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Food Choices in Schools – A School Improvement Plan

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Food Choices in Schools – A School Improvement Plan

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A School Improvement Plan Presented
In Partial Fulfillment of the Requirements
For the Degree of Master of Education

Abstract

School Nutrition is an integral part of student education, but often overlooked. This school improvement plan establishes a district wide outline better nutrition and food choices. The plan addresses the need for healthy food education through health class and professional development, full community involvement from stakeholders, parents, teachers, and school nutrition directors to implement the change of food choices for school breakfast, lunch, and in vending machines. A review of literature was conducted to support the plan and examines how student nutrition affects student achievement and learning, and recognizes the increase in childhood obesity due to unhealthy food choices in schools.

Keywords: Nutrition, Obesity, Academics, On Task Behavior, Vending Machines, School Breakfast, School Lunch

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Food Choices and Schools

Compared to the past, a higher number of students in elementary, middle, and high schools are obese. In the last 30 years, childhood obesity has increased three times (Tripp & Choi, 2014). Coincidentally, sugar-sweetened beverage (SSB) consumption has increased dramatically in the United States over the last 30 years (Terry-McElrath, et al., 2014).

Legislation from the federal government has also played a role in the increase of childhood obesity. In 2001, President Bush signed into the law the No Child Left Behind Act. With the NCLBA, schools felt increase pressure for students to perform well on standardized tests, so more attention and money was shifted toward basic skills instruction. Schools began to remove recess and physical education from the schedule, and add additional classroom instruction. These budget cuts, due to low school performance on tests, forced schools to find unique ways to close budget gaps. Many schools looked to obtain revenue from companies not within the school district. Schools began to allow companies such as Coca-Cola to put vending machines in their school (Dalton, 2004; Kocken et al., 2012). Additionally, schools purchased textbooks, at lower prices because companies like Crest had advertisements embedded into the lessons (Dalton, 2004, p. 34). Vending machine options are often unhealthy, low-nutrient, energy-dense food. The unhealthy options include sugar-sweetened beverages or candy (Terry-McElrath et al., 2012). Sugar-sweetened beverages and candy are considered foods of minimal nutritional value. Foods of minimal nutritional value are defined by the federal government as food that has less than five percent of recommended dietary allowances per serving for eight key nutrients (Dalton, 2004).

Despite the Child Nutrition and WIC Reauthorization Act(CN & WICRA) of 2004 and The Healthy Hunger Free Kids Act (HHFKA) of 2014, foods of minimal nutritional value are

still available in schools and may be contributing to unhealthy dietary choices for children and ultimately to health risk (Cisse-Egbuonye et al., 2016). Schools have attempted to improve the nutritional value of food options served in schools. The National School Lunch Program is one such way schools have attempted to improve the nutritional value of food served in schools. According to the US Department of Agriculture (USDA), 30 million children participate in the National School Lunch Program (NSLP), and the purpose of the NSLP is “improves nutrition and focuses on reducing childhood obesity” (Schwartz and Rothbart, 2020, p. 4). Despite legislation, at least 20% of NSLP schools are not complying (Cisse-Egbuonye et al., 2016). Not complying is defined by offering two or more choices per day of energy-dense food (Cisse-Egbuonye et al., 2016).

The purpose of this school improvement plan is improve the food quality and nutrition in this school district. Schools can improve their food quality and nutrition, which can lead to better student academic performance and on task behavior (Adolphus et al. 2013). Implementation from this school improvement plan can help improve district food choices by informing stakeholders, superintendents, principals, parents, and students on the value of improved food quality, nutrition, and food education towards student success. The school improvement plan explains the advantages and disadvantages of providing healthier food options for students. Food choices in schools are often overlooked. Much like physical activity was overlooked in the 1980s-1990s. Schools began to cut recess and PE from the budget. After studies showed students had better cognitive function after physical activity, schools began to prioritize movement. This school improvement plan will prioritize health through calorie intake. Over 50% of the students in my district receive 2/3 of their meals for the day during school.

Resources for this school improvement plan were compiled from the DeWitt Library at Northwestern College. Studies were current within the last 10 years and published in a peer-reviewed journal. Domestic and international studies regarding benefits of healthy food choices in schools, national policies, school environment, and studies on the importance of healthy foods in school were used. twenty sources were selected to support this school improvement plan. Studies were used to understand current policies and programs, as well as to analyze where improvements can be made.

