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Relationships between the Coordinated School Health Program and Childhood Obesity in Tennessee

Tekeela Shonta Green
Walden University

Walden University

College of Health Sciences

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Tekeela Green

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Review Committee
Dr. Michael Dunn, Committee Chairperson, Public Health Faculty
Dr. Gwendolyn Francavillo, Committee Member, Public Health Faculty
Dr. Amy Thompson, University Reviewer, Public Health Faculty

Chief Academic Officer
Eric Riedel, Ph.D.

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Abstract

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by

Tekeela S. Green

MPH, Saint Louis University, 2006

BS, University of North Carolina at Chapel Hill, 1999

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

Childhood obesity rates have increased nationwide, but rates of childhood obesity are higher in Tennessee (TN). The Coordinated School Health (CSH) Program is a multicomponent approach designed to improve academics and health in children in TN; however, researchers have not evaluated the 8 components of the plan and the impact it has on weight in children. The purpose of the study was to determine if a relationship existed between the Coordinated School Health Program and obesity in children. The conceptual framework for this study was Bandura's social cognitive theory. One hundred forty CSH coordinators in TN were surveyed and the results were analyzed using multiple regression to determine the relationship between the 8 components of the CSH program and obesity rates in children in TN. Nutrition service was the only component that was statistically significant. According to study results, many districts had been exposed to the coordinated school health program and had some components in place, but the program was not seen as a priority by school administration, which affected the successful implementation of the program. The findings from this research can be used to help school officials determine how to better integrate the components of the Coordinated School Health program into the existing curriculum, allot time and resources for implementation strategies, hire the appropriate staff, and/or determine which component needs more focus. Determining which component(s) should have more emphasis creates potential for social change by reducing obesity in children, which will likely reduce the chance of those children becoming obese adults.

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Dedication

To my father, Thomas L. Green, Jr. and my mother Lillie P. Green for encouraging me to always do my best. Thank you for your continued prayers, love, and support. I hope I can continue to make you proud. I also want to thank God for giving me the courage to start this dissertation process and the strength to finish.

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Chapter 1: Introduction to the Study

Introduction

In order to become productive citizens, children must be mentally and physically healthy. Healthy habits should be instilled in children while they are growing and developing. Many children in Tennessee (TN) are overweight or obese, and there are numerous programs designed to address childhood obesity (Amis, Wright, Dyson, Vardaman, & Ferry, 2012; Irwin, Irwin, Miller, Somes, & Richey, 2010). Schools are the ideal setting to reach the greatest number of children (Harrison & Jones, 2012; Khambalia, Dickinson, Hardy, Gill, & Baur, 2012; O'Brien et al., 2010; Pyle et al., 2006). Schools have the infrastructure to carry out nutrition and physical activity plans designed especially for children. In TN, all schools have been funded to implement the Coordinated School Health (CSH) program (Fetro, Givens, & Carroll, 2009). CSH is a multicomponent approach which identifies eight areas that affects children's health. The purpose of this study was to determine if there was a relationship between the eight components of the CSH program and obesity in children. This study can be used to help determine where CSH coordinators should strengthen components of CSH in order to reduce obesity in school-aged children. The end goal is to develop healthy children who will become healthy adults.

Background

While schools across the state of TN have implemented the CSH program, it is not clear if all of the components are being implemented to reduce obesity in children. To assess the status of implementation and outcomes, all CSH program coordinators were

surveyed in Tennessee. According to Fetro et al. (2009), all school districts within TN were striving for compliance by the 2012-2013 school years. The components of the CSH program include nutrition, physical activity, health services, physical education/activity, healthy school environment, mental health, school staff wellness, and student/family/community partners (Fetro et al., 2009). All components are needed to improve the lives of children and parents. As the recommended model, there are many factors that must be considered prior to implementation, which may explain the lack of full implementation. School districts must consider financial obligations, student population size, staff availability, and geographic location (Balaji, Brener, & McManus, 2010). The process is lengthy, even in environments with financial resources (Cornwell, Hawley, & Romain, 2007; Weiler & Pigg, 2004). Because schools are locally controlled, policies and practices must reflect the needs of the student population; therefore, individual schools may not implement components that do not appear necessary for the specific school (Balaji et al., 2010). In order for the CSH problem to be implemented and sustained over time, there must be continuous administrative support and infrastructure in the school district (Lohrmann, 2010; Rosas, Case, & Tholstrup, 2009). Leadership is also needed to successfully implement the school health plan. An organized leadership team can ensure that policies, programs, and services are collectively aimed at achieving the desired goal (Basch, 2011). One problem that hinders the growth and development of the CSH program is the lack of leadership and training for principals (Basch, 2011). School health programs in the state of Ohio experienced similar problems with implementation. The most common barriers were low priority, a lack of funding, a lack of personnel, time,

and leadership (Greenberg, Cottrell, & Bernard, 2001; Weiler, Pigg, & McDermott, 2003). Success is dependent upon buy-in from the principal, effective facilitation from the program champion, good performance by wellness coordinator, and a solid foundation (Valois & Hoyle, 2000).

The findings from this research can be used to help school officials determine where funding is needed, the appropriate staff to hire, and/or which component needs more focus. I gathered data from all of the CSH program coordinators to determine how some coordinators were implementing the components; the strengths and weaknesses of the program; strategies for implementation in rural and urban regions of TN; and the impact, if any, on childhood obesity. Determining which component(s) should have more emphasis creates potential for social change. Obese children are likely to become obese adults. By reducing childhood obesity, children will become healthier and have a better quality of life in adulthood (Trasande, 2010).

The rates of childhood obesity are high in TN. Among high school students in TN, males are more obese (17.9%) than females (12.4 %), but females are slightly more overweight (17.5%) than males (17.1%; Center for Disease Control and Prevention [CDC], 2012). In 2000, TN recognized the connection between health and academic achievement and funded a 5-year pilot program to implement the coordinated school health program in10 counties (Fetro et al., 2009). CSH programs have the potential to impact behavioral changes. However, because all components are not being implemented in TN, there is no knowledge of how this program is impacting obesity rates in children in TN.

Problem Statement

Childhood obesity has become an epidemic across the United States and has the potential to lead to serious health consequences (Raj & Kumar, 2010). Children are not as active as they were years ago, and as a result, the obesity rates have increased three-fold among children and adolescents (Brownson, Chriqui, Burgeson, Fisher, & Ness, 2010; CDC, 2012; Dodson et al., 2009). Schools have been designated as the ideal setting to address the obesity issue because of its ability to reach a large number of children in a short period of time (Frieden, Dietz, & Collins, 2010; Khambalia et al., 2012; O'Brien et al., 2010). To have a greater impact on health outcomes in school-aged children, a multicomponent approach to address obesity was needed (Cawley, 2010; Raj & Kumar, 2010). Programs that use multiple factors to address childhood obesity have resulted in a greater interest in healthier diets, increased participation in physical activity, and delayed onset of health-risk behaviors (Cornwell, Hawley, & Romain, 2007).

The CSH plan is a multicomponent approach to address the health and academic needs of children. It has been viewed as a successful innovation and was designed to bring together educational and community resources in the school to create an environment of health education and practice (Cornwell et al., 2007; Rosas, Case, & Tholstrup, 2009). Some school districts like Ohio and Stafford County in Kansas have attempted to implement the plan, but not in its entirety (Sherwood-Puzzello, Miller, Lohrmann, & Gregory, 2007). All schools in TN have been funded and charged with implementing this plan (Fetro et al., 2010). However, coordinating the eight components of the framework has not been successfully implemented throughout TN (Fetro et al.

2009). Although having a healthy diet, physical activity, education, and parental involvement are variables that have been linked to the prevention of childhood obesity, it remains unclear how these factors work together to reduce obesity (Zenzen & Kridli, 2009). Researchers have not evaluated all eight components of the plan and its relationship with weight in children who attend school in TN. Hence, the purpose of this study was to determine if a relationship existed between the components of the CSH plan and a reduction in the incidence of obesity in TN's children.

Purpose of the Study

Childhood obesity is a health problem that has caught the attention of many organizations and governments because of its link to other chronic conditions. Several strategies have been considered and implemented to increase the amount of physical activity that children engage in to reverse the trend. President Obama's Childhood Obesity Taskforce, First Lady Michelle Obama's Let's Move campaign, the U.S. Surgeon General Regina Benjamin, and the Robert Wood Johnson Foundation have identified improvements in the quality of physical education in schools (Amis et al., 2012). Due to the widespread concern for children's health, 90% of states now require high school physical education or the adoption of state- or district-level policies (Amis et al., 2012). In TN, the Coordinated School Health Extension Act requires students of all grade levels to engage in 90 minutes of physical activity per week at school (Amis et al., 2012). Although this is a requirement for the schools in TN, there is no indication that schools are in compliance or if the program is having a positive effect on reducing weight in children.

The objective of this quantitative study was to examine the relationships between obesity (dependent variable) and the CSH components, which are health education, physical education, school health services, nutrition services, counseling, psychological, and social services, healthy school environment, health promotion for staff, and family and community involvement (independent variables). The purpose of this study was to determine if the CSH approach was effective in reducing childhood obesity in TN.

Research Questions

Research Question 1: Is there a correlation between the implementation of the CSH program and childhood obesity in TN?

$H_0$1: There is no correlation between the CSH program and childhood obesity in TN.

$H_1$1: There is a correlation between the CSH program and childhood obesity in TN.

Research Question 2: Is there a correlation between health education and childhood obesity in TN?

$H_0$2: There is no correlation between health education and childhood obesity in TN.

$H_1$2: There is a correlation between health education and childhood obesity in TN.

Research Question 3: Is there a correlation between physical education and childhood obesity in TN?

$H_0$3: There is no correlation between physical education and childhood obesity in TN.

$H_1$3: There is a correlation between physical education and childhood obesity in TN.

Research Question 4: Is there a correlation between school health services and childhood obesity in TN?

$H_0$4: There is no correlation between school health services and childhood obesity in TN.

$H_1$4: There is a correlation between school health services and childhood obesity in TN.

Research Question 5: Is there a correlation between counseling, psychological and social services and childhood obesity in TN?

$H_0$5: There is no correlation between counseling, psychological and social services and childhood obesity in TN.

$H_1$5: There is a correlation between counseling, psychological and social services and childhood obesity in TN.

Research Question 6: Is there a correlation between nutrition and childhood obesity in TN?

$H_0$6: There is no correlation between nutrition and childhood obesity in TN.

$H_1$6: There is a correlation between nutrition and childhood obesity in TN.

Research Question 7: Is there a correlation between staff wellness and childhood obesity in TN?

$H_0$7: There is no correlation between staff wellness and childhood obesity in TN.

$H_1$7: There is a correlation between staff wellness and childhood obesity in TN.

Research Question 8: Is there a correlation between a healthy school environment and childhood obesity in TN?

$H_0$8: There is no correlation between a healthy school environment and childhood obesity in TN.

$H_1$8: There is a correlation between a healthy school environment and childhood obesity in TN.

Research Question 9: Is there a correlation between family and community involvement and childhood obesity in TN?

$H_0$9: There is no correlation between family and community involvement and childhood obesity in TN.

$H_1$9: There is a correlation between family and community involvement and childhood obesity in TN.

Theoretical/Conceptual Framework for the Study

The conceptual framework for this research was the social cognitive theory, using the constructs reciprocal determinism, self-efficacy, and outcome expectations. According to reciprocal determinism, there is an interaction between the person, the behavior, and the environment in which the behavior is performed (Glanz, Rimer, & Viswanath, 2008). Personal behavior is dependent on the environment in which a person lives and the options available to him or her. This theory incorporates how the environment influences behavior, which is related to childhood obesity. Children are affected and influenced by their home, school, and community environment, along with other risk factors such as physical inactivity and unbalanced eating patterns (Branscum,

& Sharma, 2011; Lohrmann, 2010). Self-efficacy is the belief in the ability to perform the behavior that brings the desired outcome (Glanz et al., 2008). The self-efficacy of the coordinators can also be measured to determine their ability to implement the program as required. Observational learning is learning to perform the behavior by exposure (Glanz et al., 2008). The social cognitive theory is an example of an ecological model that can be used to explain how multiple factors influence health behaviors (Lohrmann, 2010).

Nature of the Study

A quantitative study design was chosen in order to numerically examine the impact, if any, that each component of CSH has on obesity in school-aged children in TN. Surveys were administered to all school health coordinators to assess if weight was impacted by health education, physical education, school health services, nutrition services, counseling, psychological, social services, healthy school environment, health promotion for staff, and/or family and community involvement. Surveys were preferred for this study because they cost little when compared to interviews; when participants are spread over a large geographic area, surveys provide greater anonymity and give respondents time to think about their answers (Frankfort-Nachmias & Nachmias, 2008).

Operational Definitions

The CSH program focuses on eight components. These terms provide guidance for the activities associated with it.

Counseling, psychological, and social services: Services that provide additional support to students as a result of emotional challenges that are stemmed from situations in or out of school. These services can include career counseling, peer mentoring and

counseling, mental health counseling, peer support groups, and positive alternative programs (Fetro et al., 2009).

Family and community involvement: Involving the family and community to address childhood obesity is important and includes advisory groups and coalitions, advocacy campaigns, family and community outreach programs, and adult mentor programs (Fetro et al., 2009).

Health education: Health education is information about health and health concepts that will help develop health-literate youth. The goal is to use this information to promote and enhance the children's health (Fetro et al., 2009).

Healthy school environment: A healthy school environment is clean; well lit; comfortable; physically safe; graffiti-free; and supports diversity, personal growth, wellness, and healthy relationships (Fetro et al., 2009).

