

ASSESSMENT OF SCHOOL ADMINISTRATOR AND
TEACHER PERSPECTIVES OF SCHOOL NUTRITION
AND HEALTH: OPPORTUNITIES FOR GOING
FURTHER

By

JACQUELYN NICKEL

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FURTHER

Thesis Approved:

Stephany Parker

Thesis Adviser

Janice Hermann

Gail Gates

Name: JACQUELYN NICKEL

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Abstract: Type 2 diabetes is an increasing concern for youth. What was once considered an adult onset disease is now impacting younger generations, especially Native American youth. Because youth spend the majority of their day at school, this project aimed to explore policy, system, and environmental factors influencing healthy school environments, foods offered at school, and fundraising policies. The goal of this research was to improve and expand the Eagle Adventure program to have influence at additional levels of the socioecological model so we can work in coordination with schools to expand the levels of influence necessary to prevent type 2 diabetes and other chronic conditions in Indian Country.

Methods: The sample population included teachers and school administrators at an elementary school in the Chickasaw Nation's jurisdictional boundaries with intent to include the Eagle Adventure program in the upcoming year. All teachers and administrators were invited to participate in a group discussion, dyad, or individual interview. The semi-structured script was developed by senior team members and reviewed by additional team members prior to use. Reviewers made suggestions related to flow and clarity of questions to address face validity. Discussions, interviews, and dyads were audio-recorded and transcribed verbatim. Transcripts were analyzed using content analysis.

Results: Overall, limited knowledge of school wellness policies was expressed. The primary concern related to foods offered in the school environment was addressing hunger. The need to address food insecurity/hunger superseded healthy school food offerings. There was an overall consensus recommending the need for kid friendly food options and snacks; widely implemented wellness policy; and the need to address funding shortages.

Conclusions: Increased communication to relate awareness and adaptation of school policies is needed. Funding shortages were identified as a major factor impeding the adoption of healthy school policies. Awareness related to funding demands attention of policy makers who have influenced in funding recommendations.

Implications for research and/or practice: The results from this study cannot be generalized due to the limited sample size and geographic representation. Additional studies at the local level are recommended to identify factors influencing the adaptation and utilization of school policies.

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CHAPTER I

INTRODUCTION

Diabetes has become a prevalent health concern among our society with a striking prevalence among Native American populations. This health disparity is considered one with modifiable risk factors related to food choices and physical activity behaviors. It is of utmost importance to develop preventative measures and education to curb this trend and promote healthier behaviors relevant to Native American families. Among the preventative measures are providing nutrition education to increase knowledge of healthful food choices and how choices affect body functions; increasing the awareness of the importance of physical activity; and increasing the awareness of the importance of healthy habits like regularly going to the doctor for wellness checks.

Type 2 diabetes is becoming all too common in our society, especially among Native American cultures, and unfortunately in a growing number of children. The American Diabetes Association (ADA) defines diabetes mellitus as, “a condition characterized by hyperglycemia resulting from the body’s inability to use blood glucose for energy. In type 1 diabetes, the pancreas no longer makes insulin and therefore blood glucose cannot enter the cells to be used for energy. In type 2 diabetes, either the pancreas does not make enough insulin or the body is unable to use insulin correctly.¹ Historically, type 1 diabetes has been classified as a “juvenile disease” and type 2 diabetes was diagnosed in adulthood, however current research and prevalence data indicate a change in the age of onset of type 2 diabetes to be at a much younger age.²

Diabetes is a precursor for many very serious health conditions such as kidney failure and amputation of limbs. The United States Centers for Disease Control and Prevention (CDC) estimates that more than 60% of nontraumatic lower limb amputations are caused by diabetes.³ It is also a comorbidity for metabolic syndrome and hypertension. There are many risk factors for type 2 diabetes such as obesity, family history of type 2 diabetes, age, race, inactivity, and prediabetes or gestational diabetes.⁴ Native American populations are disproportionately affected by type 2 diabetes. As of 2009 Native Americans ranked first in prevalence of diagnosed diabetes at 16.1%.⁵ As diabetes rates increase among Native American populations it is even more important to take preventative measures because family history greatly increases the chances of future generations developing type 2 diabetes.

Prevention has been the major topic of many articles in the last ten years, especially in Native American populations. There are many ways to address the prevention of type 2 diabetes. The most commonly recommended strategies are related to monitoring diet and increasing physical activity. Prevention, as discussed by Cavanaugh, et al.,⁶ needs to start with parents as positive role models for their children. They found that the interviewed men thought young tribal members needed to be educated about diabetes and its consequences. A similar finding was identified in the Taylor et al.,⁷ study in which the women interviewed felt that it was very important to reach out to the children as a way of prevention. Another study, by Parker et al.,⁸ identified diabetes prevention as conveyed by family concern around the disease as the major themes for a social marketing campaign. Another theme identified was the need for education in order to prevent the younger generations from developing diabetes.

There is strong evidence from many studies supporting lifestyle interventions as a way to prevent or delay the onset of diabetes in high-risk individuals.⁹ Deshpande et al.⁹ stated, “in

addition, adequate and sustained control of blood sugar levels, blood pressure, and blood lipid levels can prevent or delay the onset of diabetes-related complication in people with diabetes.”

Obesity has been identified as a major factor in the development of type 2 diabetes. The CDC contends, “overweight and obesity are both labels for ranges of weight that are greater than what is generally considered healthy for a given height. For adults, overweight and obesity ranges are determined by using weight and height to calculate a number called the ‘body mass index’ (BMI)... for most people, it correlates with their amount of body fat.”¹⁰ Based on a BMI measure, an adult is considered to be overweight if their measurement is between 25 and 29.9. An individual is considered to be obese if their BMI is over 30.

Native Americans and Native Alaskans have the highest rates of obesity and overweight children of any other racial/ethnic populations, at 23% and 24% respectively.¹¹ Being overweight or obese increases risk for many serious health conditions such as, cardiovascular disease (CVD), hypertension, some cancers, sleep and breathing disorders, and type 2 diabetes.¹² Obesity is related to many factors such as family history, genetic predisposition, and overeating combined with a sedentary lifestyle. Childhood obesity is thought to be related to, “both over consumption of calories and reduced physical activity.”¹³ Increasing obesity and diabetes rates among Native American populations are also related to low socioeconomic status and perspectives that it costs too much to eat healthfully.⁶

Like diabetes, obesity can be prevented with lifestyle modifications. It is commonly regarded that eating a balanced diet and increased physical activity can help reduce the prevalence of obesity. However, some studies indicate that Native American populations do not identify obesity as playing a role in health or risk for disease.⁶ Children have been recommended as the prime audience for obesity prevention because, “it is difficult to reduce excessive weight in

adults once it becomes established. Therefore it would be more sensible to initiate prevention and treatment of obesity during childhood.”¹³

There have been a few studies reporting results from diet and exercise interventions in schools focusing on Native American children. The Pathways program developed an intervention for diet and physical activity. The diet component aimed to decrease the amount of fat students consumed; the physical activity component aimed at increasing students’ physical activity and promoting a positive attitude towards physical activity; and a family component was included to inform families of their goals and reinforce the behaviors introduced through the program.¹⁴ The results of the intervention shows a positive, although not statistically significant, trend for increased physical activity levels of students and a substantial reduction in the fat content of school meals.¹⁵ The authors also found that teachers influenced the behaviors of the students’ habits, which aligns with the findings of Arcan et al., that educating teachers about healthful classroom food habits would promote healthier student habits.^{15,16} Arcan et al.,¹⁶ found teachers favored a healthier school environment supporting interventions to help increase nutrition-based knowledge.

There has been a strong link between diabetes and obesity in recent research, making healthful food choices and physical activity all the more important. The Eagle Adventure Program has addressed these issues through a play, four classroom based lessons, and materials, and worksheets for children to take home to help increase knowledge of healthful food choices and ways to increase physical activity with their families. The Eagle Adventure Program has been implemented in schools for students in first through third grade and has shown success in increasing students’ awareness of healthful food choices and different ways to increase their physical activity.¹⁷ In order to increase the effectiveness of the Eagle Adventure Program and other school based wellness programs moving forward there is a need to gather perspectives of both teachers, administrators, and food service staff, and administration to identify changes related

to school wellness policy and nutrition education that also influence health of students and their families.

Research Purpose and Objectives

The purpose of this thesis project was to gather perspectives of teachers and school administrators in one elementary school related to school health, policy and wellness. The study was supported in part by the Notah Begay III Foundation's Promising Programs which "aims to partner with Native communities to support projects that strategically target childhood obesity and type 2 diabetes prevention through existing youth focused physical activity and/or healthy nutrition programs."¹⁸ By gathering perspectives on school wellness policies, student nutrition and physical activity our goal was to improve and expand the Eagle Adventure program to reach more levels of the socioecological model so that we can work in coordination with schools to expand the levels of influence necessary to prevent type 2 diabetes and other chronic conditions in Indian Country and beyond. To achieve this goal, a qualitative study was designed including group discussions, dyads, and individual interviews with the following research objectives:

Objective 1. Determine teacher perspectives of nutrition, health and school policies that affect student health.

Objective 2. Determine school administrator perspectives of nutrition, health and school policies that affect student health.

Objective 3. To identify feasible school policy changes based on expressed needs and concerns.

Assumptions and Limitations

The overarching assumptions underlying this study are that local level stakeholder input such as teachers and school administrators are necessary to evoke change in school-based environments. These stakeholders have the most direct experience with students in school-level settings. Taking a participant-centered approach as opposed to a researcher-down approach should lead to more feasible, realistic and sustainable solutions.

There are three main limitations to the current study. First, researchers assumed participants provided truthful answers. If they did not answer truthfully, it would greatly effect conclusions and recommendations. The second limitation identified was that of response bias, as respondents may have responded with answers they perceived the researcher or co-participants as wanting. To address these limitations, the researchers explained the scope of the project and shared the importance of answering honestly so that recommendations for improvements in the health of students could be made. The researchers also arranged for group discussions and interviews to take place in permissive and non-threatening environments allowing for open dialogue and discussion. The third limitation identified was that of generalizability. This research is not generalizable to a larger population, however, the results can be used as a basis to make site-specific improvements, lead to program improvements and expansion in Oklahoma, as well as serve a basis for future research aimed at improving school health, nutrition and school policy in elementary school settings.

CHAPTER II

REVIEW OF LITERATURE

Type 2 Diabetes

As discussed in Chapter 1, type 2 diabetes has become a serious concern for Native American families that disproportionately affects youth. Dramatic increases in type 2 diabetes diagnoses from 1990 to 2009 of 110% in American Native and Alaska Native youth between the ages of fifteen and nineteen were noted.¹⁹ Additional evidence indicates American Indian and Alaska Native youth aged ten to nineteen were nine times more likely to be diagnosed with type 2 diabetes as compared to their non-Hispanic white counterparts.¹⁹ With such disparities noted, it is evident that movements towards health equity are important.

Prevention of type 2 diabetes in youth has been a major topic of discussion in many articles in the last ten years, especially among Native American populations. There are many ways to prevent the development of type 2 diabetes. The most modifiable factors related to diabetes prevention are diet and physical activity choices. There is strong evidence from many studies supporting lifestyle intervention as a way to prevent or delay the onset of diabetes in high-risk individuals.⁹ A starting point for prevention in Native American populations is school based intervention and education that reaches out to the younger generations in an effort to slow the development of diabetes through interventions that also address obesity prevention behaviors.

Obesity

Similar to diabetes, Native American populations are at a higher risk for being overweight or obese as compared to other ethnicities. Native Americans and Native Alaskans have the highest rate of obesity and overweight children of any other racial or ethnic population, at 23% and 24% respectively.¹¹ Being overweight or obese puts children and adults alike at an increased risk for many serious health conditions such as cardiovascular disease (CVD), hypertension, some cancers, sleep and breathing disorders, and type 2 diabetes.¹²

Prevention of obesity is similar to that of diabetes with lifestyle modifications, however, cultural views of obesity may differ. Some Native Americans may not view obesity as playing a role in healthy or risk for disease.⁶ Cavanaugh, et al.,⁶ stated, “very few men raised obesity as a major health concern.” A commonly held belief is eating a balanced diet and increased physical activity can reduce weight gain and prevent obesity. It is thought that children should be a target audience for prevention because, “it is difficult to reduce excessive weight in adults once it becomes established. Therefore it would be more sensible to initiate prevention and treatment of obesity during childhood.”¹³

Childhood obesity is thought to be related to “both over consumption of calories and reduced physical activity.”¹³ Contributing to the obesity and diabetes disparities among Native American populations is the fact that many are considered to be in a low socioeconomic status and many feel it costs too much to eat healthfully.⁶ Low socioeconomic status has been associated with a wide range of factors that contribute to negative health status including “limited access to a high nutrition and low calorie diet and environmental factors that do not provide sufficient and safe opportunities for exercise.”¹¹

Low-Income Status

Low income and poverty are more prevalent among Native Americans than many other racial/ethnic groups in the United States. As of 2012, 22.4% of Native Americans or Alaska Natives living in Oklahoma were classified as living below the poverty level.²⁰ As of December of 2014, 284,886 Oklahomans were receiving SNAP benefits. Of those 81,700 (29%) were Native American.²¹ During the 2012-2013 school year Native American students constituted 15.8% of the total enrollment of Oklahoma public schools.²² This is the second largest ethnic group in Oklahoma, second only to White (52.6%). Native Americans were followed by Hispanic (14.1%), Black (9.4%), two or more races (6.0%), and Asian (2.1%).²²

Children of families living in poverty or in low-income situations qualify for free or reduced price lunch, as a part of the National School Lunch Program (NSLP). The NSLP was created by the National School Lunch act of 1946. NSLP provides qualifying public and non-profit private schools with cash subsidies and United States Department of Agriculture (USDA) foods for each meal they serve. The meals have to meet the nutritional standards based on the Dietary Guidelines for Americans. In 1946, when the program began, the NSLP served about 7.1 million students. During the 2012 school year the NSLP served over 31.6 million students per day. In order to receive free lunch through the NSLP, the student's family needs to be at or below 130% of the poverty level. To receive reduced-price lunch the student's family needs to fall between 130 and 185% of the poverty level.²³ In Oklahoma during the 2013-2014 school year 62.1% of enrolled students were considered to be low income. Of those who were considered low income, 352,618 (52.3%) received free lunch and 66,139 (9.8%) received reduced- price lunch.²⁴ For the school year of 2014, 149,923 students in Oklahoma public schools reported Native American as their ethnicity. Of those, 96,042 (64.0%) Native American students received free or reduced price lunches. In grades first, second, and third, 34,525 reported to be Native American. Of those 23,969 (69.4%) received free or reduced price lunches.²⁵

Empowerment

Adequate attention to design of school nutrition programs is very important in the promotion of healthy food choices and the prevention of diabetes and obesity in children, especially in Native American populations. Many research articles have addressed the importance of early education for children in relation to healthy eating and physical activity. Reports indicate that elementary school primary prevention programs need to “focus not only on nutrition information, but also develop skills and behaviors related to areas such as food preparation, food preservation and storage; social and cultural aspects of food and eating; enhance self-esteem and positive body image and consumer aspects.”²⁶ Cultural awareness and empowerment are of utmost importance when working with diverse populations, especially Native Americans.

Taking a community approach to preventative programs takes into account many aspects of the cause of illnesses, such as diabetes or obesity and also acknowledges cultural knowledge, strengths, wisdom, and traditions.²⁷ Dawn Satterfield states, “to effectively address the growing threat of diabetes to AI/AN peoples, approaches must anchor efforts within local social, cultural, and spiritual knowledge and control while using the latest strides that public health and social science disciplines offer in terms of assessment, planning, and evaluation.”²⁸ The importance of cultural awareness spans back many generations to the loss of land and assimilation policies held by the United States government.

The U.S. government instituted “federal legislation such as the 1887 Dawes Allotment Act that significantly reduced the tribal land base which was held in trust by the United States government under the Department of the Interior... subsequent assimilation policies included the 1924 Indian Citizenship Act, the termination policy of the 1950s, and the Voluntary Relocation Program beginning in 1950.”²⁹ It is these policies and other laws that led to, “the forced social changes and bleak living conditions of the reservation system also contributed to the disruption of

American Indian cultures.”²⁹ These traumas were also addressed by Teresa Evans Campbell stating, “an extensive literature documents these assaults, which have included community massacres, genocidal policies, pandemics from the introduction of new disease, forced relocation, forced removal of children through Indian boarding school policies, and prohibition of spiritual and cultural practices. Together, these events amount to a history of ethnic and cultural genocide.”³⁰

Such devastating events and experiences forcibly imposed on Native American families are collectively referred to as historical trauma. Evans- Campbell defines historical trauma as, “the term used most often by scholars of AIAN trauma, is conceptualized as a collective complex trauma inflicted on a group of people who shared a specific group identity or affiliation-ethnicity, nationality, and religious affiliation. It is the legacy of numerous traumatic events a community experiences over generations and encompasses the psychological and social responses to such events.”³⁰ Past injustices should be addressed and acknowledged in order to have successful prevention of disease. An understanding of the past and how it has influenced current generations and their cultural values is necessary when working towards health equity in health promotion and nutrition related programs. To address the issues of culture the program developers need to pay close attention to social, cultural, historical, and environmental factors as well as the time needed to build an effective working relationship with the populations involved.³¹ The empowerment of the Native American populations is crucial in the success of the preventative programs being implemented.

The Eagle Adventure Program

After extensive formative research in the Chickasaw Nation jurisdictional boundaries, the Get Fresh! SNAP-Ed team and the Oklahoma State University research and evaluation team worked together to develop a primary prevention program to address the disproportionate

occurrence of type 2 diabetes and obesity in Native American families. Using the CDC's popular Eagle Books as a central theme and embracing traditions of Native American storytelling the program aims to instill a vision of hope that type 2 diabetes can be prevented.