Schools play an important role in combatting childhood obesity. Up to 10 million students in the United States receive two of their three meals a day from school (Ballard, 2013). The CN & WICRA of 2004 and HHFKA of 2014 were implemented to address unhealthy food choices in schools. However, unhealthy foods are still available in schools. This access to foods of minimal nutritional value increases the likelihood that students purchase and consume food items that promote obesity. Through this school improvement plan, students will receive healthier food choices for school breakfast, lunch, and snacks via vending machines.

The school improvement plan take a series of steps to educate all parties involved as to why healthier food choices are needed within the district. The students will receive food education information via their health classes. The teachers and other support staff will receive food education during professional development days the district offers. The wellness committee in the district will meet with food service coordinators and administration members at the start of the school year. The wellness committee, food service coordinators, and administration members will plan how to implement healthier food options for school breakfast, lunch, and snacks in vending machines.

The researcher will explain, by referencing studies, how healthy food choices can help to minimize childhood obesity, improve academic success, and increase on-task behavior. The researcher will also define competitive foods and their link to unhealthy food choices in school. Additionally, the researcher will explore how food education and community involvement can improve school food choices and minimize childhood obesity. By June 2023 85% of students in the district will be able to identify and explain why certain foods are healthy for them to eat and other foods are not. Action steps needed for achieve this goal will be a nutrition unit taught at the beginning of the school year and referred back to at mid-year. The 85% goal will be monitored by assessments given in health class. There will be no funding needed to attain this goal. The meeting with the wellness committee, food service coordinators, and administration members will be monthly beginning in September of 2022. The monthly meetings will continue through June of 2023. Food service coordinators will provide three different food budget options to administration members in September of 2022 in the hopes of implementing a new budget for the 2023-2024 school year. These budgets will focus on healthier food options that are approved by the wellness committee. The food budget discussed in these meetings will be presented at school committee meetings for stakeholders and parents to vote on. Based upon voting results, changes will be made by the wellness committee, food service coordinators, and administration members to the food budget. The wellness committee will include a school improvement plan to define root cause analysis and rationale as to why the food budget in the district needs to change. This robust plan will have equity and shared responsibilities from members at different levels of the school district. The equity and shared responsibilities along with root cause for analysis, rationale, action steps, and results of assessment will mirror the template for school improvement plans within the district.

Review of the Literature

The impact of movement breaks for students have been well researched, and at the forefront of student success and classroom procedures within the last two decades. Within the last two decades, the increase in screen time, childhood obesity, and student's sedentary lifestyles has caused changes in school curricula. Research has shown that increased movement for students in school improves academic performance and helps to reduce childhood obesity. As such, states are mandating a minimum amount of physical activity for students during the school week. Often overlooked, but part of the growing trend to prevent childhood obesity is school nutrition. According to the CN & WICRA of 2004 and HHFKA of 2014, the increase in obesity is caused in part by FMNV. The goal of The CN & WICRA of 2004 and HHFKA of 2014 aimed to decrease or remove FMNV from school food service programs. While schools are following the physical activity mandate set by their state, a large number of schools throughout the United States are failing to follow the school nutrition mandates set by the federal government in 2004 and 2014. A number of factors impact the degree to which a school follows the federal nutrition mandates, including, but not limited to, food nutrition education, revenue-school budgets, academics, and obesity-eating habits of children and adolescents.

Healthy Food Education

Recent studies reflect the need of healthy food education for students in school. In a study by Kumar et al. (2016), students in grades 6-8 from Southwest Kansas judged the health and appealing nature of food based on sensory properties. Of the students surveyed, 27 adolescents cared about taste; 12 cared if it was healthy; seven cared if it was cheap, quick, and sweet; and three cared about appearance. In response to what is healthy eating, students responded with comments such as, "basically, I think of the word diet," "I guess maybe salad," "(ice cream) is

healthy because of the milk.” According to the findings, the students have limited knowledge of what healthy foods are. While student knowledge of healthy foods was limited, the findings also showed, student knowledge of unhealthy foods to be strong. In response to what is unhealthy eating, students responded with; “ a lot of junk food,” “soda, sugary foods, candy,” “fried food.” The findings of Kumar et al. (2016) indicate that students know what unhealthy food is and what healthy is. Students knowledge of what healthy foods are needs to increase. Healthy food education during health class can increase this knowledge base for students.