Nutrition services: Nutrition services ensure access to a variety of nutritious, affordable, and appealing meals in school that accommodate the health and nutrition needs of all students. School nutrition programs reflect the U.S. Dietary Guidelines for people in the United States and other criteria to meet the complete nutrition needs of students.

Physical education: Physical education programs increase physical competence, fitness, and responsibility, encouraging students to value lifelong physical activity (Fetro et al., 2009).

School health services: School health services are needed for children with health issues that affect their academic performance. Services can include first aid, emergency,

diagnostic health care, health assessments and screenings, assistance with medication, and management of acute and chronic health conditions (Fetro et al., 2009).

Staff wellness: Staff health promotion programs for teachers and staff that can include workshops related to healthy dietary patterns; stress management; cardiovascular fitness; first aid and cardiopulmonary resuscitation (CPR); safety issues; and tobacco, alcohol, and other drug use (Fetro et al., 2009).

Assumptions

Each CSH program within TN may be operationally different. Therefore, I assumed that the responses provided by the school coordinator or representative were accurate and truthful and were not an over exaggeration of program outcomes. I also assumed that each school system in TN was implementing all eight components of the CSH approach. These assumptions were necessary because the program coordinator or director is responsible for the implementation of the program and should have access to all pertinent and relevant information. Also, assuming all components were being implemented will help in the data analysis. It would not be possible to determine if obesity/weight is decreasing as a result of a particular component if the component was not implemented. The final assumption was that all coordinators had the same interpretation of the meaning of the components.

Scope and Delimitations

The study included all CSH coordinators in TN, which totaled about 140 individuals, including those in rural and urban areas. The data were received from the coordinator/director of the CSH program. The information gathered pertained to the

school system and not to the individual schools. Program coordinators manage several schools within the district. So, the data were a reflection of the implementation in several schools. Schools in the CSH program consisted of kindergarten through Grade 12. There was no scale to measure what an acceptable amount of parent or community involvement. Private schools do not follow the CSH approach model and were excluded from this study.

Limitations

There were limitations in this study. The survey instrument of choice did not fully capture if each component was helping to reduce weight in children. Although required to implement all eight components, it may not be financially possible for some schools to be in compliance. New nutritional guidelines have been introduced into the school system and that could impact how the coordinators answered the question pertaining to nutrition services and its effect on weight in children.

Significance

There were limited studies on the statistically significant reductions in childhood obesity as a result of school health programs. Researchers have not examined TN's CSH program to determine if it is effective. Schools were mandated to implement health policies that are holistic in nature; however, these programs are usually underfunded are not able to produce quality programs or activities. In this study, I identified which component(s) significantly contributed to weight reduction in children. Program directors/coordinators can then determine what is working, what needs adjustments, and/or where more focus is needed. Because funding is often a barrier to

implementation, successful program results may help generate more funds from other agencies or a redistribution of funds.

At the completion of this study, additional qualitative studies can be performed to understand why some program components are instrumental in reducing weight in children and some are not.

Summary

Childhood obesity is an epidemic, and schools have been identified as an ideal setting to address this problem. In an effort to reverse the obesity trend, the CSH approach is a mandatory plan designed to help children maintain optimal health and academic achievement. Each component of the plan focuses on different factors that can impact behavioral choices that ultimately impact healthy choices.

In Chapter 1, I provided an introduction to the problem, the significance of the study, the research questions, assumptions, limitations, and definitions of terms.

Chapter 2 contains a review of the literature on CSH, the CSH components, and the social cognitive theory, which is the theoretical framework used as the foundation for this study.

Chapter 2: Literature Review

Introduction

Children are not as active as they were years ago, and as a result, the obesity rates have increased three-fold among children and adolescents (Brownson et al., 2010; Dodson et al., 2009). Children in this generation could be the first in history to live less healthy and shorter lives than their parents (Brownson et al., 2010; Hardy, 2006). There are several factors that have contributed to the increase in childhood obesity, such as an abundance of fast food establishments, the lack of available fresh fruits and vegetables, limited access to playground/equipment, and increased consumption of sugared sweetened beverages (Raj & Kumar, 2010). There is a need for a policy change or program implementation to address ways to decrease childhood obesity rates, but the delay is often deciding how to initiate the change (Homer & Simpson, 2007). Changing the food environment by reducing exposure and access to unhealthy foods in schools and by making the healthy choice the easy choice could have an impact on child obesity rates (Frieden et al., 2010). Schools are also the ideal location for physical activity before, during, and after school hours (Frieden et al., 2010). Because teachers are pressured to focus on improving academic skills, such as English, math, and science, there is a lack of structured physical education classes that include moderate-to-vigorous activity, which affects the implementation of childhood obesity policies (Amis et al., 2012; Frieden et al., 2010). The No Child Left Behind (2001) Act has also placed constraints on schools being able to meet the national guidelines of 225 minutes of physical education per week (Sherwood-Puzzello et al., 2007). In TN, the CSH Extension Act requires all students to

engage in 90 minutes of physical per week (Amis et al., 2012). The most cost effective way to prevent obesity in youth is to use a coordinated approach, but if the principal is not supportive of the program, the school health policy is likely to be ineffective (Amis et al., 2012; Cawley, 2010; Raj & Kumar, 2010). States require high school physical education, but this legislation has had little effects on physical education participation (Amis et al., 2012).

Children spend a large amount of their day time at school, and it is a place where many children can be reached in a short period of time (Khambalia et al., 2012). In a healthy school environment, school employees provide the structure needed for children (Lohrmann, 2010). Schools are also the only universal entitlement for children and adolescents in the United States (Valois & Hoyle, 2000). Therefore, schools are ideal setting to impact large numbers of children, while also building on an existing infrastructure (O'Brien et al., 2010). The CDC developed a set of guidelines for schools, districts, and states to help maintain the well-being of students and school employees (as cited in Sherwood-Puzzello et al., 2007). The CSH program focuses on the child's attitude, behavior, and the environment (O'Brien et al., 2010). The program is a system designed to connect health with education and improve the lives of students and their families. The Joint Committee on Health Education and Promotion Terminology defined the programs as one with a set of policies, procedures, and activities designed to protect, promote, and improve the health and well-being of students and staff, which results in improving the student's ability to learn (as cited in Weiler et al., 2003). The plan has been viewed as a successful innovation and was designed to bring together educational

and community resources in the school to create an environment of health education and practice (Cornwell et al., 2007; Rosas et al., 2009). One of the goals of the CSH plan in TN is to implement all of the components of the CSH plan to address health behaviors and student learning. Although funds have been allocated statewide to implement this program, coordinating the eight components of the framework has not been successfully done throughout the state of TN (Fetro et al., 2009).

A rural county like Stafford County in Kansas is an example of a successful program implementation (Cornwell et al., 2007). This county gathered the community, stakeholders, and representatives from the school system to identify their top priority areas, and they focused on those areas first. Involving the community is crucial to the initiation and maintenance of healthy behaviors (Fetro et al., 2010). Although there is no indication of the program's direct impact on weight in children, CSH programs have created greater interest in healthy diets, increased fitness activity participation, and delayed the onset of certain health-risk behaviors (Cornwell et al., 2007). The plan's design has the potential to support healthy lifestyle choices by helping students and their families connect with a network, including school staff and the community (Cornwell et al., 2007). Khambalia et al (2012) conducted a meta-analysis of school-based behavioral interventions for preventing obesity and found inconsistent findings in gender, age group, model of delivery, parental involvement, and type of intervention. However, combining a healthy diet and physical activity in school settings long-term helped prevent children from becoming overweight (Khambalia et al., 2012). Health services include screening for overweight, preventive counseling, weight management assessment, and treatment or

referral. However, less than half of middle/junior high and senior high schools conduct height and weight screening programs and only about one third provide nutrition/weight management services (Story, 1999). School worksite health promotion programs for teachers and staff could have several personal benefits as well as serve as a strategy for role modeling positive behavior. Another key component in preventing childhood obesity is parental involvement. However, recruiting and sustaining parent involvement for school-based programs poses challenges (Story, 1999; Zenzen & Kridli, 2009). Although having a healthy diet, physical activity, education, and parental involvement are variables that have been linked to the incidence of childhood obesity, it remains unclear how they work together to reduce obesity (Zenzen & Kridli, 2009).

The CSH program is used to improve academics and the health of children. A literature search was conducted on each of the CSH components to see how schools were implementing the program and to determine which theoretical framework was used as a foundation for the studies.

Literature Search Strategy

The literature search was conducted using the following databases: Academic Search Complete, ProQuest Central, and Science Direct. The search terms used were *childhood obesity, school programs, coordinated school health, parental involvement, physical education, health services, nutrition services, counseling, school environment,* and *health education*. Some of the articles dated as far back as 1999. Several articles were systematic reviews and meta-analyses that compared several school health programs and determined their effectiveness. The abundance of articles published within the last 5

years shows how childhood obesity has grown to become a major concern of communities, parents, school officials, and the government.

Theoretical Foundation

The social cognitive theory (SCT), established by Bandura, emphasizes the concept of reciprocal determinism, which describes the interaction between people and their environments and how social change can be used to prevent and manage chronic diseases (Glanz et al., 2008). The SCT was first known as the social learning theory, but was renamed due to a better understanding of individuals' capacity to process information and biases that influence learning (Glanz et al., 2008). The SCT recognizes the environment's influence on behavior, as well as the individual's ability to change the environment (Glanz et al., 2008). The SCT is grouped into five categories: psychological determinants of behavior, observational learning, environmental determinants of behavior, self-regulation, and moral disengagement (Glanz et al., 2008).

The SCT is an example of an ecological model (Glanz et al., 2008; Harrison & Jones, 2012; Lohrmann, 2010). Ecological theorists emphasize the environment and policy contexts of behavior and consider the use and importance of multiple levels of influence (Glanz et al., 2008). There are four core principles of ecological perspectives on behavior change: (a) multiple levels of factors influence health behaviors, (b) influences interact across levels, (c) multilevel interventions should be most effective in changing behavior, and (d) ecological models are most powerful when they are behavior-specific (Glanz et al., 2008). The concept of ecological models are applied in the structure of the obesity programs (Bacardi-Gascon, Perez-Morales, & Jimenez-Cruz,

2012; Brownson et al., 2010; Harrison & Jones, 2012; Zenzen & Kridli, 2009). The CSH program uses multiple levels of influence to decrease obesity rates in children and assumes that good health requires a supportive environment (Harrison & Jones, 2012; Kolbe, 2005; Lohrmann, 2010).

The SCT concept used in this example is reciprocal determinism, which implies that individuals are influenced by their environment. The Mariner Project in South Carolina utilized the eight components of the CSH plan and was evaluated to determine the extent all components and infrastructure were in place and functioning (Valois & Hoyle, 2000). The evaluation included eleven elements: coordination of the eight components, administrative support/buy-in, program champion, staff training and development, systematic process of community linkages, curriculum innovation, staff wellness coordinator performance, staff wellness recruitment, student initiatives, creating health in communities, and monthly school-wide initiatives. The researchers found that if the principal supported the project then the school was successful in promoting health (Valois & Hoyle, 2000). Projects of this magnitude require time and energy. Schools, family, and the community must be willing to make the sacrifice in order to meet the health and educational needs of the children (Bacardi-Gascon et al., 2012). Several concepts from the SCT are applied in this example. Administrators, who focus on creating healthy communities, emphasize the importance and influence of the environment and how it is linked to the health of the children. Collective efficacy is the belief about the ability of a group to perform concerted actions that bring desired outcomes (Glanz et al., 2008). Ensuring staff is properly trained and modeling the

healthy behavior is supporting the belief that the group can make a difference in the health of the children. Facilitation is the concept that states that providing resources and tools make new behaviors easier to perform (Glanz et al., 2008). Staff members are now trained to enforce the new behavior and new curriculum has been developed.

Birch and Hallock (1999) conducted a study to investigate how parents of seventh grade students at Indiana's public schools were involved in the school counseling program, food service program, health education, and health services. Including parents in school programs has been universally accepted, but Birch and Hallock (1999) believe more can be done to get more involvement. Barriers to parent involvement included having a conflict with job, lack of time, and the lack of interest. There are conflicting results about the importance of involving parents and the lack of parent involvement. Developing creative approaches are necessary to address the barriers faced by interested parents who desire to help children become healthy and assist schools to successfully implement needed programs. Story (1999) believes that parental involvement in obesity programs is important in the development of a psychosocial environment that promotes healthy eating and physical activity. Because obesity tends to run in families, it is more beneficial to include the family to encourage healthy behaviors for all and not just one member. Involving family is a crucial component of a health program but it comes with its challenges of recruiting and sustaining parental involvement (Story, 1999; Zenzen & Kridli, 2009). Parents and caregivers are also responsible for the type and amounts of foods that are made available to and consumed by children (Birch & Ventura, 2009). For this reason, parents should be involved in programs so they can gain a better

understanding on the importance and the effect of food choices on children. Self-efficacy is displayed as the parents believe in their ability to positively influence their child's eating habits. Involving parents in the programs help children learn by being exposed to the new behavior, which is observational learning.

Several studies focused on improving or enhancing physical education and nutrition services (Jaime & Lock, 2009; Kelder et al., 2009; Story, 1999). Louisiana, Williamson et al., (2008) modified the school environment, enhanced social support, and promoted self-efficacy for health behavior change. Campaign materials were provided for classrooms, hallways, and throughout the school which emphasized a healthy diet, physical activity, and a program for families (Williamson et al., 2008). Social support was provided by including a curriculum and internet counseling and education. The approach used in Louisiana will be implemented on a larger scale pending the results of the study.

The SCT was selected for the Louisiana study because the school administrators realized the importance of the environment. To further encourage behavior change, tools and resources such as campaign materials, a curriculum, internet counseling, and education, were made available.