The program was initiated in 2009 through a pilot program funded by SNAP-Ed Wave I demonstration grants. As part of the project, the team developed the program for youth and their families in grades 1-3.¹⁷ The program was developed utilizing the socioecological model as a framework and constructs from the social cognitive theory as essential components of the educational process. Further diversity inclusivity and cultural relativity were essential in the design process.¹⁷ Language revitalization was embraced and traditions of healthy ways were incorporated. The Eagle Adventure program is a "living" program in that the team consistently works to incorporate suggestions from teachers, students, and their families.¹⁷ Additionally, the team works to address additional levels of influence as it was designed using the socioecological model as a framework recognizing that prevention of type 2 diabetes and obesity requires more than individual based educational strategies.¹⁷

Socioecological Model

There are many theoretical models that can be used in nutrition-based research and programming. The socioecological model is widely used in health promotion. The socioecological model includes multiple spheres of influences. They are, individual, interpersonal, institutional/organizational, community, and social structure/policy/systems.^{32, 33} Each sphere represents a different level of influence on the targeted population. The outermost sphere (level of influence) is the social structure, policy, and systems, which is the broadest level of influence representing local, state, and federal levels. This includes the USDA and programs under their regulation, like the NSLP and Supplemental Nutrition Assistance Program (SNAP). The community level represents, "social networks, norms, and standards that exist formally or

informally among individuals, groups, partnerships, and organizations.”³² It is at this level that many community nutrition programs are implemented. Gregson et al. stated, “broad community support for nutrition education creates a more positive environment for behavior change and a shared commitment to improving the nutritional status of members of the local community.”³² The institutional and organizational level are identified as influential and include schools, churches, public agencies, and other such organizations or associations. This is the level at which many research-based programs are implemented.³² The interpersonal level has been identified as one of the most significant levels of influence on the individual. This level includes primary groups, like peers, friends and family. It encapsulates any and all factors that influence the social identity of the individual. The last and most specific level of the spheres of influence is the individual level. This level is where “behavior choices and psychological and cognitive factors such as knowledge, attitudes, beliefs, and personality traits” fall into the development of the individual level behavior changes.³² This framework relies on the belief that influences on the individual are overreaching and at many different levels. This model is often used as a framework for program development with the social cognitive theory being used in coordination to effect behavioral change.

Social Cognitive Theory

The social cognitive theory was developed by Albert Bandura on the premise that “learning occurs in a social context with a dynamic and reciprocal interaction of the person, environment and behavior.”³⁴ The theory proposes “that personal, behavioral, and environmental factors work in a dynamic and reciprocal fashion to influence health behavior.”³³ The social cognitive theory can be used as a complement to the SEM because it provides added depth for focus at various levels of influence through the identification of constructs essential to behavior change.

The social cognitive theory consists of interrelated constructs that influence the individual at multiple dimensions. Outcome expectations are identified as the individual's beliefs about the probability and value or consequences of the intended behavior.³³ Barriers include factors that prevent the individual from taking steps necessary to make changes. Barriers can be both environmental and personal. Self-efficacy is the individual's confidence that they can make the change and their belief that they can perform the behavior to reach their desired outcome.³³ Behavior capability is the knowledge and skills possessed by the individual to be able to perform the given tasks associated with the desired outcome. Observational learning is how the individual learns to perform the tasks associated with the desired outcome by observing others performing the tasks. Reinforcement is providing responses to the individual's actions that increase or decrease the likelihood of reaching the desired outcome.³³ Finally, self-regulation is the individual's ability to monitor and direct their behaviors in a way that helps them perform the tasks associated with the outcome.³³ Self-regulation can also be associated with setting goals, planning, and monitoring their progress.³⁵ Collectively, these factors are very important in the prevention of diabetes and obesity as they directly relate to food choices and behaviors that can be predictive of the aforementioned diseases.

Successful Programs

Few programs have addressed diabetes and obesity prevention through healthful eating and physical activity among Native American youth. Aside from the Eagle Adventure program, four main programs reporting positive outcomes were identified from a review of current literature and include: Pathways, Child and Adolescent Trial for Cardiovascular Health (CATCH), Diabetes Education in Tribal Schools (DETs), and Together Raising Awareness for Indian Life (TRAIL).

Pathways

The Pathways program is, “a culturally appropriate obesity intervention study for third-, fourth-, and fifth-grade American Indian schoolchildren [that] includes an intervention that promotes increased physical activity and healthful eating behaviors.”¹⁴ The programmers developed an intervention for diet and physical activity designed in partnership with local Native Americans who had cultural expertise in order to ensure cultural awareness and appropriateness.¹⁴ The three-year study, a randomized, controlled, school-based trial, was implemented at 41 schools located in American Indian communities in Arizona, New Mexico, and South Dakota. The 1,704 students participating were in grades three through five. The aim of the study was to promote healthy eating behaviors and increased physical activity in an integrated social learning environment with Native American traditions; reduce the percentage of fat and increase the practice of using lower fat foods and fruits and vegetables in food service; encourage moderate to high amounts of physical activity during and after school; and finally, involve families in the program and extend the positive healthy behaviors from school into the family.⁶

The program was inclusive of four parts: classroom curriculum, food service, physical education, and family involvement. The classroom curriculum consisted of 45-minute lessons a week that promoted healthful eating behaviors and increased physical activity. The program provided nutrient guidelines and tools for reducing the amount of fat in the meals provided by the schools. The physical education component aimed to increase energy expenditure by implementing three, 30 minute physical activity sessions a week at a moderate to vigorous activity level. The family component aimed to introduce families to the program and help the families in creating a supportive environment for students participating in the program.

To measure program outcomes the team collected anthropometric and body composition data at baseline and followed up at the end of second and fifth grades, respectively. Body fat

percentage was measured by bioelectrical impedance using a specially developed equation for this program. The physical activity component was evaluated by self-reporting of students through a questionnaire and a motion sensor. The team also used a questionnaire about knowledge, attitudes, and behaviors that related to diet and physical activity among Native American students. Dietary intake was measured by observation of a group of students. The team evaluated the program annually using survey instruments to assess all four components of the program. They also used attendance logs for training sessions and family events.

The researchers found there was no significant reduction in the percentage of body fat but did find that there was a reduction in the percentage of energy from fat in the intervention schools from 33.6% to 31.1%.⁶ They also found that there was a significant reduction in the total energy intake in the intervention schools. In addition, components of knowledge, attitudes, and behaviors significantly changed after the intervention. The intervention had a mean of 0.77 where as the control was 0.65, signifying an increase in knowledge, attitudes and beliefs in the intervention group students that was greater than that of the control.⁶

Child and Adolescent Trial for Cardiovascular Health (CATCH)

CATCH is a randomized controlled field trial that aimed to assess the outcomes of healthy behavior interventions on the prevention of cardiovascular disease in elementary children.³⁶ The program was implemented at 56 intervention schools and 40 control schools, with a total of 5,106 students participating, who were in grades three through five. The program had four main components, the classroom component consisting of lessons taught by teachers targeting eating behavior and physical activity habits; a physical education (PE) component consisting of increasing the amount of moderate to vigorous physical activity to 40% during PE class; the food service component consisted of tools to decrease total fat and sodium in the food served; and the home curriculum involved parent involved activity packets.³⁶

The students' blood was drawn at baseline and follow up to ascertain changes in blood lipid values. To evaluate the food service component recipes, menus, and vendor product information was collected; to assess the classroom component the Health Behavior Questionnaire was given at baseline and follow up; to assess the PE component the researchers used the System for Observing Fitness Instruction Time (SOFIT). The schools were visited by SOFIT trained observers to evaluate the intensity and type of physical activity the children were receiving in PE class; a 24 hour dietary recall was also used to assess what the students were eating at home.³⁶

Results from the CATCH program revealed that in the intervention group the amount of fat in the school lunches fell significantly from 38.7% to 31.9%; the intensity of the PE classes increased significantly; the self-reported fat intake fell significantly from 32.7% to 30.3%; and students reported significantly more vigorous activity of 58.6 minutes as compared to their counterparts at the control schools with 46.5 minutes.³⁶

Diabetes Education in Tribal Schools (DETS)

The Diabetes Education in Tribal Schools program was designed to be implemented in kindergarten through twelfth grade in schools with a high percentage of American Indian/ Native Alaskan (AI/AN) students. The schools were small rural or tribal schools that were both public and private and usually were in close proximity to a reservation.³⁷ The DETS curriculum focused on three primary goals: increase the understanding of health, diabetes, and maintaining life in balance; increasing AI/AN students' understanding and application of scientific and community knowledge; and increasing interest in science and health professions among AI/AN students.³⁷ The DETS program used culturally appropriate lessons to reach Native American students in the classroom, at home, and in the community.

The curriculum addressed three groups: kindergarten through fourth grade, fifth through eighth grade, and ninth through twelfth grade. Lessons were constructed on the 5-E format

(Engage, Explore, Explain, Elaborate, and Evaluate) and utilized inquiry-based characteristics such as science problem solving and reasoning.³⁸ The lessons for the kindergarten through fourth grade focused on developing a concept of health and what it means to be healthy and live a balanced life. It also focused on identifying healthy foods and how physical activity helps to prevent diabetes.³⁸ The fifth through eighth grade curriculum focused on describing lifestyle in terms of diet, physical activity, and personal choices; as well as how to make choices to improve their health and that of their families; and finally educating them on diabetes and how it works.³⁸ The ninth through twelfth grade curriculum focused on science concepts including blood glucose, defining diabetes, homeostasis, identifying risks for type 2 diabetes, maintaining health and life in balance, and involvement in five professions, which work with the treatment and prevention of type 2 diabetes.³⁸

DETS lessons were piloted by the Keweenaw Bay Ojibwa Community College in a one-week summer institute with 15 high school students in grades 8-12.³⁹ Lessons were implemented in 9th to 10th grade classrooms. Prior to introduction to the lessons, students were asked to answer the following three questions in a journal: 1. What do you know about diabetes; 2. Do you think diabetes is something you should be concerned about? Explain; 3. Do you think some types of diabetes are preventable? Explain. Investigators reported that students were able to “describe a basic clinical definition and illustrate consequences of type 2 diabetes” by the end of the institute.³⁹ Investigators in this study also reported positive feedback from students and teachers regarding the lessons and suggest the inclusion of science and culture into the DETS lessons “has created a valuable fusion” for a culturally relevant curriculum.

Another evaluation of DETS showed a significant increase in both student academic achievement and knowledge in science and health across all grade levels.⁴⁰ They also found students had a higher interest in careers in the science and health fields.⁴⁰ These are promising results for a program that spans all ages of school children and promotes health and science

careers and education in relation to promoting diabetes prevention. Further evaluation shows that the DETS materials have been widely distributed and many teachers have been recruited.⁴¹

Although there have not been rigorous, controlled evaluations of DETS, preliminary findings indicate promise for addressing type 2 diabetes prevention in a culturally responsive manner.

Together Raising Awareness for Indian Life (TRAIL)

TRAIL is a program implemented in Native American and other communities with the goal of reducing the onset of type 2 diabetes in Native American youth through physical activity, education, and nutritional activities that promote healthy lifestyles. The program also aimed to give youth a comprehensive understanding of a healthy lifestyle through four main themes: about me, my health, and being part of a team; healthy eating; making smart food choices; and my healthy community.⁴² We have not identified published articles on the evaluation or results of TRAIL despite its widespread use throughout Indian country.

Many positive primary prevention programs are being implemented in Native American communities but the need for further research, programs, and evaluation of such programs is evident through the lack of published studies related to outcomes. The Pathways and CATCH have been implemented and indicate positive results in the prevention of diabetes and cardiovascular disease in Native American populations and other communities. There remains a need for education among elementary school children residing in Native American communities as there is limited research reporting outcomes for culturally relevant programming. The lack of evaluation and results for the culturally relevant programs points to the need for more research to be conducted in coordination with Native American communities. It also indicates the need for published results to help develop additional programs to address health disparities that are too common among Native American populations, most notably, school aged youth. In addition to the lack of research reporting outcomes from school-based interventions in Native American

communities, the researcher is unaware of any reports focusing on school policy in schools with high proportions of Native American students. Inclusion of school policy changes in coordination with school-based nutrition and health education interventions can have a positive influence on the health and nutritional status of students.

School Health and Wellness Policies

Schools play a vital role in children's health and wellbeing. Youth spend most of their days in the classroom with teachers. It is because of the immense amount of influence that schools have on child development that there is a need for schools to not only have policies to address nutrition, health, and physical activity but also implement the policies. It has been found that many schools have nutrition or wellness policies in place but do not enforce them and many times the teachers do not know they exist nor what they address. Sanchez, et al. (2012) stated, "although each school district had adopted wellness policies, including those specific to nutrition and physical activity, we found inconsistency in key informants' understanding of who was responsible for implementing and monitoring these policies."⁴³ They went further saying that some principals said that wellness policies were among the policies that were handed out but not discussed further.⁴³

The CDC has published nine guidelines to help schools create and promote healthy eating and physical activity in schools. "The guidelines serve as the foundation for developing, implementing, and evaluating school-based healthy eating and physical activity policies and practices for students."⁴⁴ The CDC recommends that the schools use a coordinated approach to development of policies that establish a supportive environment for healthy eating and physical activity with a quality meal program to ensure that students have appealing and healthy options.⁴⁴ They also suggest having a comprehensive physical activity program and a health education program that provide students with skills, knowledge, and positive attitudes to make healthy

behavior choices and to be knowledgeable about the relationship of diet and physical activity with chronic disease and its prevention.⁴⁴ The guidelines suggest partnering with the family and community to develop programs and policies and employing qualified individuals to provide professional development opportunities to the staff.⁴⁴

There are many benefits to schools having wellness policies. The USDA's requirement of all schools having a wellness policy was part of an effort to decrease childhood obesity through increased physical activity and improve the nutritional quality of lunches provided by schools participating in the National School Lunch program. Children spend the majority of their day at school and many of their dietary and physical activity habits are influenced by practices they learn at school. One study supported wellness policies in schools stating, "First, children spend more awake time in school than at home. Second, children are already primed for learning in the school setting. Furthermore, the school environment can affect children's dietary and physical activity practices."⁴⁵ This shows the importance of a strong wellness policy and the importance of implementing it.

There are also factors competing with the success of wellness policies. Bauer et al.⁴⁶ discussed the barriers to policy implementation from the student perspective and found the major obstacles for students participating in physical education class were competition, skill level, and being overweight. They also found the open gym format in the morning made it hard for girls to feel comfortable being involved in a "boy's atmosphere". The students also said that the competitive nature of school sports made it hard for some, because they were not as experienced in the sports, to make a team.⁴⁶

Limitations were also noted on the nutrition side of the school wellness policies. Students thought that the foods provided by the cafeterias were of low quality and made them prefer to eat other less healthful options.⁴⁶ Bauer et al.⁴⁶ also found that the availability of snacks and vending

machine foods made less healthful foods more readily available to students. Another major factor that was seen as a barrier to many students was dieting and weight concerns in relation to what they ate, making it hard to feel comfortable in what they ate and eating healthfully. Another study found similar results but added that nutrition programs needed to be incorporated into school food service to make the greatest impact on the students receiving and seeing the nutritional concepts at work.⁴⁷

Schools play a vital role in children's health and well being. Youth spend most of their days in the classroom with teachers. It is because of the immense amount of influence that schools have on child development that there is a need for schools not only to have policies to address nutrition, health and physical activity but also implement the policies. It has been found that many schools have nutrition or wellness policies in place but do not enforce them and many times teachers do not know what they are. One report stated that creating awareness of local wellness policy rated highest in importance of involvement in implementing the policy.⁴⁸ Sanchez et al. stated, "although each school district had adopted wellness policies, including those specific to nutrition and physical activity, we found inconsistency in key informants' understanding of who was responsible for implementing and monitoring these policies."⁴³ They went further saying that some principals said that wellness policies were among the policies that were handed out but not discussed further.⁴³

There have been a few studies that have addressed the success of school wellness policies. One program identified was the What's Working project in rural, low-income Colorado elementary schools. The original study and the five-year follow up identified four main barriers to implementation. First, they found that there were competing pressures on the school administration and staff that prevented them from giving the policy implementation their full attention. Second, they found that there was a lack of resources, such as funds and time. Next, they found that the principals were unfamiliar with the local wellness policies, and could not

describe them. They felt that they were just one of many policies they were given each year. Lastly, they found that there was a lack of accountability to ensure that the schools were adhering to the policies once they were implemented.⁴⁹ The follow up study gave suggestions for how to improve the implementation of the wellness policy and the small accomplishments made over the five years, such as protecting recess time, having recess prior to lunch, and adding policies requiring mostly healthy foods in vending machines and at class parties.⁵⁰

A second study carried out in Alaska assessed whether the addition of the wellness policy had an effect on the rate of development of overweight and obese students. They implemented a policy that included “nutritional guidelines and provisions for eliminating the sales of high-carbohydrate snacks and beverages in all schools.”⁴⁵ There were also stricter standards on the nutritional values of foods provided by the school at both lunch and breakfast. Increased availability of fresh fruits and vegetables to students was incorporated as well. Despite such changes, they found no statistically significant relationship between the wellness policy implementation and change in BMI status of the students.⁴⁵

A third study carried out in Louisiana was designed to address obesity, physical inactivity, and tobacco use in their school districts. They worked within the schools to develop wellness policies and engage the community to develop supportive environments for healthful choices and behaviors.⁵¹ They found that their approach facilitated successful implementation of the policies. They created incentives and provided training to the site coordinators, creating a unique approach to policy development and community buy-in and engagement. Twenty-five of the twenty-seven sites had a comprehensive wellness policy that was approved by their respective school board.⁵¹ The inclusion of community members and students in the development of the school wellness policies in this study made for an inclusive policy that was relevant to all involved and promoted a healthy lifestyle in ways that related to the students and teachers the policy governed.

Findings from these studies indicate that for school wellness policies to be effective there needs to be a team approach. A team approach allows for collective effort to reinforce nutrition education and wellness policy in schools by principals, teachers, school nutrition professionals, and parents. Without cooperation of all involved these policies will not be nearly as effective.⁴⁸ Investigators contend that “without a supportive team to implement, manage, and evaluate LWP (local wellness policy), the potential for excellence would be challenging.”⁴⁸

Strong, direct language has also been determined to be a predictor of policy success. Belansky et al.⁴⁹ found that weak wording of a policy produced minimal impact on the school. Other strategies that were found to help make policies successful were the ability of the schools to deal with challenges, set clear goals, and have accountability for implementation in place.⁵⁰ These strategies combined can help to make implementation of school wellness policies successful.