Similar findings were presented by Tripp & Choi (2014) when researching school nutrition. They focused on, parent, teacher, and administrator knowledge of healthy foods. In this study, 114 people (74 parents, 33 teachers, and 7 administrators) were asked their perception of childhood obesity and food education. The results showed that parents considered childhood, obesity to be a serious issue, but lacked the nutrition knowledge to prevent obesity. School administrators said childhood obesity was not a serious issue, but said food choices and eating habits in school needed to be addressed. Teachers said that both childhood obesity and food education are of deep concern. The ability of a school district to get all community members on the same page as it relates to school nutrition is critical to implementing healthier food options for school breakfast, lunch, and in vending machines.

However, Armstrong et al. (2017) presented findings that a disagree with Kumar et al., (2016), and Tripp & Choi, 2014). Their findings showed six of eight principals in North Central Texas elementary schools voiced concern that parents were not educating children about exercise and healthy food choices. There is a disconnect for food education. Some administrators believe it is the schools responsibility to educate students, and some administrators believe parents should educate students about healthy food choices. In this study, administrators said it was the

parent's responsibility to educate children about healthy food choices. According to Armstrong et al. (2017), the lack of support from parents and stakeholders made it difficult to find time in the schedule for teachers to educate children about healthy food eating and food choices. Teachers wanted to change the schedule, but parents and stakeholders voted against it. Yet, principals in the study wanted the education to take place. One principal believed that education in these areas could make a difference for kids: "When I eat healthy and exercise, I feel better at my job. Educate children to eat healthy and exercise so they feel better about themselves and do better at their job, which is school and learning" (Armstrong et al. 2017, p. 5).

The disconnect among members of a school community can be telling. Students, parents, teachers, and administrators may have different agendas based on personal and occupational interests. Time and money are the two biggest personal and occupational interests among members of a school community when attempting to implement changes in the school curriculum (Krocken, 2012). Finding money in the budget is necessary to educate all community members about food nutrition and to implement a healthy food budget.

Revenue-School Budget

Schools have been and will always be looking for free and discounted educational material or other products for students. Schools look for free and discounted educational material in an effort to save money in the budget, or generate revenue (Cisse-Egbuonye et al., 2016). Since the 1920s businesses have targeted teachers to sell their products (Ellis, 2020). "Teachers in days gone by had a constant need for instructional materials. Recognizing this, and the opportunity it presented, large firms—as early as the 1920s—produced teaching aids. They promoted these aids precisely where teachers desperate for classroom ideas would find them – in professional magazines like BC teacher. They also gave away materials they produced, like

maps, notebooks, filmstrips, and wall charts. Outfits like Colgate, Bristol-Myers, and Kleenex/Kotex-maker Canadian Cellucotton branded free posters and pencils with their logos and slogans. Or they devised lesson plans around filmstrips and booklets that taught about their products' virtues" (Ellis, 2020, p. 1). It did not stop at textbooks, advertisers also showed products to students via yearbooks (Ellis, 2020). An example of how advertising snuck into school in other ways is via Home Depot. Home Depot sponsored school playgrounds in Vancouver. What many people thought was a nice gesture by a major corporation was in fact, an advertising campaign launched by the company (Ellis, 2020).

School vending machines are another form of advertising in schools; vending machines are definitely controversial. As schools have integrated more computers, 1:1 tablets, and smart TVs, schools have been forced to find ways to pay for the technology (Ellis, 2020; Trevino et al., 2012). Vending machines bring revenue into schools but do not provide an educational benefit (Ellis, 2020). Different members of the school community are for and against vending machines in schools (Armstrong et al., 2017). Administrators and stakeholders are in favor of vending machines because they help to close budget gaps (Capacci, Mazzocchi, & Shankkar, 2018). However, researchers have argued that vending machines should not be in schools because they offer students food of minimal nutritional value (Van Hook & Altman, 2012). In a study by Capacci, Mazzocchi, & Shankkar (2018), 1,517 French students ages 6-18 who had access to vending machines in school were found to have an increase in energy-dense, sugary food intake. The results of this study concerned parents and some students who participated, but school administrators and stakeholders turned a blind eye to it because of the revenue generated from the vending machines (Capacci, Mazzocchi, Shankkar, 2018). Similar findings were found in a study by Terry-McElrath, et al., (2014). In this study, 50% of the students had at least one type of

low-nutrient energy-dense snack available through vending machines. This study was conducted in the United States and consisted of 600 middle and high schools in 380 school districts. Additionally, results of this study showed that 88% of high schools profited from vending machines, compared to 80% of middle schools. In other words, despite knowing the food choices in the vending machines are foods of minimal nutritional value, administrators and stakeholders did not remove the vending machines because of the profit generated. This is a negligent practice that puts money before the wellbeing of students. The health and safety of the students should be the first priority of administrators and stakeholders.

