K-12 PRINCIPALS' PERCEPTIONS OF STATE AND LOCAL WELLNESS POLICIES

by

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ABSTRACT

SHELTON L. JEFFERIES. K-12 principals' perceptions of state and local wellness policies. (Under the direction of DR. J. ALLEN QUEEN)

The prevalence of obesity and a high probability of an increased medical and financial toll have prompted local, state and federal policy makers to enact wellness legislation and related policy. Over the past twenty years, policy dedicated to addressing the epidemic of childhood obesity has increased and in all 50 states. Childhood obesity is defined as an excessively high amount of body fat or adipose tissue in relation to lean body mass, which is categorized by being at or above the 95th percentile while a child or adolescent with a BMI ranging from a ranking of 85th percentile to 94 percentile BMI rank between 2-19 years old have been termed as being overweight. The Centers for Disease Control and Prevention Body Mass Index (BMI) have provided these data norms for several years to health professionals in a growth chart format. Policy makers, public health officials, and parents are concerned about the implications of the increasing rate of childhood obesity in the U.S. State policymakers are uniquely positioned to serve the needs of both rural and urban communities in their efforts to promote health and reduce childhood overweight and obesity. K-12 principals' perceptions may inform policies and strategies that are perceived to work in the prevention of childhood obesity.

The major purpose of this study was to assess the perceptions of K-12 principals in relation to the implementation of local and public policy to combat obesity.
The responses of 602 principals in sixteen (16) states where subjected to a univariate Factorial ANOVA analysis to determine if demographic variables influenced principals' perceptions related to wellness policy implementation. The states selected for the study

consisted of the eight (8) highest BMI rankings and the eight (8) lowest BMI rankings. The analysis provided data in which significant differences in principal perceptions were found when considering demographics gender, level of experience and BMI level.

Descriptive statistics were computed for survey items related to demographics, implementation of health and wellness policies. Frequencies, percentages and standard deviations were determined for each item. A univariate factorial ANOVA test was selected because the researcher is examining one dependent variable, principals' perceptions. The univariate test allows the researcher to have as many independent variables or text factors as desired. In this study the fixed factors or independent variables were gender, level of experience, and BMI level. The researcher seeking to understand the factors that influence principal perceptions of local, state and federal school wellness policies designed to impact or eliminate childhood obesity surveyed K -12 principals from high BMI and low BMI states. The researcher found statistically significant differences in the main effects when considering type of state and gender.

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To my children, always remember that if anything is worth having in this world; it is worth fighting for. Daddy will always fight for you.

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CHAPTER I: INTRODUCTION

The correlations between obesity, academic success and overall childhood well-being have been recognized at the highest levels of legislature. Increasing focus has occurred with the development and national adaptation of the *Let's Move* campaign strongly supported and developed by the Obama Administration, with the First Lady as the national spokesperson. Support for the appropriateness of the focus is substantiated by researchers funded by the Robert Wood Foundation in 2010 who found that for the last four decades the rate of childhood obesity has increased significantly across all age groups and quadrupled for children ages 6 to 11. Most alarming to note is that the foundation's researchers revealed that 32% of American children and adolescents were discovered to be obese or at risk of becoming obese (Robert Wood Foundation, 2010). Authors of previous studies had predicted a continuation of these current trends. The manner in which the problem is addressed must be systemic and deliberate for any effective prevention and treatment strategies to slow down this pandemic with the consequences associated with childhood obesity (Chenowith and Associates, 2005).

Whereas, there had been a social acceptance for the colloquially termed *baby fat* which made some social acceptance for pre-pubescent weight to change, but the age range at which children have been identified as obese has increasingly widened but obesity has not been distributed across all ethnic groupings equally. While the alarming growth of childhood overweight and obesity have impacted children on a national scale, the epidemic has disproportionately impacted children of color (38.2 percent of Latino children

and 35.9 percent of Black children ages 2 to 19 are overweight or obese, compared with 29.3 percent of white children) (CSG Health Policy Group, 2011).

In addition to the disproportionate distribution of this concern across ethnicities, obesity as a health concern is also localized according to the perceptions of safety in the neighborhoods where children reside. The Robert Wood Foundation researchers found that children living in neighborhoods considered unsafe by parents are more likely to be overweight than children who live in what parents considered to be safe neighborhoods. Because parents do not trust that their children will be safe playing outside, the opportunity for their children to get much needed exercise for an extended amount of time has been limited (Robert Wood Foundation, 2011)

A lack of safe places to play outside the community infrastructures not support walking and biking as a means of transportation and the recent reduction and elimination of physical education in schools has led to increased levels of obesity in children (Hannon, Rao, & Arslanian, 2005; Schroeder, 2007). Powell and others substantiate the correlation created by residing in communities without safe places to engage in physical activity lead to less active children and higher rates of childhood obesity (Powell, Slater & Chaloupka, 2004; Ludwig, 2005). Communities without safe places to engage in physical activity lead to less active children and higher rates of childhood obesity.

Significant research exists on the effects of the prevalence of childhood obesity as often underreported among risk factors for low socioeconomic status, urban youth. Nationally, Chang and Lauderdale in 2005 argued that the residual effects of race and ethnicity are the predominant factors correlated to the obesity of individuals or families. While social, economic and environmental factors can influence health; the strongest influencers of health and well-being are beyond the scope of the medical model for

treating obesity (Chang & Lauderdale, 2005; Lamb, Dabelea, Yin, Ogden, Klingensmith, & Rewers, 2010). In empirical studies by Chang and Lauderdale in 2005 and Lamb et al, 2009 researchers revealed that most children in the United States do not get the required amount of physical activity. Powell and colleagues suggested that communities without safe places to engage in physical activity lead to less active children and higher rates of childhood obesity (Powell, Slater, Chaloupka, 2004; Lamb et al, 2009).

Using Charlotte, North Carolina as an example, indicators such as the violent crime rate are more than twice the city-wide average, and the quality-of-life index is listed as "challenged," found in a 2010 city neighborhood study (Mecklenburg Study Group, 2010). In addition to the physical effects of obesity, relationships exist between increased absences, number of suspensions, and obesity. Data was noted asserting that both the average suspensions and number of unexcused absences for students exceeded the district average.

In the 2010 MSG study, there were ten neighborhoods examined within a 1.5 mile radius of an urban high school serving 20,800 residents, with a median household income of $22,749, well below the city average. More than 75% of residents received food stamps. Median home prices in neighborhoods equaled approximately half of the city's average median home value. While significant research exists on the effects of the prevalence of childhood obesity as often underreported among risk factors for low socio-economic status urban youth, noticeably missing in the evaluation conducted by the Metropolitan Studies Group were the devastating impacts of childhood obesity (MSG, 2010).

Significance of the Problem

State policymakers are uniquely positioned to serve the needs of both rural and urban communities in efforts to promote health and reduce childhood overweight and obesity. Over the past twenty years, policy dedicated to addressing the epidemic of childhood obesity has increased and now exist in all 50 states. In the Wang and Brownell 2005 study, the researchers identified the lack of guidance on drafting policy proposals and the subsequent impact on public health as a key challenge for policy makers. The research explored opportunities for policy and program alignment and may be used to guide future decision-making. Imperative is the need for researchers' insight into the perceptions of school leaders on the effectiveness of public policy in the prevention of childhood obesity. In previous studies, several authors supported the idea that the greatest threat to the youth of economically depressed community is childhood obesity (King & Hayes, 2003; Hannon, Rao, & Arslanian, 2005; Chaoyang, Ford, Mokdad, & Cook, 2006). Healthy communities are described as places that promoted the comprehensive health and well-being of the residents. The vibrant nature of these communities is replicated in the schools serving the youngest of all constituents. Obesity rates are generally the highest in communities with high levels of poverty and low levels of income. Low-income communities are often situated in food deserts and frequently have fewer places that are safe for children to play. A healthy weight is categorized as being between the 5th and 85th percentile rank as determined in lectures and later reported by Dr. Schumacher and Dr. Queen in the book, *Overcoming Obesity in Childhood and Adolescence: A Guide of School Leaders* (Schumacher & Queen, 2007).

Table 1: Evolution of federal wellness policies

	2004 Requirements Child Nutrition WIC Reauthorization Act	2010 Requirements Healthy, Hunger-Free Kids Act
Overview	Directs local educational agencies (LEAs) to have a LWP in place for each school under its jurisdiction.	Strengthens LWPs and adds requirements for public participation, transparency, and implementation.
Elements of the Local School Wellness Policy	LWP to include, at a minimum, goals for nutrition education, physical activity, and other school-based activities to promote student wellness, as well as nutrition guidelines for all foods available on school campus.	In addition to the 2004 requirements, the LWP is also to include goals for nutrition promotion.
Stakeholder Involvement	LEAs are required to involve parents, students, and representatives of the school food authority, the school board, school administrators, and the public in the development of LWP.	In addition to the 2004 requirements, LEAs are now required to permit teachers of physical education and school health professionals to participate in the development of LWP.
Stakeholder Participation	The stakeholders named above are required to participate in the development of the LWP.	In addition to the 2004 requirements, LEAs are now required to permit all stakeholders named above and in 2004 to participate in the implementation and periodic review and update of LWP.
Local Discretion	LEAs can determine the specific policies appropriate for the schools under their jurisdiction, provided that those policies include all required elements specified in the Act.	Same as 2004 requirement.
Public Notification	None.	LEAs are required to inform and update the public (including parents, students, and others in the community) about the content and implementation of the LWP.
Measuring Implementation	LEAs are required to establish a plan for measuring implementation of the LWP.	LEAs are required to periodically measure and make available to the public an assessment on the

Table 1: Continued

		implementation of LWP, including the extent to which schools are in compliance with LWP, the extent to which the LWP compares to model LWP, and a description of the progress made in attaining goals of LWP.
Local Designation	LEAs are required to establish a plan for measuring LWP implementation to include delegating one or more persons with the responsibility for ensuring LWP compliance.	LEAs are required to designate one or more LEA officials or school officials to ensure that each school complies with the LWP.

Robert Wood Foundation, 2011

Validity for the need for concern in the growing problem of childhood obesity may be in support from a 2007 study, when researchers indicated that the prevalence of overweight and obesity represents serious concerns for school leaders and policy makers as overweight and obesity have reached epidemic proportions (Molaison et al., 2007). This is not an isolated concern relegated to one geographical region of the United States as Ogden and Carroll hypothesized that nearly one-third of children in the United States are overweight or obese (Ogden & Carroll, 2010). Comparatively, authors of an obesity study funded by Trust for America's Health found thirty states have 30% or greater overweight and obese children, and Mississippi has the highest rate with 44.4% of children ages 10-17 being overweight or obese (Trust for America's Health, 2009). As childhood obesity becomes ubiquitous across the United States, the boundaries of median income and persistent health concerns may merge as a result of increased obesity levels (CDC, 2011).

Of interest a shift in the literature has emerged that coincides with the emergence of the rate by which obesity has increased and remained evenly distributed at all levels of

income, can be found in the prevalence of maladies such as Type II diabetes and asthma denoting an increased health risk for poor urban youth. Researchers have also promoted that taking action could alter the trajectory of the future health and prospects of these children (Levi, Segal, Laurent, & Kohn, 2011). Intervention to prohibit these conditions from increasing is necessary as they directly impact the success academic and mental health.