Wellness Policy In Oklahoma

Federal law requires that all schools participating in the USDA’s school meals program develop and implement a school wellness policy in efforts to combat childhood obesity.⁵² Public Law 108-265 section 204 passed by the 108th congress was passed in June of 2004 and went into effect in July 1, 2006. Oklahoma law section 24-100a of title 70 that was enacted by the Healthy and Fit Kids Act of 2004 states that each school was required to establish a Healthy and Fit School Advisory Committee that will make recommendations to the school principals on health education, physical education and physical activity, and nutrition and health services.⁵² The Oklahoma State Department of Education (OSDE) requires four components to include in a wellness policy, that are also recommended by the USDA, including nutrition education goals, physical activity goals, nutrition standards, and other school based activities.⁵²

The USDA provided guidance for what to include in each section of the wellness policies. For setting nutrition education goals, USDA suggested including interactive nutrition

education that emphasizes skills to adopt healthy eating behaviors; coordinating the nutrition education with food service staff and teachers to include nutrition education and messages in the dining areas and classrooms; and integrating nutrition messages and activities into the school core subjects, such as math, science, and language arts.⁵²

Recommendations for setting physical activity goals included giving students opportunities for physical activity throughout the school day through physical education classes, recess, and walking programs; integrated physical education into the school curriculum; giving students the opportunity for physical education after school; and including the community in creating safe areas for students to be active.⁵² The USDA recommends setting guidelines for food and beverages served on school campuses, in vending machines, at school fundraising functions, and parties.⁵²

Finally, the recommendations for the goals for promoting student wellness include providing a clean, safe meal environment; prohibiting the use of food as a reward or punishment; providing ongoing professional development for food service staff and teachers in the area of nutrition and wellness; and developing strategies for parents, teachers, school administrators and staff to become role models in the practice of healthy eating and overall wellness for students.⁵² These suggestions are only the beginnings of developing a wellness policy for a school. There are no laws in Oklahoma that serve to check to see if schools are implementing the wellness policies; how extensive they are; or how effective they are at promoting wellness.

Successful Policy Interventions

There have been few successful programs that have been published reporting policy changes included in the intervention program. Sanchez et al. states, “Although school wellness policies have the potential to transform school environments, relatively little has been written about post-adoption policy implementation and evaluation (policy to practice).”⁴³ The lack of

published information on the subject makes it difficult to evaluate and surmise what strategies have been successful and which ones have not been successful.

Teacher Perspectives of Health Programs and Policies

Teachers as individuals with interpersonal relationships with students have important roles in child wellness. As such, their perspectives of wellness programs and policies are key in the prevention of obesity and diabetes in children. One study that reported teacher perspectives was the Winning With Wellness program regarding the implementation of the “Go Slow Whoa” (GSW) meal pattern.⁵³ Teachers implemented classroom lessons complemented by a cafeteria intervention. Teachers reported, “only moderate levels of confidence in the GSW as a way to influence children’s dietary habits...and felt that greater administrative and district support for cafeteria-based interventions and collaborations with teacher would be more beneficial.”⁵³

Another program that included reports of teacher perspectives was the DETS study. The DETS research team explored teacher perspectives as a means of understanding classroom practices, beliefs, and knowledge, as well as the support or limitation of future targeted professional development.³⁷ Researchers found that, “teachers felt the DETS curriculum was easy-to-use and generally more engaging than similar curricula. The Native American culture content was generally rated strong or very strong.”³⁷ Because there are few published reports on teacher perspectives of nutrition interventions like DETS and Winning With Wellness that include policy components, future research is needed to address these aspects of implementation.

Food Service Staff Perspectives of Health Programs and Policies

Like teachers, food staff and the cafeteria play a central role in the implementation of wellness programs and policies. There is little published research in this area. One program that did publish food service staff perspectives of a wellness program was the Winning With Wellness

program. The results of the survey of the food staff of the Go Slow Whoa (GSW) initiative in the cafeteria was low, “only 31.4% thought the GSW cafeteria program was very to extremely helpful in teaching students how to eat a healthy diet, and just 16.7% thought the GSW classroom lessons were very or extremely helpful in teaching healthy dietary habits.”⁴⁸ The Winning With Wellness also addressed the food service staff’s perspectives of wellness policies. The authors stated, “the impact of district policy and state law was an undercurrent in many sessions...several CS shared concerns related to a lack of district-level policies for restricting a la carte sales.”⁵³ This is the only published study found to date that discussed the perspectives of food service staff.

Administrator Perspectives of Health Programs and Policies

School administrator perspectives are also very important to the success of wellness interventions as they set and implement the policies involved. A review of available literature at this time did not produce any published work reporting school administrators’ perspectives of wellness programs and policies. Future research needs to address the perspectives of school administrators in relation to their perspectives of health and nutrition programs and also their perspectives on the development, implementation, and regulation of wellness policy in schools.

Gaps in Research

The gaps in research in relation to school wellness are vast. Through a review of the current literature few studies with reports of teacher, food service staff, or administrator’s perspectives have been published to the researchers knowledge. Even fewer studies have been published that address Native American populations directly. Few studies document the outcomes of health and nutrition programs that have been implemented in Native American populations. The investigator is also unaware of studies conducted in Native American populations that report perspectives of the program in schools.

Conclusion

In conclusion, diabetes and obesity are very prevalent in Native American populations, especially in children. It is imperative to start prevention of diabetes at a young age. Previous research shows nutrition education programs in schools have had success in improving children's dietary choices and physical activity. There is a lack of information on the implementation of school wellness policies that needs to be addressed. There is also a substantial lack of information in regards to the perspectives of teachers, food service staff, and administrators on policy and nutrition and health program implementation in schools. The importance of prevention in Native American populations and lack of published results support the significance of the current study.

CHAPTER III

METHODS

Sample and Setting

The sample population for this study included teachers and school administrators at an elementary school in the Chickasaw Nation's jurisdictional boundaries with intent to include the Eagle Adventure program in the upcoming school year. All teachers, food service personnel, and administrators were invited to participate in the study. (Appendix A). This study reported findings from teachers and school administrators

Ethical Procedures

This study was approved by the Oklahoma State University Institutional Review Board and the Chickasaw Nation Institutional Review Board (Appendix A). All participants were required to sign consent forms (Appendix B) prior to participating in individual interviews, dyads, or group discussions. Participants were informed that their participation was voluntary and that they could withdraw at any time. Participants were able to choose school supplies equivalent to \$25.00 as an incentive for their participation.

Group Discussion and Interview Procedures

A semi-structured script was developed based on a review of current literature related to school teacher and administrator perspectives of school nutrition, health, and wellness policy. The

interview questions were primarily adapted from two studies and structured to identify areas recommended by the CDC school physical activity and nutrition (PAN) guidelines for school wellness.^{46,48} Questions were designed to explore the teacher and administrators' views of nutrition and physical activity in the school environment as well as views of school wellness policy. Six domains were explored and included: healthy school environment, physical activity, healthy eating views, nutrition, wellness policy, and fundraising.

The semi-structured script (Appendix D) was developed by senior team members and reviewed by additional team members prior to use. The members who reviewed the script had extensive experience with the subject matter, population, and school settings. The reviewers made suggestions related to flow and clarity of questions to address face validity.

Before participating in the group discussion, interview, or dyad, the researcher explained the scope of the study and participants then signed an informed consent sheet (Appendix B & C). Following signing of the consent form, researchers explained the process of a group discussion, dyad, or interview. Participants were informed that their thoughts and opinions would be kept completely anonymous and their responses would be grouped together with the other respondents and there would be no identifying information transcribed.

A trained moderator led each group discussion or dyad and a trained assistant moderator took notes. The extensive notes were taken on a copy of the question script and included details of the major findings that emerged from the participant discussion. Team members who were trained in interview methodology conducted individual interviews. Following each group discussion, dyad, or interview the moderator and assistant moderator (when available) had a debriefing (Appendix D) and recorded their impressions of the discussions and processes.

All focus groups and interview discussions were audio- recorded. The recordings were transcribed verbatim by members of the research team with any identifiable information excluded. Some portions of the recordings were inaudible due to an ice machine and hall traffic.

Data Analysis

The data from the focus group discussions and interviews were analyzed using three levels of coding. The initial phase of coding was at the line-by-line level whereby two researchers immersed in the data collection and transcription procedures reviewed transcripts. The initial coding helped reveal themes and break the responses into usable data. Charmaz discusses the importance of initial coding stating, “by studying the data and following leads you find in them, you may make fundamental processes explicit, render hidden assumptions visible, and give participants new insights.”⁵⁴ The two coders met to discuss the initial coding and then moved to the second phase of focused coding. During this phase, researchers identified categories and subcategories. Focused coding allowed the researchers to take the initial codes and identify codes that appeared most frequently and the ones most relevant to the research purpose and objectives. Charmaz states, “this type of coding condenses and sharpens what you have already done because it highlights what you find to be important in your emerging analysis.”⁵⁴ In the third phase of coding, the researchers built upon the focused coding taking the categories and subcategories and organizing them into the overriding themes of the study according to the socioecological model. Results from the administrator and teacher findings are separated because of the assumed differing levels of influence they have.

CHAPTER IV

RESULTS

Participant Description

Participants included first and second grade teachers in one elementary school and administrators (curriculum director, principals (n=2), and superintendent) of a school district located within the Chickasaw Nation jurisdiction boundaries. Three group discussions and four individual interviews were conducted from April to October 2014. The range of the participants in group discussions was one to five participants.

Table 1 Description of Research Process and Participants

Date Conducted	Type of Discussion	Number of Participants	Participants Included
April 22, 2014	Group Discussion	5	Teachers
April 22, 2014	Group Discussion	4	Teachers
April 22, 2014	Interview	1	Teachers
May 6, 2014	Group Discussion	4	Teachers
May 6, 2014	Interview	1	Teacher
May 5, 2014	Interview	1	Administrator 1
May 8, 2014	Interview	1	Administrator 2
June 12, 2014	Interview	1	Administrator 3
October 21, 2014	Interview	1	Administrator 4

Qualitative Findings

The researchers identified recurring themes across each domain under investigation. Findings were consistent across discussions with teachers. Consistency was also noted among interviews with administrators. Results are presented with teacher findings and administrator findings separated as their level of influence was assumed to differ.

Healthy School Environment

Noteworthy themes identified from discussions with teachers exploring the domain of healthy school environment are present in Table 2. Teachers commonly described a sense of holistic health as important to a healthy school environment. They described a healthy school environment as addressing basic health as well as adequately fed and rested students. They also stressed the importance of hunger in relation to learning and the importance of having students who were fed and ready to learn. The teachers discussed the importance of facilitators to a healthy school environment like vertical communication within the school and school district and a team approach related to the care and education of students. The need for teachers, school administrators, parents, and even students to be involved in the educational process was noted as important for optimal success. Teachers consistently referred to changing roles as impacting a healthy school environment. Teachers discussed increased roles and responsibilities from one of strictly an educator to a role that involves not only education but also feeding and in some cases clothing the students in their classrooms. In relation to their increased roles and responsibilities, teachers discussed an associated lack of parental support for the students and the educational process as a barrier to healthy school environments. As this school is a majority low-income school, teachers conveyed that many of students dress and feed themselves at home without the involvement or positive role model of a parent. Another factor critical in this domain was the importance of food security. Food security was viewed as essential to a healthy school

environment and as one of the most important components of the school food service programs that will be discussed later in this section. Overall findings in this domain related to the importance of having students that are well fed and ready to learn. Importantly, none of the factors identified were inferred to be influenced by individual level actions. For the most part interpersonal and organizational level influences were involved as most influential to healthy school environments.

Table 2. Domain 1: Healthy School Environment- Qualitative Findings Identified from Discussions with teachers

Socioecological Model Level	Theme	Representative Quote
Interpersonal	Holistic Health	Well, ideally we would want our kids to come to school well rested and with a breakfast and which we provide breakfast. And then we, we have PE four days a week, so that's to me healthy. They get to run and play. They need that. (FG1- L48-50) We try to encourage you know being eating the health aspect of it it's a daily exer.. we do daily exercises we try, try to um eat (inaudible- mumbling) food groups as far as eating healthy we um I do hygiene through red ribbon week we do things on um you know I do also on drug awareness coordinator you know I that aspect of it on jump up your heart we do the heart and health issues and things like that I just kind of do anything I can to teach you know health... it's important to take care of your body and hygiene anything I can that to have an impact...: bathe and anything (IIT L 45-53)
Interpersonal	Facilitators <ul style="list-style-type: none"> • Team Approach • Vertical communication 	There's a lot less parent involvement than there was when I first started and it takes everyone. I mean everyone has to be on the same page and pull together and work together (IIT L25-26 team approach) Just everybody across the board. I mean all the teachers, administrators, parents, I mean kids (FG2 L31- vertical communication)
Interpersonal and Organizational	Changing role of the teacher	Its gotten to where we're teaching everything. I mean that's the way it is (inaudible) teach them, healthy habits, manners, everything. A lot of them are not coming with that knowledge. (FG1- L76-73) Providing clothing, teaching them cleanliness, food sometimes in between if they get here late in the morning and they don't have breakfast, food in the classroom. (FG1 - 82-83) Very important because the kids I mean, as long as you're taking care of the school environment, the teachers are taking care of it so the kids can see we care about them if we do, do our part. I think kids tend to know they are taken care of, they know they are going to get fed, they know they're going to, know teachers will wash their hands and you know (FG2 L61-64)
Interpersonal and Policy	Barriers <ul style="list-style-type: none"> • Lack of parental support 	The ones whose parents are still asleep when they leave and get themselves on the bus by themselves I mean we're the person that they're listening to because they don't talk much to mom and dad. (FG1 L88-90) We had students and they this is my first year in the gym, being in the classroom even last year we had first graders that walked to school on their own parents still home in bed. You know you don't, you do not have the parents at home that sit down and read with their students or their children or work with their children like they did before they get up, first graders get up and dress themselves they eat whatever they can provide for themselves I mean there's its sad but they just there's its, saying it nicely I mean they you know I'm trying that I mean it brings tears to your eyes to see the kids coming in and that there's no parents involvement what so ever that will help them and its very, very sad (IIT L31-38)
Interpersonal and Policy	Food Security	So much of that is done at home. A lot of them are (inaudible) for each other. (Inaudible) fear they aren't going to get fed (FG2 L65-66)

Abbreviations: FG, Focus Group; IIT, Individual Interview Teacher

The school administrators shared similar views of a healthy school environment (Table 3). The school administrators also conveyed views of holistic health in that both physical and emotional wellness were considered as important to healthy school environments. Administrators emphasized how emotional problems can detract from student learning. They stressed and acknowledged the relationship between hunger and learning. The general thought was that if a child is coming to school hungry and is not getting enough food that child will struggle to learn at their fullest potential.

Administrators discussed how state and federal mandates affected the healthy school environment. Mandates affecting physical education, recess or other physical activity, school breakfast and lunch programs, and testing requirements were mentioned as influential and how adherence to such mandates like testing could negatively affect healthy school environments as testing results were perceived as indicators of school success.

Similar to teachers, the administrators also recognized how the roles of teachers were changing. They identified how teachers were not only providers of education but also major providers of not only basic life necessities but also of emotional and moral support. Related to the changing teacher roles was the lack of parental support that some children experience. Administrators discussed how children have to rely on themselves to find food at home or by way of community food programs.

When categorizing themes by socioecological level of influence, the investigators deduced that multiple levels of influence impact healthy school environments. Interpersonal connections with teachers and students and inadequate support from parents were recognized as influential. Further mandates at the state and federal level were realized as a major influence. In terms of hunger, administrators tended to focus more on individual academic indicators than teachers did.

Table 3 Domain 1: Healthy School Environment- Qualitative Findings Identified from Interviews with Administrators

Socioecological Model Level	Theme	Representative Quote
Individual, interpersonal and organizational	Holistic Health • Emotional health	A healthy school environment would include not just not just physical wellness but emotional wellness as well (IIA3 L10-11) Particularly emotional health I think sometimes because our kids do not know how to handle be it stress or bullying or uh how to use social media in the correct forms all of those things that add extra burdens emotionally that's been causing them to not necessarily perform well in school. (IIA1 L14-17)
Individual	Hunger in relation to learning	They are students are, don't have the ability to focus on learning if they're hungry (IIA4 L42-43) How can they read, how can they care about reading and mathematics and those kinds of things if they're hungry or they're they're not getting the nutrition that they need? (IIA1 L 80-81)
Organizational and Policy	Meeting State & Federal Mandates	We abide by the number of minutes that all uh students that age have to have to um reach in minutes each week of physical education and physical activity. As a matter of fact I'm sure we exceed those numbers that are required by state law uh so, so the physical activity and PE classes is part of that part of that process uh nutrition is also part of that process. Now we count on our food service program. Obviously to abide by the nutrition regulations set forth by the state and by the federal government regarding school lunch programs and the nutritional requirements there (IIA3 L13-18) Um and I think partly we're at fault because and you may get more to this we spend so much time on the mandates on testing and on uh remediation and no child left behind and all these new mandates that are given to us but often sometimes the things that are most important be it healthy living are left off the table (IIA1 L25-34)
Interpersonal and Organizational	Changing Role of the Teacher	You know teachers wear all kinds of hats, they're nurses, they're moms that will sit down and hug them and then um we address their, their physical needs by making sure they have had breakfast um then we address their academic concerns. (IIA4 L29-32)
Interpersonal, Community, Organizational, and Policy	Lack of Parental Support	If they're parents are going through a divorce and they have no one to speak to about it. (IIA4 L 43-44) The children that show up without parents for the evening meals that are given at all the table first Baptist church or Mathew 25 or community places that are serving are serving kids that come by themselves because they're hungry (IIA1 L60-62)

Abbreviations: IIA, Individual Interview Administrator

Physical Activity

There was a general positive sentiment conveyed by teachers in relation to including physical activity in the school day (Table 4). However, teachers mentioned many barriers related to physical activity in school including but not limited to: curriculum rigors, time, weather, lack of resources, and mandates. Curriculum rigors related to state and federal mandates were discussed as dictating what teachers were required to cover during the school year in order to prepare students for their mandatory, yearly testing. Teachers felt that every year they are expected to teach more and more and that the time to include physical activity into the classroom was challenging to say the least. Teachers also mentioned that increased curriculum demands

were perceived to have lead to decline in the amount of time available for physical education and recess in recent years.