Literature Review Related to Key variables and/concepts

Childhood obesity is a growing epidemic and researchers are implementing programs to reduce obesity rates by using a multi-faceted approach. There is no single intervention that will fit all schools and populations. The literature points to no specific intervention or combination of interventions that is most beneficial (Zenzen & Kridli,

2009). Khambalia et al (2011) conducted a synthesis of existing reviews and meta-analyses of school-based interventions for controlling and preventing obesity. The study revealed that significant weight reductions occurred where there were long term interventions with a combination of physical activity, diet, and family involvement. Zenzen and Kridli (2009) concluded that programs should be long enough to give participants time to exhibit the desired outcome. Because of mixed findings about program effectiveness and the lack of evidence-based interventions, additional funds are scarcely allocated (Ben-Sefer, Ben-Natan & Ehrenfeld, 2009; Cornwell, Hawley & Romain, 2007; Khambalia et al., 2011).

The CSH program focuses on eight components which collectively address the needs of children with the anticipation of producing healthy and academically successful children. This approach takes into consideration the multiple areas of influence on childhood obesity. Although obesity is determined by the individual's height and weight, there are other external factors such as energy intake and expenditure that guide decision-making (Cawley, 2010; Frieden, Dietz, & Collins, 2010; Trasande, 2010). The CSH program shifts attention away from blaming the individual to recognizing that this is a social problem that involves the individual, the environment that encourages greater food consumption, sedentary behavior, physical inactivity, and policies that impact personal choices (Golan, 2006). The eight components of the CSH program include family and community involvement, school health education, physical education, health services, nutrition services, school counseling, psychological, and social services, school

environment, and health promotion for staff and all are needed to reduce obesity rates in children.

The timing and initiation of prevention programs are also factors in seeing the greatest impact on obesity. Planning to intervene and determining when to intervene are necessary first steps. The literature reveals mixed opinions on the best time to conduct obesity related programs. Amis et al, (2012) decided to focus on high school students instead of younger children because they can understand the importance of a healthy lifestyle and have higher levels of overweight and obesity. However, Story (1999) discovered that interventions aimed at younger children were more successful than those with adolescents. Primary prevention efforts using a broader approach that targeted younger children were thought to reduce the number of children who become obese (Story, 1999). The population-based method includes all children because most people who become obese are not overweight as children (Story, 1999). Haynos and O'Donohue (2012) conducted a review and critical analysis on childhood and obesity prevention programs and found discrepant results concerning the best time to intervene. Two studies targeted preschool children. One of the studies reported significant positive outcomes on weight, while the other did not. Studies that focused on elementary children found reductions in obesity but no statistically significant difference in dietary intake and physical activity between groups (Haynos & O'Donohue, 2012). Birch and Ventura (2009) concluded that starting obesity programs when children start school is the limitation of the program. By the time a child begins school, he/she is already at risk for overweight or is already overweight (Birch & Ventura, 2009). Waiting to start an obesity

prevention program when a child enters school suggests that the best opportunity to prevent obesity has been missed. Infancy and early childhood are considered to be the best opportunities for obesity prevention (Birch & Ventura, 2009).

Programs that target infants by encouraging mothers to breast feed or target adolescents when they enter into the school system are all necessary methods. There is no single program designed to address the multiple factors leading to childhood obesity. As children begin to grow and develop into young adults, programs with multiple components should be available to reach children at different stages in life.

Health education

School health education is designed to address the physical, mental, emotional, and social dimensions of health and assist students in maintaining and improving health, preventing disease, and reducing health-related risk behaviors (Kann, TellJohann, & Wooley, 2007; Tompkins, Kamal, & Chapman, 2005; Young, Denny, & Donnelly, 2012). Health education that teaches nutrition and physical activity are important components of a comprehensive approach because it can improve dietary behavior, reduce sedentary behavior, and increase physical activity among youths (Brener et al., 2006). The Joint Committee on National Health Education Standards has established guidelines and standards. These standards are designed to give students, family and the community concrete expectations (Kann et al., 2007). To further reinforce the importance of health education, the CDC included this concept as one of the Healthy People 2010 objectives (Kann et al., 2007). The objective emphasized preventing health problems in certain areas, which also included unhealthy dietary patterns, inadequate

physical activity, and environmental health (Kann et al., 2007). The Division of Adolescent and School Health also supports education agencies to help build and strengthen capacity for improving health in areas such as, HIV prevention, CSH programs, abstinence, asthma, professional development, and food safety (Kann et al., 2007).

Integrating health education into the schools has also had a positive influence on students' academic performance (Kann et al., 2007). Most states had adopted policies stating that schools will follow national or state health education standards or guidelines. Eighty eight percent of states adopted a policy stating that elementary schools will teach at least 1 of the 14 topics (Kann et al., 2007). Roughly 63% of states stated that elementary schools will teach at least 7 out of 14 and 5.9% of states adopted a policy that elementary schools will teach all 14 topics (Kann et al., 2007). Teaching nutrition and dietary behavior, physical activity and fitness was adopted by more than half of all districts focusing on elementary schools; more than two thirds of all districts focusing on middle schools; and more than three fourths of all districts who focus on high schools (Kann et al., 2007).

Although health education can help students and impact behavioral decisions, the potential has not been fully realized (Kann et al., 2007). The lack of realization is due to the small number of hours of health instruction students are getting per week, the lack of qualified staff who are trained in the specific subject, the use of ineffective curricula, and/or poor program implementation (Birch, 2012; Kann et al., 2007; Young et al., 2012). As long as health is not seen as an academic subject, school health programs will

not have a high priority and many schools will continue to offer the programs as a supplement to the regular curriculum, use commercially available programs that have not been evaluated, use programs that have inadequate evaluations, or use programs shown to be ineffective (Peters et al., 2009; Young et al., 2012). Evaluating school health education programs is important because evaluations provide insight into how well the program was implemented and if the expected outcomes were produced. It is uncertain why schools would use curricula and then be reluctant to participate in program evaluations. Although superintendents, principals, and teachers believe that students will benefit from a health education program, they have reservations about participating in the evaluation process. Young et al., (2012) stated that superintendents are concerned with the possibility of negative publicity, publicly identified, and subjected to unfavorable comparisons. Principals are concerned with disruption in the school day, extra burdens on teachers and staff, and time taken away from instruction in other academic areas (Young et al., 2012). Teachers are concerned with being judged about their competency as teachers if positive outcomes are not produced (Young et al., 2012). Parents feel that self-reports of health behaviors are intrusive and an invasion of privacy and students see evaluations as a waste of time (Young et al., 2012).

Nutrition Services

For many years, nutrition for children has been an important issue and is an essential component of a CSH program. Nutrition has an effect on students' cognitive performance, educational achievement, eating habits, and health status (Society for Nutrition Education, 2003). Coupled with physical activity, both can produce positive

long-term health benefits in children (Society for Nutrition Education, 2003). To protect the health and well-being in children, Congress passed the National School Lunch Act in 1946, which offered eligible children free or low-cost nutritious lunches (Lueke, 2011). Twenty years later the Child Nutrition Act of 1966 was established for the same purpose but primarily focused on milk and breakfast (Lueke, 2011). Neither Act offers nor requires a nutrition educational component (Lueke, 2011). The Child Nutrition and Women, Infants, and Children Reauthorization Act of 2004 required all schools to create a Local Wellness Policy to increase opportunities for healthy eating and physical activity (Lueke, 2011). Schools were required to establish nutrition and physical activity goals and provide assurance that all requirements complied with USDA guidelines (Lueke, 2011). This was proven to be ineffective in addressing the prevalence of obesity in children (Lueke, 2011).

Currently, schools are using a coordinated approach that not only provides healthy options but also empowers students with knowledge to help themselves and avoid obesity (Lueke, 2011). CSH guidelines recommend the adoption of a nutrition policy promoting healthful eating through classroom lessons and a supportive school environment (SNE, 2003). The nutrition policies can address school meals and snack programs, providing free and reduced-price breakfasts, lunches, and snacks for qualified students, serving and providing meals that meet the USDA standards, and nutritional needs of students with special health care needs (SNE, 2003). Along with providing healthy food options, nutrition education should also be available to teach students skills and help them maintain healthy eating patterns (SNE, 2003).

It has been established that schools have the potential to impact students' food choices and dietary quality (Jaime & Lock, 2009). The lack of compliance with nutrition standards and easy access to foods of minimal nutrition value are factors that have contributed to poor dietary habits at school (Jaime & Lock, 2009). Many schools are not in compliance because of time restraints, lack of staff, and most importantly, lack of financial resources (Lueke, 2011). Research shows a positive correlation between the number of hours spent on nutrition education and behavior change (SNE, 2003). US schools spent a mean of 13 hours per school year on nutrition education, which is below the minimum of 50 hours that is thought to be necessary to impact behavior change (SNE, 2003).

Schools have also used additional programs that were creatively developed by other organizations to introduce nutrition and decrease obesity. Nemours Foundation, a non-profit children's health foundation, developed the 5-2-1-Almost None program to encourage children to eat 5 servings of fruits and vegetables daily, limit sedentary activity to two hours per day, get at least one hour of physical activity per day, and try to avoid most sugar-sweetened beverages (Lueke, 2011). Delaware's schools' implemented the program and the results showed that obesity rates can be reduced. The Fits me program is designed to promote eating a healthy breakfast in elementary school children; this program emphasized the importance of eating breakfast daily, learning proper nutrition, and health habits (Eilat-Adar et al., 2011). Students, teachers, and parents were surveyed and there was an increase in the number of children who ate breakfast and a higher percentage of children who felt they ate a healthy breakfast (Eilat-Adar et al., 2011).

Although there are studies that show school nutrition policies have been effective in improving the school food environment, there are only a few that have measured the impact these policies have on BMI (Jaime & Lock, 2009).

Physical education

School physical education classes are opportunities for children to get the recommended amount of exercise, which is 1 hour each day, and meet federal guidelines (Chin & Ludwig, 2013). These classes also enable children to make responsible and informed decisions, which can lead to a lifetime of healthy habits and good overall health (Johnson & Deshpande, 2000). Engaging in physical activity is a necessary component to help decrease the rates in childhood obesity. Being physically active also increases cardiorespiratory fitness and muscle strength, lowers body fat percentage, increases cardiovascular and metabolic health, and improves mental health (Chin & Ludwig, 2013). New York City public elementary schools were examined to see if rates of vigorous physical activity were higher in schools who participated in the Recess Enhancement Program (REP) (Chin & Ludwig, 2013). The students' physical activity levels were observed on the playground using the System for Observing Play and Leisure Activity in Youth (SOPLAY), which is a direct observation method of documenting physical activity during free play (Chin & Ludwig, 2013). There were statistically significant differences between schools who participated in the REP with a coach present and those schools without a coach present (Chin & Ludwig, 2013). Because the study was cross-sectional and not longitudinal, it is not possible to determine if the program caused the increases in vigorous physical activity (Chin & Ludwig, 2013).

Tennessee is ranked fourth nationally in childhood obesity rates (Irwin et al., 2010). Because the children in Memphis are at severe risk, the Memphis Grizzlies launched Get Fit with the Grizzlies, which is a 6-week program focusing on nutrition and exercise (Irwin et al., 2010). The program was designed for children in 4th and 5th grades. PE teachers were trained to administer the pre/posttests to the elementary students and the students had to keep track of the minutes they engaged in physical activity and the number of food group servings consumed each day (Irwin et al., 2010). According to the posttest measures, knowledge of health information was gained and the students were influenced to eat healthier foods and engage in more physical activity (Irwin et al., 2010). The Memphis Grizzlies isn't the only professional sport organization to rally behind childhood obesity initiatives. The National Football League (NFL) "Play 60" is a nationwide web-based health program also designed to address the obesity epidemic (Irwin et al., 2010). Unfortunately, there is no evidence to indicate that the youth involved benefited from these programs (Irwin et al., 2010).

Texas also realized the need to increase or reinstitute physical activity into the school system in response to the rise in health care costs associated with childhood obesity. In 2001 elementary school children were required to participate in 30 minutes of daily physical activity or a total of 135 minutes per week (Kelder et al., 2009). The Texas Education Agency was required to recommend CSH programs and provide training in approved programs. Senate Bill 19 is responsible for creating these changes and was one of the first statewide efforts to mandate physical activity and health education (Kelder et al., 2009). A mixed methods approach was used to assess

knowledge and adherence to Senate Bill 19 and to monitor implementation and impact of the bill. Kelder et al (2009) found a high level of knowledge awareness of the program requirements but a small percentage was not aware of the need to implement health education, physical activity, and child nutrition components as part of the CSH program. Implementing a program with multiple components is challenging. It becomes more challenging when the focus is more on increasing academic test scores than improving health (Kelder et al., 2009).

School Health Services

School health services, such as health assessments and screenings, assistance with medication, and management of chronic health conditions are generally delivered by school nurses, but few services are linked to obesity prevention (Kubik, Story, & Davey, 2007). The School Health Policies and Programs Study 2000 suggest that obesity prevention is not the responsibility of school nurses (Kubik et al., 2007). Active members of the School Nurse Organization of Minnesota were surveyed and 76% believed that school health services should be used for obesity prevention and 40% agreed that schools should conduct annual assessments of BMI and provide the information to parents (Kubik et al., 2007). Nauta, Byrne, and Wesley (2009) state that nurses can help identify the onset of obesity through screening, develop interventions, and provide family education. Nurses understand the importance of a healthy lifestyle and that proper nutrition and physical activity are main components. The literature shows that nurses are knowledgeable about the obesity problem, but it does not show that they are maximizing their skills to educate parents and children about diet and exercise (Nauta

et al., 2009). Only one-third of New Jersey school nurses routinely check BMI and recommend weight-control programs and even fewer recommend treatment programs for children with a health problem affected by their obesity (Nauta et al., 2009).