Empirical support exists for the idea that childhood obesity has increased dramatically over the last three decades, and conditions in many communities continue to act as barriers to healthy eating and adequate physical activity. Childhood obesity is a serious health problem with adverse and potentially long-lasting consequences for individuals, families, and communities. First noted by Princeton research and now Dean of the College of Health Sciences at Duke University Dr. Kathy Brownell shocked the national community with the prediction of the negative effects of childhood obesity will lower the life expectancy of children today with many preceding the death of parents (Must & Straus, 1999; Olshansky & Ludwig, 2005;; Ogden & Carroll, 2010). If the life expectancy of the future of a nation is curtailed, the ability for a nation to remain internationally competitive will be severely decreased. Thus, researchers Wang and Brownell support the idea that the choice of what one eats and levels of exercise is influenced by the environment in which one lives. Often, the scope of what shapes an individual's environment extends beyond the physical boundaries of home and neighborhood and is shaped by policies and laws crafted by legislative entities. Therefore, policy presents as a potential cornerstone of environmental and behavior change (Levi, Segal, Laurent, and Kohn, 2011). With this point, current policy making bodies should examine and identify necessary steps for change, and create aligned law

with intent to offer tempered resolution to decreasing and ultimately eliminating the existence of childhood obesity with local, state and national communities.

Need for the Study

The researcher was interested in investigating principals' perceptions of the impact of public policy as related to the prevention of childhood obesity. By taking the proper actions, the vision of a healthy community can be the reality for all. There is hope of reversing the national epidemic of childhood obesity. Obesity has become an increasingly important medical problem in children and adolescents (Gilland, Berhane, and Islam, 2003). In national surveys from the 1960s to the 1990s, the prevalence of overweight in children grew from 5% to 11%. Barlow and Dietz found in 1998 that outcomes related to childhood obesity include hypertension, type 2 diabetes mellitus, dyslipidemia, left ventricular hypertrophy, nonalcoholic steatohepatitis, obstructive sleep apnea, orthopedic, and psychosocial problems (Barlow and Dietz, 1998).

In anticipation that the current trend of increased obesity will continue, the result will be the substantial rise in the prevalence of obesity and related life-shortening morbidities and comorbidities such as diabetes, hypertension, and a wide variety of cardiac diseases. Researchers within the last decade have suggested that unless effective population-level interventions to reduce obesity are developed, the steady rise in life expectancy observed in the modern era may reverse and the youth of today may, on average, live less healthy and possibly even shorter lives than those of parents. Researchers Ogden, Carrol, Curtain and Lamb in 2009 sounded the battle cry that the health and life expectancy of minority populations may be affected by obesity even greater than white peers. Access to health care remains limited and childhood and adult

obesity has increased the fastest among minority. The following question was presented for research.

Research Question

What are K-12 principals' perceptions, beliefs, and opinions of required state and district policies in the prevention and elimination of childhood obesity as evidenced by reported roles in policy implementation, instructional leadership, and staff development as compared to school leaders in varying ranges of educational levels and demographics?

Limitations of the Study

A limitation of this study was that all principals in the respondent pool engaged on a voluntary basis. Therefore, a large return of the survey was in question, which could have resulted in insufficient information for the study. In addition, teacher responses were excluded, which may limit the assessment of a greater need or for support in implementation of stated policies, leadership guidance and staff development opportunities supporting health and wellness programming. The researcher found that limited returns of the survey were a challenge to directly compare policies among the states. State education systems are not uniform. Assessing the effectiveness of a policy at the state, regional, tribal, school district, or school level depends heavily on jurisdictional traditions, governance structures, and political contexts. The absence of a policy does not mean lack of attention. Directly comparing states was also a challenge because the same terms can mean different things and carry different degrees of authority from one state to another. Even within a state, terms like "rule," "regulation," and "administrator order" were used inconsistently or interchangeably.

1. There was a wide range in experience level of the principals.
2. All principals may not follow the survey guidelines.

3. The researcher was not able to obtain an equivalent number of responses from principals in the various regions of the United States.
4. Given the data received, the researcher was not able to test an actual relationship between gender, education level and ethnicity and perceived implementation of wellness policy.

Definitions

Body Mass Index (BMI) is a body measure calculated as weight in kilograms divided by height in meters squared (CDC, 2009).

Child nutrition refers to food and nutrition programs related to children (U.S. Department of Agriculture, 2006).

Health education refers to a sequentially planned, developmentally appropriate curriculum and instruction that promotes a healthy lifestyle. Students develop the basic knowledge, decision- making skills, and ability to obtain valid health information (MDE, 2009a).

Obesity refers to a body-mass index (BMI) greater than the 95th percentile based on age, height, weight and gender (Ludwig, 2007).

Overweight refers to a BMI between the 85th to 94th percentile based on age, height, weight and gender (Ludwig, 2007).

Physical activity includes any movement of the body that expends energy, such as exercise, sports, dance, swimming, lifting weights, or other body movements that result in an increased heart rate (MDE, 2009a). Physical activity also includes daily activities like walking programs, recess, etc. Physical activity characterizes all types of human movement that lead to an expenditure of energy associated with living, work, play, and exercise.

Physical education refers to sequentially planned, developmentally appropriate K-12 curriculum and instruction that promote lifelong physical activity (MDE, 2009a). Students develop the knowledge, motor skills, self-management skills, social skills, attitudes, and confidence needed to adopt and maintain physical activity throughout their lives.

Principal refers to the chief administrator in an elementary school, secondary school, or high school (Seifert & Vornberg, 2002).

Basic Assumptions

One assumption associated with the study is that all participants responded truthfully to the survey. A second is that all participants are knowledgeable of stated policies supporting health and wellness; while the third assumption is in the belief that all participants are knowledgeable of leadership guidance supporting implementation of health and wellness programs. Finally, a fourth assumption is that all participants are knowledgeable of staff development opportunities supporting health and wellness training at the district and state levels.

1. It is assumed that participants will honestly respond to the survey.
2. It is assumed that all participants will complete the surveys.
3. It is assumed that productive childhood obesity intervention programs will be implemented in the schools of survey participants.
4. It is assumed that participating K-12 principals will possess knowledge of local, state and wellness policies.

Summary

The indicators which mark obesity as a major public health problem in the US are the relatively high prevalence, acknowledgement of a rapidly increasing trend, and large

social group disparities. Finkelstein, Trogdon, Cohen and Dietz argued in 2009 that the current trend in relation to increasing rates of obesity can be translated into significant financial and human costs.

In a large forum conducted at the Annual Meeting of the Obesity Society in 2008, conducted in New Orleans, Queen, Dietz and Schumacher debated the different roles of the medical profession. Educators and members of society at large should and could do to control childhood obesity. Queen supported the importance of the principal and the nation's teachers being involved, but clearly stated "the schools are not the panacea to the problem." (Personal discussion with Queen, September, 2013)

K-12 principals' perceptions may inform policies and strategies that are perceived to work in the prevention of childhood obesity. The completed study may, in turn, guide further research where evidence is lacking. This research may provide data for future decision-makers in the exploration of policy and program enhancements. The author in Chapter One of the study provided a statement of the national problem of childhood obesity and policy studies in the United States. In Chapter two the researcher reviews the known literature and Chapter three discussed how the data were collected and analyzed for this study.

CHAPTER II: REVIEW OF LITERATURE

Introduction

This researcher drew upon the literature of the past twenty years relating to childhood obesity, local and federal policy implementation, leadership guidance on program implementation for childhood obesity interventions and staff development dedicated to health and wellness programming. The researcher explored the genesis for school practitioners and legislators in each area and drew implications for future study and additional strategies to combat childhood obesity. This research may potentially identify opportunities for policy and program alignment and to guide decision-making in the future. The strategies employed for searching the literature were to use scholarly journals and articles within the perimeters of the span of twenty years. The sources included in this literature review were selected because they address federal and state policies related to the prevention of childhood obesity. The researchers in the sources reviewed addressed physical and economic implications, BMI rankings of the top ten and bottom ten states, staff development, and leadership guidance as related to health and wellness program implementation and interventions. The review of literature is divided into six sections and was conducted from August 2012 to July of 2013.

Physical and Economic Implications of Childhood Obesity

Obesity as an epidemic and national health crisis in the United States is well documented (Hannon, Rao, & Arslanian, 2005; King & Hayes, 2003; Chaoyang, Ford, Mokdad, & Cook, 2006). In 2004, Huffman estimated that an obese 12-year old has an 80

percent probability of growing into an obese adult. Ogden, Carroll, Lamb and Flegal in 2010 found that one in every three children ages 2-19 was overweight or obese. In 2009, Finkelstein, Trogdon, Cohen and Dietz researched the effects childhood obesity in terms of economic costs.

The authors estimated $1, 429 more in medical care was required for obese adults in relation to normal-weight peers (Finkelstein, Trogdon, Cohen & Dietz, 2009). Previously, in 2003, Louie, Sanchez, Faircloth, and Dietz argued "the adolescent obesity epidemic underscores a threat to the nation's fiscal future as well as its physical future" (p. 54). Finkelstein et al found that in 1998 $40 billion in medical spending was attributed to obesity. Spending attributed to obesity increased to $147 billion in the span of ten years (Finkelstein et al, 2009). Beyond the scope of the fiscal impact and possibly more importantly is the impact of obesity on the health of the child.

Overweight and obesity are linked with numerous health outcomes, including cardiovascular diseases, arthritis, and stroke (Ogden & Carroll, 2008). In 2003, Giland, Berhane, and Islam reported that obese children present an increased likelihood of developing asthma. Researchers found that approximately 70% of obese children presented with high levels (greater than 90^{th} percentile) of at least one risk factor for heart disease. Risk of diseases including type 2 diabetes, heart disease, arthritis and several cancers were found to be increased among the obese in 1998. (Whitlock, 2000)

Federal Policies

The most recently enacted federal legislation to address childhood obesity emphasizes local control over universal standards. However, detractors argue that the approach is not strong enough to reduce or prevent childhood obesity. The primary challenge is that the local standards tend to be highly variable and in many cases weaker

than the universal standard (Brescoll, Kersh and Brownell, 2012). According to a 2009 research brief from the Robert Wood Johnson Foundation, The majority of US school districts developed a local school wellness policy by the first day of the 2006–07 school year. However, many of these policies were identified as insufficient and the quality varied greatly. Evidence from two states suggested that local school wellness policies latchstring because they did not include enforcement mechanisms.

To address the epidemic of childhood obesity, health professionals examined the role of health policies that focus on "obesogenic" environments through healthy eating habits and increased physical activity (Brownson, 2006). Students in the United States form eating habits that are influenced by school food environments. Both legislative and regulatory authorities hold much of the authority over public health policy in the United States. In recent years, a majority of states have both introduced and adopted legislation targeting obesity prevention in youth. These policies are implemented in both public school and community settings.

Legislators have demonstrated an increasing level of interest in the challenge of childhood obesity as evidenced by a legislative review of bills introduced in all 50 states in 2003-2005. The review identified 717 bills related to childhood obesity, 17% of which were enacted into law (Boehmer et.al, 2008). The federal government passed the Child Nutrition and Special Supplemental Nutrition Program for Women, Infants and Children (WIC) Reauthorization Act of 2004 in an attempt to address the growing concerns associated with childhood obesity. States were required to work to enhance policies that address childhood obesity. In 2006, all local education agencies in the United States were required to establish school wellness policies as a component of their participation in the federal school meal program (108th Congress, 2004). The implementations of these

policies were expected to curtail childhood obesity from increasing; however, the steady increase as shown in the data indicates a lack of efficacy is the result of current legislative policy.

State Policies

In a 2009 study by Budd, Schwartz, Yount, and Haire-Joshu The authors identify the most commonly cited challenges to wellness implementation as: lack of coordination, lack of resources, lack of staff and student support, lack of accountability and lack of training. In a 2003 study authors Brownell and Battle-Horgen identified conditions in the United States which promote unhealthy and physical and activity. Namely, factors such as, portion-size, soft drink consumption, and low-cost/high calorie food were identified as contributors to obesity. These factors are compounded when considering the limited access of healthy food alternatives such as fruits and vegetables for children of poverty.