Teachers also discussed a lack of resources as a barrier to physical activity both in their classrooms and in the school day. There is a premium on space and money. According to the teachers there are many students in a small room with little extra space to move around. The teachers have to be creative to come up with moving activities that work within their spaces. There is also a shortage of money in this school district making purchasing supplies for physical education or other physical activities in the classrooms hard. Another barrier to physical activity during the school day mentioned was weather. If there is bad weather teachers have to keep students inside which limits the amount of recess, which was identified as a primary time for physical activity in the school environment. With so many students, teachers have to put on movies in their classrooms because there is not enough space for inside physical activity for all of the students.

During the discussions the teachers had many suggestions for increasing physical activity. Many teachers discussed what was commonly referred to as “brain breaks” during which students were given a short break from their lessons to release some energy at their desks or around their classrooms. Many of the teachers suggested that physical activity could be incorporated into the lessons and the scholastic lessons incorporated into the physical education curriculum. There were also some who felt that the school needed to increase the amount of recess or breaks that the students had through out the day. The teachers who used the brain breaks in their classrooms had many resources that they used to find ideas. Many of the teachers used YouTube videos and ideas from Pinterest. There were also CDs and miniature adventures that the students could do to take a break from the stresses of the school day. There were also physical and occupational therapists that had come to the school and given the teachers ideas on things they could incorporate into the day. It was important to the teachers that they be able to

incorporate the breaks for the students as they saw many benefits including: stress relief, alleviating lethargy, increasing attention span and focus, and the brain-body connections that are made for the students. Many of the teachers talked about the benefits of the stress relief and the increase in attention span and focus the students had after short brain breaks, or little activities that allowed the students to move around and release their energy and stress. The breaks for physical activity were also important in showing the connections from the brain back to the body and how the workings of the two are interconnected. The overall sentiment of the teachers was that physical activity is very important to keep the students going throughout the day but there were some serious barriers preventing more physical activity that need to be addressed.

The teachers also discussed the shift in lifestyles from when they were young to the children now and how such shifts have negatively influenced physical activity. Teachers talked about how they went home after school and played outside whereas students today go home and watch television or play video games. The shift in lifestyles was perceived as another reason for the decrease in physical activity among students.

Consideration of factors influencing physical activity revealed that improvements require attention to multiple levels of influence. Individual student level benefits were identified from increased physical activity time. Teacher willingness and recognition of such benefits were hampered by barriers over which they have no control. However, testing mandates and curriculum rigors were perceived as having precedence over physical activity. As such, in order to achieve perceived benefits related to increased student physical activity, changes in the school as an organization as influenced by current policy, systems, and environmental factors were deemed necessary to evoke any improvements in this area.

Table 4 Domain 2: Physical Activity- Qualitative Findings Identified from Discussions with Teachers

Socioecological Model Level	Theme	Representative Quote
Policy, Systems, and Environmental	<p>Barriers</p> <ul style="list-style-type: none"> • Curriculum Rigors • Time • Weather • Lack of Resources • Mandates 	<p>All the academics that are required. We're running out of time, testing and we're required to have so many minutes for reading (FGT L109-110- curriculum rigors)</p> <p>To where you don't have time to go into those extra things. Things kind of keep it as close as to what we are doing to get to where its uh and sometimes I think it's just teacher forgetfulness (FG3 L56-57-time)</p> <p>A lot of times if it's you know if it's a rainy day we have indoor recess so they don't get any activity outside then. (FG1 L113-114-weather)</p> <p>Uh I would say having the resources available, you know is you smart board up is your sound system working computer wise uh just having the resources, you know like I have the clip boards not everyone has the clip boards you know, I know I can hear a lot of things like that. Space, enough space to move around, which I'm lucky I feel like I have plenty of space. Just things like that (FG3 100-104- Resources)</p> <p>Well, I don't think necessarily it's just schools having more at the state level as far as like mandated what you have to have accomplished I think the school is also important but mandates make it difficult to get everything in. that (inaudible) getting in (FG3 L64-66 - mandates)</p> <p>Great idea, love it, but how in the world can we do it with all the other expectations that we have on us at this point in time (FG1 L203-204- mandates)</p>
Organization and Policy	<p>Suggestions for more physical activity</p> <ul style="list-style-type: none"> • Brain Breaks • Recess/Breaks • Incorporating Movement into Lessons 	<p>Maybe just a brain break but that ends and you get up and have to stretch and move things to the songs and you know (FG1 L123-124- Brain Break)</p> <p>Brain, brain breaks, a dance here and there. A little music, music is a biggie... we uh, have uh rewards; they love to go for a 2 minute dance party (FG3 L29-31- Brain Break)</p> <p>When I was in school we had a nutrition break in the morning time and it was about 10:00 in the morning and it was like 10, 15 minutes and it was just enough time where we could go to the vending machine and get something and whatever and but I mean something like that might be neat you know we would have to provide snacks or whatever (FG1 L224-227- Recess)</p> <p>And I mean it's like you're maybe teaching math class in P.E., and I, I would love that, (inaudible) brain break learning, cause I think there's a lot to it, and there's, I mean there's, there's certain things, they're moving certain ways, they need more information, I don't know, I just know it's out there but I don't really know about it, and I'd like to see more than brain breaks, so I think that's something and there's a lot to it (FGT L135-139- incorporating movement into lessons)</p>
Interpersonal and Environmental	Shift in Lifestyles	<p>And they talk about the importance, and we talked about the importance I know I tell the kids that they go home and walk today and did they walk yet? Go out and walk every day. Every day you should go outside and play. Because I don't think kids go outside and play anymore like they used to. You know when I got home we played, we went outside and played. We didn't have things to entertain us and such. We had to find out things. Kids need to be more active physically and I don't think they know the importance of it. (FG1 L138-143- Shift in lifestyles)</p> <p>Think too much TV and video games a lot of people they do not get up go outside and play like you know and get the exercise that we used to as a child(IIT L119-120 shift in lifestyles)</p>
Individual	<p>Benefits</p> <ul style="list-style-type: none"> • Stress Relief • Alleviates lethargy • Attention Span • Focus • Brain Body Connections 	<p>I wish I could get more in; they definitely need more to relieve stress. I see so much stress in children these days. Definitely. (FG3 L39-41- stress relief)</p> <p>It gets the cobwebs out of their head too. If they become sleepy or lethargic, then they get up and move around there good to go again. (FG1 305-306- alleviates lethargy)</p> <p>Their attention span is better (FG2 L173-attention span)</p> <p>You have to make sure (inaudible) in getting them to move. Those kinds of bodies (inaudible) that really connects them to the back to the brain or really shows connections (FGT L191-194- brain body connections)</p>

Abbreviations: FG, Focus Group; IIT, Individual Interview Teacher

Administrators shared similar views to teachers regarding physical activity (Table 5). Most administrators were aware that teachers incorporated brain breaks and they generally supported the idea for relaxation and movement that elementary school aged students need to support learning. Although administrators identified benefits to physical activity, they also discussed barriers that prevented increasing physical activity in the school day. Weather, academic rigors, time, money, and training were the most common barriers cited. During days when the weather is bad and students cannot go outside for recess their physical activity for the day is decreased because of a lack of space in the gym for all the students to play at one time. In addition to space limitations, barriers of time, money, and training were also mentioned. Further, funding was perceived as unavailable to purchase equipment that would enhance opportunities for physical activity in the gym or classroom environments.

Administrators also recognized increased demands placed on teachers to focus on testing and results that not only impacted students but also teachers' salaries. With testing results conveying negative consequences on teachers, attention to curriculum rigors leaves no time to focus on increased physical activity and such rigors may also lead to declines in activity. Students who fall behind may be pulled from recess in order to catch up on the things that they may have missed in class. There are other times the teachers may not have time to add in extra breaks into the day because of the curriculum rigors.

Even though administrators discussed many barriers to physical activity, they also saw many benefits. The administrators' sentiments about the benefits of physical activity in relation to learning were very similar to that of the teachers. They felt that physical activity assisted in learning, helped students regroup and refresh, promoted kinetic learning, and engaged their brains. The benefits of moving was a major theme for the administrators, who agreed that an active body engaged the brain and made for a more effective learner.

The administrators shared a few ideas about how to increase the physical activities for the students throughout the day but those suggestions were also met with the previously mentioned barriers of time and space. The administrators thought a morning recess before school started was a good idea but the barrier of money to pay the teachers to supervise was also mentioned. They administrators also discussed incorporating physical activities into the lessons, similar to teachers' suggestions.

When considering administrator views and themes identified related to the domain of physical activity, the levels of influence identified as necessary to impart changes related to physical activity are many. Individual level change was recognized in terms of student benefits and teacher training needed to promote, support, and sustain change related to physical activity. Additionally, organizational support was necessary but could not be obtained without change initiated at the policy, systems, and environmental levels of influences.

Table 5 Domain 2: Physical Activity- Qualitative Findings Identified from Interviews with Administrators

Socioecological Model Level	Theme	Representative Quote
Individual and Organizational	Brain Breaks	<p>There are some stand up get let your brain relax do some exercises those kinds of things that teachers have access too (IIA1 L95-96)</p> <p>I have heard one of them refer to it as a brain break. Um just so they can get up and, and dance because students this age um were not created to sit (IIA4 L58-59)</p>
Individual, Policy, Systems, and Environmental	Barriers <ul style="list-style-type: none"> • Weather • Academic Rigors • Time • Money • Training 	<p>On days when it rains we're inside and I mean that's not active movement I mean you can't have 22 kids in a classroom actively moving during recess I mean we can we can dance or we can put some some exercises on a smart board or do those kinds of things but not for 25 minutes you can't keep kids engaged so we have games and those kinds of stuff that they play during indoor recess (IIA2 L 115-119- weather)</p> <p>If we test a child at the beginning of the year and use that same instrument to test them at the end of the year, their growth has to be shown or it show, or it's a reflection on their evaluation. Now at some point that will be tied to their [teacher's] salary. So as a teacher what would you do? (Laughs) would you skip a, skip a twenty minute recess to get one more phonics lesson in? Absolutely. (IIA4 L93-97- academic rigors)</p> <p>But we are afraid to do that because that takes time to plan. It takes money to buy manipulatives. It takes teacher training because a lot of them haven't been trained to teach that way and so we don't have the time, the money, or the resources so we revert back to what they've have, they really don't even have the ability to sit and do (IIA4 L110-114- time money training)</p> <p>I don't think there is much time during the school day with all the requirements uh, um that we have to make sure that our kids meet academically it's hard to find additional time during the school day to to find time for for more activity that we currently have (IIA3 L 177-179 time)</p> <p>In the classroom to get it back in the classroom if it would take again some professional development on our part of the district to say okay let's look at the connections between learning and exercise (IIA1 L163-165 training)</p>

Socioecological Model Level	Theme	Representative Quote
Individual	Benefits <ul style="list-style-type: none"> • Learning • Regroup & refresh • Promotes Kinetic Learning • Engages the Brain 	<p>Well um getting kids up and moving I think it it does it does uh assist them in their learning uh like I say especially young students (IIA3 L211-212 learning)</p> <p>It gives them [students] a chance to regroup and refresh and they go back at it a lot harder (IIA1 L151- regroup refresh)</p> <p>You know even with all of the goals we have for our students just as a learning community is it the biggest one that they want to be here and that they want to learn. And that's the quickest way to get them here is to appeal to their style of learning, which is at this age at least kinesthetic learning so you accomplish that and you can pretty much take them anywhere (IIA2 L157-161 kinetic learning)</p> <p>My gosh it's uh over and over and over uh its proven that an exercise brain is more effective learner (IIA1 L181-182 – effective learner)</p> <p>We have lots of teachers take brain breaks in their classrooms (phone rings- inaudible) or you know do some callisthenic exercise (phone rings) I mean or walk around the room but incorporating movement into even your lessons you know where your you have kids up and moving which engages their brain even more. (IIA2 L60-63- engages brain)</p>
Interpersonal and Organizational	Suggestions <ul style="list-style-type: none"> • Morning Recess • Incorporate into Lessons 	<p>Uh if there were a before school we have a lot of kids that get to school early, we have a lot of kids who come in you know parents have to get to work early, whatever we have lots of kids who are at school at 7:00 or 7:15 or 7:30. ... if we had if I could hire teaching assistants or I could hire staff members to to watch those students and give them a safe place to play outside I would do that (IIA3 153-156...161-162- morning recess)</p> <p>I think often times especially with young kids uh there are there are ways to incorporate physical activity in their current lesson plans and you know marching around the room and doing certain things and you know getting them some physical activity to their regular academic uh lesson plans could happen and I think that's happened somewhat (IIA3 L296-299-incorporate into lessons)</p>

Abbreviations: IIA, Individual Interview Administrator

Healthy Eating Views

Teachers identified many barriers and challenges to healthy eating in the school and home environments in relation to students and had many suggestions for ways to improve the current situation (Table 6). The most common barriers teachers discussed included children's lack of exposure and familiarity with healthy food options, the notion that healthy foods are expensive, overall popularity of unhealthy snacks brought by students' parents for snack time, and the extra cost for seconds and decreased portion sizes in the cafeteria.

When teachers talked about foods provided by the school for breakfast and lunch, they conveyed a student preference for sweet fruits that are served at breakfast and lunch times. They also stressed the importance of making the meals kid friendly as the foods presented were not

viewed as appealing and their descriptions suggested that children eat with their eyes first and make decisions as to whether they will eat a food prior to tasting it. To address the lack of appeal and overall preferences teachers suggested making some of the side options small finger foods that were easier for the students to eat. When discussing the overall appearance of the foods served by the cafeteria multiple teachers noted a need for variety in color as many of the meals were all white in color and not appealing to anyone. Along with the lack of variety in color was the perception of limited fresh options and the overall view that school meals come from a can or box being highly processed. They noted students often prefer raw fruits and vegetables to canned versions.

Choice, or lack thereof, was mentioned as a barrier because students commonly did not like the meal served and teachers noted an abundance of plate waste. Teachers also shared limiting seconds and portion sizes was not beneficial to some students. One teacher talked about how if students wanted seconds on milk they had to pay for it. Many of the teachers viewed this as a major problem because hunger is a real issue in this school and students were still leaving hungry.

Teachers shared many suggestions for improving student eating behaviors. Some teachers noted that students learn from examples and need positive role models. Teachers felt that if the students could see a role model eating the foods provided in the lunch program they might be more willing to try the foods themselves, especially since many did not have a role model at home. Teachers again shared that in some cases, parental roles had declined with some parents not taking responsibility for their children's health.

Other suggestions that the teachers had included: having more options at school lunch, introducing new foods gradually to students, adding water as an option to the drinks, providing larger portions to ensure satiety in students, and alternating meals for students who did not like

the main meal that is provided. Many of the teachers thought that any one of these suggestions would greatly decrease the plate waste that the teachers felt was very high.

At this particular school, snacks were not provided by the school. Teachers send home a letter asking parents to provide snacks for a particular day. Teachers reported that many times parents either do not have the money or they forgot to send snacks on the assigned day. When this happens the responsibility fell to the teachers to provide snacks for the class, which is paid for by the teacher and attests to the changing role of the teacher in that they find themselves providing students with bare necessities including snacks.

Many of the teachers felt that school provision of snacks would solve many problems that they face. School provided snacks would allow for a reliable, healthful snack option. It would also make for easy, ready to serve snacks, that many times when provided by students required preparation by the teachers and took up time they did not have to spare. School snack provision would also alleviate the financial burden placed on students' families, as many in this district are considered to be low income. Further, school provision would allow for improved nutritional quality of snacks as there was a general consensus that parents tended to purchase less healthy snacks that were cheaper than more healthy options.

Although teachers identified numerous barriers and problems with the healthy eating situation at school, they viewed the school breakfast and lunch program as necessary in addressing hunger. The meals served to students were viewed as essential because some students may not be getting much or any food at home. As such, school meals were addressing food insecurity and it was evident in discussions that there was a decisional balance between provision of healthy food options and addressing hunger with addressing hunger taking precedence over health. Further, even if individual choice were high in healthful options, such options were perceived to be limited at the organizational/school level with policy, system and environmental

factors having influence on what is offered at school as well as what was purchased in the community.