Vending machines typically offer more than foods of minimal nutritional value; they also offer beverages. Typically the beverages in vending machines are sugar-sweetened (Terry-McElrath, et al., 2012). But Terry-McElrath, et al., (2014), Terry-McElrath, et al., (2012) found that schools are focused on the health of the students, committed to reducing soda options in vending machines. Despite reducing the soda options in vending machines, there was no drop in revenue generated from the vending machines. In other words, schools should and can offer healthier options in vending machines and still expect to make a profit.

Changing students eating habits is a challenge. Educating parents and students about Foods of Minimal Nutrition Value sold in vending machines may help to change students eating habits, maintain profit from the vending machines while offering healthier choices, and improve their classroom performance.

Academic Performance--On-Task Behavior

Academic performance of children is a public health interest as well as a concern for administrators, stakeholders, educators, and parents (Kramer, Allen, & Gergen, 1995). Recent

studies have begun to provide insight into how food of minimal nutritional value and sugar-sweetened beverages can affect student academically and behaviorally. In a study by Snelling, Beard, & Young (2015), 1,000 students in the Mid-Atlantic region of the United States self-reported grades. The students who self-reported grades of Ds and Fs had a higher consumption of soda and fast food than the students who self-reported grades of As and Bs. “The reverse was true for vegetables, as students grades increase there was a significant increase in vegetable consumption” (Snelling, Beard, & Young, 2015, p. 146). Similar findings were later uncovered by Pearce, et al., (2018). The Australia study of 315 children ages 9-11 showed that a high intake of energy-dense food predicted poor academic performance and more off-task behavior. Furthermore, Florence et al., (2008), found poor diet predicted poor academic performance among 5,200 5th graders from Canada, 1,035 children in grades 4-6 from Taiwan, and 528 5-7 graders from Greece. In other words, culture, socio-economic status, and food types do not matter. If students eat poorly anywhere in the world, they perform poorly in the classroom. Implementing a school improvement plan that offers healthier food options can improve academic performance and student behavior.

In an effort to improve nutrition, academic performance, and on-task behavior, schools offer universal free meals(UFM). The federal UFM program provides free breakfast and lunch to all students (Schwartz & Rothbart, 2020). Moreover, by offering all students free meals, more students participate. The increased participation improves academic performance and on-task behavior. The results from Schwartz & Rothbart (2020), mirrors a study by Adolphus, Lawton, & Dye (2013). Results of this study showed that students who are habitual breakfast eaters performed better academically and were more on-task than students who were not habitual

breakfast eaters. The results also showed that socio-economic status did not matter. When free breakfast was offered, participating students performed better academically.

The UFM program contrasts with the free and reduced lunch plans offered to eligible students. According to Schwartz & Rothbart (2020), only one-third of public school students in NYC eligible for free and reduced lunch take part. Students feel uncomfortable with the stigma of being labeled “poor” because they take part in free and reduced lunch. Additionally, Randolph, & Prejean-Harris (2017), found negative consequences resulting from using free and reduced lunch as a measure of poverty in schools. According to the National Academy of Sciences, the way to measure poverty in a school district is based on the number of students on free and reduced lunch. Using this variable as the sole measure of school-level poverty has serious negative consequences in terms of equitable allocation of resources (Randolph, & Prejean-Harris, 2017).

Skeptics of the UFM program worry about the negative effects on weight because of excess consumption of free breakfasts and lunches (Keller et al., 2015). The study by Keller et al. (2015) also showed that students in the United Kingdom who participated in UFM did not show improvement in on-task behavior.

Childhood Obesity-Eating Habits

Childhood eating habits are created in school and at home. Eating habits created in childhood can lead to obesity. Knowing eating habits are partly created in school, companies target schools with their beverages in vending machines. “Bottling contracts, or competitive foods in school are related to potential health problems according to the American Academy of Pediatrics”(Terry-McElrath, et al., 2012, p. 44). Competitive foods are meals not sponsored by

the National School Lunch Program. Federally sponsored meal programs are required to meet specified nutrition recommendations, but competitive foods do not have regulations to meet (Terry-McElrath, et al., 2012).

