip these healthcare professionals to be able to deliver valuable information into the schools, communities and other health care areas where there is noted gap in public education and understanding related to nutritional health (DiMaria-Chalili, 2014).

Noted limitations to the project can include the ability to implement on a wider scale of grade levels at initiation of project. The project has been developed to run with 4th and 5th grade students for the initial phase. The project is expandable at the school's discretion after they initially implement with 4th and 5th grade students. It can also be limiting for the students if this type of new knowledge of new introduced behavior choices are not reinforced at home with parents or guardians.

Analysis

Analysis of Self as a Scholar

Self-analysis throughout this project has been an evolving process and will continue to be. As a scholar and doctoral student I have learned a lot about patience and perseverance. In past degrees I have set a plan and moved forward with minimal difficulty. This journey was much different in almost every way. As a scholar I was

challenged to stretch my current understanding and practices for research and finding the most current and up to date studies and literature to support and shape my project.

I found assurance and support in a team of mentors who hold terminal degrees in nursing and other fields and was able to seek guidance with their professional and educational experience throughout the process. The process of developing this project has provided me practice as a scholar and the desire to continue in research and furthering the field of nursing as I grow in my profession over the next many years.

Analysis of Self as a Nurse

My nursing journey is one of my favorite stories to share and encourage my students in my current role as an educator. I was passionate about attending my associate of nursing program right after finishing high school many years ago. I vividly recall stating to my peers at the time that I was glad to finish college so young and I was thankful I would never need to go back. Almost three degrees later I am thankful that I had the opportunity to mature in my professional life and to encounter so many wonderful mentors along the way who have opened my eyes to the life changing possibilities the world of nursing can truly hold for my life.

Obtaining this doctoral in nursing practice degree will now give me the opportunity to continue on with my passion of reaching others; specifically women and children and those in the most need economically. I plan to move forward with more research and work closely with medical missions in the United States and abroad as I have in the past.

Summary

This scholarly project met initial goals identified for the school. Following research and planning, an implementation plan emerged for the school. The potential

impact of the toolkit is significant for school-aged children at the project site as well as other similar settings. This developed educational toolkit leaves room for future edits, editions and changes as seen necessary by the future educators and leaders implementing the project.

Section 5: Scholarly Product

Introduction

Upon full completion and approval of the final product, I will submit this project for professional dissemination in effort to share this knowledge with others in the professional nursing community. Specifically, I will target nursing educators as well as nurses who work with the pediatric population and within elementary school settings in the community.

Problem

The problem addressed when developing this project was the lack of nutritional education provided in the curriculum at my project site. The project site has identified this as a problem, having found higher than average weight among 4th and 5th grade students at the school. The school also identified the need for this education due to this particular school does not have a school nurse on staff. Not having a school nurse within the school system increases the need for supplemental educational tools to provide the needed information related to healthy eating and food choices. The school expressed and requested the need for a nutritional education curriculum to assist in the promotion of healthy choice consumption of meals as well as how to assist families with this information for home use.

Purpose

The purpose of this project was to develop a nutrition educational tool kit for fourth and fifth grade students. The tool kit was developed to provide educational materials that will assist students in how to make healthy nutritional choices in effort to

prevent childhood obesity in the student population. Educational material in the tool kit were developed so that they can be used in future school years.

Goals and Outcomes

I identified short-term and long-term goals prior to project development. The short-term goal was to create a toolkit to provide to the school to increase its ability to provide healthy food-related education. The long-term goal was that improved student health effects could be measured in many ways such as weight, academic performance and overall student satisfaction with their health. Students show results of maintained healthy weight, appropriate gain for healthy growth, or healthy loss based on healthy growth. The long term goal could be defined in terms of weight and other outcomes of health as mentioned.

My immediate objective was to develop an evidence-based nutrition education program. The toolkit includes an implementation and evaluation plan for the school to use following the dissemination of this DNP project. I did not collect data or objectively measure outcomes, but the evaluation plan includes prescriptive suggestions for using data to measure outcomes for the purpose of evaluating the intermediate and long-term efficacy of the program by school stakeholder.

Significance of the Project

The ACA puts a strong focus on nutritional education for the community, with an emphasis on youth. The ACA calls for more education and training for healthcare professionals, including nurses. This call is to equip these healthcare professionals to be able to deliver valuable information into the schools, communities, and other health care

areas where there is a noted gap in public education and understanding related to nutritional health (DiMaria-Chalili, 2014).