Table 6 Domain 3: Healthy Eating- Qualitative Findings Identified from Discussions with Teachers

Socioecological Model Level	Theme	Representative Quote
Interpersonal, Policy, Systems, and Environmental	Barriers <ul style="list-style-type: none"> • Lack of exposure/access to food • Healthy is expensive • Unhealthy snacks • Extra costs more/decreased portion sizes 	<p>They think they think they don't like it because they've never had it (FG1 L263- lack of exposure)</p> <p>The low income families that are on food stamps and subsidies often can't afford healthy foods that are typically more expensive so those children tend to have preference to unhealthy foods at home (inaudible) don't have proper education (FG1 L267-269- Healthy is expensive)</p> <p>I'm not gonna tell me my little one who doesn't have a dime, who picked up a package (inaudible) from Dollar Tree, how we supposed to know (FGT L245-246- healthy is expensive)</p> <p>That's definitely what I would see the major challenge is that, just the things that come in because often it seems like healthy snacks are more expensive. It's easier to go to the dollar store and spend a dollar for this box and that box and then you're done. If they are healthy they are more expensive. (FG3 L 302-305- healthy is expensive)</p> <p>We have a snack time in our room everyday but the children bring snacks. And you know we send a letter at the beginning of the year "please provide a healthy snack" uh... not always healthy (FG1 L 229-232- unhealthy snacks)</p> <p>The milk is like a cup is that like 8 ounces in that little carton and I have a big boy in my class that has to pay like 50 cents for another, quarter (FG1 L498-499- extras cost more)</p> <p>There's times that they can't get the seconds and the kids are like you know we don't get seconds? You know like which is tragic I mean you can tell and that they this is all they get (IIT L175-176- extras cost more)</p>
Individual, Organizational, and Policy	Appearance of Foods <ul style="list-style-type: none"> • Preference for Sweet • Not Kid Friendly • Raw vs Cooked • Eat with Your Eyes First • Everything from a Can/Box • Not Many Choices • All One Color • Preference for fruit 	<p>well they just love sugar (FG1 L259- Preference for sweet)</p> <p>The cafeteria could prepare their meals a little more kid friendly (FG1 L280- not kid friendly)</p> <p>But also then, I don't know where the changes came from in the lunchroom, and the changes in the lunches are more nutritious, the kids are not eating (fg2 L287-289-not kid friendly)</p> <p>They don't like the cooked carrots they just like the raw carrots, they love carrots, and the kids love those... um and the problem comes they don't look inviting at all (FG1 L282-284-raw vs cooked)</p> <p>baked chicken is not a dish, it doesn't look the same, it just doesn't look appetizing (FG3 L141- eat with your eyes first)</p> <p>and um, I'm finding, I don't know if I should say this, but I'm finding that the way the meals were planned, they're all one color, from everything like to spaghetti and carrots and oranges, everything red and orange, or, uh, it's macaroni and cheese and corn and chicken, it's all, yellow (FG2 L295-298- all one color)</p> <p>And they eat the whole fruit, most of them will eat the apple or the banana. I guess that's the only full fruit they've ever had. Yeah. They usually eat the applesauce (FGT L291-292- preference for fruit)</p>
Organizational and Policy	School funded Snacks <ul style="list-style-type: none"> • Need for Regulation • Easy, Ready to Serve • Reliable 	<p>but, you know, it's hard to tell them to do that, when you know that it's not what they really want, I really struggle with that at the beginning of the year, what am I going to do, how can I give them some kind of nutritional something, and um, if, I wish that our school provided good snacks (FGT L205-207)</p>

Table 6 Domain 3: Healthy Eating- Qualitative Findings Identified from Discussions with Teachers Cont.		
Socioecological Model Level	Theme	Representative Quote
		<p>That would be healthy but we just can't control what parents are bringing (FGT L241- need for regulation)</p> <p>we just, I send out a note at the beginning of the year having parents sign up if they're willing to bring snacks and what, nutrition that day you get to bring show and tell, so, you get to bring show and tell even if you don't bring snacks and uh we encourage, we in that original letter it says you know it mentions healthy snacks but that's the only thing in (FG1 L563-566- need for regulation)</p> <p>yes, and cut it in half and have a half a banana. but not grapes because you know I had one and they went to Wal-Mart and brought grapes and dropped off the grapes, and I had to wash them. They love it. Grapes are hard. (FGT L234-237- easy ready to serve)</p> <p>we get a lot of chips if we get anything. Sometimes we don't get anything from parents. So those days are tough. I have to provide snacks. If it wasn't for that and (Name) was on a different shift where he could bring something up there but now we're on the same shift so where I don't have that back up (FG3 L160-163-reliable)</p>
Policy	Unhealthy is Easy	<p>there so many people that just get food stamps and I mean and food stamps and parents it's easier for them to buy the chips and versus preparing meals that's the main idea, to eat better. (IIT L132-134)</p>
Interpersonal, Organizational, and Policy	Restrictions on Seconds	<p>I don't like making the parents bring the snacks, that, I don't know that didn't work for me from the get go, because just 95% of the time my kids haven't brought snacks and I have to use my planning period to go and go get snacks, you know I feel bad that they don't get their snacks and this and that, so I use out of my pocket, I've spent that, and that's hard, because, I mean there's nothing we can do about it. (FGT L208-212- changing role)</p> <p>we usually do have something like a cereal bar or something like, we have some that come to school sad because they didn't make it here in time for breakfast. They didn't get to have breakfast so we'll have something (FG2 L437-439)</p>
Interpersonal	Students Learn by Example	<p>They learn by example that, because you can control it but yet how.... (FGT L244)</p> <p>I just, I know it's hard, but that would make a huge difference, if I was at the table with them, and encouraging them to eat, because if, when we're making potatoes in there it's crazy in there, we have those people that do the cafeteria, and they're rushed in and they're yelled at, and they're this and that, and that's probably part of it, and I'll take responsibility for that, because not one (FGT L307-310)</p>
Interpersonal	Change in Parental Roles	<p>It goes back to not making(inaudible) responses It comes back to acting not being responsible for their children's health. (FGT L255-256-changing parental roles)</p>
Organizational and Policy	<p>Suggestions</p> <ul style="list-style-type: none"> • More Options • Introduce New Foods Gradually • Water Options • Larger Portions • Alternative Meals • Specific Language • Balance of Sweet and Healthy 	<p>they've changed some of the things we have here and trying to make it healthier the problem is (inaudible 18:49-18:52) I mean if they would pick 4 or 5 things(inaudible 18:56-18:57) give them whole wheat products that they would actually eat. It's unbelievable you know like the kids aren't eating. They're not eating it. (FGT L260-263- more options)</p> <p>One of those in meal, in meal and start putting those things little by little on the tray until they develop a taste for it. And they eat the whole fruit, most of them will eat the apple. Yeah. They usually start. I know. (FGT L285-287- intro gradually)</p> <p>well I think it would be, you know I know that juices are offered which is and you know and milk but I would like to see water maybe be a choice. I don't think that we get enough water during the day. (FG3 L209-210- water)</p> <p>uh it you know sometimes the for some of them I would like to see a little bit more on their plate because I worry that they aren't going to have enough til the next morning. I just want to make sure they are okay, I think there's some days it looks pretty sparse to me. Instead of calorie content wise maybe that would be the reason why (FG3 L236-239- larger portions)</p>

Table 6 Domain 3: Healthy Eating- Qualitative Findings Identified from Discussions with Teachers Cont.		
Socioecological Model Level	Theme	Representative Quote
		<p>That's another thing, I think there needs to be an alternative tray. If a kid is not gonna eat it and we're just gonna throw it away, and there's one option, and it's like a peanut butter, cause that on whole wheat bread, cause that is better than nothing. There's not a whole lot in it. That's what my pediatrician told me, with my kids, when they got picky. Then you Tell them to eat a peanut butter sandwich. And then, those are your choices, That's what we're having for dinner, then you're not fixing a meal, and if they eat a peanut butter sandwich every day, they're getting their carbs, they're getting their protein, they're gonna drink some milk. They got what they need. it's better than not eating anything. (FGT L325-332- altern meal)</p> <p>I call it snacks and treats. There's difference in my class. A healthy snack, a treat is a cup cake a healthy snack is a granola or raisons something like that (FG1 L594-595-specific language)</p> <p>I think it would be good as far as maybe more of a balance where you combine a sandwich with the uh sweet treats because generally we get SO many sweet treats.(FG3 L281-282- balancing sweet and healthy)</p>
Individual, Organizational, and Policy	Plate Waste	We're talking. Somebody needs to video it. I'm not kidding somebody needs to stand there with the video camera and not get the children's face but through the trays going in because it's over 80% percent of them. (FGT L264-266- plate waste)
Individual, Organizational, and Policy	Benefits <ul style="list-style-type: none"> • Provides Meals • Addresses Meals/Food Insecurity 	<p>well you can tell the children that don't have anything at home, because they're the ones on you know bean day with all the beans are eaten you know (FG1 L450-451-provides meals)</p> <p>You know that they're going to have at least one, hopefully two meals that day (FG2 L410-food insecurity)</p> <p>many of them come in without anything to eat, because they're hungry (FG1 L475-food insecurity)</p>

Abbreviations: FG, Focus Group; IIT, Individual Interview Teacher

Administrators shared similar views (Table 7) to the teachers regarding benefits and barriers to students eating healthfully. Many administrators discussed a balancing act when thinking about foods offered at school. The cost of food, willingness of students to eat foods offered and nutrition were challenging factors to weigh. There was a perception that fresh options may be more kid friendly and healthy but the risks associated with plate waste were related to financial challenges. When funding was limited, the risk of plate waste appeared to outweigh the benefit of provision of more healthful items.

Similar to the teachers, the administrators also talked about the foods that were provided to the students at breakfast and lunch. There was a general consensus that much of the food was coming from a can and many of the students would prefer to have fresh fruits and vegetables. They also discussed the barriers to students eating more healthfully, which included less healthy

foods provided by parents, lack of exposure to foods, the idea that healthy foods were expensive, and meals that were all one color.

It was also mentioned that the nutrition of the students had become a political issue in many cases and it was unclear if the teachers felt this politicizing of student nutrition was a positive or negative thing. Another political aspect of food regulation was conveyed in terms of compromising relationships with parents. Parents volunteer and provide a service to schools and therefore, imposing regulations on what they are allowed or not allowed to bring to school parties and events may negatively impact these relationships.

The administrators had a few suggestions to improve the eating of the students including integrating food science and nutrition into the curriculum, even giving students a hands-on experience with gardening their own food. They also suggested reordering the breakfast menu to give the students foods that provide more fuel early in the week and later in the week when they will face hunger most. Communication between all levels of the school structure from teachers to food service staff to the administration was also mentioned as something that needed to be established to improve what the students were eating and what they were favoring and making meals more kid friendly.

As did the teachers, the administrators were thankful for the breakfast and lunch program that provided meals to the students. They discussed the main benefit of school nutrition programs as addressing hunger among many students who may not have meals at home. The academic benefits of addressing hunger appeared to outweigh the need for improved nutrition.

When categorizing administrators' views of healthy eating in the school environment according to the socioecological model it is evident the issue was complex, multifaceted, and requires influence at multiple levels. In order to address individual student benefits that could result from improved options, interpersonal family influence and support were perceived as

crucial. Changes at the organizational level regarding communications among teachers, administrators, and food service staff were mentioned as important. Possible policy level changes were viewed as having the potential to compromise interpersonal relationships with parents, all of which was compounded by systems and environmental influences that had an impact on low-income families' food availability in the home such as cost of and access to healthy foods.

Table 7 Domain 3: Healthy Eating- Qualitative Findings Identified from Interviews with Administrators

Socioecological Model Level	Theme	Representative Quote
Individual, Organizational, Interpersonal and Policy	<p>Suggestions</p> <ul style="list-style-type: none"> • Kid Friendly Meals • Balancing Act Between Kid Friendly/Nutritious/Cost Effectives • Fresh vs. Canned • Creative Alternatives/solutions • Communication • Reorder Menu Options 	<p>again my concern is finding the balance between something that is uh nutritional for them and meets the guide lines yet is something that they will eat again I can spend a whole lot of money putting a whole lot of fresh fruits and vegetables and nutritional foods in front of kids but if they turn their nose up at it and we end up throwing it all away then what am I really accomplishing (IIA3 L362-365- balancing act)</p> <p>And that, that [choice] helps to an extent because you can, you can say would you want the fruit cup or the salad and so we've at least appealed to what maybe they would eat. Um so hopefully in that choice they've found something that they would like or that they would like to try (IIA4 L387-391balance)</p> <p>kids just throwing away their food because they haven't their pallets of eating healthy foods has not been developed and this is not what they want (IIA1 L244-245-not kid friendly)</p> <p>... if you with any child if you take something away just by nature they're going to seek that out... so not eliminating it but just the idea that um yes it can still be a part of our, our celebration but so can um you know some (IIA4 L321-325- balance)</p> <p>there a lot of processed food disparity and the egg patties come in patties and the pancake on a stick and you know processed and um you know biscuits even though they are whole wheat biscuits. I mean I think that we could offer some fresh fruit (IIA2 L329-332)</p> <p>well unless you know our priorities our teachers uh instead of again it's our focus we, we have to direct that focus and we have to encourage teachers to say, "hey, instead of the usual valentine cupcakes suckers, all of that stuff"... focus let's do something else and lets have it be about our heart health (IIA1 L210-215)</p> <p>I don't know that there could be more of a conversation between principals and what kids are throwing in the trash... well yeah they're the ones that stand, the principals and the teachers are the ones that stand there all day long and watch those kids see what they're eating and what they're not eating...I mean and maybe the cafeteria folks can't necessarily control, I mean I don't know again I'm not enough aware of what's there as far as everything I don't know that there is that much of a conversation between principals and teachers and the folks in the cafeteria (IIA1 L421-429- communication)</p> <p>Fridays we serve pancake on a stick um we do the turkey sausage on a pancake with some syrup and I'm I'm okay with that because kids eat it every day. I wish we served that on Monday (IIA2 L300-301- reorder to fuel students)</p>
Interpersonal, Organizational, Policy, Systems, and Environment	<p>Barriers</p> <ul style="list-style-type: none"> • Parents Provide Less Healthy • Lack of Exposure • Healthy is Expensive • All one Color • Lack of Money • No regulation/requirements for healthy food 	<p>I can't regulate what mom and dad stick in their lunch box. and if they put a jelly sandwich and a Twinkie in their lunch box (pause) they're going to eat a jelly sandwich and a Twinkie and I don't I get I don't get to vote on that(IIA3 L261-263- parents provide less healthy)</p> <p>I think giving kids opportunities to to maybe um taste foods and and and and find ways to put different foods together where they do taste good rather than just someone throwing something down in front of them that may not have seen before or may have never tired and are not really willing to try (IIA3 L327-329- lack of exposure)</p>

Table 7 Domain 3: Healthy Eating- Qualitative Findings Identified from Interviews with Administrators Cont.		
Socioecological Model Level	Theme	Representative Quote
		<p>probably lack of exposure to healthy foods. (Pause) I don't think they always understand that it can actually taste good (IIA4 L349-350- lack of exposure)</p> <p>because so many of our students again are, are low income free and reduced lunch, it's very expensive for families to eat healthy, buying fruits and vegetables for parents to expose their children to in the home. That's an expensive way to live. Many of them don't get that. So when they come to school they don't know whether they like it or not but they don't want to try it because it's a fruit or a vegetable and it's just really a lack of exposure (IIA4 L234-239 healthy is expensive)</p> <p>Um but I know they're offered some fruit in the morning as well. Um and I would say overall with the limitations we have, we are doing the best we can... um because again healthy eating is expensive (IIA4 L397-400- healthy is expensive)</p> <p>hard to say that's bad (laughter) but I you know I don't know how you I mean I know how tough that would be to have to come up with you know healthy eating options that they can afford to... provide and that's I guess a conversation you've been having with them or we will have with them or whatever and I can't speak to that I don't know but I do know probably again we just need to be aware if it's going in the trash is, is that worth is it worth a conversation to me again let's talk about with the people who see the kids eating our cafeteria you know (IIA1 L442-448- money/plate waste awareness)</p> <p>I mean we have an entire meal that was white this week white bread white turkey white potatoes, apple sauce... it was a white meal, the only thing that was green was the option for salad and so I mean we did have you know just some raw carrots and some ranch dip the kids could dip that in or some broccoli kids, or celery even that they could use it would, I don't, know be beneficial I don't think we we they never get anything fresh unless they get a salad. (IIA2L27-33- all one color)</p> <p>well just the different financial aspects of that. I mean we do that school provides the healthy snacks and or and the communication of it I mean just because I don't know that parents necessarily understand what a healthy snack is. (IIA2 L 475-477-money)</p> <p>well again is is challenges one is money, two is uh it's going to take extra help form the community we can't do all that ourselves, and and uh three uh getting students to buy in (IIA3 L527-528-money)</p> <p>we can say please bring healthy snacks please bring, you know please don't bring cookies or those kinds of things but they're going to bring them anyway (IIA2L224-225)</p>
Individual, Organizational, and Policy	Benefits <ul style="list-style-type: none"> Addresses Hunger 	<p>for many of our students that may be the only meal they get that day. And so it's invaluable that it be something healthy (IIA4 L225-226- addresses hunger)</p> <p>One unfortunately we're at a time where that may be the only real meal that that students get a day. We have lots of kids who come to school hungry (IIA3 370-371)</p> <p>well obviously we have lots of kids that would not be eating if it wasn't there (IIA1 L415-416 addresses hunger)</p> <p>well you know we may have kids who haven't eaten since maybe the day before... and they're hungry and they will not think or learn or behave without food in their bodies. (IIA2 L324-326)</p>
Interpersonal and Policy	<p>Nutrition is Political</p> <p>Maintaining Relationships</p>	<p>I know with Michelle Obama's um, healthy schools you know there's been some legislation that has attempted to fix that, but just on the day to day basis it doesn't correct it (IIA4 L227-228)</p> <p>I would tell its better in the know of what you could probably tell me I don't know last year of course this is Obama and all of these things that have come about... I don't know how they have touched us directly in Ada City Schools; I mean I don't know on a given day what does that mean that we have had to change (IIA1 L465-469)</p> <p>I think it's very important again its uh its school parties are not always within there within our jurisdiction but there not. When you've got parents and you've got volunteers and you've got others assisting with that and and often times you just kind of have to take what shows up at your door. (IIA3 L492-494)</p>

Abbreviations: IIA, Individual Interview Administrator

Nutrition Education

Incorporating nutrition concepts into the everyday curriculum was a controversial topic for both the teachers (Table 8) and administrators (Table 9) alike. The teachers seemed to struggle to incorporate nutrition education into their daily classrooms. They said it was something that was impromptu and used only when it fit into what they were teaching and only if they remembered to talk about it. They also said the most common time for nutrition to be discussed was around testing times and during health awareness themed weeks and nutrition month, but nutrition education was not a set part of the curriculum. The teachers did see benefits to discussing it, however. They felt it made the students more aware of what they were eating and how it affected their bodies. They also thought there were cognitive benefits to discussing nutrition in class.

Even with the stated benefits teachers found barriers to discussing nutrition in class. As with anything added to their school day, time was a major barrier to discussing nutrition as it was not a set part of the curriculum and therefore would be something extra to add. One of the main barriers the teachers felt they came across in relation to teaching nutrition in school was that there was a lack of parental support and what they were teaching was not necessarily being reinforced at home. They also struggled with teaching students one thing but then the students seeing the teachers doing the opposite, not practicing what they are teaching. Overall, the teachers seemed to want to include more nutrition education but felt very pressed for time and needed guidance on how to incorporate it into the school day.