According to Kocken et al. (2012), a study of forty schools showed sales from school vending machines to be no different when healthy options were offered compared to unhealthy options. Availability, labeling, and price reduction raised sales of favorable beverages. In other words, schools should offer healthy food options in vending machines. If the healthy beverages are offered in school vending machines at a price students can afford, they will buy the healthy option.

In contrast a study by Van Hook & Altman, (2012) showed that competitive food sales failed to support the idea that competitive food sales increase the risk of childhood obesity. Body Mass Index did not change significantly. Additionally, children who attended schools with no competitive food options did not experience significant change in weight.

In addition to the food and beverage options children consume at the school, one cannot ignore the home environment (Farris, et al., 2021). The home environment partially creates childhood eating habits. “The home environment is virally important for influencing dietary habits and behaviors” (Farris, et al., 2021, p. 303). Van Hook & Altman (2012) found similar findings in, regard to diets at home. In this study, 21,410 children were followed from Kindergarten to 8th grade. Results showed that food preferences and dietary patterns are firmly established before adolescence. In other words, it is critical for schools and parents to establish healthy eating habits for children early in life. Ramsey et al. (2018) study results mirror those of Van Hook & Altman (2012) and Farris, et al., (2021). Results of Ramsey et al. showed that children who skipped breakfast are more likely to skip other meals; they also consumed less

energy, protein, carbs, fiber, vitamin A, iron, and calcium than those who consumed breakfast. To make up for skipping breakfast, children consumed more snacks, sweets, and energy-dense foods. Ramsey noted that while the same study showed that skipping breakfast is not associated with obesity, good eating habits are created early in life. These results mirror the results by Van Hook & Altman (2012) and Farris, Mann, et al., (2021). Moreover, Van Hook & Altman (2012), discovered that the home environment is typically a less structured place for food consumption. The lack of structure and supervision at home during meal times allowed children to skip meals more often, eat more sweets and energy-dense food, and consume fewer fruits and vegetables.

School Nutrition Directors (SND) felt the biggest issues affecting student participation in the National School Lunch Program are the acceptance of new food items and lack of support from stakeholders and policy makers. (Farris, et al., 2021). When students do not accept new food items, they are more likely to obtain food from vending machines, or skip meals (Farris, et al., 2021). To achieve support of a school improvement plan related to healthier food choices, it is imperative for SND to seek support from stakeholders and policy makers. Stakeholders and policy makers can make adjustments to the food budget to ensure food items on the school menu are consumed by students (Ballard, 2013).

School Profile

Students BMI will be monitored during the school year as the students consume school breakfast, lunch, and vending machine snacks. Childhood overweight and obesity data was and will be gathered from two K-5 elementary schools in Scituate, Rhode Island. The population of school A includes 213 students, who are 50.7% female and 49.3% male. 93.9% white, 3.3% Hispanic, 1.5% Asian, and 1% Black. Of this student population, 7.5% are considered economically disadvantaged. Student survey results include the following: 97% of students feel like there is an adult they can turn to with a problem, 82% of students feel the rules are fair, 80% of students say their teachers encourage them to try their best, 89% of students say their teachers are respectful towards them, and 85% of students say it is important to do well in school. The mission statement for school A is to provide a safe and enriching learning environment where the whole student is nurtured and developed.

The population of school B includes 136 students, 54.4% male and 45.6% female. 87.5% white, 7% Asian, 4% Hispanic, and 1% black. Of this student population, 8% are considered economically disadvantaged. Student survey results include the following: 95% of students feel like there is an adult at school they can talk to, 84% of students think their school is a positive place, 88% of students said their teachers are excited to teach, and 85% of students say their teachers have high expectations of them. The mission statement for school B is to provide all students with the knowledge and skills necessary to achieve high academic standards while encouraging curiosity, promoting responsibility, and building character in a nurturing learning environment.

There is a high level of parent involvement at both schools. The Parent Teacher Organization (PTO) from both schools work together to plan events. The PTOs from each school plan at least one community building activity a month. The PTO pays for various field trips for

students during the school year and purchases T-shirts for school wide events. During parent-teacher conferences in October, 80% of school A parents attended, and 83.5% of school B parents attended.

In school A, 72% of students that participate in the universal free meals program. In school B, 81% of student participate in the universal free meals program. Both programs include breakfast and lunch. This school improvement plan aims to improve the food choices for breakfast and lunch within the universal free meals program.