Theoretical Foundation

The theoretical foundation for this project begins with Dorothea E. Orem's Theory; The Self-Care Deficit Nursing Theory. Orem's theory has background pulled from her different roles she fulfilled in nursing including but not limited to private duty nurse, staff nurse in the hospital setting and nurse educator in different roles. This proposal will use the Theory of Self-Care to inform the project. The supportive/education system, which in her theory is interlocked with the wholly compensatory system as well as the partially compensatory system, will aid development of the propose products of this project (McEwen, M., & Wills. E., 2011).

Within this theory Orem relates her theory to Parson's structure of social action and Bertalanffy's system theory. Both of these theories relate to the need for the education related to nutrition that is gapped in the curriculum of the choses elementary school. Process and focus pulled from these theories will assist in the development and structure of the toolkit and materials within it (McEwen, M., & Wills. E., 2011).

Model

I used the plan portion of the PDSA model in all sections of project development. The PDSA model is useful for testing change. In this model, the change is directed at a desired effect related to knowledge shared through learning and provided educational materials. In this project the change of behavior is the long-term effect desired by the school system, specifically healthy nutritional changes.

Dissemination of Project

As a member of Sigma Theta Tau International, I have twice had the opportunity to present at its conferences. I am truly excited for the opportunity to submit my work for a poster or podium presentation to share about this developed nutritional toolkit and how it has been developed with the partner school. The world of nursing related to nutrition and pediatrics is a vast domain that needs ongoing research. This project will be a great example of how working closely with local organizations such as small community schools can reach not only children but families and communities at large with vital educational information.

Summary

The project deliverables accompany the complete nutritional educational toolkit that I provided to the school I partnered with during this process. All documents and forms are to be used as the plan has been provided with the understanding that the educational institution can make adjustments as needed in the coming years.

I close with this; my life will forever be changed from this work over the past several years. I entered into this project with the same mindset that I had always tackled projects in the past. I quickly learned that this was a different mountain to climb, and it was painful and long. That pain has changed me and brought me into a new place of professional growth. I am forever thankful for this experience and look forward to moving my research and skills into future works.

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Appendix A: Curriculum Overview

Lessons delivered in weekly classes

Lesson 1: Food Groups

Objective: Student knowledge of importance of eating a variety of foods from each food group to include all nutrients the body requires to stay healthy and grow as it should.

Activity: Food Group Sandwich

Lesson 2: Label Reading

Objective: Students will identify the types of information found on a food label.

Activity: Reading a Food Label

Lesson 3: Healthy Choices When Eating Out

Objective: Students will be able to make healthy choices when eating out at restaurants or away from home with family.

Activity: Creating a Menu with Balance

Lesson 4: Food Safety

Objective: Students obtain knowledge of food safety related to storage of foods with temperature limits and learn about handling foods and reading food-handling directions on food packages.

Activity: Food Storage Experiment

Lesson 5: Healthy Body Image

Objective: Students will obtain knowledge of the effects of social influences received through media messages and peers.

Activity: We are All Special Card Game

Appendix B: 5 Week Nutrition Lesson Plan

Lesson 1: Food Groups

Objective

Student knowledge of importance of eating a variety of foods from each food group to include all nutrients the body requires to stay healthy and grow as it should.

Activity: Food Group Sandwich

Instructor time required for preparation: 10-15 minutes

-Have students individually draw a sandwich (make colors available so they can be artistic if desired). The Sandwich should include foods from at least three of the five food groups.

-Have 4-5 volunteers tell the class about the sandwich they have created and encourage group discussion related to the chosen food groups and how those work together.

Lesson 2: Label Reading

Objective

Students will identify the types of information found on a food label.

Activity: Reading a Food Label

Instructor time required for preparation: 5-10 minutes

-Have each student bring in one food label from home (have extras available to the class so they can compare or if students are unable to bring from home). Discuss the information on the food label. Pair students up into groups of two or three. Have students write down all the information they can find and explain on the food labels they have and have them discuss in their groups. Have each pair or group of students present their groups labels to the class.

-What did their labels have in common?

-Which food would they prefer after reading the labels in their group if they were to choose based on label content?

-Give time for class feedback and questions.

Lesson 3: Healthy Choices When Eating Out

Objective

Students will be able to make healthy choices when eating out at restaurants or away from home with family.

Activity: Creating a Menu with Balance

Instructor time required for preparation: 20-30 minutes

-Have a list of sample menus at the front of the classroom along with a menu chart as shown below.

Menu	Grains	Vegetables	Fruits	Dairy	Protein
Sample Menu:					
Improved Menu:					

1. Please students into pairs and have each group choose a sample menu.

2. While utilizing their sample menu have students divide the foods listed into the 5 main food groups. Next have the students discuss the food groups that are lacking in their sample menu and they should develop an improved menu with similar items to better balance the food groups. They can add additional foods, remove foods or slightly change any foods that were presented into their menu. See below example.