Organizational and policy challenges were evident as discussed in terms of time and priority related to the incorporation of nutrition education into the curriculum despite the student individual level benefits that could result from such education. Further, interpersonal challenges such as the parent continuation or support of nutrition education gained by the students were

noted. As such, consideration of multiple levels of influence were discussed as being necessary to impart change with respect to nutrition education in the school environment.

Table 8 Domain 4: Nutrition- Qualitative Findings Identified from Discussions with Teachers

Socioecological Model Level	Theme	Representative Quote
Individual, Organizational, and Community	<p>Impromptu</p> <ul style="list-style-type: none"> Teachable moments When it fits Test connections Health awareness weeks/nutrition month 	<p>I just try to bring it up any time I can. I try to if I'm thinking about it. You know if something comes up I throw that in (FG1 L343-344)</p> <p>So it's kind of impromptu (FG1 L346)</p> <p>And you fit it in you know and teach it in here and there (FG2 L378-impromptu)</p> <p>uh during there's a, there's a time period there is a week that we do some times a year, where we do and I can't think of it right now for the life of me, where we talk about the food pyramid, I know that that uh, was a demand for us to do food pyramid with the kiddos and they bring literature from home and they put up on the pyramid where it goes you know clippings from magazine articles um we do dental health and I know if that really has, you know things that are healthy for your teeth, and we have a dentist that comes in and who does that with the kids and I think it's (Name) if I'm right (FG3 L166-171)</p> <p>February is our health month, we talk about it. The different... what can be healthy for your body? Usually start out with germs, and then, uh you know go to food and nutrition and all of that stuff, and then (FG2 L341-344 –health month)</p>
Individual and Interpersonal	<p>Benefits</p> <ul style="list-style-type: none"> Cognitive benefits Makes kids aware 	<p>I think it's always good to talk about you know that limit, limit yourself on things that are too sweet. We do a lot of discussion on staying hydrated and that when it's so hot out we get drinks so that we can think clearly.(FG3 L178-180- cognitive benefits)</p> <p>it makes them more ready to learn (FG1 L418- cognitive benefits)</p> <p>Make kids aware. Kids aren't aware of making good choices and bad choices. They usually get whatever they want. I mean when you're talking about the pop, the how much sugar is in the pop, I mean they don't realize that the sugar is harmful. Or realize how much sugar is in the coke and (FG2 L359-361-makes kids aware)</p>
Interpersonal, Organizational, and Policy	<p>Barriers</p> <ul style="list-style-type: none"> Lack of home support/control after leaving school Time Saying vs doing 	<p>Pretty important. I mean they probably don't hear that at home. Some of them (FG1 L351- lack of home support)</p> <p>often there's not someone at home talking about it, that providing that for them I think they really listen and they try, this age level it's a big thing for them and they really want to do the right thing (FG3 L196-197- lack of home support)</p> <p>just finding the time to get it in with math and the reading and the testing that we do (FG3 L201- time)</p> <p>challenge because we don't know what they're getting at home ... And having time to get it in (FG2 L 371-372- home support and time)</p> <p>I mean things I guess physical activity, you can encourage them to go out and play, but they don't really have any control over, I mean I can tell them what they should eat, but they're still getting hamburger helper, McDonald's I meant they're still getting whatever (FGT L364-366- saying vs doing)</p>

Abbreviations: FG, Focus Group; IIT Individual Interview Teacher

The administrators had a slightly different perspective (Table 9) of teaching nutrition in schools. The administrators felt the teachers covered nutrition in their classrooms and that nutrition was already included as part of the curriculum to meet required academic standards, which certainly differed from what teachers described. Administrators thought that nutrition was

being covered in the physical education and science classes, but conveyed that regulation and enforcement of nutrition education as part of the curriculum was not enforced or monitored.

Administrators saw opportunities to incorporate nutrition education when led by outside partners or through special funding opportunities, which related to the inconsistency in inclusion. Similar to the teachers, the administrators felt it was important that the teachers and the school practice and model what they were teaching the students so there were not mixed messages. Administrators suggested the inclusion of nutrition education into current lessons, gardening programs, and integration of nutrition with cafeteria menus as options for enhancing nutrition education.

The findings from administrators in regards to nutrition education revealed that incorporation of nutrition education was challenging with multiple levels of influence important to address. Teachers individual inclusion of nutrition education was mentioned as required but not monitored. Therefore, community partners, organizational, and policy changes were considered necessary to improve the state of nutrition education in the school environment and to make nutrition education a priority.

Table 9 Domain 4: Nutrition- Qualitative Findings Identified from Interviews with Administrators

Socioecological Model Level	Theme	Representative Quote
Policy and Organizational	Inconsistently Taught <ul style="list-style-type: none"> • Science • PE 	<p>Um teachers talk about it in their classroom in their science um classes so they mention it and they talk about healthy snacks um our PE teacher talks about it and then generally we have you guys who come in and share (IIA2 L236-238- science)</p> <p>Well I would think that do during you know I'm sure there's uh during their science and health classes they talk about those kinds of things and they talk about nutrition and wellness and things like that and we start at an early age having those conversations with kids, but uh uh and they may read stories about you know in reading class they may read stories about about uh you know that include ideals ideas about food and nutrition and things like that so I'm sure they're they're covered during the school day at some point in time in some in some curriculum (IIA3 L349-354- science)</p> <p>I know the PE teacher does a pretty good job of, of incorporating it in terms of um letting them related it to gasoline in a car. You know that this is your fuel to be able to play and learn and that sort of thing. (IIA4 L369-371- PE)</p>

Table 9 Domain 4: Nutrition- Qualitative Findings Identified from Interviews with Administrators Cont.		
Socioecological Model Level	Theme	Representative Quote
Policy, Organizational, and Interpersonal	Required but not Enforced	That definitely is a requirement and in our classroom um in our science classes that is also an objective to talk about you know how food fuels the body (IIA2 L244-245) I think we can definitely do a better job of saying okay, let's take a deep breath lets go back and revisit this again as part of our curriculum and that's my job (IIA1 L341-342)
Community, Systems, and Interpersonal	Grants & Outside Partners	Probably more than anything else uh you know now we we have had grants uh like the one that you're talking about here and we've had we've had uh you know through the Chickasaw nation we've had nutritionists and and (Name) s of the world and and all the folks that have come in and done programs with the kids during the school day (IIA3 L334-337)
		Let's look at sodium let's talk about diabetes lets you know let's do that in a way that we can still do a math problem we can write a paragraph we can write out we can research some articles as we get older uh and we did do some of that as we were implementing the PEP grant a little bit (IIA1 L282-284)
Organizational	Practice what you Preach	I know even the snacks that that we're providing um aren't always the healthiest. Um but I know there's some talk of that but probably not near as much as there, there could be. Because part, I know very important component to that is that as a school we back that up with our lunch program. If we're going to talk about it and teach it (IIA4 L371-375)
Interpersonal and Organizational	Incorporate into Lessons Integration into Curriculum <ul style="list-style-type: none"> • Science • Nutrition 	You'll have to incorporate that kind of information in your classroom and while I said just a minute ago is k let's take that food label (IIA1 L279-280) I think the other way we could make a difference is through our science curriculum um and you know we've talked about growing a garden and um you know letting students take some ownership in growing tomatoes and cucumbers and that and then learning the benefits of eating those types of things and then perhaps if it's their, their own project they might be willing to try some of those things (IIA4 L247-250- science say ok let's look at the menu what on there you know you can still do math problems how many of that with calories, and looking at food labels and do the math you know just a constant awareness (IIA1 L266-268- nutrition)

Abbreviations: IIA, Individual Interview Administrator

Wellness Policy

In general teachers were unaware that their school had a wellness policy. Those teachers who were aware of the policy were not however, aware of what was included in the policy. Further, teachers did not know who was in charge of implementing the policy and none of the teachers included in the discussion had been involved with the development of the wellness policy.

Teachers perceived the main benefit of what was assumed to be in the wellness policy as feeding students who might not otherwise be fed (Table 10). They did see barriers to the wellness policy's implementation. As with the other domains, time was a barrier in thinking of possible implementation and there was a perceived need for resource materials, such as posters to help

incorporate nutrition concepts into the school day and money to fund such enhancements. Teacher suggestions for wellness policy inclusion consisted of nutrition education, more structured physical activity, school provided snacks, and a mandatory snack list if school provided snacks were not an option.

Overall, teacher responses indicated a need for familiarization with the wellness policy and mandates at the individual level, which requires enhanced interpersonal communication across the school district, organizational implementation, and regulation of such implementation. In addition, policies to support implementation was necessary. Policy that addresses increased funding and time allocation for wellness improvements were needed. Teacher views of wellness policy supported multi-level approaches.

Table 10 Domain 5: Wellness Policy- Qualitative Findings Identified from Discussions with Teachers

Socioecological Model Level	Theme	Representative Quote
Individual, Interpersonal, and Organizational	Lack of Awareness	Do we have a school wellness policy? (FG1 L524) I don't think, I haven't... heard of it. (IIT L206-208) We don't know (FG2 L456) What is it, do we have one?... I don't know if we have one (FGT L375-376)
Individual, Interpersonal, and Organizational	Lack of Teacher Involvement	I don't know, you will have to ask (Name) that (FG1 L 527) It should have, I've never been involved in anything like that (IIT L213)
Individual	Benefit: Addresses Hunger	Getting at school what you may not be getting at home (FG3 L251) The kids start; at least they aren't starving whenever they start their day off that's the main thing (IIT L194)
Individual, Interpersonal, Organizational, and Policy	Barriers <ul style="list-style-type: none"> • Time • Resources- Posters • Money 	Having the time (FG3 L259) Resources if needed, you know resources are important, since we don't often buy food pyramids and literature (FG3 L26-262- posters) Posters as far as like, with positive messages as far as staying healthy things that you know, keeping your cool, things like that we do but a lot of times we don't do the other (FG3 L264-265-posters) I think one of the huge barriers we have not mentioned is money (FGT L379- money)
Organizational and Policy	Suggestions <ul style="list-style-type: none"> • Nutrition Education • More Physical Activity • School Provided Snacks • Mandatory Snack List 	I wish that make a (inaudible) like nutrition, they would block off a certain amount of time for like 30 minutes and teach or reinforce nutrition or something you know and fitness (IIT L213-215- nutrition education/ more PA) Plenty of structured exercise (FG1 L547-more PA) Just more physical activity, that it's okay if you stop and take a brain break, you don't have to feel bad that you stop and you know taken a break (FG3 L268-269- More PA) They handed you your big tray, and it had milk or juice, or fruit or crackers on it. We took it the classroom or during (FGT L409-410- school provided snacks)

Table 10 Domain 5: Wellness Policy- Qualitative Findings Identified from Discussions with Teachers		
Socioecological Model Level	Theme	Representative Quote
		A mandatory snack list (FGT L396)

Abbreviations: FG, Focus Group; IIT, Individual Interview Teacher

Administrators had a slightly different take on the wellness policy than teachers (Table 11). Administrators were aware of the wellness policy and components within the policy. They felt that the policy provided structure to inclusion of physical activity during the school day and gave them a framework with which to work. Another perceived benefit was how the policy helped ensure that students received healthy food at breakfast and lunch. There was discussion of how to implement the policy so that everyone was aware of what the wellness policy entails.

Because there is such variation in grade centers and student needs, the policy was described by some administrators as big and broad and served more as a framework than guidelines. The broadness was said to allow the policy to be tailored to more children and their needs, thus keeping it from being too specific and limiting. The main suggestions were to improve implementation and awareness and to increase the emphasis on holistic health of the students.

Administrators recognized barriers to wellness policy implementation including time, money, implementation, and a lack of communication and vertical flow among different grade centers. Administrators recognized the need to revisit the policy and reevaluate past successes in programs that had been implemented at some grade centers to ascertain possibilities for implementation at all grade centers.

Administrators identified the individual level teachers lack of knowledge and made recommendations at the interpersonal level, which included the increased communication as discussed previously in relation to increased awareness of the policy. Administrators all alluded to the general lack of follow through regarding the wellness policy at the organizational/school

level and appeared to recognize that policy mandates for such follow up may be necessary.

Certainly policy changes regarding funding to support wellness policy implementation were needed.

Table 11 Domain 5: Wellness Policy- Qualitative Findings Identified from Interviews with Administrators

Socioecological Model Level	Theme	Representative Quote
Individual and Organizational	Provides Structure	I think that that is that's essential because if you did not have that [Policy providing guidelines] your schedule would be way easier to figure out and you might not do that I mean you might not provide that much time um every week. (IIA2 L 249-351) well I think it's [wellness policy] giving us a frame work (IIA1 L485- structure)
Individual, Interpersonal, Organizational, and Policy	Barriers <ul style="list-style-type: none"> • Time • Money • Implementation • Lack of Communication/ Vertical Flow 	Its time. I need time and money (IIA2 L354) That's money that we don't have I mean money is just a huge issues across the school, across everywhere and to just be able to provide I mean I don't think the government (inaudible- whispering) a fresh vegetable. (laughter) and so for us to figure up where the money's going to come from for us to buy that [vegetables] us not us as [XX] school but us as [XX] city schools (IIA2 L379-382money) Obviously it comes down to cost with us. Everything eventually, unfortunately, comes down to money... at some point in time and and if I had money to hire nutritionist and hire teaching assistants and hire all these people that can help us get to that point we could do a lot better. (IIA3 L451-454 money) And how and and forcing us to have a conversation on how to implement (IIA1 L487-488- implementation) It's real easy for me to sit here with you (Name) and go okay our cafeteria ladies ought to meet with our principals and have and our some of our PE teachers or whatever and have a real conversation (IIA1 L490-492- lack of communication) The bad part about it is the vertical flow okay so let's say that you guys go to the after school early child hood with Notta Begay... put that in place then how do we then follow that up as they move up and not have it not be just hit and miss (IIA1 L514-518- communication/ vertical flow)
Organizational and Community	Big & Broad/ Only a Frame Work	Well the wellness policy are going to be minimal they're going to be minimum guidelines, okay. Uh again it goes for nutrition it goes for physical activity it's going to be a big broad, you know for a school district it's got to be a big broad policy ...because we've got to accommodate all these kids with all these different needs so it's not going to be a real specific real specific in nature it's going to be big and it's going to be broad and we're going to try and take that and make sure that we try to find a way to to meet all the students' needs regarding health and wellness through this big broad policy. It's not uh specific in nature (IIA3 L432-439)
Individual and Organizational	Ensures Healthy Food	I think just the awareness that the food we serve, um, because for a lot of our students we have them two meals a day, that the food we serve not only be healthy but um keeping in mind that it may be the only meal they get (IIA4 L438-440)
Organizational	Need to Reevaluate Past Successes	Uh we did lots of cool things that we need to what we need to do is look at what we did and what we've done, weight it, and see what's most what would be most effective from that to continue to use (IIA1 L555-556)
Individual, Interpersonal, Organizational, and Policy	Suggestions <ul style="list-style-type: none"> • Holistic Health • Increased Awareness/ Implementation 	Some of those kinds of things because that's the part of wellness that that emotional wellbeing of the child also helps them learn and so to incorporate a little bit more of that into our wellness policy and to provide resources to kiddos and I know that through the step program we've done that you know where we can do that but parents have to there's a little bit parents have to do on that and often times when you have a child that has emotional needs it's because that parent has an emotional need as well (IIA2 L404-408 Holistic health) I think we can do work with our again our principals or our teachers both and they're so worn out there are so many issues that they have to deal with you know it's hard for us to come in and say and now we're going to address school wellness policy (laughter) if we don't do it it won't happen (IIA1 L578-580)

Abbreviations: IIA, Individual Interview Administrator

Fundraising

Fundraising was conveyed as a *necessary evil*. Teachers identified the lack of funding and the necessity for fundraising to address funding shortages (Table 12). Teachers were well aware that raising funds through the sale of chocolate candy bars was promoting unhealthy eating habits. However, fundraising was perceived as the most pressing priority allowing for the purchasing of classroom supplies despite the negative health promotion implications inflicted through the sale of candy bars to students. Teachers shared that there were even times throughout the school day when students were allowed to purchase candy bars indicating that there was little regulation on foods sold in schools.

Conversations with teachers revealed that *money talks*. The teachers felt that whatever fundraiser would make the most money would most benefit the school. Although, they would love for items being sold to be more healthful or non-food related they recognized that such items may not sell as well as candy bars. Teachers suggested selling books, small bags of nuts, and items that were small, ready to sell, cheap, and more healthful. Inevitably, the teachers would revert back to how important it was for the fundraising to be successful and conveyed some resistance to change because the students may not be as apt to buy or sell items they did not like.

Discussions revealed that addressing fundraising is complex. With supplies and funds being limited in the school setting, policy changes were necessary to address funding shortages, so schools would not have to rely on the sale of unhealthy items to students. Sale of the unhealthy items was related to individual student preference and the relatively cheap cost of candy bars allowing for families to spend money on the items being sold.