Counseling, Psychological, and Social Services

Mental health services are needed to provide support to students who have emotional challenges due to situations in or out of school. Mental health is important in every stage of life, especially in children because it affects how one views oneself, others, and the world, and also influences decision-making abilities (Gampetro, Wojciechowski, &Amer, 2012). Children and adolescents worry about problems that are out of their control and it becomes more challenging to focus on health (Gampetro et al., 2012). Studies have shown that the presence of mental health services in schools was needed, appreciated, and had a positive impact on student behavior (Clayton et al., 2010; McNall, Lichty, & Mavis, 2010; Soleimanpour et al., 2010). McNall, Lichty, and Mavis (2010) conducted a study to assess the impact of school based health center use on middle and high school students' health and health behaviors and found that students who had access to a health center and used the center engaged in more physical activity and ate healthier than those who did not use the center. There have also been studies that examined the associations between children's overweight and mental health problems, such as self-esteem, depression, quality of life, and other emotional and behavioral problems (Griffiths, Dezateux, & Hill, 2011). The findings from the studies were inconsistent. However, at age 3, obese boys had higher scores for conduct problems and inattention problems, while obese girls had higher mean scores of prosocial behavior than normal

weight boys and girls, respectively (Griffiths et al., 2011). It was also observed that excess body weight has a negative effect on self-esteem and the lack of physical activity, a more sedentary lifestyle, and poor diets were all risk factors for low self-esteem (van Wijnen et al., 2009; Wang & Veugelers, 2008). There are many studies that focus on the impact that mental health services have on students, but there are only a few that examine the quality of implementation of these programs and the student outcomes (Dix et al., 2012).

Staff Wellness

Staff wellness programs are usually an afterthought and there is limited research on school wellness programs and its effect on student health (Fetro et al., 2010). Of the eight school health components, staff wellness is the least developed (Eaton, Marx, & Bowie, 2007). There is an estimate of 6.7 million individuals who work in the school system and similar to children, the school setting is ideal for promoting adult health through employee wellness programs (Eaton et al., 2007). Providing wellness programs for school staff is cost effective and has resulted in reduced employee absenteeism, improved morale, increased physical activity, weight loss, lowered blood pressure, and higher levels of well-being (Eaton et al., 2007). Because of the lack of attention staff wellness programs have received in the past, an initiative like the Alliance for a Healthier Generation has identified increasing resources for teachers and staff to become healthy role models (Eaton et al., 2007). The School Health Policies and Programs Study (SHPPS) of 2006 describes data on the prevalence of school faculty and staff health promotion policies and programs at the state, district, and school level (Eaton et al, 2007).

At the school level, data were collected from public and private elementary schools, middle and high schools (Eaton et al., 2007). More than half of the schools offered CPR education, emergency preparedness, and worksite safety education, and 38.3% of schools offered aerobics classes, basketball leagues, or walking or jogging clubs (Eaton et al., 2007). During the planning and the justification of offering health promotion services, schools considered how job performance and morale could be improved, how the school could create a positive image in the community, how it could attract and retain good faculty, and how faculty could serve as healthy role models for students (Eaton et al., 2007). It was concluded that more states and districts need to provide greater support for planning and coordinating health promotion programs. The results also indicated that most schools offered at least one activity or service, but only a few offered coordinated services or activities within a comprehensive program (Eaton et al., 2007). Employee wellness programs have the potential to impact the lives of millions of individuals who are employed by the school system and indirectly influence the health of students who attend these schools daily (Eaton et al., 2007).

Healthy School Environment

A healthy school environment is a component of the CSH program that supports diversity, growth, wellness, and healthy relationships. Since children spend a significant amount of time at school, the school environment plays a major role in children's health and health decisions (O'Brien et al., 2010). Studies have shown that labeling and signage on school campuses affects students' food choices, purchase requests, diet and health (O'Brien et al., 2010).

To make environmental changes often requires policy implementation. Policies can impact large numbers of people but are influenced by financial contributions, size of the student population, staff available, school type, and geographic location (O'Brien et al., 2010). Before writing a policy that recommends changes in the school environment, there should be an assessment of current needs to determine the specifics of the policy and what areas require attention (Weiler & Pigg, 2004).

One environmental approach is to focus on how school policy will influence choices that are allowed in schools (Balaji, Brener & McManus, 2010; O'Brien et al., 2010). Policies will not be effective if they are not implemented properly, monitored, and/or evaluated. Coordination is essential to ensure that different health policies, programs, and services are collectively achieving the set goal (Basch, 2011). In many schools, if the principal did not support the idea or if there were no additional funds to ensure sustained implementation, programs and policies were not successful (Amis et al., 2012; Valois & Hoyle, 2000; Weiler, Pigg, & McDermott, 2003). Two of the states with the highest levels of childhood obesity and obesity-related illnesses in the country are Mississippi and Tennessee and researchers investigated how stakeholders responded to the new legislation to increase physical activity and improve PE in eight high schools (Amis et al., 2012). The three policies that focused on physical activity include the Mississippi Public School Accountability Standard 32, which moved PE from being an optional to a required course, the Mississippi Healthy Students Act, which required high school students to have one semester of PE during their 4 years at high school to graduate, and the Coordinated School Health Extension Act in Tennessee, which required

students of all grade levels to engage in 90 minutes of physical activity per week at school (Amis et al., 2012). In 7 of the 8 eight schools, policy implementation was avoided entirely (Amis et al., 2012). Reasons stated for not implementing the policy were prioritization of standardized testing, varsity sport provision, resource constraints, and policy overload (Amis et al., 2012).

Research shows that school food and nutrition policies have been effective in improving the school food environment but there are few studies that have measured the policy's impact on BMI (Jaime & Lock, 2009).

Harrison and Jones (2012) found through a search of the literature that school neighborhoods and the design of the school grounds contribute to overall physical activity levels. Walking and cycling to school increased when the physical environment assured safety and connectivity to the school. More outdoor space per child was associated with an increase in physical activity in preschool children and adolescents (Harrison & Jones, 2012). Qualitative studies have also found that activity levels increased as playground equipment and games increased and after playgrounds were painted with multi-colored markings (Harrison & Jones, 2012).

Several studies have focused on increasing activity for portions of the day. A study by Benden et al (2011) focused on changing the classroom environment. Classrooms were modified to increase standing rather than sitting by replacing traditional seated desks with standing height desks and stools (Benden et al., 2011). Four first-grade classrooms in Texas participated in the 12 week pilot study. Students in the treatment group were allowed to either stand or sit for any portion of the day and the control group

desks remained unaltered. Data that collected from each student included gender, age, initial and final height, weight, BMI, body fat percentage, and calorie expenditure (Benden et al., 2011). As a result, children in the treatment group burned an average of 0.18 kilocalories per minute, 17% more calories, and experienced a 32% increase in calorie expenditure compared to the control group (Benden et al., 2011).

Family and Community Involvement

Children's eating and physical activity habits and behaviors are influenced by both home and school settings (Blom-Hoffman et al., 2008; Golan, 2006). Role modeling, the frequency of food exposure, and portion sizes are also environmental factors that influence food intake and activity (Dietz, 1999; Golan, 2006). For this reason, family and community involvement have been deemed necessary components when addressing health promotion efforts for children and adolescents (Birch & Hallock, 1999; Blom-Hoffman et al., 2008; Golan, 2006). Parental involvement is not a new concept and has been identified as the most important key to lasting, long-term improvements in the overall health status (Birch &Hallock, 1999; Lueke, 2011; Moore, Harris, &Bradlyn, 2012; Staniford, Breckon, & Copeland, 2012). National guidelines and standards have been created to include parents in program decision-making, planning, and implementation. Studies were conducted in Indiana to investigate how the schools used parents of seventh grade students in counseling programs, food service programs, health education, and health services (Birch & Hallock, 1999). Many activities were reported that included parents but with varying levels of frequency. The activities kept parents informed about the different programs and made information available through

newsletters, resource centers, newspaper, school menus, and annual health fairs (Birch & Hallock, 1999). Parents were also involved in curriculum development and text book reviews, but only a small minority was involved in food services and health services committees.

In order to increase parental participation in school-based nutrition programs, Blom-Hoffman et al (2008) conducted a study in four elementary schools that used a literacy-based approach with shared book reading. The five books reinforced messages the child learned at school and provided context for children and parents to have a conversation about health information and the 5 a Day message. As a result of reading the books, parents indicated that they were considering or were likely to make changes (Blom-Hoffman et al., 2008). Although not statistically significant, fruit and vegetable consumption increased in the experimental group when compared to the control group.

Golan (2006) conducted a study using parents as the change agent in childhood obesity. The objectives were to create integrated messages that addressed eating-related problems, to discuss general parenting skills, to promote modeling of a healthy lifestyle, to promote a healthy environment for emotional growth, and to choose preferable food practices to prevent weight related problems. In earlier clinical trials, focusing only on the parent resulted in a significant reduction in percentage overweight at the end of the program (Golan, 2006). The reduction in weight may be attributed to a decrease in food stimuli in the home and a decrease in the amount of extra food taken after children finished their meal (Golan, 2006). Moore, Harris, and Bradlyn (2012) determined that

concerned parents were significantly more likely to report activities to improve the family's diet.

Bacardi-Gascon, Perez-Morales, & Jimenez-Cruz (2012) conducted a 6 month randomized intervention to prevent childhood obesity in Mexican elementary schools. The purpose was to show how food choices and physical activity depends on personal behavior, individual health, and school and family involvement. The parents attended a 60 minute session delivered by nutrition professionals for 4 months during the academic year. This intervention showed positive results in lifestyle changes and abdominal obesity, increases in vegetable consumption, physical activity, a reduction in snacks high in fat and salt, and a decrease in sedentary activity (Bacardi-Gascon, Perez-Morales, & Jimenez-Cruz, 2012). It is also implied that parental involvement had a positive impact on children's increased participation in sports and other physical activity events.

The need for parental involvement has been recognized as a necessary tool in children's' health, but it also comes with limitations. Job conflict, lack of child care, lack of interest in school programs, and lack of time have been identified as barriers to parental involvement and attendance at school events (Blom-Hoffman et al., 2008; Golan, 2006). 'Because of the barriers it was important to send information home so parents can still be knowledgeable about the things that happen at school (Blom-Hoffman et al., 2008). It was also suggested to develop a written parent/family involvement policy to maintain continued parental support (Birch & Hallock, 1999).

Partnering with and involving community stakeholders are key strategies to address childhood obesity. It is a shared responsibility of the educational community and

the public to ensure schools can accomplish their mission (Hoyle, Samek, & Valois, 2008). Concerned citizens can actively participate on school boards or school advisory councils (Wiley & Howard-Barr, 2005). It is important for individuals to express concerns and collectively make recommendations for what is best for the children instead of risking reprimand as an employee. The breakfast in the classroom initiative is an example of .how the community voiced their concern. Partners for Breakfast in the Classroom is a consortium of 4 national organizations – National Education Association Health Information Network (NEA HIN), Food Research and Action Center (FRAC), School Nutrition Foundation (SNF), and National Association of Elementary School Principals Foundation (NAE-SPF) designed to address food insecurity in 5 high-need school districts (Creighton, 2012). Obesity is often associated with the overconsumption of food not under-consumption. However, food insecure children are also more likely to be obese, especially if they are not eligible for or receiving food assistance programs (Creighton, 2012). The breakfast in the classroom is a program that offers a nutritionally well-balanced breakfast free to every child in a school, regardless of the ability to pay (Creighton, 2012). Memphis City Schools in Tennessee was one of the 5 participating school districts. The FRAC engaged local anti-hunger advocates, community leaders, elected officials, and service providers to help contribute to the structure and implementation of the School Breakfast Program (Creighton, 2012). The benefits of this program are to improve health and education outcomes for children (Creighton, 2012).

The various programs cannot exist and run successfully without the continued support of community capacity and community building (de Groot et al., 2010). Schools

cannot do it all or alone and shouldn't be expected to address the nation's most serious health and social problems (Hoyle, Samek, & Valois, 2008).

The CSH program consists of eight components, which has some level of influence on children's health. The benefit of doing this quantitative research was to determine if the components had an impact on childhood obesity. By completing the survey, school coordinators determined if programs are being implemented as designed. Another benefit of this research was to determine the number and types of schools in TN that are actively reducing childhood obesity rates and the kinds of programs that are effective. Knowing the number of schools and effective programs will show that TN is making strides against childhood obesity. However, this quantitative study did not describe why certain programs were/were not effective. Previous studies described legitimate reasons for program failure, such as limited resources, guidance, lack of principal support, and the focus on academic testing. Performing this quantitative study was a necessary first step which should be followed by a qualitative study to explain the results in order to get the complete story of CSH in TN.

Summary and Conclusion

Obesity in children is continuing to increase and schools have been designated as the ideal setting to tackle this epidemic. Reducing the weight in children can be approached using multiple levels of influence. The CSH program uses an ecological framework to address childhood obesity. This approach is necessary because it is unclear which modifiable health behaviors contribute to the increase in childhood obesity rate (Zenzen & Kridli, 2009). The CSH program incorporates nutrition, physical activity,

community and family involvement, staff wellness, and other counseling and social services. Each component is defined by specific obligations but can all work together to reduce weight in children. Long lasting results are needed and change must take place on different levels. Policy and environmental change are used to impact large numbers of children. Other strategies being used include designating school health coordinators, changing or improving the school's nutrition and physical activity policies, increase healthy awareness programs for staff, and involving parents in the decision-making process. Although policies are in place and mandated, limited funds and the pressure to increase reading and math skills have caused principals to overlook and not fully implement programs as instructed. All schools in Tennessee have been funded to implement the CSH program. It is not known how effective the program is and if all the components of the CSH program are being implemented as designed.