Menu	Grains	Vegetables	Fruits	Dairy	Protein
Sample Menu: Meatloaf French Fries Coke	None	French Fries (somewhat)	None	None	Meatloaf

Improved Menu: Meatloaf Carrot sticks Whole-wheat bread Orange slices Low-fat milk	Whole-Wheat bread	Carrot sticks	Orange slices	Low-fat milk	Meatloaf

3. After students complete the exercise have them report back to the class. Have a class discussion with probing questions to include everyone in the decisions on the improved menus and how this may affect or change their eating habits the next time they eat away from home.

Lesson 4: Food Safety

Objective

Students obtain knowledge of food safety related to storage of foods with temperature limits and learn about handling foods and reading food-handling directions on food packages.

Activity: Food Storage experiment

Instructor time for preparation: 30 minutes

1. Give students observation sheets that will relate to a certain food that they choose in two different jars. One will be placed in the refrigerator and one in a windowsill with direct sunlight.
    a. Some food examples (but not limited to):
        i. Orange
        ii. Cheese
        iii. Tomato
        iv. Cucumber
        v. Deli meat

b. After selection of foods have students label and place them in the two designated areas

Directions: For each day, list the changes you observe in the foods in Jar 1 and Jar 2

Day	Date	Jar 1	Jar 2
1			
2			
3			
4			
5			
6			
Hypothesis for Jar 1		Result for Jar 1	
Hypothesis for Jar 2		Result for Jar 2	

-

2. Have students develop a hypothesis for each and begin their observation logs.

3. Each day have students record in their logs what they observe from each jar.

4. After a week at the next meeting have the students pull out the two jars and their logs. They can compare and discuss with classmates who may have chosen different foods and seen different results.

Ask the students a reflection of what knowledge they will take away from this experiment. Will they share this information at home and how their family will store foods?

Lesson 5: Healthy Body Image

Objective

Students will obtain knowledge of the effects of social influences received through media messages and peers.

Activity: We are All Special Card Game

Instructor time for preparation 5-10 minutes.

1. Using a deck of playing cards show students the cards one at a time. State; "Each card represents one of our attributes".
2. Have the class list positive attributes
    a. Eyes
    b. Smile
    c. Brain/Intelligence
    d. Heart/Kindness
    e. Hair
3. As you are going through the cards state; "Now what if I don't like one of my attributes….for example my hair". Tear the card in half that represents hair. Do this with only about 2 attributes.
4. Reflect on the fact that even though a few cards are torn because of an opinion of someone else or your own view you still have a lot of cards (attributes) left to represent you and your uniqueness and beauty.
5. Have the students discuss how this makes them feel and share ways with each other that they can focus on positive attributes and develop/maintain a good self-image.

Appendix C: Project Implementation Plan

Goal: Create a toolkit to provide to the school to increase their ability to provide healthy food related education

Estimated Time Frame for Implementation: 10 weeks

Resources to be required for Implementation: Access to computers/printer/paper supplies Meeting room and time for prep of faculty, class time devoted to the one lesson a week for 5 weeks

Estimated number of hours per project team member

Administrator	2 hours
Faculty	16 hours
Nutritionist	8 hours
Educational Board	2 hours
Project Team Leader	40 hours
Total team hours	68 hours

Task Timeline

Task	Involved Members	Task Timeline	Responsible Team Member	Product outcome
1. Team meetings to discuss implementation and reserve class time for students	-Project team leader -Faculty -Nutritionist	Weeks 1 & 2	Project team leader	Planning of logistics for implementing project classes
2. Making & distributing copies of paper packets including Pre/Post Surveys as well as weekly lesson material	-Project team leader -Faculty -Administrator	Week 2	Project team leader	Materials prepared for program

3. (PreSurvey) Nutritional Survey Implemented	-Project team leader -Faculty	Week 3	Project team leader	Baseline of knowledge
4. Weekly program education and activities	-Project team leader -Faculty	Weeks, 4, 5, 6, 7 & 8	Project team leader	Implementation of Nutritional Education Program for students
5. (PostSurvey) Evaluation plan	-Project team leader -Faculty	Weeks 9 & 10	Project team leader	Assessment of Knowledge Outcome evaluation

Appendix D: FNEP Nutrition Education Survey

Family Nutrition Education Programs

Nutrition education survey, Grades 3-5

Instructions: Circle the answer that best applies to you. There are no right or wrong answers.