Some states enhanced this requirement to include language that would allow for the policies to be more effectively enforced. Legislation dedicated to physical education and physical activity is represented in all 50 states and the District of Columbia. Over 14,000 school districts in the United States indicated primary jurisdiction for establishing school wellness policies (RWJF, 2009). Although states can establish policies or pass legislation that affect schools, the school districts have local control. School wellness policies were found to have a positive influence on school districts (Agron et. al., 2010) and were instrumental in the prevention of adolescent obesity. Researchers found that successful school health policies and programs are essential to the health and welfare of children, as well as when they become adults (Balaji et al., 2010). Language of enforceability is found in 13 states with 4 including sanctions or penalties embedded within.

Additionally, 18 states have school meal requirements beyond the USDA standards. Seven states have specific language detailing sanctions or penalties for noncompliance (RWJF, 2008).

In 2008, the Institute of Medicine (IOM) Standing Committee on Childhood Obesity identified local government actions as key to frontline efforts that addressed obesity prevention and requested a study to examine the evidence on such local government efforts, with a focus on identifying promising practices and developing a set of recommended actions. That committee was inspired by the recommendations in the previous IOM reports on childhood obesity and by the clear need for more detail at the local government level on which specific actions have the potential to make a difference. The IOM Committee on Childhood Obesity Prevention Actions for Local Governments was formed to address this task. The efforts of the study were predicated upon the premise that obesity is a condition which impacts social, psychological, and physical health. Drenkowski (2003) identified obesity in the United States as a public health problem with many social and economic antecedents. As this condition is considered far reaching, it was agreed that implementation would not have huge fiscal needs in order to support and disseminate among the education community.

Community-level implementation of prevention policies and programs that have a strong evidence base and are cost-effective can help ensure that efforts are effective and efficient (Wandersman, 2003). The Institute of Medicine recommended that schools provide environments conducive to healthful eating and regular physical activity because schools are a key location where positive health information could be both modeled and disseminated (IOM, 2005). In an

examination of LEAs in Pennsylvania, a majority included policy goals targeting increased student involvement in wellness policy, food service and role modeling. The study also suggests that neither geography nor low socioeconomic status presented as barriers to LEAs aim to involve students in this process (Lamis et. al., 2010).

Researchers of school wellness policies in Connecticut's LEAs added to the body of knowledge. Authors of a review of principal perceptions before and after development and implementation of school wellness policies suggested that implementation of nutritional and physical activity policies where complete statewide. They concluded that, future regulation of school wellness policies are best served by focusing on the writing of strong comprehensive policies was also suggested (Schwartz et. al., 2012). While positive results have been identified through studies of some states, improvements in nutrition and physical activity driven by wellness policies remain unclear in most United States school districts.

The Centers for Disease Control and Prevention (CDC) identified that 9 of the top 10 most obese states in the country are southern states. In these states, adult obesity rates ranged from 28% to 31.7%. Physical activity, nutrition and obesity are critical health issues in North Carolina. State Task Forces have been established and have made policy recommendations to make it easier for people to eat smart and move more. This Policy Strategy Platform provides a synthesis of the policy recommendations made by those Task Forces established over the previous five years. The intent was to provide a central location to find recommended policy strategies to address obesity.

School Wellness

Congress amended the Child Nutrition and WIC Reauthorization Act of 2004 to require that every United States Local Education Agency form wellness committees tasked with developing school wellness policies. All participants in the National School Lunch Program and/or National School Breakfast Program were mandated to establish a school wellness policy by the beginning of the 2006-2007 school year. School districts were required to include the following in their school wellness policies: (a) nutrition education goals, (b) school meal regulations that meet minimum federal guidelines, (c) guidelines for foods and beverages sold outside of school meals, (d) goals for physical activity and other school activities, and (e) plans for implementation. However, in 2009, Pekruhn found that limited implementation resulted and this presented as a major concern to legislators. Pekruhn revealed that finding ways to hold state agencies, local school districts, and individual schools accountable for successful implementation of school wellness policies was a necessity if improvements were to be reached.

While compliance with the Child Nutrition and WIC Reauthorization Act of 2004 represented an improvement in the school food environment, it did not ensure comprehensive and effective policy. In a study conducted by Metos and Nanney, the authors expressed that collaboration between schools and stakeholders was a vital component in improvement of school wellness policies (Metos and Nanney, 2007). In recent studies, researchers have shown that physical education teachers and community health professionals did not feel that schools were adequately implementing school wellness policies (Action for Healthy Kids, 2008). Over 65% of school nutrition service professionals and more than 80% of physical education teachers and community health

professionals did not feel that schools were monitoring the implementation of school wellness policies.

In a cross-sectional descriptive study conducted in 2007, the authors assessed Pennsylvania's Public School District's school wellness policies by comparing the policies with mandated requirements (Probart et al., 2008). Probart et al. found it questionable whether the district-level personnel could implement school wellness policies. Probart et al. concluded that the ability of school wellness policies to influence childhood overweight and obesity depended on efforts at both the local school and district levels. School districts need additional support in enhancing the rigor, development, implementation, and evaluation of school wellness policies. Pekruhn (2009) found that Arkansas, South Carolina, and Rhode Island required the integration of school wellness policies, nutrition policies, physical activity, and education policies as the components of school improvement planning processes. Nutrition and physical activity were placed on equal standing with math, science, and reading in terms of state accreditation and/or funding in these states (Pekruhn & Bogden, 2007).The increased integration of school wellness policies with other education policies offers the potential of stronger implementation. Isolating education policies contributes to the lack of implementation as educators attempt to prioritize the level of importance of various policies (Pekruhn, 2009). In a 2009 study, authors Belanski, Cutforth and Delong Identified the weakest elements of school wellness policies from districts and lower income, rural Colorado communities to be Physical education guidelines and nutrition guidelines. In a 2009 study, Metos and Nanney Conducted an evaluation of school wellness policies in Connecticut and found that districts with the highest free and reduced

price lunch participation rates have the strongest policies overall. The same pattern of quality was identified in the state of Utah.

The National Food Service Management Institute (NFSMI) surveyed 3,235 principals throughout the U.S. which included an equal number of elementary, middle, and high school principals. In their findings, the authors of the study indicated there were five predominant benefits to school wellness policy implementation. The five benefits included (a) improved student health, (b) improved academic achievement, (c) better nutrition education of teachers and coaches, (d) improved student attendance, and (e) a healthy food service menu. Conversely, five predominant barriers were identified. The barriers included (a) higher cost to the school, (b) less revenue from vending, (c) more training for foodservice staff, (d) problems with providing rewards in the classroom, and (e) less participation in the school lunch program (Molaison et al., 2007).

The Youth Risk Behavior Surveillance System (YRBSS) conducts a national survey on self-reported adolescent behaviors. Through the 2009 YRBS's results for dietary behaviors, researchers affirm that the trend of poor dietary habits continued. Nationwide in 2009, 33.9% of high school students had eaten fruit or drunk 100% fruit juices two or more times per day during the 7 days before the survey. The prevalence of having eaten fruit or drank 100% fruit juices two or more times per day was higher among male (35.3%) than female (32.2%) students. The prevalence of having eaten fruit or drank 100% fruit juices two or more times per day was higher among Black (37.3%) than White (32.2%) students and 34.1% Hispanic students. The percentage of students who ate fruit or drank 100% fruit juices two or more times per day decreased across YRBS survey years 1999–2005 (34.8%–30.1%) and increased across YRBS survey years

2005–2009 (30.1%–33.9%). Nationwide in 2009, 13.8% of high school students had eaten vegetables (e.g., green salad, potatoes, [excluding French fries, fried potatoes, or potato chips], carrots, or other vegetables) three or more times per day during the 7 days before the survey. The prevalence of eating vegetables was higher among male (14.5%) than female (13.0%) students. The prevalence of eating vegetables was 12.8% among White students, 14.3% among Black students, and 13.7% among Hispanic students.

Interventions to Reduce Childhood Obesity

Researchers have identified the need for effective prevention and treatment strategies to address the alarming increase of potential health complications associated with the epidemic of childhood obesity. Through several studies, authors have revealed that proven school and community prevention programs are a vital tool in a more concerted effort to prevent disease. Evidence of school-based and community-based programming designed to promote health and wellness, nutrition, and academic achievement have been widely varied from state to state. However, despite the increasing number of interventions being employed nationally, there has been a lack of formal assessment of their impact on behaviors and attitudes of the public.

The Centers for Disease Control and Prevention (2005) reported that school-based obesity prevention was implicit and mostly achieved by targeting student's dietary behaviors and physical activity practices. The Prevention Institute (2008) reported that implementing and enforcing strong local wellness policies to ensure healthy school food environments, including, prohibiting the use of foods as a reward or punishment and limiting energy-dense, nutrient-poor foods at schools could positively impact children's dietary behaviors. Authors of the report also promoted that the improvement of the nutritional quality of competitive foods and beverages and school meals could be

achieved by providing appropriate portion sizes of healthy foods and beverages as another strategy for success. Kubick et al (2007) suggested that considerable support existed among schools nurses for school-based obesity prevention efforts as well as a growing interest in providing primary and secondary preventative care services in the school setting. The authors of the School Health Policies and Programs Study (SHPPS) 2000 suggested that nurses have not been primary in the implementation of obesity prevention strategies.

A Coordinated School Health Program integrates efforts of the eight components of the school community that can strongly impact student health. Allensworth and Kolbe (1987) investigated an expanded theory of a comprehensive school health program that would protect and improve the health of students and personnel. This program included eight components that were to be coordinated to have possible collaborative results. The eight components of the comprehensive school health program included (a) health education, (b) physical education, (c) health services, (d) food services, (e) counseling, (f) health environment, (g) site health promotion program for faculty & staff, and (h) integrated school and community health promotion efforts. By coordinating efforts among these eight entities, a more concerted effort that addresses the child holistically can be made with a more successful outcome expected.

To determine if the eight components should be considered a definite part of the comprehensive school health program, the American School Health Association (ASHA) was awarded a grant by the Metropolitan Life Foundation to invite nationally recognized leaders to co-author an article to describe individual components of the model.

Descriptions of the eight components were as follows:

1. The health education program was defined as a planned progressive K-12 curriculum that focused on physical, mental, emotional and social areas of a student's health.
2. The school health service program was defined as a service that provided varied preventative health interventions and remediation for students.
3. The school health environment was defined as the psychological and physical environment in which students, faculty, and staff were required to work.
4. Physical education was defined as a program used to serve as an avenue for students to practice cardiovascular and respiratory exercises as a means to relieve stress and to freely practice self and social development.
5. The school psychology program was defined as a service that provided psychological testing, counseling, and interventions to better the functioning and acclimation of students.
6. The school counseling program was defined as a program that provided vocational and developmental guidance.
7. The school food service program was defined as a service that provided one-third to one-half of students' daily nutritional intake.
8. The worksite health promotion program was defined as a service that provided faculty and staff with programs to assist in maintaining healthy behaviors (Journal of School Health p. 409-12).

Based upon a review of literature, the researcher recognizes that there has been an increase in school wellness and obesity legislation in all 50 states over that past twenty years. The authors of previous research studies provided support for positive relationships

between physical education and the development of social skills, academic performance, increased attendance, and a reduction in discipline referrals (MDE, 2009a). Through their findings, researchers indicated that comprehensive school health improved student health, and therefore contributed to improved academic performance (Allensworth & Kolbe, 1987).