During the 2021-22 school year, the researcher collected student baseline data during physical education class. Baseline data was gathered during assessments for the shuttle run (seconds), sit & reach (cm), one-mile run (min:sec), and curl-ups (one minute). Results of the assessments were measured against the President’s Challenge Qualifying standards(85th percentile or better) and the National Physical Fitness Award (50th percentile-84th percentile). The levels are based on the 1985 School Population Fitness Survey. The body mass index-for-age percentiles(boys and girls ages 2-20 years) was measured: Boys and Girls, 2 to 20 years was measured using the chart provided by the Center for Disease Control.

The data below was gathered during the 2021-22 school year during PE class. The two tables indicate the percentage of students who qualified for the President Challenge standards(85% or better) and the National Physical Fitness Award (50th percentile-84th percentile).

School A 85 th percentile(% of students to qualify)	Curl-ups (# in 1 min)	Sit & Reach (cm)	Shuttle Run (sec.)	One Mile Run (min:sec)
Kindergarten	3	28	2	4
Grade 1	6	25	4.5	7

Grade 2	4	17	6	9
Grade 3	6.5	46	5	8
Grade 4	14	15	9.25	11
Grade 5	26	14	10	20

School A 50 th -84 th % percentile(% of students to qualify)	Curl- ups (# in 1 min)	Sit & Reach (cm)	Shuttle Run (sec.)	One Mile Run (min:sec)
Kindergarten	9	31	10	16
Grade 1	20	31	17	19
Grade 2	37	30	29	12
Grade 3	22	43	57	9
Grade 4	31	16	18	34
Grade 5	56	17	35	60

The data below was gathered during the 2021-22 school year during PE class. The two tables indicate the Body Mass Index percentage of the student population.

School A BMI Chart Girls	Underweight (% of students)	Healthy (% of students)	Overweight (% of students)	Obese (% of students)	Extremely Obese (% of students)
Kindergarten	0	90	9	1	0
Grade 1	1	92	4	3	0
Grade 2	0	87	13	0	0
Grade 3	2	66	20	10	2
Grade 4	8	58	21	9	4
Grade 5	10	56	20	10	4

School A BMI Chart Boys	Underweight (% of students)	Healthy (% of students)	Overweight (% of students)	Obese (% of students)	Extremely Obese (% of students)
Kindergarten	3	84	10	3	0
Grade 1	1	90	4	5	0
Grade 2	0	80	12	8	0
Grade 3	5	70	8	10	7
Grade 4	0	58	21	9	12
Grade 5	0	66	20	10	4

The data below was gathered during the 2021-22 school year during PE class. The two tables indicate the percentage of students who qualified for the President Challenge standards(85% or better) and the National Physical Fitness Award (50th percentile-84th percentile).

School B 85 th percentile(% of students to qualify)	Curl-ups (# in 1 min)	Sit & Reach (cm)	Shuttle Run (sec.)	One Mile Run (min:sec)
Kindergarten	7	9	3	0
Grade 1	11	13	8	1
Grade 2	8	11	19	12
Grade 3	22	5	9	2
Grade 4	14	15	9.25	11
Grade 5	29	6	30	2

School B 50 th -84 th % percentile(% of students to qualify)	Curl-ups (# in 1 min)	Sit & Reach (cm)	Shuttle Run (sec.)	One Mile Run (min:sec)
Kindergarten	13	40	13	9
Grade 1	22	44	11	23
Grade 2	24	34.5	60	34
Grade 3	31	62	38	18
Grade 4	22	26	27	45
Grade 5	50	21	73	56

The data below was gathered during the 2021-22 school year during PE class. The two tables indicate the Body Mass Index percentage of the student population.

School B BMI Chart Girls	Underweight (% of students)	Healthy (% of students)	Overweight (% of students)	Obese (% of students)	Extremely Obese (% of students)
Kindergarten	0	96	4	0	0
Grade 1	0	89	4	7	0
Grade 2	4	80	10	6	0

Grade 3	7	78	2	9	4
Grade 4	10	58	21	10	1
Grade 5	14	66	20	0	0

School B BMI Chart Boys	Underweight (% of students)	Healthy (% of students)	Overweight (% of students)	Obese (% of students)	Extremely Obese (% of students)
Kindergarten	7	93	0	0	0
Grade 1	4	90	6	0	0
Grade 2	0	88	10	2	0
Grade 3	6	70	8	10	6
Grade 4	0	69	6	11	14
Grade 5	0	60	20	8	12

Needs Assessment

In the United States, one in five children are considered obese. Children and adolescents overweight or obese are health risks to themselves. The physical health risks are many, including type 2 diabetes, cardiovascular disease, asthma, sleep apnea, and more. The children may also experience social-emotional problems. These can include depression, bullying, and chronic absenteeism.