This study identified which components of CSH impacted weight in TN's children. The coordinators were surveyed about the CSH program and it was determined which, if any of the components attributed to a decrease in obesity rates. Without sufficient measures it was difficult to assess which of the components do or do not need improvement

Chapter 3: Research Method

Introduction

The purpose of this study was to determine if there was a relationship between the components of the CSH program and childhood obesity. As a result of the implementation of the CSH program, I explored if there were changes in weight among the students participating. Each component includes a different area of well-being in order to produce academically and physically healthy individuals. In this chapter, I will describe and justify the research design, the sample population, the instrumentation, threats to validity, and ethical concerns.

Research Design and Rationale

A survey was used to gather quantitative information about possible relationships between childhood obesity and the eight components of the CSH program: health education; health services; nutrition services; physical education; healthy school environment; school counseling; psychological; social services; student, family, and community involvement; and school health promotion for staff. The results will help administrators to make generalizations about the CSH program. The survey design was cross-sectional and was the preferred type of data collection for this study because the sample population was spread throughout TN and its cost was minimal compared to the cost of interviewing all the participants (Frankfort-Nachmias & Nachmias, 2008; Greenberg et al., 2001). Surveys also reduce bias errors that could result from personal interviews and produce greater anonymity (Frankfort-Nachmias & Nachmias, 2008). Surveys also allow the respondents to be considerate in their answers by giving them time

to think of the best answer or consult other sources (Frankfort-Nachmias & Nachmias, 2008).

Population/Sample

The target population for this study was all coordinators of the CSH program in TN. There were approximately 140 coordinators or directors in TN. These individuals oversaw and managed the program to ensure that all components are implemented as intended. The coordinators are responsible for all of the schools in their district or county. Due to the small number of coordinators, all coordinators were recruited to participate in the study. A power analysis using G*Power 3 software (Faul, Erdfelder, Lang, & Buchner, 2009) was conducted to determine the appropriate sample size for this study. A linear multiple regression, assuming a medium effect size (f^2 = .15, alpha = .05), revealed that a minimum sample size of at least 109 total participants was required to achieve a power of at least .80 (Faul et al., 2009).

Figure 1. Procedures for recruitment

Figure 1 shows the procedures for recruitment.

Contact information for each CSH coordinator was listed on the Office of Coordinated School Health's website. E-mails were sent to the 140 coordinators using Survey Monkey. The e-mail included the purpose of the research, my contact information, the consent form, and access to the survey, if they chose to participate. E-mails were sent out weekly to encourage participation until the survey closed.

Instrumentation

The School Health Program survey used for this research was developed by Greenberg et al. (2001). The survey was used to gather data on CSH programs in Ohio. During the time of the Ohio study, the school districts were encouraged to adopt CSH programs (Greenberg et al., 2001). Workshops were conducted and manuals were written to aid in the success of the program. The purpose of the project was to gather baseline data on the programs in Ohio and evaluate ongoing and future efforts to promote programming statewide (Greenberg et al., 2001).

The survey consisted of 109 questions, which were a dichotomous (yes-no) format. Space on the survey was left for questions requiring additional information. Information regarding demographics was requested (number of students in district; per pupil expenditure; and if the district is urban, rural, or suburban). The survey was divided into sections, which focused on specific areas of a CSH program. The breakdown included administration, 11 questions; food service, 13 questions, health services, 12 questions; counseling/psychology, 10 questions; health instruction, 16 questions; physical education, 15 questions, environment, eight questions; faculty/staff wellness, 14 questions; and family, school, community partnership, 10 questions.

Examples of administration questions included asking if the district had formal, written short- and/or long-term goals for the program and if the development and implementation of the program had been a major priority in the district. Food service questions consisted of knowing if the food service program was directed by a qualified professional with training in dietetics and if all meals met U.S. dietary guidelines. Health services questions were concerned with the credentials of registered nurses, the number of nurses in a building, and written policies for emergency situations. Counseling and psychology questions pertained to the number of services available to students at all grade levels, when the services were available, and if programs identified and intervened with high risk students. Health education questions asked if a curriculum emphasized prevention or disease, whether an appropriate curriculum had been developed and was followed by teachers, and when the curriculum was last updated. Physical education questions asked if physical education was offered at least three times per week, if there was a written curriculum, and if the curriculum focused on fitness. Environmental questions addressed policies pertaining to tobacco, alcohol, drugs, and weapons. Did the district have an employee assistance program to address personal problems of faculty and staff was one example of a question under faculty/staff wellness. Another relevant question asked about the existence of a planned wellness program. Finally, questions related to family, school, and community partnerships dealt with the presence of coalitions or advisory committees and the involvement of parents, students, and community agencies in planning or implementing health promotion programs.

Additional questions generated by the TN Department of Education Office of Coordinated School Health were not included in the survey, but were available on the website, along with the responses. These questions pertained to physical activity/physical education, barriers to compliance with the 90 minute physical activity law, activities that facilitated compliance with the 90 minute physical activity law, and innovative methods used to ensure compliance with the 90 minute physical activity law.

Reliability and Validity of Instrument

Questions were developed from results of a Delphi study completed in Ohio (Greenberg et al., 2001). Thirty experts were asked to identify key indicators of a CSH education program. Items that were above the mean in importance were appropriately worded and included on the instrument. To establish content validity, 96 questions were cross-referenced to at least one other instrument previously developed to measure school health efforts, and the remaining 13 questions were selected based on the results of the Delphi study. The instrument was then submitted to a panel of experts representing members of the Ohio Department of Health, faculty members from Health Promotion and Education at the University of Cincinnati, and a public school health education teacher to further establish content validity (Greenberg et al., 2001). A test/retest procedure was used with four Ohio public school districts to establish reliability of the instrument; a correlation coefficient of .9685 was calculated (Greenberg et al., 2001), which indicates a stable and reliable instrument. A one-way ANOVA was run to determine whether differences between the groups existed (Greenberg et al., 2001). A score of .261 on the Levine test for homogeneity of variances indicated that the three groups (urban, rural, and

suburban) had equal variances (Greenberg et al., 2001). An ANOVA indicated statistically significant differences (p = .0249, F (2.107) = 3.8228). The data were also analyzed to look for a relationship between the size of the district and the total score on the survey. The Levine test for homogeneity of variance was .872, and the one-way ANOVA was statistically significant at the .05 level (Greenberg et al., 2001). Finally to examine the relationship between per pupil expenditure and the total score on the survey, a correlation coefficient was run, and it was statistically significant with a score of .2682 (Greenberg et al., 2001).

Threats to Validity

Threats to internal validity are factors or events that affect the program's outcomes and the results cannot be attributable only to the program. The CSH program has a set of guidelines, focusing on eight areas that impact the lives of children. Although TN has physical education requirements, they are often limited, not enforced, or inadequate. TN requires BMI screening or weight-related assessments and health education. Since the implementation of the CSH program, policies have been put in place to regulate the amount of physical activity and school foods and beverages. According to the F as in Fat: How Obesity Threatens America's Future 2013 report, the Healthy, Hunger-Free Kids Act authorized the first update to nutrition standards for school meals (Levi et al., 2013). Meals now include more fruits, vegetables, whole grains and low-fat dairy products. The law also increased the federal reimbursement for meals that meet the new standard by six cents. The USDA issued an interim final rule updating nutrition standards for school snacks and drinks for schools that participate in

the National School Lunch Program. The new standard called "Smart Snacks in School" calls for healthier competitive foods with more fruits, vegetables, low-fat dairy, whole grains, and lean proteins as main ingredients. Limits have also been set on sugar, fat, and sodium in each item. Many of the new requirements are being phased-in over five years, starting during the 2012-2013 school year. Additional programs like farm-to-school have shown to improve student's nutritional intake. New standards and activities are being introduced in schools to increase student's physical activity level and nutritional intake. It may not be possible to show how much of an impact the eight components of the CSH have on obesity rates in children.

Ethical Procedures

After approval had been received (Approval No. 07-07-14-0304392) from the Institutional Review Board (IRB), the coordinators were contacted and asked to participate in the survey. Names of coordinators or districts were not indicated on the survey. All survey data will be kept in a locked file and the data will be password protected. No one will have access to this information except the researcher.

Summary

Chapter 3 described the quantitative methods that were used to gather information about CSH programs in TN. Surveys were sent to all CSH coordinators to complete and return. Questions were asked relating to the eight components of the CSH program. A G Power analysis was used to determine the appropriate sample size and multiple regression was run to assess the relationships between the dependent and independent variables. Permission was not needed prior to contacting the coordinators and they were ensured

that the information provided will be protected and kept confidential. In Chapter 4, I will discuss the results of the statistical analysis.

Chapter 4: Results

Introduction

Childhood obesity rates have been increasing over the past years. There have been numerous programs designed to address this issue. Some programs have focused on children in early childcare, school programs, after school programs, and/or the health of the mother during pregnancy. One of the best settings available to reach children is at school. Children spend a large portion of their time at school, and this environment provides the necessary components needed for a healthy child development. Therefore, the purpose of this study was to determine if a relationship existed between the CSH program and childhood obesity in TN. Each of the eight components was analyzed to assess its relationship to childhood obesity rates. In this chapter, I will describe the data collection process, characteristics of the sample, and the results.

Data Collection

Surveys were available from July 20 to Sept 1, 2014. One hundred forty one CSH coordinators in TN were issued a survey through survey monkey. Reminder e-mails were sent out weekly to encourage participation. Sixty eight coordinators responded to the survey by either declining or agreeing to participate. There were 57 completed and partially completed surveys submitted. Seven coordinators agreed to participate, but did not complete the survey. The response rate was 40% (57/141).

The initial data collection plan was to obtain permission from the Tennessee Department of Education Office of Coordinated School Health to obtain CSH coordinators' contact information so that surveys and other research materials could be

mailed to them. However, the coordinators' contact information is public information and is listed on the CSH website. Therefore, permission was not needed by the TN Department of Education. Another change to the data collection was the method in which the surveys were sent. Instead of mailing the surveys, survey questions were generated online using Survey Monkey. The consent form was included at the beginning of the survey. Each participant had the option to accept or decline participation. If they were willing to participate, then they were able to continue completing the survey. If they did not wish to participate, then they were forwarded to the last page and were not able to see the survey questions. A separate e-mail was sent to all of the coordinators clarifying that the survey was not associated or endorsed by the TN Department of Education Office of Coordinated School Health.

Some of the coordinators stated that this was their first year serving as the CSH coordinator and they did not feel comfortable or knowledgeable enough to complete the survey. They were asked to locate another key staff person who was more knowledgeable about the program and to forward the survey e-mail to him/her or contact me with the new contact information. A coordinator in the West declined because the school district was considered a consortium and consisted of several different superintendents, food service supervisors, and other staff.

TN is divided into three regions: East, Central, and West. Some of the 95 counties that make up TN are represented by more than one school district. Twenty four counties are located in the East region, 50 are in the Central region, and 21 are in the West region. Eighty seven percent (N= 21) of the coordinators responded from the East

region, 48% (*N*=24) responded from the Central region, and 57% (*N*=12) responded from the West region. Data were missing from five coordinators when asked to accurately describe their district, using the choices rural, suburban, or urban. Seventy four percent (*N*=42) described their region as rural, 12% (*N*=7) as suburban, and 5% (*N*=3) as urban.

Results

Research questions were answered by means of frequency analysis. Ninety eight percent of the coordinators responded that their district had been exposed to the concept of CSH Program. Ninety one percent of the coordinators reported that their district had made an effort to coordinate all of its health-related programs, personnel, and initiatives, but only 65% stated that developing and implementing the program was a major priority. Coordinators stated that academics, test score improvements, and resources were reasons why priority will not be given to CSH programs within the next 2 years. One coordinator stated that the district does not recognize the link between health and academics, and another stated that health questions do not appear on the end of year testing (TCAP). Thirteen districts that responded to the survey have increased obesity rates from 2007-2008 school years to 2012-2013. A majority has made efforts to coordinate and integrate health programs, but only 69% have had faculty or staff initiate the CSH program or make it a priority (See Figure 2).

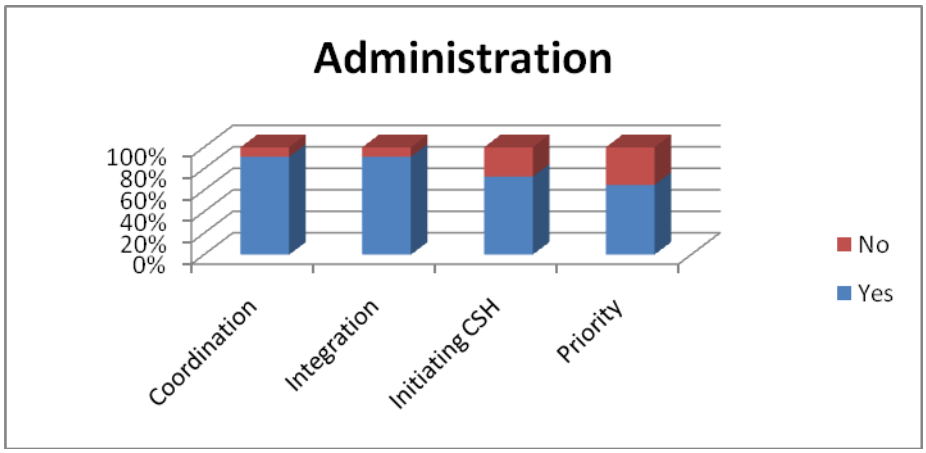

Figure 2: Percent of CSH coordinators' responses to administration (*N*=57)

All coordinators reported that all meals met U.S. Dietary Guidelines. As a way to encourage healthy eating and make healthy choices available, 90% of the coordinators reported that schools have not used outside vendors to provide lunches, 51% stated that vending machines offer fresh and healthy food choices, and 98% stated that fruits and vegetables are available daily on the lunch lines. Many school districts are making efforts to incorporate the food service program into classroom instruction and provide educational materials on how to prepare healthier bag lunches and healthy after school snacks. While 93% of the coordinators stated that educational materials or posters related to good nutrition are displayed in cafeterias, only 30% stated that nutritional values of food are posted on lunch lines (See Figure 3).