Policy Development and Implementation

The Body Mass Index (BMI) is based on the ratio of weight in kilograms to the height in meters. It has become the standard for defining obesity because it includes the calculation of height rather than just using weight and it can be easily computed. Currently, Arkansas, Pennsylvania, and Tennessee mandate that schools notify parents of their child's BMI results. Missouri and West Virginia track students' BMI scores and use the confidential data to measure the effectiveness of wellness programs but do not report the scores to parents. Additionally, both Florida and Illinois passed legislation that require schools to track students' height and weight but do not specify that BMI is the measurement tool used. Certain school districts do use the BMI to meet this requirement and some districts choose to report the scores to parents. Fourteen other states introduced bills between 2005 and January of 2007 that, if passed, would mandate BMI reporting by schools. Oregon is one state that has introduced such legislation. The Oregon House Bill 2329 declares childhood obesity a state emergency and requires certain schools to participate in a pilot program testing students' BMIs.

Kuczmarski, Kuczmarski and Najjar suggested in their 2001 study that accuracy of BMI reporting may vary significantly according to age, gender, and socioeconomic status (SES). Several other researchers reported significant differences in allocation to BMI categories based on self-reported versus measured height and weight, thus biasing

relative risks of diseases associated with increasing BMI. In women, bias in self-reported height and weight may occur due to social desirability, cultural or demographic characteristics or health characteristics (such as pregnancy or osteoporosis). Bostrom, G., & Diderichsen, F. (1997) and Kuczmarski, M. F., Kuczmarski, R. J., & Najjar, M. (2001) examined the potential threats to accuracy particular to women since under- or over-reporting may affect the prevalence and categorization of BMI differently among women than among men. In general, women tend to underreport weight more than men while men tend to over-report height more than women. The use of self-reported height and weight, recoded as BMI categories to evaluate obesity, can be affected by misclassification and may lead to underestimation of the prevalence of the overweight and obese in certain populations. Leadership of the American Psychiatric Association argued in 2006 that potentially well-intended school-based initiatives targeting dieting and weight loss may compromise the intended goal. Children's brains are still forming and maturing from early childhood throughout adolescence. Nutritional intake directly affects brain maturation and functioning; skipping meals, restrictive dieting, or the consequences of purging lead to deficits in concentration, attention and memory (American Psychiatric Association, 2006).

Although legislation was introduced in Georgia in 2005 to mandate BMI testing and parental notification, one sponsor of the bill, Representative Stephanie Stuckey Benfield, chose to not support the legislation after hearing concern from constituents that it could harm students' self-esteem (Health Policy Tracking Service, 2005). In 2005, Maine enacted legislation to address childhood obesity yet eliminated an original provision requiring BMI testing. In 2006, a measure to implement mandatory BMI testing of all students in Maryland failed after receiving a negative report from the Education,

Health and Environmental Affairs Committee. Currently the only information that is available on the efficacy and/or repercussions of this policy comes from the state of Arkansas after three years of mandatory BMI testing in the schools. According to a report of the University of Arkansas for Medical Sciences College of Public Health (2006), there were no negative outcomes associated with the BMI assessment and reporting process. According to a policy statement on the Prevention of Pediatric Overweight and Obesity (2004) by the American Academy of Pediatrics, BMI has its limits as an accurate measurement of obesity.

According to research conducted by Budd, Schwartz, Yount and Joshu in 2012, the development of organizational capacity may be critical to ensuring an environment that promotes high quality policy implementation.

Accountability

Accountability measures employed to assess health and wellness policy implementation varies from state to state. Labeling requirements and taxation represent the most widely utilized measures. In February 2011, researchers from the Center for the Study of Social Policy identified Louisiana's House Bill No. 1 as establishing nutrition standards for school meals and establishing an accountability mechanism in the form of performance indicators for the school food nutrition program. The Kentucky farm to school program utilizes the Department of Defense and his distribution system to bring local farm goods into schools as part of the DoD fresh program. USDA, the Kentucky Department of Agriculture, the University of Kentucky extension, the Kentucky Department of education, and the US Department of Defense collaborated to bring this program to fruition(Policyforresults.org, 2011).

Menu Labeling:

Menu labeling — including nutrition information on menus and menu boards — is based on the idea that informed consumers make informed choices. Leading health organizations, including the American Medical Association, want labeling that is easy to understand and includes a food's total calories, fat, saturated fat, trans fat, and sodium contents.

Soda Tax:

A number of states have a tax on soda or sugar-sweetened beverages (SSB) in place. While many states instituted the taxes for revenue purposes, some proponents of these taxes believe they can have a health benefit, comparing them to taxes on tobacco products. Several states have established a standard such as the Complete Streets Policy to promote healthy living. States have incorporated limited liability laws as well.

Complete the Streets Policy:

To encourage physical activity and green transportation, activities that include walking and cycling, transit oriented development, and building or protecting urban transport systems that are fuel-efficient, space-saving, and promote healthy lifestyles many state and local governments are adopting Complete Streets policies. Complete Streets are roads designed to allow all users — bicyclists, pedestrians, drivers, and public transit users — to access them safely.

Limited Liability Laws:

Seventeen states have responded to the obesity epidemic through laws that prevent people from suing restaurants, manufacturers, and marketers for contributing to unhealthy weight and related health problems. These laws have been prompted by corporations that were concerned about potential obesity-related lawsuits similar to the lawsuits tobacco companies have faced.

Table 2: State accountability measures, RWJF - 2013

	Menu Labeling	Soda Tax	Complete the Streets Policy	Limited Liability Laws
Alabama		✓		
Alaska				
Arizona				✓
Arkansas		✓		
California	✓	✓	✓	
Colorado		✓	✓	✓
Connecticut		✓	✓	
Delaware			✓	
D.C.		✓		
Florida		✓	✓	✓
Georgia				✓
Hawaii		✓	✓	
Idaho		✓		✓
Illinois		✓	✓	✓
Indiana		✓		✓
Iowa		✓		
Kansas		✓		✓
Kentucky		✓		✓
Louisiana				✓
Maine	✓	✓		✓
Maryland		✓	✓	
Massachusetts	✓		✓	
Michigan			✓	✓
Minnesota		✓	✓	
Mississippi		✓		
Missouri		✓		✓
Montana				
Nebraska				
Nevada				
New Hampshire				✓
New Jersey	✓	✓		
New Mexico				
New York		✓		
North Carolina		✓		
North Dakota		✓		✓
Ohio		✓		✓
Oklahoma		✓		
Oregon	✓		✓	✓
Pennsylvania		✓		
Rhode Island		✓	✓	
South Carolina				
South Dakota		✓		✓
Tennessee		✓		✓
Texas		✓		✓
Utah		✓		✓
Vermont			✓	
Virginia		✓		
Washington		✓	✓	✓
West Virginia		✓		
Wisconsin		✓	✓	✓
Wyoming				✓
# of States	5	35	16	24

Eight Highest BMI States

The researcher utilized the eight highest BMI states as identified by CDC in 2014: Louisiana (39.8), Mississippi (39.2), Texas (36), Kentucky (35.7), West Virginia (33.5), Tennessee (33), Michigan (32.3), and South Carolina (31.5). The Youth Risk Behavior Surveillance System (YRBSS) conducts a national survey on self-reported adolescent behaviors. The information in Youth Risk Behavior Surveillance System (YRBSS) is based on self-reported information. In 2011-2012 the Center for Disease Control reported states that had adult obesity rates above 30%. These states were: Oklahoma (30.2%), North Dakota (30.2%), Indiana (30.5%), South Carolina (30.6%), Louisiana (31.2%), Mississippi (32.1%), Delaware (33.6%) and West Virginia (34.3%) (CDC, Gallup, International Health, Racquet & Sports club Association, 2013). According to CDC:YRBSS 2011survey, 12 percent of high BMI states group was obese and 15.8 percent were overweight. There has been an upward trend from 1999 to 2009 in the prevalence of students nationwide who were obese (10.7 percent to 12 percent) and who were overweight (14.4 percent to 15.8 percent). Students also reported on whether or not they participated in at least 60 minutes of physical activity on all seven days of the week. Kansas high school students came in with the highest rates at 27.8 percent and Massachusetts reported the lowest with only 17 percent of high school students being physically active for at least 60 minutes seven days a week. The latest survey, which covers 42 states, found a range of obesity levels: a low of 6.4 percent in Utah to a high of 18.3 percent in Mississippi, with a median rate of 12.3 percent (Levi, Segal, Laurent, Kohn, 2011). Overweight rates among high school students ranged from a low of 10.5 percent in Utah to a high of 18.0 percent in Louisiana, with a median rate of 14.6 percent. Mississippi, the state with the highest rate of obesity, also had the highest reported

percentage of physical inactivity at 32.6 percent. Southern states disproportionately comprise the highest rates of physical inactivity. Hypertension rates increased in 47 states between 2003-2007 and 2005-2009 (CDC, 2009). Mississippi had the highest rate of hypertension at 34.8 percent, while Utah had the lowest, at 20.5 percent. All 10 states with the highest rates of hypertension are in the South (Levi, Segal, Laurent, Kohn, 2011).

Eight Lowest BMI States

The researcher utilized the eight lowest BMI states as identified by CDC 2014: Colorado (22), Vermont (24.6), New Jersey (24.7), New Hampshire (26), Washington (26.2), Wyoming (26.6), Hawaii (27.4), and Wisconsin (28). Western states continue to dominate the states with the lowest rates of obesity. In Low BMI ratings may reflect the state's efforts to promote the prevention of childhood obesity through greater access to healthy foods, healthy school initiatives, healthy community design and collaborating to create healthier communities(CDC:YRBSS, 2011). Innovative programing and policies embedded within these states may represent one source of success. One strategy utilized is providing tax credits to those retailers that provide fresh fruits and vegetables, enables state residents to access healthy foods in a community while helping to offset the cost associated with carrying fresh foods. The District of Columbia Healthy Corner Store Program, supported by the D.C. Department of Health, aims to reduce food insecurity and improve D.C. residents' health by increasing access to fresh produce and other healthy foods in neighborhoods that do not have supermarkets. In Massachusetts, House Bill 4149 appropriates funds to incorporate obesity prevention programs and nutrition education into the school curricula. House Bill No. 179 in Utah authorizes the state to donate land to facilitate the development of commuter rail stations and the associated transit-

oriented development. In 2005, the Utah Department of Health published a report entitled *Health Status by Race and Ethnicity*. The Department produced *Moving Forward* in 2010 as a review of the comprehensive health status of minorities in Utah using the 2005 data as the baseline and the 2010 report to track progress. In order to meet the needs identified in the report, Utah established the Center for Multicultural Health. These states also engage policy options that are most effective at encouraging physical activities, like biking and walking, are incorporating sidewalks and bike lanes into community design, providing funding for biking and walking in highway projects, establishing safe routes to school, fostering traffic-calming measures and creating incentives for mixed-use development (Levi, Segal, Laurent, Kohn, 2011).

Summary

Rates of obesity continued to rise across the nation during the past year. Sixteen states saw a significant increase in obesity, and six of these states experienced an increase for the second year in a row. Five states experienced an increase for the third straight year. No state experienced a significant decrease in obesity rates over the past year. In February 2011, researchers from the Center for the Study of Social Policy identified Louisiana's House Bill No. 1 as establishing nutrition standards for school meals and establishing an accountability mechanism in the form of performance indicators for the school food nutrition program. The Kentucky farm to school program utilizes the Department of Defense and his distribution system to bring local farm goods into schools as part of the DoD fresh program. USDA, the Kentucky Department of Agriculture, the University of Kentucky extension, the Kentucky Department of education, and the US Department of Defense collaborated to bring this program to fruition (Policyforresults.org,2011).