In Rhode Island, data indicates that 31% of Rhode Island children are overweight or obese according to their BMI. This is 6% higher than the national average. Of children ages 5-9, 14% are overweight and 15% are obese. Of children ages 10-14, 16 are overweight, and 19% are obese.

The baseline data for this school district paints a much darker picture. In school A, 41% of girls ages 9-10 are overweight, and 19% are obese. Of girls ages 5-8, 46% are overweight and 14% are obese. In school B, 41% of girls ages 9-10 are overweight and 10% are obese. Of girls ages 5-8, 20% are overweight and 22% are obese. These numbers far exceed the state overweight and obesity rate of 15% for girls.

The state overweight and obesity rate is 16% for boys. Once again, the district data far exceeds the state data. In school A, 41% of boys ages 9-10 are overweight, and 19% are obese. Of boys ages 5-8, 34% are overweight and 26% are obese. In school B, 26% of boys ages 9-10 are overweight and 19% are obese. Of boys ages 5-8, 24% are overweight and 12% are obese.

The school improvement plan aims to improve the nutrition of meals provided for breakfast and lunch as well as improve the food choices in the school vending machines. At school A, 72% of its students participate in the universal free meals program. At school B, 81%

of its student participate in the universal free meals program. The data indicates that 75% of students in this school district receive 2/3 of their meals per day from school. Could improved nutrition of these meals via the school improvement plan help to lower the overweight and obesity rates of the children in this district?

Action Plan

Schools play an important role in combatting childhood obesity. Up to 10 million students in the United States receive two of their three meals a day from school (Ballard, 2013). This reality is true for 75% of students in the school district being studied.

Recent studies reflect the need of healthy food education for students in school. In a study by Kumar et al. (2016), students in grades 6-8 in Southwest Kansas judged the health and appealing nature of food based on sensory properties. Of the students surveyed, 27 adolescents cared about taste; 12 cared if it was healthy; seven cared if it was cheap, quick, and sweet; and three cared about appearance. In response to what is healthy eating, students responded with comments such as, “basically, I think of the word diet,” “I guess maybe salad,” and “(ice cream) is healthy because of the milk.” According to the findings, the students have limited knowledge of what healthy foods are.

Similar findings were presented by Tripp & Choi (2014) when researching school nutrition. This study focused on, parent, teacher, and administrator knowledge of healthy foods. In this study, 114 people (74 parents, 33 teachers, and 7 administrators) were asked their perception of childhood obesity and food education. The results showed that parents considered childhood, obesity to be a serious issue, but lacked the nutrition knowledge to prevent obesity. School administrators said that childhood obesity was not a serious issue, but that food choices and eating habits in school needed to be addressed. Teachers said that both childhood obesity and food education are of deep concern. The ability of a school district to get all community

members on the same page as it relates to school nutrition is critical to implementing healthier food options for school breakfast, lunch, and vending machines options.

In the school community studies by Armstrong et al. (2017), the lack of support from parents and stakeholders made it difficult to find time in the schedule for teachers to educate children about healthy food eating and food choices. Teachers wanted to change the schedule, but parents and stakeholders voted against it.

The disconnect among members of a school community can be telling. Students, parents, teachers, and administrators may have different agendas based on personal and occupational interests. Time and money are the two biggest personal and occupational interests among members of a school community when attempting to implement changes in the school curriculum (Krocken, 2012).

In a study by Snelling et al. (2015), 1,000 students in the Mid-Atlantic region of the United States self-reported grades. The students who self-reported grades of Ds and Fs had a higher consumption of soda and fast food than the students who self-reported grades of As and Bs. As one might expect, “the reverse was true for vegetables, as students grades increase there was a significant increase in vegetable consumption” (Snelling et al. 2015, p. 146). Similar findings were later uncovered by Pearce, et al. (2018). The Australia study of 315 children ages 9-11 showed that a high intake of energy-dense food predicted poor academic performance and more off-task behavior.