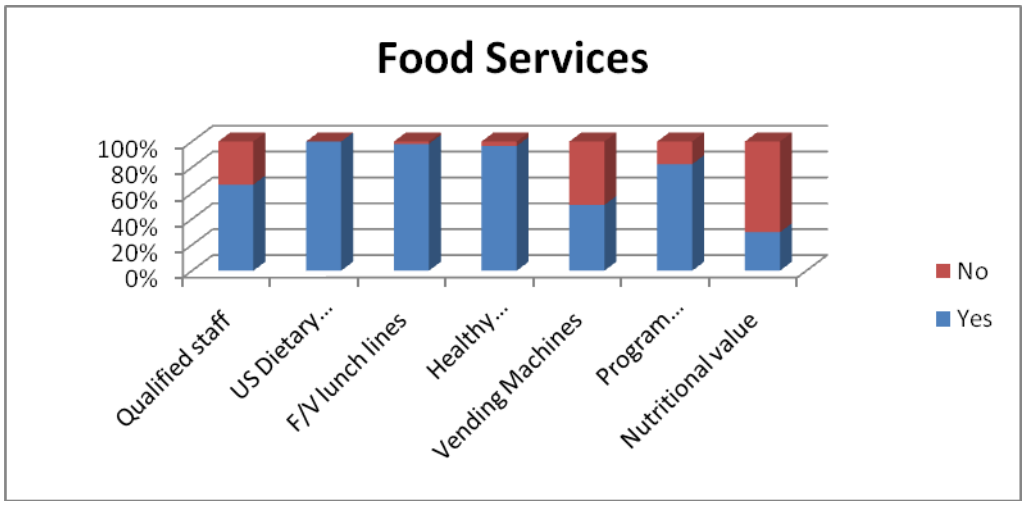

Figure 3: Percent of CSH coordinators' responses to food service (*N*=57)

School health services are designed to assist children with medical issues while they are in school. Schools with 500 or more students do not all have full-time nurses. The shortage of nursing staff may make additional program implementations challenging. Sixty three percent of the coordinators stated that nurses are expected to provide programs that focus on prevention of disease. In addition to monitoring student immunization records and ensuring that all students are appropriately immunized, nurses conduct screenings for immunizations (63%), scoliosis (40.4%), hearing (63.2%), and vision (68.4%). However, only 46% of the coordinators stated that nurses provide screenings for faculty/staff wellness programs (See Figure 4).

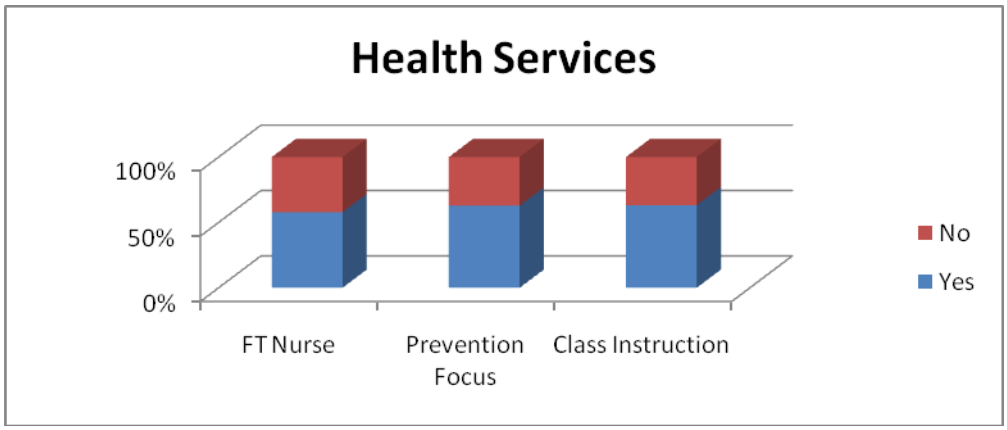

Figure 4: Percent of CSH coordinators' responses to health services (*N*=57)

Ninety eight percent of the coordinators stated that counseling services are regularly available for students at elementary through high schools but those services are not readily available during non-school hours. Counselors and psychologists are allowed time to work with students on personal or health related problems instead of just academic advising. School districts have programs in place to identify and intervene with high risk students and referral programs to community agencies. Ninety three percent (93%) of the counseling and school psychology personnel are included as part of a health promotion committee or team (See Figure 5).

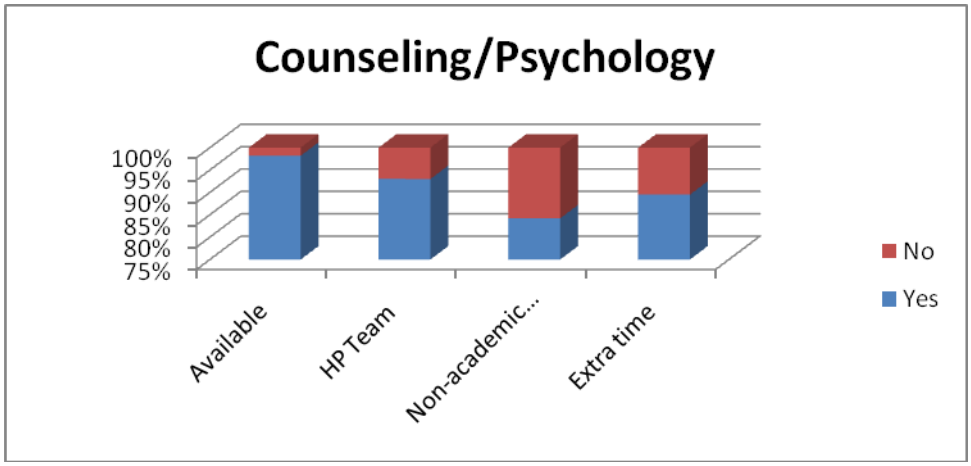

Figure 5: Percent of CSH coordinators' responses to counseling/psychology (*N*=57)

Seventy seven percent of the coordinators agreed that significant effort has been made to ensure health education classes teach skills, such as goal setting, behavior modification, and decision making, to help maintain and improve health. The health curriculum, which is developmentally appropriate and in some districts is updated at least every five years, emphasizes prevention rather than learning about disease. In the past three years, districts have offered in-service programs to elementary and secondary teachers to improve and/or update the health instruction. Community health agencies, such as American Cancer Society, American Heart Association, or American Lung Association have been utilized to provide districts with updated materials. However, 54% of the coordinators agree that these agencies provide teacher in-services and 58% agree that they provide programs directly to students (See Figure 6).

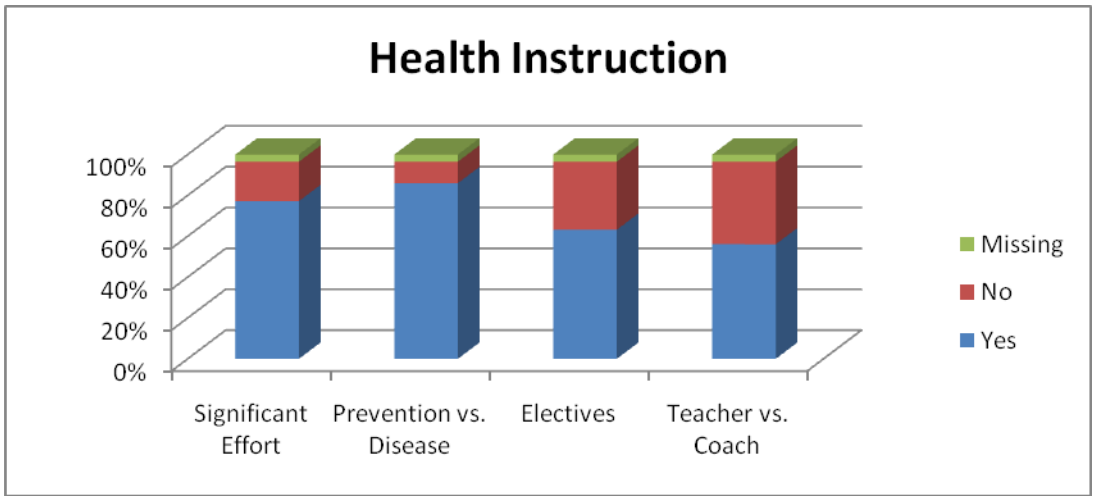

Figure 6: Percent of CSH coordinators' responses to health education (*N*=57)

Physical education is one of the components that focus on increasing physical fitness and encouraging a lifetime of activity. Only 40% of the coordinators agreed that physical education was offered at least three times per week to all students in grades K-6, while 79% agreed that physical education was available to all students in grade 7-12 as either a required class or an elective. Written objectives were established, 60% of the coordinators stated that the physical education curriculum was updated at least every five years, and there was coordination and integration of programming between the physical education and health instruction programs.

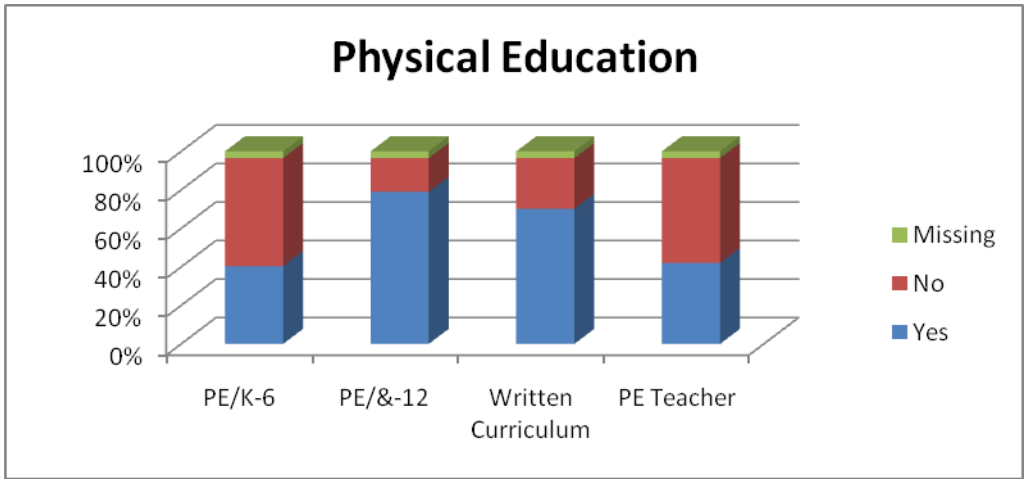

Figure 7: Percent of CSH coordinators' responses to physical education (*N*=57)

The TN Department of Education Office of Coordinated School Health conducted a survey of all school districts in TN to determine the percentage of TN schools that were in compliance with the 90-minute Physical Activity law for all students. During the 2008-2009 school years, 89% of schools were in compliance with the law. The percentage decreased to 84% in 2011-2012 and then increased to 87% during the 2012-2013 school years. Activities used in schools to meet the physical activity requirement included recess (structured or active), walking (indoors or outdoors), classroom physical activity curriculum, balls (kickball, football, soccer, handball, etc), teacher directed physical activity, exercises (stretching, jumping jacks, etc.), marching band (must be done during school day), intramurals (all types), strength training (lifting weights, yoga), running/jogging (all types). Coordinators' response options were often, occasionally, and not used. The activities used most often in school districts to meet the requirement during the 2012-2013 school years were recess (83%), followed by walking either indoors or outdoors (69%), or using balls (67%) (TN Dept. of Ed, 2014).

A healthy school environment is one that is clean, well lit, and promotes growth and wellness. Over 90% responded that the school environment is free of tobacco (91%), alcohol (95%), and drugs (95%). Also, to ensure school environments were clean and safe, districts had programs in place to recycle paper, soda cans, and bottles, sponsor violence awareness and prevention programs and had a written, well publicized no weapon policy with sanctions for those who violated the policy (See Figure 8).

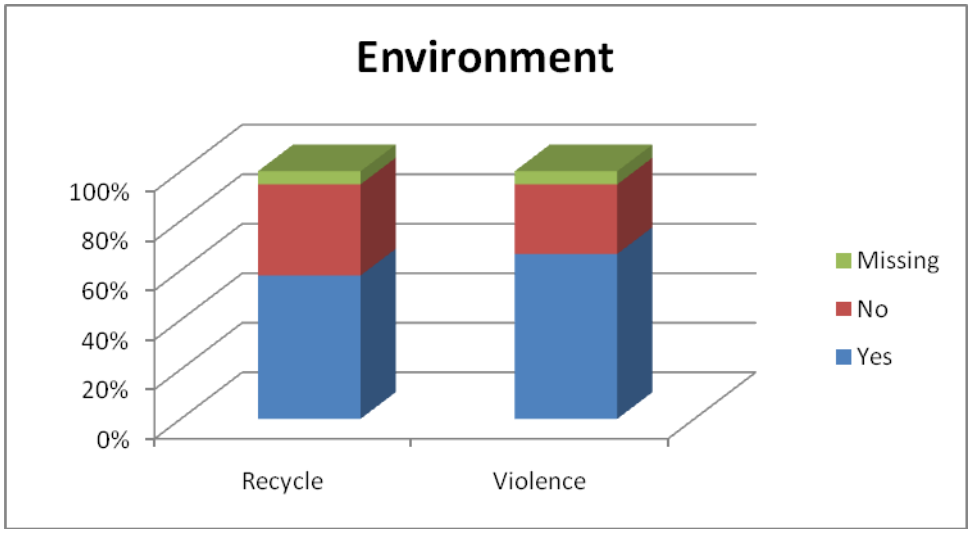

Figure 8: Percent of CSH coordinators' responses to environment (*N*=57)

Staff wellness programs were designed to provide wellness opportunities for staff and faculty and it allowed the staff to serve as role models for the students. Seventy two percent of the coordinators stated that the district provided a planned faculty/staff wellness program. The coordinators who stated that their district provided wellness programs identified the following areas that were offered: stress management, physical fitness and exercise, seat belt use, smoking cessation, nutrition/weight control, and health screenings. According to the results, 72% stated that a person, not a wellness committee,

was responsible for the wellness program and was not given additional compensation for the wellness work. Therefore, it was not surprising that there was no budget set aside for staff wellness programs (See Figure 9).