In Chapter three the researcher presented the methodology that was used in data collection and analysis. The research questions, related hypotheses, and procedures for data collection and analysis are also included. Results of the relationship between perceptions in relation to the hypotheses and research questions, as well as a discussion of the findings will be presented in Chapter four. Chapter five will include conclusions related to the findings, implications for national policy, and recommendations for further research.

CHAPTER III: METHOD

Introduction

The alarming growth of childhood overweight and obesity has impacted all children. Childhood obesity has disproportionately impacting children of color (38.2 percent of Latino children and 35.9 percent of Black children ages 2 to 19 are overweight or obese, compared with 29.3 percent of white children) (CSG Health Policy Group, 2011). While social, economic and environmental factors influence health; the strongest influencers of health and well-being are beyond the scope of the health care setting (Chang & Lauderdale, 2005; Lamb, Dabelea, Yin, Ogden, Klingensmith, & Rewers, 2010). State policymakers are uniquely positioned to serve the needs of both rural and urban communities in their efforts to promote health and reduce childhood overweight and obesity. Over the past twenty years, policy dedicated to addressing the epidemic of childhood obesity has increased and now exist in all 50 states. K-12 principals' perceptions may inform policies and strategies that are perceived to work in the prevention of childhood obesity. The major purpose of this study was to assess the perceptions of K-12 principals in relation to the implementation of local and public policy to combat obesity.

Research Design

The researcher used a quantitative, descriptive model to conduct the study. The researcher used survey data collected from public school principals in sixteen states through Survey Share and examined the levels of relationships. A Two-factor ANOVA

across multiple dependent measures was utilized to examine variable predictors. The researcher included K-12 principals' races, genders, grade levels, the health status of the principals' states of employment (eight highest BMI states or eight lowest BMI states) and the perceptions related to responsibility as a school leader to implement of policies and activities for the prevention and elimination of childhood obesity.

Research Questions and Null Hypotheses

In Chapter one, the researcher stated the following question for research:

What are K-12 principals' perceptions, beliefs, and opinions of required state and district policies in the prevention and elimination of childhood obesity as evidenced by reported roles in policy implementation, instructional leadership, and staff development as compared to school leaders in varying ranges of educational levels and demographics?

Research Question 1:

To what extent do elementary, middle, and high school principals in high- and low-BMI states believe it is their responsibility as a school leader to implement of policies and activities for the prevention and elimination of childhood obesity?

Null Hypothesis 1.1:

There is no difference in reported perceptions of leadership responsibility, resource allocation and accountability for principals in elementary, middle, and high schools.

at the $p \leq .05$ alpha level of acceptance.

Null Hypothesis 1.2:

There is no difference in reported perceptions of leadership responsibility, resource allocation and accountability for principals in high-BMI and low-BMI states.

at the $p \leq .05$ alpha level of acceptance.

Null Hypothesis 1.3:

There is no difference in reported perceptions of leadership responsibility, resource allocation and accountability for principals in elementary, middle, and high schools across high-BMI and low-BMI states. There is no interaction effect for type of school and type of state at the $p \leq .05$ alpha level of acceptance.

Research Question 2

With reference to possible differences in the belief systems among school principals from low and high student BMI states, what are the relationships of principal's gender and level of administrative experience as relates to the principal's leadership role in the successful implementation of required state laws and local district policies for health & wellness and prevention of childhood obesity?

Null Hypothesis 2.1:

There are no statistically significant differences in belief systems among school principals from low and high BMI states when comparing principal's gender as it relates to the principal's leadership role in the successful implementation of required state laws and local district policies targeting health & wellness at the $p \leq .05$ alpha level of acceptance.

Null Hypothesis 2.2:

There are no statistically significant differences in belief systems among school principals from low and high BMI states when comparing principal's level of administrative as it relates to the principal's leadership role in the successful implementation of required state laws and local district policies targeting improved health & wellness at the $p \leq .05$ alpha level of acceptance.

Null Hypothesis 2.3:

There are no interaction effects between principal's gender and level of administrative experience as it relates to the principal's leadership role in the successful implementation of required state laws and local district policies targeting improved health & wellness at the $p \leq .05$ alpha level of acceptance.

Participants

The survey instrument was modified from a model originally developed by Dr. Robert Algozzine and Dr. J. Allen Queen. Later revisions were developed with Dr. Jim Watson and colleagues. The survey was developed using SurveyShare. A total of 24 items were included. The time of completion for respondents was approximately 30 minutes. The survey contained 14 Likert Scale items relating to childhood obesity. Ten items were dedicated to demographic data. Four items were included specific to policy implementation and professional development. The survey was sectionalized and contained items regarding policy, intervention, physical activity, academic achievement, and bullying (Appendix A).

Table 3: Principal respondents description

Item	**Percentage**	***N***
Gender		
Male	39%	234
Female	60%	364
Non response		4
Ethnicity		
Hispanic	23%	141
White	60%	357
Black	10%	57
American Indian	4%	22
Asian/Pacific Islander	3%	19

Table 3: Continued		
Education Level		
Table 3: Continued		
Master's	58	347
Educational Specialist	20%	119
Doctorate	18%	109
Post-Doctoral	4%	27
Other		
Experience		
1 year	10%	58
2-5 years	29%	174
6-10 years	32%	194
11-20 years	21%	128
21 or more years	8%	48
Grade Level		
Non Response	2%	12
Elementary	48%	288
Middle	26%	157
High School	21%	130
K-8 or K-12	3%	15
Location		
Inner City	53%	46
Urban	11%	90
Suburban	4%	197
Small Town	10%	174
Rural	20%	57
Non response	2%	18
Total Respondents		**602**

Procedure

The group purchased access to email addresses for principals throughout the United States. Cover letters were included in the body of survey. Reminders were then sent with information about the survey. This process allowed designers to send a mass email distribution to our participants. The mass distribution allowed each email to be tailored to the individual participants; messages did not have the appearance of a mass email distribution.

The survey instrument has been used in other studies and was modified from a model originally developed by Drs. J. Allen Queen and Robert F. Algozzine. Dissertation Chair Dr. J. Allen Queen worked with the researcher and four other UNC-Charlotte doctoral students to modify the survey instrument for the current study. Survey questions were reviewed, revised and edited for clarity and understanding and only questions with an expert rating of four or higher (on a scale of one to five) were accepted for the final survey. Selected questions were included to provide information for answering the research question in the study.

Instrumentation

The survey items were piloted by small groups of K-12 principals and healthcare experts similar to but not within the target population for the survey (Appendix B). The professionals were asked several questions about the format, time involved, and relevance. After the pilot, the survey was refined and prepared for dissemination. The study invited nearly 40,000 principals through sixteen states to participate in the survey. Inclusion criteria for this study consisted of principals who work in a public K-12 school setting in the United States. Principals participated in the pool on a voluntary basis. The written responses to a twenty-five item questionnaire were the basis of the data collection. Respondents were K-12 principals within the highest eight BMI states and lowest eight BMI states.

The final survey consists of 24 questions and took approximately 15 minutes for participants to complete. Each question was related to a specific area of childhood obesity and was answered using a Likert rating scale. The survey was sectionalized and contained items regarding policy, intervention, physical activity, academic achievement and bullying. In determining final survey questions, items were first reviewed by expert

colleagues of K-12 principals and healthcare professionals who were familiar with the survey's targeted respondents. The professionals provided feedback on question format, clarity and relevance. Upon completion of the review, the survey was finalized and prepared for use.

Email addresses were purchased for almost 40,000 principals working in the eight highest BMI states and the eight lowest BMI states. Invitations were sent out inviting principals to go to Survey Share used by UNCC faculty. The mass distribution used only school email addresses. Due to highly effective blockage of emails by systems and perhaps limited interest in the study, only 602 principals' responses were available for use after an initial examination for outstanding outliers.

To protect the identity of principals who are in the participant pool, all personal information was excluded from the pool. Participants were provided with a multiple digit identity code. Participants invited were K-12 public school principals (N = 40,000) in rural, urban and suburban districts in the United States. The respondents served in elementary, middle and high schools within public school districts at the time of the study.

Design and Data Analysis

Threats to content validity in this study were addressed through an independent review of the questionnaire for face validity. The survey instrument was used to determine the perceptions of K-12 principals as it relates to five distinct areas of childhood obesity research. A consent letter to principals was included in the body of the survey with a thorough explanation of the purpose of the study, the number of items and sections of the survey questionnaire, possible risks to participants, and the amount of time it would take to complete the survey (Appendix B).

Data obtained from the participants' responses to the questionnaire was entered into a database and analyzed using the Statistical Package for the Social Sciences (SPSS) version, 20. Data analysis includes descriptive statistics (frequencies, percentages, and standard deviations). Descriptive statistics were computed for survey items related to demographics, implementation of health and wellness policies. Frequencies, percentages and standard deviations were determined for each item. The researcher employed a quasi-experimental design for data using a Two-way factorial analysis of variance and Univariate factorial ANOVA to test each hypothesis.

Summary

This chapter addressed the research design, instrumentation, data collection, and data analysis procedures that were used in the study. This quantitative research study included data collected from elementary, middle, and high school principals in public schools in the United States. The population invited to participate included nearly 40,000 K-12 principals. Dr. Queen developed a survey questionnaire to be administered via SurveyShare. Data collected was entered into a database and analyzed using SPSS, version 20.

Chapter one served as the topic introduction and identified the research problem, the purpose of the study, the significance of the study, the research questions, and delimitations of the study and limitations of the study. Chapter two represented a review of the current literature about childhood obesity and school-wellness policy. Chapter three presented the methods that were used and addressed the research questions, participants , settings, procedure and design and data analysis. Chapter four will present the findings from the data collected from the surveys utilizing various statistical analysis

and visual charts. Chapter five will present the summary and conclusion of the findings and recommendations for how this research data can be used to inform policy-makers and school leaders in the future.

CHAPTER IV: RESULTS

Introduction

In this chapter the researcher provides the findings based upon the data collected and analyzed from the sixteen states studied. As with K-12 administrators in the area, the researcher found similarities in responses that may be generalized when applied national context. The major purpose of this study was to assess the perceptions of K-12 principals in relation to the implementation of local and public policy to combat obesity. The responses of 602 principals in sixteen (16) states where subjected to an ANOVA analysis. The states selected for the study consisted of the eight (8) highest BMI rankings and the eight (8) lowest BMI rankings. Significant differences in principal perceptions were found when considering demographics (gender, education level and ethnicity).

Research Questions

In Chapter one, the researcher stated the following question for research: *What are K-12 principals' perceptions, beliefs, and opinions of required state and district policies in the prevention and elimination of childhood obesity as evidenced by reported roles in policy implementation, instructional leadership, and staff development as compared to school leaders in varying ranges of educational levels and demographics?*

Research Question 1:

To what extent do elementary middle, and high school principals in high- and low-BMI states believe it is their responsibility as a school leader to implement of policies and activities for the prevention and elimination of childhood obesity?

Research Question 2:

With reference to possible differences in the belief systems among school principals from low and high student BMI states, what are the relationships of principal's gender and level of administrative experience as relates to the principal's leadership role in the successful implementation of required state laws and local district policies for health & wellness and prevention of childhood obesity?

Null Hypotheses

Null Hypothesis 1.1:

There is no difference in reported perceptions of leadership responsibility, resource allocation and accountability for principals in elementary, middle, and high schools. at the $p \leq .05$ alpha level of acceptance.

Null Hypothesis 1.2:

There is no difference in reported perceptions of leadership responsibility, resource allocation and accountability for principals in high-BMI and low-BMI states. at the $p \leq .05$ alpha level of acceptance.

Null Hypothesis 1.3:

There is no difference in reported perceptions of leadership responsibility, resource allocation and accountability for principals in elementary, middle, and high schools across high-BMI and low-BMI states. There is no interaction effect for type of school and type of state at the $p \leq .05$ alpha level of acceptance.