I eat vegetables . . .	Never or almost never	Some days	Most days	Every day
I eat fruit . . .	Never or almost never	Some days	Most days	Every day
I choose healthy snacks . . .	Never or almost never	Some days	Most days	Every day
I eat breakfast . . .	Never or almost never	Some days	Most days	Every day
I do physical activities like walking to school, helping around the house, using the stairs or walking the dog . . .	Never or almost never	Some days	Most days	Every day

Being active is fun.	I do not agree	I'm not sure	I agree
Being active every day is good for me.	I do not agree	I'm not sure	I agree

A pizza was left out of the refrigerator all night. What should you do?	Eat the pizza	Smell the pizza and then decide if it's okay to eat.	Put the pizza in the refrigerator	Don't eat the pizza

Circle the answer that best applies to you.

I wash my hands before making something to eat.	Almost never	Sometimes	Most of the time	Always

Will you ask your family to buy your favorite fruit or vegetable?	No	Maybe	Yes
Will you ask your family to buy non-fat or 1% milk instead of regular whole milk?	No	Maybe	Yes
Will you ask your family to have fruits in a place like the refrigerator or a bowl on the table where you can reach them?	No	Maybe	Yes
Will you ask your family to have cut-up vegetables in the refrigerator where you can reach them?	No	Maybe	Yes

What grade are you in?	Third grade	Fourth grade	Fifth grade

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For more information call MU Extension's Show-Me Nutrition Line at 1-888-515-0016

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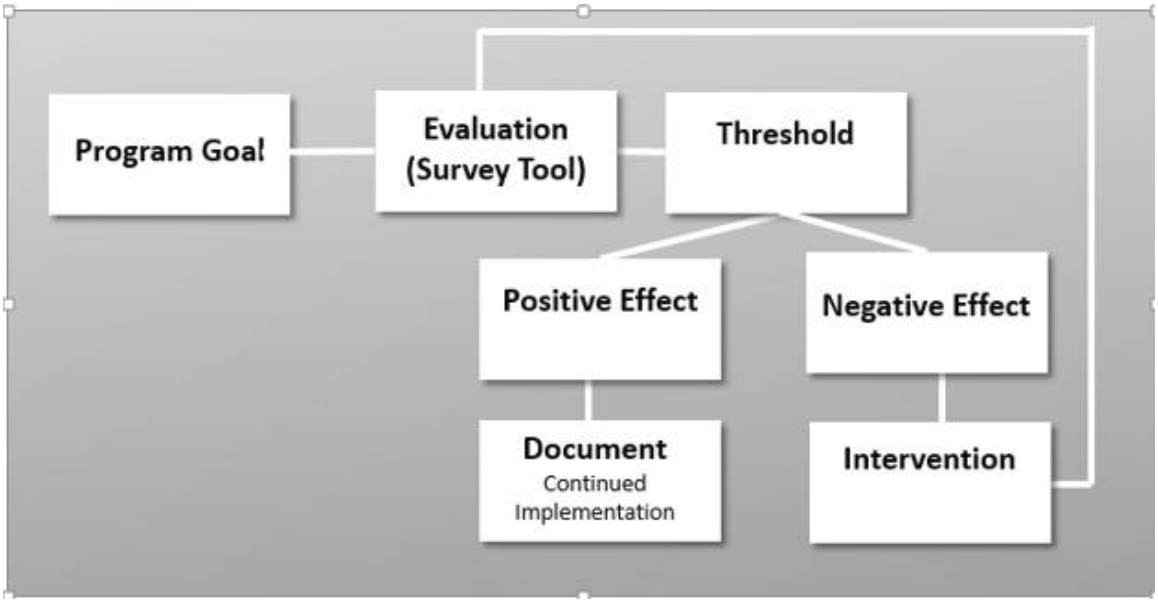
Appendix E: Evaluation Plan

This developed evaluation plan will be provided to the school along with the written tool kit which includes the weekly lesson plans and activities. By implementing the evaluation plan the school will be able to identify areas in the program that are showing as strengths for their specific students as well as areas that could be adjusted or improved.

The evaluation must start with the stating the Program Goal as identified by developed project. After review of program goal would follow the evaluation process and then into the threshold and evaluate the outcome of positive or negative utilizing meaningful data to support the effectiveness. If negative or not desired move to an intervention or adjustment and back to the evaluation phase. If positive document and the school will decide on continued implementation or the expansion of the implementation to include more grade levels of students.

The evaluation plan has been developed to assess areas within the provided week to week curriculum for alignment to the project goal. By assessing the student's self-reported knowledge and behaviors the evaluator will be able to determine if knowledge was gained as a desired outcome. Knowledge would be student's providing a "why" versus a "how to knowledge" related to information shared in the weekly curriculum. How to knowledge is described as knowledge that will assist the students in making healthier life and nutritional choices moving forward in comparison to just retained memorization of knowledge.


Program Goal
Evaluation (Survey Tool)
Threshold
Positive Effect
Negative Effect
Document
Continued Implementation
Intervention