Table 12 Domain 6: Fundraising- Qualitative Findings Identified from Discussions with Teachers

Socioecological Model Level	Theme	Representative Quote
Individual and Organizational	Current fundraising promotes unhealthy	[Candy bars are] a dollar and I have children everyday that the two things they can buy are candy bars and beef jerky (FG1 L620) Well they're trying to push nutrition and making good choices as far as fruits and vegetables and then they're selling chocolate it just (IIT L298-299)

Table 12 Domain 6: Fundraising- Qualitative Findings Identified from Discussions with Teachers Cont.		
Socioecological Model Level	Theme	Representative Quote
Individual, Interpersonal, and Organizational	Little regulation on what students buy during school	In the morning when they come from the gym, or at noon they can stop when they're on their way to the lunch room and (FG1 L640-641) They bring a dollar to school you know and are like "Can I go get a chocolate?" And I got three, last Friday (FGT L 488-489)
Organizational and Policy	Money Talks	Bring money and in this day and age where money is at a shortage in school it's a money maker... we have to use it for everything (FG L624-626) I think that would be important, but we also need money. I mean really we made a large amount of money selling chocolate candies (FGT L481-482)
Individual, Interpersonal, and Organizational	Suggestions • Books	My goodness, we've done cookie doughs, we've done, we've done that um, Tom-Wat stuff, my dream, we've done books, a dream fundraiser (FG2 L582-583-books)
	• Simple, small, ready to sell, cheap, healthy • Small, Prepackage Nuts	The chocolate candy bars were a big hit, because it was simple, easy. We sold it, you gave it away. So we're looking for something that's easy. A product that would be, that everybody would like, that would be healthy that's easy to sell, and just you know something you give away, nothing that you have to order, and that take orders on, like the money, like the candles were, and then come in, that was quite a process, you know, we felt, well we've done t-shirts also, you know, we've, we've done lots of things. All of this coming to mind now (FG2 L590-595simple easy popular) Those things the cute little peanut packages, the flavored peanuts, you know people, um honey-roasted, or the chile roasted, or you know something like that, because um, that would be quick easy to sell type things (FG2 L600-602-nuts)
Individual and Interpersonal	Growing Pains	I think it would be you know because we do have first and second grade it might be hard the first year because the first graders will be in second grade but after that it shouldn't be a big adjustment... because I mean some of them that have siblings that are older maybe but I don't think it would be that big of a deal to me I mean that's just a personal opinion but (IIT L308-309)

Abbreviations: FG, Focus Group; IIT, Individual Interview Teacher

Administrators shared in the teachers' sentiments about the importance of fundraising to the schools everyday operations (Table 13). The money theme constantly reoccurred in discussions with administrators. One administrator openly talked about the lack of funds coming from the state and the importance of fundraising to cover classroom supplies and materials. Another administrator went so far as to say that fundraising was how some schools got the majority of their money. The administrators also discussed the popularity of the unhealthy candy bars and conveyed a general feeling that healthy options would not sell as well. An administrator relayed, they cannot turn their back on the successful options that make the most money, indicating that the bottom line for fundraisers was profit margin.

Similar to the teachers, the administrators admitted that they were conscious of the fact that they were not promoting healthy habits to the students through their fundraising. They shared

that change was hard, especially when raising funds in schools where students did not have much money to spend. Interestingly, the district administrators conveyed that they did not get involved in the choice of fundraising items. Fundraising options were left up to each school to chose what they sell, in this case candy bars. The administrators were also aware of other options that could be sold such as school spirit clothing, temporary tattoos, and other non-food items that were so popular.

Overall, profit margin appeared to be the major factor in the determination of what was sold at schools. When funding was short, schools relied on the money that can be made on the sale of items to students and their families. The findings identified through discussions with administrators suggested that improvements in this area would most likely not be addressed unless mandates are imposed that either prohibit the sale of less healthy items or legislation was passed that provided for increased funds at the school level that allow for the basic functioning and operational needs of schools.

Table 13 Domain 6: Fundraising- Qualitative Findings Identified from Interviews with Administrators

Socioecological Model Level	Theme	Representative Quote
Organizational and Policy	Money Talks	<p>Um we just sad that we (pause) are in a time in education where money is so very tight ... and so we all as principals are looking for the thing that will help us make the most money and that is that that (pause) most convenient to parents (IIA2 L 490-494)</p> <p>You know the areas that people uh in recent years want to talk to me about is fundraisers and the kinds of the kinds of things that that our students sell for fundraisers rather it be candy bars or whatever that they bought and raised money for and that's a difficult that that's a difficult uh issues for us, especially in these times where uh (pause) finances are declining. Our fundraisers have become critical for us because we no longer get money from the state that we once received and we are counting on the fundraisers and activities funds really pretty much to cover the classroom supplies and materials that we have on our school. I can to the point now where I can no longer get allocations to school buildings... because our funds have been cut so. Um so with that being said they count on their fund raisers pretty heavily to keep classroom supplies and material in their teacher's hands that they need every day (IIA3 L33-43)</p> <p>Fundraising and this kind of day and age in education is how the majority of schools get their money. I mean it's just you know the state every year cuts money from our budgets and so it is more important than it ever has been that, that schools have fund raising (IIA4 L 546-548- money talks)</p> <p>So it's just it's so hard when you need the money to fund your schools... and yet you have to sell things that people will buy (IIA4 L560-562)</p>
Individual, Interpersonal, and Organizational	Unhealthy Sells	<p>And so they buy candy bars or beef jerky or something along those lines and so it would be great if we could if we had something else but I just don't think an apple would sell for a dollar as much as a candy bar so (IIA2 L 506-508)</p>

Table 13 Domain 6: Fundraising- Qualitative Findings Identified from Interviews with Administrators Cont.		
Socioecological Model Level	Theme	Representative Quote
		<p>On the flip side of that if I can make \$5000 by selling candy bars then in a time when we're going broke I can't turn my back on that either (IIA3 56-57)</p> <p>Well we sold chocolate candy bars because they sell. They are a dollar a piece, everybody has a dollar in their pocket and so it's, it's such a double edged sword of we need the money(IIA4 L549-551)</p>
Interpersonal	Not Promoting Healthy Habits	I don't know I mean I'm not promoting very healthy fundraising (IIA2 L 512)
Individual, Interpersonal, and Organizational	Barriers <ul style="list-style-type: none"> • Growing Pains • Candy is Cheap 	<p>Changing is a hard period I mean it doesn't matter you do change is hard and I think that I mean I don't know that the change around fundraising efforts but you know when when your only asking dollar for something most people can come up with a dollar (IIA2 L 538-540- growing pains)</p> <p>So I think when we were more fundraising was so successful it's because we weren't asking them to come up with ten or twelve dollars for something we were just asking them to come up with a dollar and everybody can scrape together four quarters or something (IIA2 L542-544- candy is cheap)</p>
Individual, Interpersonal, Organizational, and Policy	No Enforced Regulation on What is Sold in School	I don't get involved in that too much. I don't. It's more at a building level... with what they do. Now ultimately I have to the school board has to approve the fundraiser ultimately uh before they can do any fundraising at all but we don't normally get involved saying well you can just sell this and you can just sell this and you can just sell this (IIA3 L561-565)
Individual, Interpersonal, and Organizational	Awareness of Options	<p>Probably a couple of times a day with somebody coming in asking are we selling long-sleeved shirts and hooded sweatshirts and that kind of stuff. So our next one instead of it being food related at all we're going to be selling fleece pull overs (IIA4 L578-580)</p> <p>I know at our cougar corner store on Fridays they've gotten away from selling a lot of candy and that kind of stuff. They're doing more tattoos you know for Friday football they're doing like some of the beads. Obviously the thunder basketball team has become very popular so they've been doing the bracelets that are thunder colors and Ada cougar colors then they have limited what they have sold candy wise. (IIA4 L587-591)</p> <p>I think just awareness say, "hey let's not sell so much" I mean how many tubs of cookie dough have I bought I really would welcome something different actually (IIA1 L675-676)</p> <p>Uh let your make sure your teachers know what the choices are I mean that there's more than just what they do every year think about it for a little bit (IIA1 L711-712)</p>

Abbreviations: IIA, Individual Interview Administrator

CHAPTER V

CONCLUSIONS

Overall Conclusions

The purpose of the current study was to identify the perspectives of school nutrition and wellness among teachers and administrators from a school within the Chickasaw Nation's jurisdictional boundaries. The study aimed to specifically identify perspectives on six domains; the healthy school environment, physical activity, healthy eating, nutrition education, school wellness policy, and fundraising. The goal in gathering these perspectives was to improve and expand the Eagle Adventure program to reach more levels of the socioecologic model in order to coordinate with schools to expand levels of influence that are needed to prevent type 2 diabetes and other chronic disease conditions in Indian country and beyond. There were three objectives identified for the study.

The first objective was to determine teacher perspectives of nutrition, health, and school policies that effect student health. Responses revealed that the wellness policy was not widely known by the teachers; implementation was lacking; and the teachers were not involved in or know who was in charge of developing the wellness policy. The second objective was to determine school administrators' perspectives of nutrition, health, and school policies. The school administrators' responses indicated they were knowledgeable about the components of the

policy, wellness policy implementation was lacking and that time and resources were lacking to regulate implementation. Overall, an increase in communication was identified as needed in relation to the wellness policy implementation and adaptation, as there was limited knowledge of the policy.

The third objective was to identify feasible school policy changes based on expressed needs and concerns. The major concern of the teachers was addressing the needs of hunger and food insecurity over healthy food offerings. There was an overall consensus of both teachers and administrators recommending the need for kid friendly food options and snacks. There were also recommendations for increasing physical activity during the school day. The final concern related to funding and the need for successful fundraising in order to purchase classroom supplies needed for everyday use. Funding was major barrier in almost every topic of conversation.

When considering these findings in relation to other studies, our findings were consistent with Molaison, Carr, Frederico, & Hubbard who pointed to importance of “a supportive team to implement, manage, and evaluate” local wellness policies.⁴⁸ Both teachers and school administrators surmised that additional communication was needed to enhance current wellness efforts in the school district under study. Interpersonal level communication was identified as essential to wellness policy success from the development of components of the wellness policy to the implementation and monitoring of the policy.

Our discussions with teachers and administrators also revealed changes to support improvements in the school environment, nutrition education, and foods offered in the school setting should be supported by state law in coordination with district policy. Turner, Chriqui, and Chaloupka, “examined whether state laws and district policies as reported by administrators in a nationally-representative sample of 1,278 United States public elementary school.”⁵⁵ The results

of their quantitative survey were similar to our findings in the many schools “were subject to district policies and state laws did not have school-level restrictions in place.”⁵⁵

Although the school included in the current study has a wellness policy in place and state law and district policy is in place to mandate the establishment of such policy, it is evident that some sort of regulation is needed in regards to assuming such policy is implemented. Specific “requirements or enforcement language” are needed to support policies so that strides can be made to address type 2 diabetes and obesity prevention.⁵⁶

Even with a policy in place, there is no regulation on the snacks brought to school by students for school parties nor the fundraising. These findings are similar to those of Brener et al., who found that few schools in their study regulated “food served at class parties and other school celebrations...and food sold for fundraising.”⁵⁷ In relation to policy, this study found similar results to Turner, Chiqui, & Chaloupka in that the regulation and implementation on fundraising that was dictated by the state and district policies and regulations was inconsistently carried out at schools.⁵⁵ This was similar to the findings from the current study, where no regulation was imposed on the fundraising efforts in part because of the extreme need for money.

Implications for Practice

The results of the current study indicate that there are some serious issues affecting student health that need to be addressed in order for students to be healthy and successful in the school environment at this school. The overreaching barrier of funding challenges was evident across multiple domains under study. Funding shortage is a very real problem in Oklahoma. Oklahoma has made cuts to educational funding that have substantially affected the public school system leaving Oklahoma ranked as a state with the worst budget cuts to education in the United States from fiscal year 2008 to fiscal year 2015 at -23.6%.⁵⁸ These cuts have forced schools to rely on fundraising to obtain funds to keep classroom supplies in the hands of teachers. These

fundraising practices have the potential to have negative effects on the nutritional habits of the students who see mixed messages in relation to healthy eating.

Secondly, the need to address hunger and food insecurity over healthy food offerings was a major factor affecting many of students at this school. Current regulations limit serving sizes and seconds available to students who may be missing meals at home. The need to address hunger for successful learning was of highest priority to both teachers and administrators at this school. On top of the hunger and food insecurity, much of the food offered to the students was not kid friendly and may be unfamiliar to many of students and therefore not of preference to them to eat. The low-income status of many of the students may prevent them from having access to a variety of foods and thus increasing the need for kid friendly food options. Thus, Integration of school food pantries and back pack programs may be an important means of addressing hunger in such low income schools.

Finally, policy implementation and vertical communication need to be increased. The teachers lacked knowledge of the school's wellness policy or who was in charge of implementation. They did not feel that they had a role in the development or maintenance of the policy either. Vertical communication between the administrators and teachers is crucial in the implementation of the wellness policy and at this school as the lines of vertical communication were lacking. Improved communication will in turn improve the wellness policy's implementation and hopefully the overall health of the students. Vertical communication will also help to provide the administration with teacher feedback to help improve the policy to better serve the needs of the students.

One of the overriding challenges expressed by the teachers was a lack of time to include non-curricular material in the classroom, including nutrition and health education. Many teachers expressed a desire to include more nutrition and health education in their classrooms but felt that

the time constraint and importance of covering the material that students would be tested on demanded priority. When there was time in the day for nutrition and health education to be discussed teachers conveyed that it was inconsistent and that there was not a set curriculum to follow for what to teach the students. The teachers noted that community partners, like the Eagle Adventure program, were beneficial in educating the students when the teachers felt they were out of time. Inclusion of the Eagle Adventure program, or similar type Cooperative Extension nutrition education programs, in school wellness policies would ensure that students receive nutrition and health education on a consistent basis in schools. Inclusion in school wellness policies would also ensure that a curriculum was set and all students would receive a standardized nutrition and health curriculum.

The socioecological model can be used to shape recommendations by providing structure for how the different levels, individual, interpersonal, policy, and community, can be included and provide specific roles for each in the inclusion of a nutrition and health education curriculum in the school wellness policy. By using the socioecological model the schools will have a framework upon which to base their policy structure.

Recommendations For Future Research

The results from this study are not generalizable because of the limited sample size and limited geographic representation. Future research at the local level is recommended to identify factors that are influencing the adaptation and utilization of school policies.

Future studies at the local level analyzing student perceptions of the foods served at school would be important to determine what healthy foods are preferred by the students and ways to make the foods offered more kid friendly. There is also a need to look into what non-food related fundraising has been successful for schools like the one in this study to make the most profit.

Assumptions and Limitations

The general assumption made by this study was that the local level stakeholders, being the teachers and administrators, perspectives are necessary for change to occur in the school-based environments. These stakeholders have the most direct contact with the students on a daily basis in the school setting, thus leading to the participant- centered approach.

There were three limitations to this study. First, the assumption that the participants were truthfully providing answers. If the participants did not truthfully provided their answers it will have a great effect on the results and recommendations made from this study. The next limitation is response bias. The participants may have responded with answers that they felt the researchers wanted to hear rather than what they actually perceived. The researchers addressed these limitations by explaining the scope of the study and the high importance on providing truthful answers that can help with recommendations for improvements to the health of the students and the school environment. Lastly, the third limitation was the lack of generalizability of this study. The results will not be applicable to larger populations but can but used for site- specific improvements to the school environment and wellness policy; improvements to program improvements and expansion within Oklahoma; and to provide a basis for future research to improve school health, nutrition, and school wellness policy in an elementary school setting.

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APPENDICES

Appendix A: IRB Approval

Oklahoma State University Institutional Review Board

Date: Tuesday, April 08, 2014 Protocol Expires: 7/2/2016
IRB Application No: HE0952
Proposal Title: Eagle Adventure School Based Nutrition and Health Program

Reviewed and Processed as: Exempt
Modification

Status Recommended by Reviewer(s) **Approved**

Principal Investigator(s):

Stephany Parker
301 HS
Stillwater, OK 74078

Janice R. Hermann
315 HES
Stillwater, OK 74078

Jacquelyn Nickel
4599 N Washington St. Apt. 2
Stillwater, OK 74075

Angelina Stovall
1200 N. Perkins Rd, Apt V7
Stillwater, OK 74075

The requested modification to this IRB protocol has been approved. Please note that the original expiration date of the protocol has not changed. The IRB office MUST be notified in writing when a project is complete. All approved projects are subject to monitoring by the IRB.

- The final versions of any printed recruitment, consent and assent documents bearing the IRB approval stamp are attached to this letter. These are the versions that must be used during the study.

The reviewer(s) had these comments:

Modification to add 1) funding from Notah Begay III, Promising Programs Grant, 2) add Ada city schools as a participating site, 3) conduct focus groups with teachers and food service personnel and individual interviews with school administrators, 4) provide participants with \$25 in school supplies, and 5) two additional researchers – Jackie Nickels and Dr. Janice Hermann

Signature :


Sheila Kennison, Chair, Institutional Review Board

Tuesday, April 08, 2014
Date



the Chickasaw Nation

Bill Anoatubby, Governor
Jefferson Keel, Lt. Governor

Division of Health · 1921 Stonecipher Boulevard · Ada, OK 74820 · 580-436-3980

March 11, 2014

Stephany Parker, PhD
301 HES
Stillwater, OK 74078

Dear Dr. Parker:

On March 11, 2014, the Chickasaw Nation Department of Health Institutional Review Board (CNDH IRB) reviewed the modifications that you submitted to the research study proposal entitled "Eagle Adventure School Based Nutrition and Health Program". It is our judgment that this revision in protocol does not affect the protection of rights, welfare and respect of the research subjects, no more than minimal risk is involved and that the revised research study remains consistent with the requirements of 45 CFR 46 or 21 CFR 50 and 56 as amended. Therefore **approval** is granted.

This letter documents approval for:

Protocol Modifications: "Eagle Adventure School Based Nutrition and Health Program"

Modifications:

1. Simple consent process and form for the focus group and interview participants.
2. Participants understand fully that a focus group discussion cannot be kept confidential due to the nature of the technique.
3. Addressed CNDH IRB data storage concerns.

This approval is granted for the above referenced modifications. All conditions set forth in the original approval are still effect, including the expiration date of **November 30, 2014**. Authorization is contingent on compliance with all Chickasaw Nation research policies and procedures. No further changes can be made to the research protocol without receiving prior written authorization from the CNDH IRB.

If you have any questions, please contact Bobby Saunkeah at the address listed below or at (580) 421-4562.