Null Hypothesis 2.1:

There are no statistically significant differences in belief systems among school principals from low and high BMI states when comparing principal's gender as it relates to the principal's leadership role in the successful implementation of required state laws and local district policies targeting health & wellness at the $p \leq .05$ alpha level of acceptance.

Null Hypothesis 2.2:

There are no statistically significant differences in belief systems among school principals from low and high BMI states when comparing principal's level of administrative as it relates to the principal's leadership role in the successful implementation of required state laws and local district policies targeting improved health & wellness at the $p \leq .05$ alpha level of acceptance.

Null Hypothesis 2.3:

There are no interaction effects between principal's gender and level of administrative experience as it relates to the principal's leadership role in the successful implementation of required state laws and local district policies targeting improved health & wellness at the $p \leq .05$ alpha level of acceptance.

Findings

A 2x3 factorial analysis of variance tested the effects school level (elementary, middle and high) and state (High BMI or Low BMI) on principal perceptions related to their responsibility as a school leader to implement policies and activities for the prevention and elimination of childhood obesity. Results indicated no significant effect the school level factor, The researcher found no statistically significant differences in the main effects when considering school level $F(4,3.827) = 3.827$, $p > .05$. Main effect for

type of state $F(15,586) = .605$, $p > .05$. Therefore, the researcher fails to reject both nulls 1.1 and 1.2. The interaction of level of administrative education level and gender revealed no significant effect. As a result, the researcher fails to reject null hypothesis 1.3.

Table 2: Analysis of variance data for principals' perceived responsibility for implementation of wellness policy (Q. 23)

Source	*df*	*SS*	*Mean Sq.*	*F.*	Sig.
High BMI	4	5.692	1.423	1.341	.254
Low BMI	4	1.388	.347	.327	.860
Elementary	4	3.659	.915	.587	.672
Middle	4	4.596	1.149	.776	.379
High	3	3.226	1.483	.581	.677

Research Question 2:

With reference to possible differences in the belief systems among school principals from low and high student BMI states, what are the relationships of principal's gender, level of administrative experience and BMI level as relates to the principal's leadership role in the successful implementation of required state laws and local district policies for health & wellness and prevention of childhood obesity?

A Univariate factorial ANOVA test was selected because the researcher is examining one dependent variable, principals' perceptions. The univariate test allows the researcher to have as many independent variables or text factors as desired. In this study the fixed factors or independent variables were gender, level of experience, and BMI level. The researcher seeking to understand the factors that influence principal perceptions of local, state and federal school wellness policies designed to impact or eliminate childhood obesity surveyed K -12 principals from high BMI and low BMI states. The researcher found statistically significant differences in the main effects when considering state BMI level $F(1, 35.243) = 17.82$, $p < .05$. For gender $F(1,15.123) = 7.647$, $p < .05$. When considering years of administrative experience a statistically significant difference was found $F(4, 6.307) = 3.189$, $p < .05$. Therefore, the researcher rejects nulls 2.1, 2.2 and 2.3. The post hoc selected by the researcher was the Dunnett's C two-sided t-test. This allowed the researcher to determine the differences between the multiple levels within a fixed factor. Because gender only has two levels a post hoc was not required. However with multiple levels in: levels of administrative experience and BMI levels a post hoc was required for these factors. The researcher attempted to determine if each of the groups within the variable were significantly different from one another. Because no significance was found, the researcher fails to reject null 2.3.

Table 3: Analysis of variance data for principals' perceived barriers to school wellness policy implementation (Q. 22)

Source	*SS*	*df*	*Mean Sq.*	*F.*	Sig.
BMI Level	35.243	1	35.243	17.82	.000
Gender	15.123	1	15.123	7.64	.006
Yrs. Experience	25.228	4	6.307	3.189	.013

Notes: R Squared = .094 (Adjusted R Squared = .064)

The researcher determined that a principal's school level and state was not significant when considering principal's belief in responsibility to require instruction on nutrition and physical fitness as principals with two or more years of experience were least likely to agree with the criterion. The researcher determined that a principal's state, gender and years of experience was significant when considering the factors that influence principal perceptions of local, state and federal school wellness policies designed to impact or eliminate childhood obesity surveyed K -12 principals from high BMI and low BMI states. In examining principals' perceived beliefs relating to their responsibility for successful implementation of school wellness policy, both the novice and most senior principals, were least likely to agree with the criterion. Lastly, the

researcher determined that principal's gender, level of experience and state BMI level rated significantly related to their belief leadership role in the successful implementation of required state laws and local district policies for health & wellness and prevention of childhood obesity

The researcher also noted that principals with 6-10 years of experience rated low in every analyses conducted. The researcher found this to also be true for respondents of Asian/Pacific Islander ethnicity.

Summary

In this chapter, the researcher reported the findings for the study and concluded with a summary. Univariate factorial analysis of variance and 2x3 ANOVA were used to examine the null hypotheses. Chapter one served as the topic introduction and identified the research problem, the purpose of the study, the significance of the study, the research questions, and delimitations of the study and limitations of the study. Chapter two represented a review of the current literature about childhood obesity and school-wellness policy. Chapter three presented the methods that were used and addressed the research questions, participants, settings, procedure and design and data analysis. Chapter five will present the summary and conclusion of the findings and recommendations for how this research data can be used to inform policy-makers and school leaders in the future. The researcher has also included recommendations for further study in Chapter five.

CHAPTER V: DISCUSSION

Summary of the Study

The major purpose of this study was to assess the perceptions of K-12 principals in relation to the implementation of local and public policy to combat obesity. The responses of 602 principals in sixteen (16) states where subjected to an ANOVA analysis. The states selected for the study consisted of the eight (8) highest BMI rankings and the eight (8) lowest BMI rankings. Significant differences in principal perceptions were found when considering demographics (gender, education level and ethnicity). A summary of the present investigation including the statement of the problem, the statement of the purpose, the research hypotheses, a description of the instruments, and the statistics used are presented by the researcher in this chapter. Major findings and conclusions are discussed; limitations, educational implications, and recommendations for future study are included.

Policy makers, public health officials, and parents are concerned about the implications of the increasing rate of childhood obesity in the U.S. State policymakers are uniquely positioned to serve the needs of both rural and urban communities in their efforts to promote health and reduce childhood overweight and obesity. K-12 principals' perceptions may inform policies and strategies that are perceived to work in the prevention of childhood obesity. The researcher focused on evaluation of K-12 principals' perceptions as it relates to the implementation of local, state and federal school wellness policies. A survey was administered to 602 public school principals

serving in 16 states within the US. The results of this study are discussed first in this chapter. Next, the researcher summarized the results and provided practical recommendations for ongoing application of the findings from this study. Limitations of the study and recommendations for future research will also be discussed.

Research Questions

What are K-12 principals' perceptions, beliefs, and opinions of required state and district policies in the prevention and elimination of childhood obesity as evidenced by reported roles in policy implementation, instructional leadership, and staff development as compared to school leaders in varying ranges of educational levels and demographics?

Research Conclusions

The researcher analyzed data to evaluate differences in perceptions when considering gender and education level. Slightly fewer than forty (40) percent of the principals in the survey populations were males, which was below the national average. Sixty (60) percent of the respondents were white. Twenty-three (23) percent of the respondents were Hispanic or Latino. Sixteen (16) states were selected for participation in the study, of which all have principals in grades K-12 included, regardless of the organizational design. Main effects of gender were analyzed as well as the main effects of educational level. Interaction effects were analyzed for significant differences where appropriate. No statistically significant difference was found in the means of principals when considering gender and education level. The researcher also analyzed data to evaluate the relationships of principal's gender, level of administrative experience and BMI level as relates to the principal's leadership role in the successful implementation of required state laws and local district policies. There was a significant difference between means when considering these demographics and BMI level.

Educators and policy makers alike have debated the appropriateness of public school professionals' role in the fight to eliminate childhood obesity. Executives in the US food industry have built considerable inertia in the construction of a cheap food model. The food model is predicated on foods that are high in sugar, calories and sodium. Compulsory attendance laws require that children be present for a significant part of their day. If policy and practice can be more appropriately aligned, the potential exists for public school professionals to have a positive impact on the elimination of childhood obesity. Building a firmer understanding of the perceived impediments to school wellness policy, may enhance the potential for success in the future.

Recommendations for Further Research

As noted in chapter two the alarming trends of increases in rates of obesity has prompted a need for increased knowledge of potential interventions. The researcher focused the study on K-12 principals' perceptions of local, state and federal school wellness policy implementation. Teacher responses were excluded, which may limit the assessment of a greater need or for support in implementation of stated policies, leadership guidance and staff development opportunities supporting health and wellness programming. Future studies could add to the body of research by surveying additional stakeholders such as teachers, students and child nutritionists on their perceptions of school wellness policy. The researcher did not collect data from board of education members during this study. Future studies could explore school wellness and the beliefs and perceptions of BOE members in relation to their role as policy makers.

Summary

Chapter one served as the topic introduction and identified the research problem, the purpose of the study, the significance of the study, the research questions, and delimitations of the study and limitations of the study. Chapter two represented a review of the current literature about childhood obesity and school-wellness policy. Chapter three presented the methods that were used and addressed the research questions, participants, settings, procedure and design and data analysis. Chapter five will present the summary and conclusion of the findings and recommendations for how this research data can be used to inform policy-makers and school leaders in the future. In chapter five, the researcher reported the findings for the study and concluded with a summary. The researcher has also included recommendations for further study in Chapter five. A univariate factorial analysis of variance and 2x3 ANOVA were used to examine the null hypotheses.

REFERENCES

Agron, P., Berends, V., Ellis, K., & Gonzalez, M. (2010). School Wellness Policies: Perceptions, Barriers, and Needs Among School Leaders and Wellness Advocates. *Journal of School Health*, 80(*11*), 527-535. doi:10.1111/j.1746-1561.2010.00538.x.

Allensworth, D. O. & Kolbe L. J. (1987). The comprehensive school health program: exploring an expanded concept. *Journal of School Health.*

American Academy of Pediatrics. (2004). Policy Statement: Prevention of Pediatric Overweight and Obesity: Committee on Nutrition. *Pediatrics, 112*(2), 424–430.

American Psychiatric Association. (2006, June). *Practice Guideline for the Treatment of Patients with Eating Disorders: Third Edition.* Washington, DC: American Psychiatric Association.

Babbie, E. (1987). *The Practice of Social Research*, 12th edition, Thomson 2010 *57*: 409-412.

Barlow, S. E. & Dietz W. H. (1998). Obesity evaluation and treatment: Expert Committee recommendations. The Maternal and Child Health Bureau, Health Resources and Services Administration and the Department of Health and Human Services. *Pediatrics*. 1998;102:E29.

Barnes, M. (2010, May). *White House Task Force on Chidhood Obesity Report to the President/Let's Move!* Retrieved April 30, 2013, from www.letsmove.gov: http://www.letsmove.gov/sites/letsmove.gov/files/TaskForce_on_Childhood_Obesity_May2010_FullReport.pdf

Boehmer, T. K., Luke, D. A., Haire-Joshu, D. L., Bates, H. S. & Brownson, R. C. (2008). Preventing Childhood Obesity Through State Policy Predictors of Bill Enactment. *American Journal Preventive Medicine* 34(*4*):333–340.

Bostrom, G., & Diderichsen, F. (1997). Socioeconomic differentials in misclassification of eight, weight and body mass index based on questionnaire data. *International Journal of Epidemiology*, *26*, 860–866.

Brunner Huber, L. R. (2007). Validity of self-reported height and weight in women of reproductive age. *Maternal and Child Health Journal, 11*, 137–144.