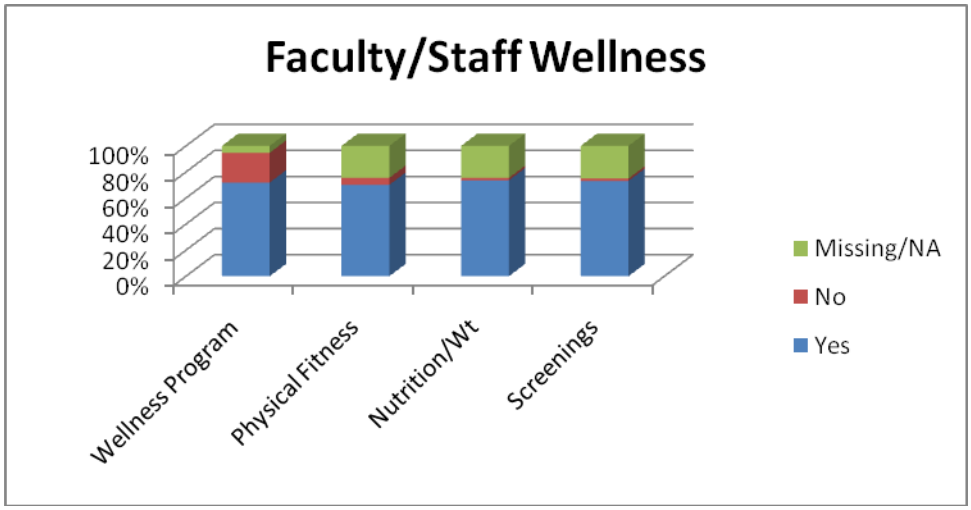

Figure 9: Percent of CSH coordinators' responses to faculty/staff wellness (*N*=57)

Previous research showed the positive association between parental involvement and a child's health. A majority (84%) of the respondents agreed that a community/school task force, coalition or advisory committee had been established and provided input on school health programs and parents, students, and local community agencies were involved in planning or implementing those health programs. Another method to get parents involved was to send information home using newsletters or sponsor events such as open houses or school programs to communicate the health promotion program and 86% of the coordinators agreed that this occurred in the district (See Figure 10).

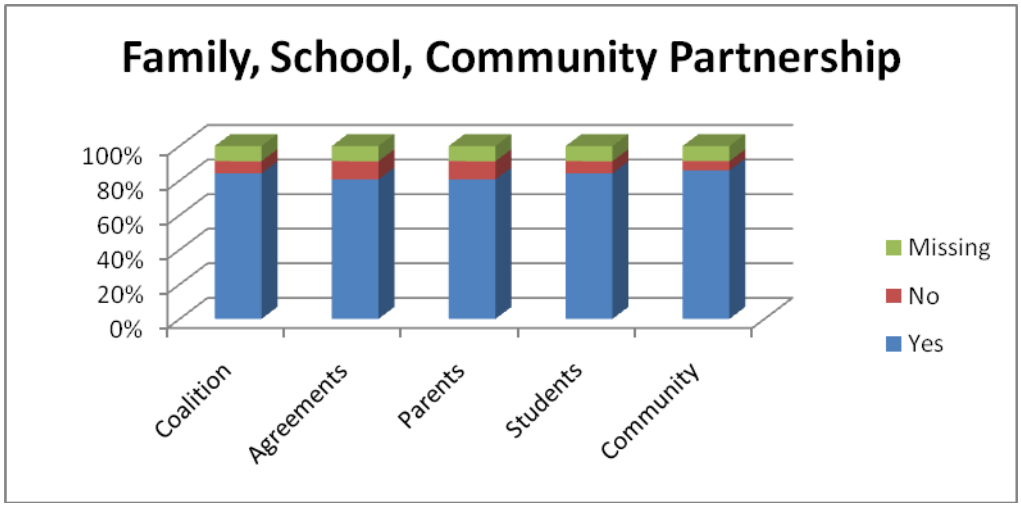

Figure 10: Percent of CSH coordinators' responses to family, school, and community partnership (*N*=57)

A multiple regression analysis was conducted to evaluate how the components of the CSH program predicted obesity rates. The predictors were the eight components of the Coordinated School Health, while the dependent variable was the obesity rate. The regression equation measuring the CSH components was not significant, $F(9,42) = 1.17$, $p = .342$. The combination of the component measures was found to explain 3% of the variance of obesity rates (adjusted $R^2 = .028$) and had a correlation ($R = .447$). Table 1 represents the relative strength of the individual predictors. The bivariate correlations between the measures and the obesity rate were both positive and negative, and one predictor, nutrition service, was statistically significant ($p < .05$). The multiple regression results suggest that the components are not good predictors of obesity rates but nutrition service was a significant predictor when all of the independent variables were included in the regression analysis.

Table 1

The Bivariate and Partial Correlations of the CSH Components with Obesity Rates

Predictors	Correlation between each predictor and Obesity Rates	Correlation between each predictor and Obesity Rates controlling for all other predictors	Sig
Administration	0.04	-0.05	0.77
Nutrition Service	-0.26*	-0.35*	.02*
Health Service	-0.12	-0.19	.22
Counseling/Psychology	0.08	0.12	.43
Health Education	0.07	0.10	.51
Physical Education	0.13	0.16	.30
Environment	0.09	0.03	.87
Faculty/Staff Wellness	-0.03	-0.09	.57
Family/Community	0.11	0.08	.60

*p<.05

Summary

The results did not indicate a relationship between the components of CSH and obesity. However, nutrition services were significant. The survey questions assessed the CSH program to determine if the components were being implemented at the schools. A majority of the coordinators agreed that efforts were made to implement the program. Various services and resources were in place that specifically focused on each component. The degree to which these components were implemented was not evaluated in the study. Providing all meals that met US Dietary Guidelines, along with the availability of fresh fruits and vegetables, does not take into account how much was consumed or not eaten. It is known that physical activity can help manage weight. It was interesting to discover that over half (56%) of the coordinators stated that physical

education was not offered at least three times per week to the students in grades K-6. Although the CSH program used a holistic approach, focusing on the child, the behavior, and the environment, the analysis showed that there were other factors that affected obesity outcomes.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

Childhood obesity has become an epidemic, and many programs have been established to prevent further health problems and reverse the trend. Schools have been identified as the ideal setting for child health programs because this is where children spend a large amount of their day. When addressing obesity, the focus tends to be on nutrition and physical activity. However, the CSH program is a program that includes six additional components that play a role in the overall health of children. The purpose of this study was to determine if a relationship existed between each of the components of the CSH program and childhood obesity in TN.

A majority of the coordinators agreed that some effort has been made to coordinate all of its health-related programs and initiatives, but developing and implementing the program have not been a priority. According to the results, meals provided by the school districts met U.S. Dietary Guidelines, and fruits and vegetables were available daily on the lunch lines. The results do not indicate the types of foods that the children are actually consuming. It cannot be assumed that because healthy food is available, that the children are eating it. When programs are considered a priority, systems must be in place to ensure it can be implemented properly in order to produce the expected results. The coordinators agreed that the eight components of the CSH program were present in the school districts. However, school coordinators have not been given release time or additional compensation, nor have budgets been provided to focus on wellness issues. More than 50% of the children in Grades K-6 were not offered physical

education at least three times a week, but it was made available to children in Grades 7-12. I did not assess the level or percent of student participation.

Interpretation of the Findings

Frieden et al. (2010) concluded that the food environment could impact childhood obesity rates. Food service is the only component that relates to obesity rates. Creating a healthy food environment means limiting exposure to junk food and increasing the presence of fresh fruits and vegetables. School districts realized the importance of healthy food, which explains why all meals meet U.S. Dietary Guidelines including fat content. This finding is consistent with previous research.

Efforts have been made to implement the CSH program, but because of the No Child Left Behind (2001) Act, teachers are pressured to focus on improving academic skills. As a result, the physical education curriculum is written and planned, but the national guidelines of 225 minutes of physical education are not being met by children in Grades K-6. Along with healthy eating, a contributing factor for weight loss is exercise. If children are not exercising, then that creates an imbalance between calories consumed versus calories expended, which results in weight gain.

School districts also have an advisory committee that includes parents and local community agencies to help plan and implement health promotion programs. This component was not significant to obesity rates. Having written health plans does not mean that they are being implemented, and having a committee does not explain how much work is being put into addressing childhood obesity.

Seven of the CSH components were not statistically significant, but the components are important factors when addressing childhood obesity. Having written policies or plans in place does not translate into successful implementation and program effectiveness.

The SCT was used as the conceptual framework for this study. This study was based on the premise of reciprocal determinism, which is the relationship and interaction between person, behavior, and environment (Glanz et al., 2008). Based on the responses from the coordinators, most have healthy environments, which consist of the presence of fresh fruits and vegetables; the absence of tobacco, alcohol, and drugs; a no weapons policy; and violence awareness and prevention. A healthy environment is likely to produce the desired behavior. The multiple regression analysis did not show a relationship between seven of the components and obesity. The analysis did show a relationship between food service and obesity. The survey did not ask what types of activities the children did while participating in physical education classes. Specific activities are available on the CSH's website. However, coordinators with similar school environments and physical activity behavior did not explain obesity outcomes in various school districts.

Limitations of the Study

The expected number of survey responses needed was 109, but only 57 were completed. While this is a limitation in the study, 87% (21 out of 24 counties) of the coordinators from the Eastern region responded, 48% (24 out of 50) of the coordinators in the Central region responded, and 57% (12 out of 21) of the coordinators in the

Western region responded. Each region is distinct and consists mostly of rural areas. It is possible to generalize the results from the Eastern region, but not the Central and West region. Findings may also be limited by the honesty of the respondents and their personal biases regarding the CSH program in their district. The survey questions asked specific information about the CSH program without explanation, and there is no way to measure the amount of thought that was put into answering the questions. Respondents may have read the questions differently and answered based on their own interpretation or perception. The survey also consisted of 109 questions, and respondents may have answered hurriedly, without accuracy, assuming that the questionnaire would be time consuming. The yes/no format of the survey offers limited answer choices and does not allow me to probe for clarification of answers. Space was given to elaborate on some questions, which provided explanations for the lack of priority when it related to program implementation, but not all questions had space for additional comments. Finally, participants may not have felt comfortable providing answers that would present themselves in an unfavorable manner. Data analysis was also limited because the difference between those who responded to the survey and those who chose not to participate is not known.

Recommendations for Action

Researchers have shown the correlation between health and improved academics. Policies alone have had little effect on physical education participation and implementation. School administrators must now determine how to integrate and implement health in the school curriculum without diminishing the other core subjects.

Superintendents must be held accountable for ensuring that all students engage in 90 minutes of physical activity per week as well as meet the needs of the other components, especially because they have received funding to implement the CSH program. Principals and administrators can show that this program is a priority by actively supporting and advocating for it and by giving teachers the freedom to structure the class time to implement and integrate the various components into the core subjects. Another recommendation is to include health and wellness as a skill assessment on the TCAP, which is Tennessee's Achievement Test for each grade level. The TCAP is a multiple choice assessment that measures skills in reading, language arts, math, and science. Beginning the 2015-2016 school years, social studies will be added as an assessment measure. Using the same concept to field test the social studies component, health can also be field tested and then included on the Achievement Test. Without upper management support, which includes Tennessee's Department of Education, this program may not be implemented as designed, its effectiveness cannot be measured, and childhood obesity rates may continue to increase. Finally, if trying to implement the entire program at once is not contributing the reduction in childhood obesity, then coordinators should consider implementing a few of the components at a time and measure its success before adding additional components.

Recommendations for Further Research

There is need for further research on the Coordinated School Health program and its' relationship to childhood obesity in Tennessee. This research was limited because it gathered information on the existence of the program and each component. Information

was not gathered about the specific actions taken to show how the eight components were being implemented and evaluated for effectiveness. The CSH coordinators responded to the questions having to group all schools and grades together because the coordinator's responsibility is to the entire school district, not specific grade levels. Further research can determine if there are differences in obesity rates and program implementation between schools with Grades K-6 and 7-12. This survey did not differentiate between grades.

Implications for Social Change

The CSH program is designed to improve the health and academic success of children by using a holistic approach and not only focusing on nutrition and physical activity. Integrating the eight components includes all aspects of a child's life that impacts overall health and academic success. A healthy diet and physical activity are necessary factors in weight management. The results indicated that the actions taken to address the nutrition component of the CSH program were significant in reducing childhood obesity rates. Unfortunately, schools have not taken those same measures in ensuring that children are participating in the recommended amount of physical activity to support or maintain good health. Eating a healthy diet and exercising can help prevent or delay the onset of many chronic diseases. The goal is to create healthy habits in children, educate them on the importance of making healthy choices, and encourage them to make healthy behaviors when they become adults.

The existence of the CSH program is not enough to contribute to the reduction in childhood obesity. School personnel, parents, and community agencies must increase

their efforts to improve the health of children. Reducing obesity in children will bring about positive health outcomes while they remain children and hopefully continue as they transition into adulthood.