Chickasaw Nation Medical Center
1921 Stonecipher Blvd.
Ada, OK 74820

Sincerely,

Bobby Saunkeah, Chair
Chickasaw Nation Department of Health
Institutional Review Board

Ardmore Clinic
2510 Chickasaw Blvd.
Ardmore, OK 73401
580-226-8181

Durant Clinic
1600 N. Washington
Durant, OK 74701
580-920-2100

Purcell Clinic
1438 Hardcastle Blvd.
Purcell, OK 73080
405-527-4700

Tishomingo Clinic
815 E. 6th Street
Tishomingo, OK 73460
580-371-2361



Appendix B: Consent Forms

ADULT CONSENT FORM

CHICKASAW NATION DEPARTMENT OF HEALTH
&
OKLAHOMA STATE UNIVERSITY

PROJECT TITLE: Eagle Adventure School Based Nutrition and Health Program

INVESTIGATORS: Janice Hermann, PhD, Sara Mata, MS, Jackie Nickels, BS and Stephany Parker, PhD, Department of Nutritional Sciences, Oklahoma State University; Teresa Jackson, MS/RD/LD, Jill Fox, MPH and Sarah Miracle, MBA/RD/LD, Get Fresh! Eagle Adventure Program Chickasaw Nation Nutrition Services

PURPOSE: The purpose of the research study is to understand teacher, school administrator and school food service personnel perceptions of school wellness policy and ideas for how to improve school wellness programs for the development of a school nutrition and physical activity policy ideas to include as part of the Eagle Adventure program.

PROCEDURES: This project consists of group discussions, also known as focus groups. In the group discussions, teachers and school food service personnel who choose to participate will come to a meeting place at the school and will be asked to share their views on school wellness. The discussion will be lead by an investigator from the OSU/Chickasaw Nation Eagle Adventure team. The first discussion will take place in the Spring of 2014 and we will ask for your views of school wellness policies and your ideas for how to improve them. The second group discussion will take place in Fall of 2014 and we will ask about any changes in school and student wellness related to nutrition and physical activity. Each group discussion will be audio recorded and the investigators will take written notes. The group discussion will last approximately 1 hour.

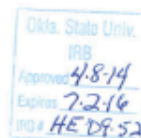
RISKS OF PARTICIPATION: There are no risks associated with this project which are expected to be greater than those ordinarily encountered in daily life.

BENEFITS OF PARTICIPATION: You may gain a greater appreciation and understanding of ideas for incorporating nutrition and physical activity policies in the school, classroom, or lunchroom setting.

CONFIDENTIALITY: The records of this study will be kept private. Audio recordings will be transcribed verbatim with no names identified in the transcript. Any written results will discuss group findings and will not include information that will identify you as an individual. Research records will be stored on a password protected computer in a locked office and only researchers and individuals responsible for research oversight will have access to the records. Tapes will be stored in a locked office and only researchers and individuals responsible for research oversight will have access to the records. Data will be destroyed three years after the study has been completed.

Updated: September, 2013

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Appendix C: Participant Information Sheet

Focus Group Discussion Information Sheet for use with teachers and food service personnel

PARTICIPANT INFORMATION CHICKASAW NATION DEPARTMENT OF HEALTH OKLAHOMA STATE UNIVERSITY

Title: Eagle Adventure School Based Nutrition and Health Program

Investigator(s): Sara Mata, MS, Janice Hermann, PhD, and Stephany Parker, PhD, Oklahoma State University; Jill Fox, MPH and Sarah Miracle, MBA/RD/LD, Get Fresh! Eagle Adventure Program Chickasaw Nation Nutrition Services

Purpose: The purpose of the research study is to understand teacher, school administrator and school food service personnel perceptions of school wellness policy and ideas for how to improve school wellness programs for the development of a school nutrition and physical activity policy ideas to include as part of the Eagle Adventure program.

What to Expect: This project consists of group discussions. In the group discussions, teachers and school food service personnel who choose to participate will come to a meeting place at the school and will be asked to share their views on school wellness. The discussion will be lead by an investigator from the OSU/Chickasaw Nation Eagle Adventure team. The first discussion will take place in the Spring of 2014 and we will ask for your views of school wellness policies and your ideas for how to improve them. The second group discussion will take place in Fall of 2014 and we will ask about any changes in school and student wellness related to nutrition and physical activity. Each group discussion will be audio recorded and the investigators will take written notes. The group discussion will last approximately 1 hour.

Risks: There are no risks associated with this project which are expected to be greater than those ordinarily encountered in daily life.

Benefits: You may gain a greater appreciation and understanding of ideas for incorporating nutrition and physical activity policies in the school, classroom, or lunchroom setting.

Compensation: You will be able to choose up to \$25.00 in supplies from a list we provide.

Your Rights and Confidentiality: Your participation in this research is voluntary. There is no penalty for refusal to participate, and you are free to withdraw your consent and participation in this project at any time.

Updated: September, 2013

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Confidentiality: The records of this study will be kept private. Audio recordings will be transcribed verbatim with no names identified in the transcript. Any written results will discuss group findings and will not include information that will identify you. Transcripts will be stored on a computer drive where only research assistants have access. Tapes will be stored in a locked office and only researchers and individuals responsible for research oversight will have access to the records. Data will be destroyed three years after the study has been completed.

Contacts: You may contact any of the researchers at the following addresses and phone numbers, should you desire to discuss your participation in the study and/or request information about the results of the study: **Stephany Parker, Ph.D., 301 Human Sciences, Dept. of Nutritional Sciences, Oklahoma State University, Stillwater, OK 74078, 405 - 744-6821.** If you have questions about your rights as a research volunteer, you may contact Mr. Bobby Saunkeah, Chickasaw Nation IRB Chair, 1921 Stonecipger Blvd, Ada, OK 74820, 580-421-4562 or Dr. Shelia Kennison, IRB Chair, 219 Cordell North, Stillwater, OK 74078, 405-744-3377 or irb@okstate.edu

COMPENSATION:

You will be able to choose up to \$25.00 in supplies from a list we provide.

CONTACTS :

You may contact any of the researchers at the following addresses and phone numbers, should you desire to discuss your participation in the study and/or request information about the results of the study: Stephany Parker, Ph.D., 301 Human Sciences, Dept. of Nutritional Sciences, Oklahoma State University, Stillwater, OK 74078, 405 - 744-6821. If you have questions about your rights as a research volunteer, you may contact Mr. Bobby Saunkeah, Chickasaw Nation IRB Chair, 1921 Stonecipger Blvd, Ada, OK 74820, 580-421-4562 or Dr. Shelia Kennison, IRB Chair, 219 Cordell North, Stillwater, OK 74078, 405-744-3377 or irb@okstate.edu

PARTICIPANT RIGHTS:

I understand that my participation is voluntary, that there is no penalty for refusal to participate, and that I am free to withdraw my consent and participation in this project at any time, without penalty.

CONSENT DOCUMENTATION:

I have been fully informed about the procedures listed here. I am aware of what I will be asked to do and of the benefits of my participation. I also understand the following statements:

I affirm that I am 18 years of age or older.

I have read and fully understand this consent form. I sign it freely and voluntarily. A copy of this form will be given to me. I hereby give permission for my participation in this study.

Signature of Participant

Date

I certify that I have personally explained this document before requesting that the participant sign it.

Signature of Researcher

Date

ADULT CONSENT FORM

**CHICKASAW NATION DEPARTMENT OF HEALTH
&
OKLAHOMA STATE UNIVERSITY**

PROJECT TITLE: Eagle Adventure School Based Nutrition and Health Program

INVESTIGATORS: Janice Hermann, PhD, Sara Mata, MS, Jackie Nickels, BS and Stephany Parker, PhD, Department of Nutritional Sciences, Oklahoma State University; Teresa Jackson, MS/RD/LD, Jill Fox, MPH and Sarah Miracle, MBA/RD/LD, Get Fresh! Eagle Adventure Program Chickasaw Nation Nutrition Services

PURPOSE: The purpose of the research study is to understand teacher, school administrator and school food service personnel perceptions of school wellness policy and ideas for how to improve school wellness programs for the development of a school nutrition and physical activity policy ideas to include as part of the Eagle Adventure program.

PROCEDURES: You will be participating in an individual interview discussion. An investigator from the OSU/Chickasaw Nation Eagle Adventure team will guide the interview. The first interview will take place in the Spring of 2014 and we will ask for your views of school wellness policies and your ideas for how to improve them. The second interview will take place in Fall of 2014 and we will ask about any changes in school and student wellness related to nutrition and physical activity. Each interview will be audio recorded and the investigator will take written notes. The discussion will last approximately 30 minutes.

RISKS OF PARTICIPATION: There are no risks associated with this project which are expected to be greater than those ordinarily encountered in daily life.

BENEFITS OF PARTICIPATION: You may gain a greater appreciation and understanding of ideas for incorporating nutrition and physical activity policies in the school, classroom, or lunchroom setting.

CONFIDENTIALITY: The records of this study will be kept private. Audio recordings will be transcribed verbatim with no names identified in the transcript. Any written results will discuss group findings and will not include information that will identify you as an individual. Research records will be stored on a password protected computer in a locked office and only researchers and individuals responsible for research oversight will have access to the records. Tapes will be stored in a locked office and only researchers and individuals responsible for research oversight will have access to the records. Data will be destroyed three years after the study has been completed.

COMPENSATION:
You will be able to choose up to \$25.00 in supplies from a list we provide.

CONTACTS :

You may contact any of the researchers at the following addresses and phone numbers, should you desire to discuss your participation in the study and/or request information about the results of the study: Stephany Parker, Ph.D., 301 Human Sciences, Dept. of Nutritional Sciences, Oklahoma State University, Stillwater, OK 74078, 405 - 744-6821. If you have questions about your rights as a research volunteer, you may contact Mr. Bobby Saunkeah, Chickasaw Nation IRB Chair, 1921 Stonecipger Blvd, Ada, OK 74820, 580-421-4562 or Dr. Shelia Kennison, IRB Chair, 219 Cordell North, Stillwater, OK 74078, 405-744-3377 or irb@okstate.edu

PARTICIPANT RIGHTS:

I understand that my participation is voluntary, that there is no penalty for refusal to participate, and that I am free to withdraw my consent and participation in this project at any time, without penalty.

CONSENT DOCUMENTATION:

I have been fully informed about the procedures listed here. I am aware of what I will be asked to do and of the benefits of my participation. I also understand the following statements:

I affirm that I am 18 years of age or older.

I have read and fully understand this consent form. I sign it freely and voluntarily. A copy of this form will be given to me. I hereby give permission for my participation in this study.

Signature of Participant

Date

I certify that I have personally explained this document before requesting that the participant sign it.

Signature of Researcher

Date

Appendix D: Semi-Structured Scripts

School Administrator Individual Interview Semi-Structured Policy Script

Interviewer will say: Thank you for agreeing to participate in this interview. As you are aware, the purpose of the research study is to understand teacher, school administrator and school food service personnel perceptions of school wellness policy and ideas for how to improve school wellness programs for the development of a school nutrition and physical activity policy ideas to include as part of the Eagle Adventure program. Today's interview will last approximately 30 minutes. Do you have any questions before we start?

Now let's start with the first question.

- 1. What do you think makes for a healthy school environment?**
 - How important is a healthy school environment to the overall well being of elementary students?

- 2. How can students be physically active during school time or after school?**
 - What kinds of things do you think keep students from getting more exercise at school?
 - What kinds of things do you think schools could do to make it easier for students to get more physical activity at school?

- 3. What do you think about incorporating physical activity in the classroom?**
 - What ideas do you have for increasing physical activity during classroom time?
 - What are the benefits to increasing physical activity during classroom time?
 - What are the challenges to increasing physical activity during classroom time?

- 4. How can students eat more healthfully at school?**
 - What kinds of things do you think keep students from eating healthfully at school?
 - What kinds of things do you think schools could do to make it easier for students to eat more healthfully at school?

- 5. How does food or nutrition usually get talked about with students at school?**

- 6. What are your thoughts on the foods and beverages offered at school lunch?**
 - What are the main benefits of the school lunch program?
 - What suggestions do you have for improvements?

7. **What are your thoughts on the foods and beverages offered during school breakfast?**
 - What are the main benefits of the school lunch program?
 - What suggestions do you have for improvements?

8. **What kinds of things do you think schools could do to make it easier for students to eat in healthful ways at school?**

9. **Consider your school's wellness policy, what do you feel are the major benefits of the policy?**
 - What are the major challenges in implementing the policy?
 - What do you think your role is in implementing this policy?
 - What else would you like to see addressed in the school wellness policy?

10. **How can the impact of the policy be increased to enhance its effect on student health and academic learning?**

11. **Our team is interested in helping schools come up with ideas for healthy snacks policies related to foods offered in the school environment such as the classroom, at school parties and the school store. How important do you think this is?**
 - What do you see as the benefits to implementing a healthy snack policy in classrooms, parties or other school-sponsored events?
 - What do you see as major challenges for such a policy?

12. ***Our team is also interested in helping schools come up with healthful school fund raising efforts. How important do you think this is?***
 - What types of items do students currently sell for fund raising?
 - What are your ideas for making these items more healthful?
 - What do you see as benefits to this?
 - What challenges do you foresee?

13. **What resources or training would staff need to help enhance and implement such policies in elementary schools?**

14. **We have talked about a lot of aspects that influence the health of elementary school students. What else do you think we need to consider?**

Thank you so much for your participation and ideas. We will work to combine the ideas that we learn from you and we will share them with you at a later date. Now as a special thank you, we would like to provide you with a list of school supplies that you can choose. Please choose up to \$25.00 in supplies and return your choices to Jill Fox, Eagle Adventure Coordinator at your convenience.

School Teacher Semi-Structured Policy Script

Good afternoon and welcome to our session today. My name is (your name) and I work with the OSU/Chickasaw Nation Eagle Adventure team. As you are aware, the purpose of the research study is to understand teacher, school administrator and school food service personnel perceptions of school wellness policy and ideas for how to improve school wellness programs for the development of school nutrition and physical activity policy ideas to include as part of the Eagle Adventure program. For this session, we have invited teachers to share their ideas and opinions. There are no right or wrong answers we just want your opinions. Please feel free to share your point of view even if it is different from what others have said. Before we begin, let me tell you a little about how a focus group discussion works. Only one person should talk at a time, but we will not go in any specific order. Let's try to talk just one at a time so we can hear everyone's views. We're tape-recording the session because we don't want to miss any of your comments. You may be assured of complete confidentiality by this research team. The research team will never identify individual names with comments. By participating in this focus group, we also ask that you agree that you will not share this information with anyone once you leave this room.

Our session will last about an hour. Well, let's begin. Let's find out some more about each other by going around the room one at a time. Tell us your name and how long you have been teaching, and your favorite color. Well, it has been good to get to know a little more about each other, so let's move on now to our topic of discussion.

1. What do you think makes for a healthy school environment?

- How important is a healthy school environment to the overall well being of elementary students?
- What role do teacher's have in student health?

2. How can students be physically active during school time or after school?

- What kinds of things do you think keep students from getting more exercise at school?
- What kinds of things do you think schools could do to make it easier for students to get more physical activity at school?

3. What do you think about incorporating physical activity in your classroom?

- What ideas do you have for increasing physical activity during your classroom time?
- What are the benefits to increasing physical activity during classroom time?
- What are the challenges to increasing physical activity during classroom time?

4. How can students eat more healthfully at school?

- What kinds of things do you think keep students from eating healthfully at school?

- What kinds of things do you think schools could do to make it easier for students to eat more healthfully at school?
5. **How does food or nutrition usually get talked about with students at school?**
 - What do you think about incorporating nutrition concepts in the classroom?
 - What do you see as benefits to talking about nutrition during classroom time?
 - What do you see as challenges to talking about nutrition during classroom time?
 6. **What are your thoughts on the foods and beverages offered at school lunch?**
 - What are the main benefits of the school lunch program?
 - What suggestions do you have for improvements?
 7. **What are your thoughts on the foods and beverages offered during school breakfast?**
 - What are the main benefits of the school breakfast program?
 - What suggestions do you have for improvements?
 8. **Consider your school's wellness policy, what do you feel are the major benefits of the policy?**
 - What are the major challenges in implementing the policy?
 - What do you think your role is in implementing this policy?
 - What else would you like to see addressed in the school wellness policy?
 9. **How can the impact of the school wellness policy be increased to enhance its effect on student health and academic learning?**
 10. **Our team is interested in helping schools come up with ideas for healthy snacks offered in the school environment such as the classroom, at school parties and school stores. How important do you think this is?**
 - Please describe any snack policies/guidelines you have implemented in your classroom.
 - What do you see as the benefits to implementing healthy snack policies/guidelines in your classroom?
 - What do you see as major challenges for such a policy or guideline?
 11. **Our team is also interested in helping schools come up with healthful school fund raising efforts. How important do you think this is?**
 - What types of items do students currently sell for fund raising?
 - What are your ideas for making these items more healthful?
 - What if any benefits do you see to making school fund raising efforts more helpful?
 - What challenges do you think might be encountered when working to implement healthful school fund raising efforts?
 - What suggestions do you have for overcoming these challenges?
 12. **We have talked about a lot of aspects that influence the health of elementary school students. What else do you think we need to consider?**

Thank you so much for your participation and ideas. We will work to combine the ideas that we learn from you and we will share them with you at a later date. Now as a special thank you, we would like to provide you with a list of school supplies that you can choose. Please choose up to \$26.00 in supplies and return your choices to Jill Fox, Eagle Adventure Coordinator at your convenience.

VITA

Jacquelyn Nickel

Candidate for the Degree of

Master of Science

Thesis: ASSESSMENT OF SCHOOL ADMINISTRATOR AND TEACHER
PERSPECTIVES OF SCHOOL NUTRITION AND HEALTH:
OPPORTUNITIES FOR GOING TURTHER

Major Field: Nutritional Sciences

Biographical:

Education:

Accepted into the Dietetic Internship program at Oklahoma State University April 2013, with requirements to be completed; completed the requirements for the Master of Science in Nutritional Sciences at Oklahoma State University, Stillwater, Oklahoma in July, 2015.

Completed the requirements for the Bachelor of Science in Nutritional Sciences at Oklahoma State University, Stillwater, OK, 2013.

Experience: Lead Intern NYPD Camp, June 2015. Employed at Oklahoma State University as a research assistant in the Health Disparities Lab February 2014-July 2015.

Professional Memberships: Academy of Nutrition and Dietetics