Budd, E., Schwartz, C., Yount, B., & Haire-Joshu, D., Factors Influencing the Implementation of School Wellness Policies in the United States. Centers for Disease Control and Prevention, 2009.

Bullock, S. A., L. Craypo, S. E. E. Clark, J. Barry & S. E. Samuels. (2010). Food and beverage environment analysis and monitoring system: A reliability study in the school food and beverage environment. *Journal of the American Dietetic Association 110(7)*:1084-1088.

Carter, P. J, Taylor, B. J, Williams SM & Taylor, R. W. Longitudinal analysis of sleep in relation to BMI and body fat in children: the FLAME study. *BMJ.* May 26 2011;342:d2712.

Centers for Disease Control and Prevention. (2009).Youth Risk Behavior Surveillance System:http://www.cdc.gov/HealthyYouth/yrbs/index.htm.

Chang, V. W. & Lauderdale, S. D. (2005). "Income Disparities in Body Mass Index and Obesity in the United States, 1971-2002,"*Archives of Internal Medicine* 165, no. *18* 2122-28.

Charlotte Neighborhood Quality of Life Study (2010). and Business Corridor Benchmarking Analysis prepared by Metropolitan Studies Group, The University of North Carolina at Charlotte

Chenoweth, D. (2005). *The Economic Costs of Physical Inactivity, Obesity, and Overweight in California Adults During the Year 2000: A Technical Analysis.* Sacramento, CA: California Department of Health Services, Cancer Prevention and Nutrition Section and Epidemiology and Health Promotion Section.

Craig, B. M. & Adams, A. K. (2008). Accuracy of Body Mass Index Categories Based on Self-Reported Height and Weight Among Women in the United States. *Maternal Child Health Journal* (2009) *13*:489–496

Drenowski, A. & Specter S. (2004)."Poverty and Obesity: The Role of Energy Density and Energy Costs." *The American Journal of Clinical Nutrition 76* 6-16. Print.

Egger, G. & Swinburn, B. (23August 1997). An "ecological" approach to the obesity pandemic. BMJ VOLUME *315.*

Finkelstein, E., Trogdon, J., Cohen, J.& Dietz, W. (2009). Annual Medical Spending Attributable to Obesity: Payer-And Service-Specific Estimates. *Health Affairs*, 28(*5*).

Gilland, F.D., Berhane, K. & Islam, T. (2003). Obesity and the risk of newly diagnosed asthma in school-aged children. *American Journal of Epidemiology*, 158(*5*), 406-15.

Health Policy Tracking Service. (2005). State actions to promote nutrition, increase physical activity, and prevent obesity: A legislative overview. Retrieved February 23, 2007, from http://www.rwjf.org/files/research/July%202005%20-%20Report.pdf.

Huh, S., Rifas-Shiman, S., Taveras, E., Oken, E. & Gillman, M. (March 2011). Timing of solid food introduction and risk of obesity in preschool-aged children. *Pediatrics.* 127*(3)*:e544-51.

Institute of Medicine, Committee on Progress in Preventing Childhood Obesity (2006). Progress in preventing childhood obesity: Focus on communities—Brief summary: Institute of Medicine Regional Symposium. Washington, DC: National Academies Press, 36 pp.http://www.nap.edu/catalog.php?record_id=11580.

Kubik, M. Y., et al. (2003). The association of the school food environment with dietary behaviors of young adolescents. *American Journal Public Health, 93*, 1168–1173.

Kubik, M. Y., et al. (2005). School wide food practices are associated with body mass index in middle school students. *Arch Pediatric Adolescent Medicine, 159*, 1111–1114.

Kuczmarski, M. F., Kuczmarski, R. J., & Najjar, M. (2001). Effects of age on validity of self-reported height, weight, and body mass index: Findings from the Third National Health and Nutrition Examination Survey, 1988–1994. Journal of the American Dietetic Association, 101, 28–34.

Lamb, M. M, Dabelea, D, Yin, X., Ogden, L. G., Klingensmith, G. J. & Rewers, M., et al. (2010). Early-life predictors of higher body mass index in healthy children. Ann NutrMetab56(*1*):16–22.

Levi, J., Segal, L., Laurent, R. &Koihn, D. (2009). F as in Fat: How obesity policies are failing in America. Trust for America's Health. Robert Wood Johnson Foundation. 2009. http://www.healthyamericans.org/reports/obesity2009/.

Ludwig, D. S. (2007). *Childhood obesity – the shape of things to come. New England Journal of Medicine, 357*, 2325-2327.

McMillan, J. H. & Schumacher, S. (2006). *Research in Education: Evidence-Based Inquiry.*(6th ed.). Boston, MA: Pearson.

Mecklenburg County Property Records and Land Management, (2009). US Census, 2009;Bureau of Labor Statistics, 2010; Claritas, 2009.

Metos, J. & Nanney, M. (2007). The strength of school wellness policies: one state's experience. *Journal of School Health*, 78(*10*), 367-372.

Molaison, E. F., Kolbo, J. R., Speed, N., Dickerson, E. & Zhang, L. (December 2007). Prevalence of overweight among children and youth in Mississippi: A comparison between 2003 and 2005. http://www.cdc.gov/pcd/issues/2006/jul/05_0150.htm

National Food Service Management Institute (NFSMI) The Prevention Institute (2008). The Role of Community Safety in Obesity Prevention: Exploring How Exposure to Crime and Violence Impact Physical Activity and Healthy Eating.

National Conference of State Legislatures. (2010). Promoting Healthy Communities and Preventing Childhood Obesity: Trends in Recent Legislation.

Neumark-Sztainer, D., Wall, M., Story, M. & Standish, A. R. (Jan 2012). Dieting and unhealthy weight control behaviors during adolescence: associations with 10-year changes in body mass index. *Journal of Adolescent Health*, 50(*1*):80-86.

Nieto-Garcia, F. J., Bush, T. L., &Keyl, P. M. (1990). Body mass definitions of obesity: Sensitivity and specificity using self-reported weight and height. Epidemiology (Cambridge, Mass), 1, 146–152.

Nyholm, M., Gullberg, B., Merlo, J., Lundqvist-Persson, C., Rastam, L., &Lindblad, U. (2007). The validity of obesity based on self-reported weight and height: Implications for population studies. *Obesity* (Silver Spring, Md.), *15*, 197–208.

Ogden, C. L., Carroll, M. D., Curtin, L. R., Lamb, M. M. & Flegal, K. M. (2010). Prevalence of high body mass index in U.S. children and adolescents. *Journal of the American Medical Association,* 303(*3*): 242-249.

Ogden C. L., M. D. Carroll, M. D. & Flegal, K. M. (2008). "High Body Mass Index for Age Among US Children and Adolescents, 2003-2006,"*Journal of the American Medical Association, 299*, no. 20.2401-2405.

Ogden, C. L., Yanovski, S. Z., Carroll, M. D. & Flegal, K. M.(May 2007) The epidemiology of obesity. *Gastroenterology*, *132*:2087-2102.

Ogden C. L.& Carroll, M. D. (2008). Prevalence of Overweight, Obesity, and Extreme Obesity Among Adults: United States, Trends 1960–1962 Through 2007–2008. *Division of Health and Nutrition Examination Surveys*. http://www.cdc.gov/NCHS/data/hestat/obesity_adult_07_08/obesity_adult_07_08.pdf.

Olshansky, S. J., Passaro, D., Hershow, R., Layden, J., Carnes, B. A., Brody, J., Hayflick, L., Butler, R. N., Allison, D. B. & Ludwig, D. S. (2005). Peering into the future of American Longevity. *Discovery Medicine,* 5(*26*):130-134.

Pekruhn, C. (2009). Preventing Childhood Obesity: A School Health Policy Guide. National Association of State Boards of Education (NASBE). Retrieved on January 10, 2011 from http://www.rwjf.org/files/research/20090506nasbeguide.pdf.

Pekruhn, C. & J. Bogden, J. (Oct. 2007). *Issue Brief: State Strategies to Support Local Wellness Policies* (Alexandria, VA: National Association of State Boards of Education.

Powell, L. M., Slater S. & Chaloupka, F. J. The relationship between physical activity setting and race, ethnicity, and socioeconomic status. Evidence-Based Preventative Medicine 2004; 1[*2*]: (135-44).

Probart , C., McDonnell, M., Weirich, J. E., Birkenshaw, P., &Fekete, V. (2007). Addressing childhood overweight through schools. *Collegium Antropologicum,* 31 *(1)*, 29 32.

Public Law 108-265. June 30, 2004- Child Nutrition and WIC Reauthorization Act of 2004 http://www.fns.usda.gov/cnd/Governance/Legislation/Historical/PL_108-265.pdf.

Robert Wood Johnson Foundation (RWJF). *Grant Results: Researchers Review State Policies on Promoting Walking and Biking - Identify Five with Greatest Potential to Work.* Princeton, NJ: RWJF, 2005, http://www.rwjf.org/reports/grr/046958.ht.

Schmidt, M. I., Duncan, B. B., Tavares, M., Polanczyk, C. A.,Pellanda, L., & Zimmer, P. M. (1993). Validity of self-reported weight—a study of urban Brazilian adults. *Revista de SaudePublica*, *27*, 271–276.

Schroeder S. (2007). We Can Do Better – Improving the Health of the American People, *New England Journal of Medicine*, *357*, 1221-28.

Schwartz, M. B., Lund, A. E., Grow, H. M., McDonnell, E., Probart, C., Samuelson, A. & Lytle, L. In press. A Comprehensive Coding System to Measure the Quality of School Wellness Policies. *Journal of the American Dietetic Association.* Centers for Disease Control and Prevention (CDC).

Seifert, E. H., & Vornberg, J. A. (2002). *The new school leader for the 21st century: The Principal.* Boston Way, Lanham, Maryland. Scarecrow Press, Inc.

Slavin, R. E. & Madden, N. A. Effective Classroom Programs for Students as Risk. In Effective Programs for Students as Risk, edited by R.E. Slavin, N.L. Karweit , and N.A. Madden. Needham Heights, Mass. Allyn and Bacon.

University of Arkansas for Medical Sciences (UAMS) College of Public Health.(2006). Year Two Evaluation: Arkansas Act 1220 of 2003 to Combat Childhood Obesity.

U.S. Centers for Disease Control and Prevention. "Youth Risk Behavior Surveillance United States, 2007." *Morbidity and Mortality Weekly Report,*57(SS-4): 2008.

U.S. Department of Agriculture. *Dietary Guidelines for Americans* (2005). http://www.health.gov/dietaryguidelines/dga2005/document/default.htm.

U.S. Department of Agriculture, Agricultural Research Service. *Nutrient Data Laboratory*, http://www.ars.usda.gov/main/site_main.htm?modecode=12-35-45-00.

U.S. Department of Agriculture, Economic Research Service. *Nutrient Availability Data Set*, http://www.ers.usda.gov/data/FoodConsumption/NutrientAvailIndex.htm.

U.S. Department of Agriculture, Food and Nutrition Service. *Food Assistance Programs*, http://www.fns.usda.gov/fns/. (MDE, 2009a).

Wandersman, A. (2003). Community science: Bridging the gap between science and practice with community-centered models. *American Journal of Community Psychology*, *31*, 227–242.

Wandersman, A. & Florin, P. (2003). Community interventions and effective prevention. *American Psychologist*, *58*, 441–448.

Wang, Y., Beydoun, M. A., Liang, L., Caballero, B. &Kumanyika, S. K. (2008). "Will all Americans become overweight or obese? Estimating the progression and cost the U.S. obesity epidemic, *"Obesity,* 16(*10*): pp.2323-30.