Conclusion

Schools in TN have been funded to have and implement the CSH program. Most of the coordinators agreed that all components were evident in the district. However, the results indicated that more work is needed to actually implement the components. Extra time was not given to address health and wellness concerns because class time had to be devoted to teaching the core curriculum. Schools have some responsibility in educating children but they cannot do it alone. Family members and the local community can increase their contribution by promoting healthy behaviors in children, supporting the efforts generated by the schools, and by being involved in planning and implementing the programs.

Although majority of the components were not statistically significant to obesity rates, they are needed to address the health and academic needs of children. Because children spend a large amount of the day at school, administrators must find alternate ways of integrating health in the district..

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Appendix A: Consent Form

You are invited to take part in a research study that will describe the relationship between the Coordinated School Health program and childhood obesity in TN. The researcher is inviting all Coordinated School Health Coordinators/Directors (the person responsible for overseeing the implementation of the Coordinated School Health program) to be in the study. This form is part of a process called "informed consent" to allow you to understand this study before deciding whether to take part.

This study is being conducted by a researcher named Tekeela Green who is a doctoral student at Walden University.

Background Information:
The purpose of this study is to determine if a relationship exists between the components of the Coordinated School Health program and a reduction in the incidence of obesity in Tennessee's children.

Procedures:
If you agree to be in this study, you will be asked to:

- Complete an online survey which will take about one hour to complete.
- Submit completed survey results online.

Here are some sample questions:

1. Do all meals meet US Dietary Guidelines including fat content that is less than 30% of total calories?
2. Are nurses in your district expected to provide programs that focus on prevention of disease?
3. Are counseling and school psychology personnel included as part of a health promotion committee or team?
4. Has significant effort been made to insure that students in health education classes are taught skills, such as goal setting, behavior modification, to help them maintain and improve their health?
5. Is physical education offered at least 3 times per week for all students?
6. Is there a district sponsored violence awareness and prevention program?
7. Does your district provide a planned faculty/staff wellness program?

Voluntary Nature of the Study:
This study is voluntary. Everyone will respect your decision of whether or not you choose to be in the study. No one at TN Department of Education Office of Coordinated School Health will treat you differently if you decide not to be in the

study. If you decide to join the study now, you can still change your mind later. You may stop at any time.

Risks and Benefits of Being in the Study:
Being in this type of study involves some risk of the minor discomforts that can be encountered in daily life, such as stress from the questions. Being in this study would not pose risk to your safety or wellbeing.

The potential benefit of the study is to determine if the components of the Coordinated School Health program are helping to reduce childhood obesity rates in TN.

Payment:
There are no gifts, reimbursements, or financial incentives associated with completing this survey.

Privacy:
Any information you provide will be kept confidential. The researcher will not use your personal information for any purposes outside of this research project. Also, the researcher will not include your name or anything else that could identify you in the study reports. Data will be kept secure in a locked file cabinet and the online surveys will be password protected. Data will be kept for a period of at least 5 years, as required by the university.

Contacts and Questions:
You may ask any questions you have now. Or if you have questions later, you may contact the researcher via phone at 919-824-0276 or email at Tekeela.green@waldenu.edu. If you want to talk privately about your rights as a participant, you can call Dr. Leilani Endicott. She is the Walden University representative who can discuss this with you. Her phone number is 612-312-1210 (for US based participants). Walden University's approval number for this study is **07-07-14-0304392** and it expires on **July 6, 2015.**

Please print or save this consent form for your records.

Statement of Consent:

I have read the above information and I feel I understand the study well enough to make a decision about my involvement. By clicking on the link below and returning the survey, I understand that I am agreeing to the terms described above.

Link to Survey:
Please click on the following link to complete the TN Coordinated School Health

Research Survey.

Curriculum Vitae

Tekeela S. Green, MPH, CHES

2794 Summit Arbors Circle #203 Memphis, TN 38128
919.824.0276 daytime and evening • e-mail: tekeelagreen@bellsouth.net

Public Health Professional

EDUCATION & CREDENTIALS

Certified Health Education Specialist 2008 to present
National Commission for Health Education Credentialing, Inc.

Doctorate of Philosophy in Public Health, Community Health Promotion and Education 2011 to 2014
Walden University - Minneapolis, MN
GPA 3.92

Advanced Start Bachelor of Science in Nutrition Science 2009 – 2010
Kaplan University, Chicago, IL
GPA 3.93
Honors: Summa Cum Laude

Certificate in Management 2007 – 2008
St. Louis Community College – St. Louis, MO

Master of Public Health, Behavioral Science & Health Education 2004 – 2006
St. Louis University – St. Louis, MO
GPA 3.78

Certificate in Core Public Health Concepts 2002 – 2003
University of North Carolina at Chapel Hill – Chapel Hill, NC

Bachelor of Science in Biology 1995 – 1999
University of North Carolina at Chapel Hill – Chapel Hill, NC

RELEVANT EXPERIENCE

PUBLIC HEALTH COORDINATOR-HEALTH PROMOTION, SHELBY COUNTY HEALTH DEPARTMENT, Memphis, TN (06/07 to present)

Leadership

- Supervised and mentored Masters in Public Health interns.
- Provide analytical advice, guidance and assistance towards planning, developing and implementation of health promotion projects and other administrative

functions within the Health Planning and Promotion Bureau with an emphasis on improving efficiency and productivity.

- Manages projects and activities that increase healthy eating and physical activity participation among adults and children in Memphis and Shelby County.
- Provide consultation and guidance to management and staff on organizational, operational and administrative concerns.
- Assist the Health Planning and Promotion Administrator with preparing and writing grants to obtain additional funds.
- Ensures a competent workforce by collaborating with the Office of Nursing to provide continuing education credits for Certified Health Education Specialists (CHES).
- Drafted a 3 year logic model for $1.4 million tobacco settlement contract.
- Directly responsible for developing annual goals and objectives to address the high obesity and heart disease rates in Memphis and Shelby County.
- Fulfill requests on grant contracts to ensure activities are completed within grant cycle.
- Lead coalition group (Let's CHANGE) to sponsor Walking in Memphis campaign.
- Served as Shelby County Government Leader for the 2011 & 2013 American Heart Association Heart Walk fundraising campaigns.
- Co-facilitated the strategic planning of the Let's CHANGE summit.
- Prepares monthly reports on the progress of the health promotion program in reaching the community, activities accomplished, professional development opportunities obtained, and future plans of the program.
- Selected as Public Information Officer, in the absence of the PIO, for the Shelby County Health Department.
- Served as representative for media outlets (i.e. radio and television) as it relates to nutrition and physical activity programs coordinated by the Health Promotion Section.
- Lead the coordination of National Public Health Week events, which included CPR classes to seniors, a storm spotting class to the hearing impaired, teen pregnancy prevention sessions and a healthy cooking demonstration to participants at a WIC clinic.
- Served on the planning committee for the 2014 West TN Public Health Association regional meeting.

Collaboration with Internal and Community Partners

- Provide technical support to Shelby County Health Department programs, such as Breast and Cervical Screening program, Child Safety Seat program and Mid-South Sexual Assault Resource Center.
- Provide input and feedback to other public health workers from diverse agencies in discussion of goals and objectives related to overall strategies to reduce onset of chronic disease and disease prevention.

- Provide support to community partners in the development and implementation of public health programs and activities.
- Interact with organizations and/or government at the local level on public health programs focusing on nutrition, physical activity, and obesity.
- Collaborate with schools and organizations to educate and provide prevention oversight (nutrition, physical activity) to reduce chronic diseases.
- Member on the Coordinated School Health Advisory Council
- Establish and maintain effective program relationships with public and private organizations and professional associations to plan cooperative activities on matters of mutual interest.
- Establish a variety of contacts and serve as liaison between Shelby County Health Department and other health agencies, councils, community organizations and the general public.
- Serve as information resource person and provide assistance to community organizations by responding to health related questions/concerns.
- Participated in the Mobilizing Action through Planning and Partnership (MAPP) process
- Serve on the YMCA's Racial and Ethnic Approaches to Community Health (REACH) committee with the goal to increase access of fresh fruits and vegetables to minority communities.

Health Education

- Provide information on chronic disease prevention, public health methods and strategies to reduce the impact of chronic disease.
- Research and obtain the most current information on health and wellness, and share responses with colleagues, other public health professionals, and the community.
- Design and distribute educational materials to reach a broad range of audiences.
- Coordinate activities, campaigns, and events to promote public health education and behavioral change.
- Plan, develop, implement, and evaluate health education programs targeting high risk groups in the Memphis & Shelby County community.
- Participate in community outreach events providing health information and delivering presentations at local churches, schools, universities, clinics, and community centers.
- Conduct wellness training for all Shelby County Government employees.

Policy

- Assist in policy development that supports individual and community health efforts.
- Established Shelby County's written policy on healthy food and beverage initiatives. Shelby County Mayor signed an Executive Order adopting this initiative.

- Collaborated with the Mayor's Office to write and implement the Shelby County Government healthy vending policy, which was as an Executive Order signed by the Shelby County Mayor.
- Prepared and reported qualitative and quantitative data from Shelby County Government employees to Shelby County Mayor and policy staff to support vending policy decision.
- Facilitated focus groups to aid in the development of the Health Department's smoke-free campus policy.

Emergency Preparedness

- Handpicked by the Health Department Director to be the community spokesperson for the Ebola and H1N1 outbreaks.
- Participate in planning efforts related to environmental threats and natural disasters to enhance the Health Department's ability to respond in emergency situations, acting as Assistant to the Public Health Emergency Preparedness Volunteer Coordinator.
- Served as backup to the Public Information Officer during emergency situations.
- Developed presentation material that was delivered to the public during the H1N1 epidemic.
- Superbly served as Personnel Section Chief during Point of Dispensing (POD) exercise.

Shelby County Wellness Committee

- Provided guidance and assistance by planning and implementing wellness activities to the Shelby County Government Health and Wellness committee for two years by serving as Chairperson.
- Created an online health and wellness survey for all of Shelby County Government employees to assess employee health and wellness needs.
- Coordinated health and wellness activities for the Shelby County Government employees to promote and encourage physical activity.
- Coordinated activities for National Employee Health & Fitness Day/Month and partnered with University of Tennessee Health Science Center, Wellworx Sporting Club, and UT Extension Services and offered fitness classes, nutrition presentations, and educational games to all employees.
- Help increase employee awareness of personal health status among active employees
- Works with Human Resource representatives and insurance provider to pilot wellness program for County employees.
- Serve as the Communications Chair for Shelby County Government Wellness committee.

PROGRAM EVALUATOR INTERN, HEALTHY HEART COALITION – Saint Louis, MO (06/05 – 12/05)

- Evaluated the overall progress and effectiveness of the Healthy Heart Coalition.
- Managed, analyzed, and entered descriptive data.
- Prepared and mailed assessment tool.
- Provided assistance in writing the final report.
- Conducted statistical tests on data using SPSS.

OTHER WORK EXPERIENCE

QUALITY CONTROL SPECIALIST II, AMERICAN RED CROSS NATIONAL TESTING LABORATORY, SAINT LOUIS, MO (01/05 – 05/07)

- Performed in-process and documentation review of all testing, maintenance, and qualification records.
- Evaluated validity of test results prior to releasing to customers.
- Prepared initial documentation for testing problems and error reports.
- Investigate and ensure proper corrective action is taken in compliance with all policies, procedures and regulations.
- Maintained detailed knowledge of laboratory policies and procedures.
- Resolve testing and result release issues or forward to appropriate department for resolution.
- Compile reports of samples with incomplete test results and deliver to testing staff.
- Ensured test results, quality control parameters and all equipment maintenance functions were acceptable, valid and met the criteria of standard operating procedures, federal, and state regulations, American Association of Blood Banks (AABB) Standards and current Good Manufacturing Practices.

QUALITY CONTROL ANALYST, BIOMERIEUX, Durham, NC (03/02 – 07/04)

- Wrote, organized, and updated departmental procedures.
- Restructured the stability protocols that monitored long-term stability testing on reagents and controls.
- Assisted in preparing and executing equipment validations.
- Tested different raw materials, intermediates, components, and finished goods submitted to the laboratory for analysis to determine acceptability of the material/product.
- Performed calibrations and preventive maintenance on laboratory instrumentation in accordance with written procedures.
- Review test data to ensure results meet all specifications and input data into the associated QC LIMS system.

MEDICAL TECHNOLOGIST, DUKE UNIVERSITY MEDICAL CENTER, COAGULATION LABORATORY, Durham, NC (08/99 – 08/04)

- Trained new employees on laboratory procedures, equipment, and sample processing.

- Informed physicians and nurses of patients' results via telephone or computer.
- Ensured laboratory employees were in compliance with safety requirements (Safety Officer).
- Assisted with laboratory billing.
- Perform assays on automated machines with plasma samples for specified tests.

CERTIFICATIONS/TRAININGS

- Emergency Management Institute (FEMA): Introduction to the Incident Command System, 2007
- Emergency Management Institute (FEMA): National Incident Management System, An Introduction, 2007
- Emergency Management Institute (FEMA): Applying Incident Command System to Healthcare Organizations, 2009
- Emergency Management Institute (FEMA): National Response Framework, 2009
- Tennessee Emergency Management Agency: Intermediate ICS for Expanding Incidents, 2009
- NIH Office of Extramural Research, Protecting Human Research Participants Training, 2011
- Cultural Competency Training, 2011, 2014
- Health Impact Assessment Training, 2014
- Professional Grant Development, 2014

TECHNICAL SKILLS

Microsoft Windows 95-XP; Microsoft Office Suite (Word, Excel, and PowerPoint) 2000 and 2007; and Netscape, Outlook, SPSS