Wang, Y. Monteiro, C. &Popkin, B. M.(2002). Trends of obesity and underweight in older children and adolescents in the United States, Brazil, China and Russia. *American Journal of Clinical Nutrition*, *75:*971–977.

APPENDIX A: PILOT STUDY

FOR RATING ONLY

DEAR RATER,
DUE TO YOUR KNOWLEDGE AND EXPERTISE IN THE AREA (OR ONE OF THE RELATED AREAS) OF CHILDHOOD OBESITY) WE ARE ASKING YOU TO SERVE AS A CONTENT RATER. IF YOU WILL TAKE A MOMENT TO ASSIST US, PLEASE RATE THE QUALITY OF EACH QUESTION AS BEING APPROPRIATE AND CLEARLY WRITTEN FOR THE UNDERSTANDING OF THE IMPACT IMPLIED IN EACH QUESTION, WHEN RATED BY A PRINCIPAL SERVING IN THE DUAL ROLES AS CHIEF ADMINISTRATIVE OFFICER AND CHIEF ACADEMIC OFFICER OF AN ELEMENTARY, MIDDLE, JUNIOR-HIGH AND/OR SENIOR HIGH SCHOOL. THANK YOU!

RATING PROCEDURE: Please rate each question from a low of 1 (one) to a high of 5 (five) as being a question that a school principal should perceive as appropriate as the school leader and viewed as being written clearly for understanding. THE RATING SPACE IS AT THE END OF EACH QUESTION IN THE SURVEY BELOW. PLEASE NOTE THE FIRST FIVE QUESTIONS (omitted on this form) ARE GENERAL QUESTIONS TO BE USED AND HAVE BEEN ALREADY RATED. YOU HAVE BEEN ASKED TO RATE THE QUESTIONS BELOW IN ONE OF THE SPECIALTY AREAS DUE TO YOUR EXPERIENCE AND EXPERTISE. Thank you for your professional assistance.

I: **FOR EACH QUESTION:**
1=Not An Appropriate Question, 2= More of An Appropriate Question, but Not Clearly Written, 3= A Good Appropriate Question and Clearly Written, 4= A Better Appropriate Question and Better Written for Clarity, and 5= A Highly Appropriate Question and Written with Outstanding Clarity.
II: Below are the **Directions** to the Principals completing the survey: RATER COMMENTS APPRECIATED, if time permits. Please Use the backside of this form for comments.

Childhood Obesity Survey for Principals

Instructions: Please answer each statement below by putting a circle around the number that best reflects your degree of agreement or disagreement with that statement. There are three possible responses to each statement ranging from "disagree" to "neutral" to "agree". This survey will help us have a better understanding of the procedures implemented in schools to promote healthy lifestyles of students. Thank you for your cooperation.

Disagree

Neutral *Agree* *Raters*

Rate 1-5

1. Your school has implemented a written state or local program implemented to promote positive nutritional values and healthy lifestyles.	A	B	C	
2. Physical education and health instruction are valued as much as math, reading, science, and social studies instruction by the faculty and staff.	A	B	C	
3. Your teachers implement interactive teaching strategies with physical activities incorporated into daily classroom instruction.	A	B	C	
4. As a school principal, I believe the public schools MUST serve as one of the major institutions in our society to resolve childhood obesity.	A	B	C	

5. Our school has a sustained childhood obesity program for at least three academic years.	A	B	C	
6. The principal must be held responsible for ensuring implementation of the school's wellness policy and the districts and/or state's prescribed programs for the prevention of childhood obesity.	A	B	C	
7. Principals and their respective faculties should participate annually in professional development on physical activity, health and nutrition to support school wellness policy implementation and the prevention of childhood obesity?	A	B	C	
8. Implementing local and state wellness policies and the prevention of childhood obesity is an appropriate responsibility for public school educators.	A	B	C	
9. With proper training, K-12 educators can play a vital role in the proper implementation of school-level interventions and contribute greatly to the elimination of childhood obesity.	A	B	C	
10. The proper implementation of health and wellness policies in schools can significantly decrease and sustain childhood obesity levels.	A	B	C	

COMMENTS:

APPENDIX B: PRINCIPAL SURVEY DOCUMENTS

SCHOOL PRINCIPALS ROLE IN THE PREVENTION AND REDUCTION OF CHILDHOOD OBESITY

As educational researchers, Dr. J. Allen Queen and Dr. Jim Watson are asking you, the school principal as instructional leader of your school, about your perceptions, opinions and attitudes of the effectiveness of local school district mandates, local board policies, state board policies, legislated programs or specific laws designed for classroom teachers to use with the expectation to prevent or eliminate childhood obesity. You will be asked about local board policies or state laws requiring teachers and administrators specific involvement in the process and the total assistance, training and preparation you, assistant principals, team leaders or all teachers have received in the form of adequate and sustained professional staff development. You will never be asked to be identified by name.

As principal, you have been included in this descriptive study as a principal of a school in a state ranked within the lowest or highest eight states, as determined by the BMI levels of students (in the form of state averages) determined by the CDC as of December 1, 2013. The survey has been emailed to you as part of the Survey Share system.

This major researcher is being assisted by five doctoral students completing their dissertations. They are Shelton Jefferies, Stacey Barber, Otis Floyd, Philip Francis, and Michele Aikens. A brief resume is available on each student by requesting by email to Dr.Queen at JAQueen@gmail.com

No identifying information or knowledge of you by name, or by any other means, is or will be available. The same is true of your assistant principals, classroom teachers, supportive staff and students.

We are most interested in your opinions, beliefs and perceptions of any policies, mandates or laws required to develop or implement any commercial or school-developed programs to prevent obesity and to learn about your perceptions, opinions and attitudes about teaching prevention of childhood obesity at your school.

To what degree should the prevention of childhood obesity instruction be part of the state or district curriculum and what would be your perceived role as principal. Finally, we hope to discover if there is any significant difference between the two groups of principal perceptions and to learn what the faculty, staff, parents and students have achieved at the different levels by implementing any specific local, district or state policies, procedures and programs in your school?

Please do not sign your name anywhere on the survey. This survey has arrived in your email at school with information with directions on how to open and use the Survey Share system. There are demographic questions followed by questions about general characteristics of your current school, teachers and students that can be checked directly on the system followed by survey questions. We estimate about 12-15 minutes to complete the survey. We hope you will join us in this important study and take a few minutes to complete the survey.

Contact Dr. Queen (jaqueen@uncc.edu) for questions about this study. Contact the Office of Research Compliance at UNC Charlotte for questions about research participation. 704-687-1871 or uncc-irb@uncc.edu

Please give us some basic information about yourself:

(1) *My current school is in the State of _____.*

(2) *I am a male_____, I am a female_____.*

(3) *I am Hispanic ____, I am White non-Hispanic _____, I am Black non – Hispanic _____.*

I am an American Indian/Alaska Native_____, I am an Asian/Pacific Islander ____ , Other_____.

(4) *My highest level of graduate school degree or related certificate completed for principal licensure is:*

Master's _____, Educational Specialist_____, Doctorate (Ed.D or Ph.D) _____, Post-Doctoral Study of at least six months of full-time study_____, Other_____.

(5) *I have been a principal for 1_____, 2 -5 years_____, 6-10 years_____, 11-20 years _____, 21 or more years_____.*

(6) For the 2013-2014 school-year: *I am an elementary principal _____, I am a middle school principal____, I am a high school principal_____. I am a Grades K-8 principal____. I am a K-12 principal_____, Other_____. Please Explain:*

Please tell us about the students IN YOUR SCHOOL:

(7) *Number of Students and Grade Organizational Divisions: Elementary, K-5____, Middle/Jr. High 5-8 OR, 6-9_____, Other_____ Please briefly describe.*

(8) *The majority of our students come from a home environment that could be considered as being poor/poverty level _____. blue collared/working class_____, professional/upper middle class_____. wealthy/upper class/top 10 percent income _____, Ultra-wealthy/top 1percent of national income.*

(9) *Our school is in a physical location that would be considered as: Inner city _____. Urban _____. Suburban _____. Small town_____. Rural/Agricultural_____. Rural/sparsely populated._____.*

(10) *What percentage of students eats lunch: prepared at school_____, brings lunch_____. eats no lunch _____, students participate in the free or reduced lunch program_____.*

Survey Directions: Please select the response that best reflects your level of agreement with **EACH** Question

GENERAL AREA	PLEASE SELECT ONLY ONE CHOICE FOR EACH STATEMENT			THANK	YOU
11. Childhood obesity can negatively impact an obese child's academic achievement at every grade level, K-12.	*Strongly Disagree*	*Disagree*	*Neither Agree nor Disagree*	*Agree*	*Strongly Agree*
12. There is a relationship between the levels of a child's academic achievement and the levels of obesity as measured by the BMI.	*Strongly Disagree*	*Disagree*	*Neither Agree nor Disagree*	*Agree*	*Strongly Agree*
13. Childhood obesity can influence a student's interest, desire and motivation for learning.	*Strongly Disagree*	*Disagree*	*Neither Agree nor Disagree*	*Agree*	*Strongly Agree*
14. Childhood obesity and academic achievement is related at every grade level.	*Strongly Disagree*	*Disagree*	*Neither Agree nor Disagree*	*Agree*	*Strongly Agree*
15. Our school district requires student's BMI (body mass index) to be documented as an ongoing practice.	*Strongly Disagree*	*Disagree*	*Neither Agree nor Disagree*	*Agree*	*Strongly Agree*
16. Our school district provides students with healthy meals, snacks, and activities to promote a healthy lifestyle.	*Strongly Disagree*	*Disagree*	*Neither Agree nor*	*Agree*	*Strongly Agree*
17. It is my responsibility as a school leader to support society's efforts to resolve childhood obesity by promoting and supporting health and physical education as much as support the major academic areas.	*Strongly Disagree*	*Disagree*	*Neither Agree nor Disagree*	*Agree*	*Strongly Agree*
18. It is my responsibility as a school leader to promote and support health and physical education instruction as much as I support mathematics, language arts, science, and social studies instruction.	*Strongly Disagree*	*Disagree*	*Neither Agree nor Disagree*	*Agree*	*Strongly Agree*
19. It is my responsibility as a school leader to require teachers to implement interactive instruction of physical movement activities within core courses.	*Strongly Disagree*	*Disagree*	*Neither Agree nor Disagree*	*Agree*	*Strongly Agree*
20. It is my responsibility as a school leader to promote athletic participation as an important component in keeping the average student physically active and healthy.	*Strongly Disagree*	*Disagree*	*Neither Agree nor Disagree*	*Agree*	*Strongly Agree*

GENERAL AREA	PLEASE SELECT ONLY ONE CHOICE FOR EACH STATEMENT			THANK	YOU
21. My district provides all teachers the opportunities to receive necessary resources, including staff development, instructional materials and adequate funding for full implementation of local and state wellness policies targeting childhood obesity.	*Strongly Disagree*	*Disagree*	*Neither Agree nor Disagree*	*Agree*	*Strongly Agree*
22. I firmly believe the principal is primarily responsible for ensuring implementation of the schools wellness policy and the prevention of childhood obesity...	*Strongly Disagree*	*Disagree*	*Neither Agree nor Disagree*	*Agree*	*Strongly Agree*
23. District leadership holds principals accountable for implementation of state and local wellness policies focused on the prevention of childhood obesity.	*Strongly Disagree*	*Disagree*	*Neither Agree nor Disagree*	*Agree*	*Strongly Agree*
24. My district provides faculty staff development to ensure that students are not bullied physically, emotionally, or socially at school or in the local community.	*Strongly Disagree*	*Disagree*	*Neither Agree nor Disagree*	*Agree*	*Strongly Agree*