In an effort to improve nutrition, academic performance, and on-task behavior, most schools offer universal free meals(UFM). The federal UFM program provides free breakfast and lunch to all students (Schwartz & Rothbart, 2020). Moreover, by offering all students free meals, more students participate. The increased participation improves academic performance and on-

task behavior. The results from Schwartz & Rothbart (2020), mirrors a study by Adolphus et al. (2013).

School nutrition directors (SND) felt the biggest issues affecting student participation in the National School Lunch Program are the acceptance of new food items and lack of support from stakeholders and policy makers (Farris, et al., 2021). When students do not accept new food items, they are more likely to obtain food from vending machines or skip meals (Farris et al., 2021).

This school improvement plan take a series of steps to address the issues raised in the research. The teachers and other support staff will receive food education during professional development days the district offers. The students will receive food education information via their health classes to further understand what healthy foods are and what unhealthy foods are. The school improvement plan will educate all parties involved as to why healthier food choices are needed within the district.

The wellness committee in the district will meet with food service coordinators and administration members at the start of the school year. The wellness committee, food service coordinators, and administration members will plan how to implement healthier food options for school breakfast, lunch, and vending machines options. The wellness committee, food service coordinators, and administrators will meet monthly to plan how to improve school nutrition and ensure that the program is working and remains in place.

Implementation of School Improvement Plan

By June 2023 85% of students in the district will be able to identify and explain why certain foods are healthy for them to eat and other foods are not. Action steps needed to achieve this goal will be a nutrition unit taught at the beginning of the school year and referred back to at mid-year. The 85% goal will be monitored by assessments given in health class. There will be no funding needed to attain this goal. The teachers and other support staff will receive food education during professional development days offered by the district offers.

Monthly meetings of the wellness committee, food service coordinators, and administration members will begin monthly beginning in September of 2022. The monthly meetings will continue through June of 2023. Food service coordinators will provide three different food budget options to administration members in September of 2022 in the hopes of implementing a new budget for the 2023-2024 school year. These budgets will focus on healthier food options that are approved by the wellness committee. The food budget discussed in these meetings will be presented at school committee meetings for stakeholders and parents to vote on. Based upon voting results, changes will be made by the wellness committee, food service coordinators, and administration members to the food budget. The wellness committee will include a school improvement plan to define root cause analysis and rationale as to why the food budget in the district needs to change. This robust plan will have equity and shared responsibilities from members at different levels of the school district. The equity and shared responsibilities along with root cause for analysis, rationale, action steps, and results of assessment will mirror the template for school improvement plans within the district.

The physical educators in the district will monitor student success or failure of the interventions. The physical education teachers in the district will run the Physical Fitness test

two times per year. The first test will be in September, and the second test will be in May. The physical educators will compare the data gathered during assessments for the shuttle run (seconds), sit & reach (cm), one-mile run (min:sec), curl-ups (one minute). Results of the assessments will be measured against the President's Challenge Qualifying standards(85th percentile or better), and the National Physical Fitness Award(50th percentile-84th percentile). Results in May will also be compared to the previous year's Physical Fitness test, and the September test. Lastly, the physical educators will measure students BMI in September and again in May. The results of the BMI test in May will be compared to the previous year and the September BMI test.

Potential challenges that could impede success of the plan are lack of time for the SND and administrators to meet for monthly meetings. Additionally, the school improvement plan may not receive support from stakeholders and parents, nor the funding needed to make the plan a success.

Conclusion

Compared to the past, a higher number of students in elementary, middle, and high schools are obese. In the last 30 years, childhood obesity has increased three times (Tripp & Choi, 2014). Coincidentally, sugar-sweetened beverage (SSB) consumption has increased dramatically in the United States over the last 30 years (Terry-McElrath, et al., 2014).

Foods of minimal nutritional value are defined by the federal government as food that has less than five percent of recommended dietary allowances per serving for eight key nutrients (Dalton, 2004). Despite the Child Nutrition and WIC Reauthorization Act (CN & WICRA) of 2004 and The Healthy Hunger Free Kids Act (HHFKA) of 2014, foods of minimal nutritional

value are still available in schools and may be contributing to unhealthy dietary choices for children and ultimately to health risk (Cisse-Egbuonye et al., 2016). Schools have attempted to improve the nutritional value of food options served in schools. The National School Lunch Program is one such way schools have attempted to improve the nutritional value of food served in schools. According to the US Department of Agriculture (USDA), 30 million children participate in the National School Lunch Program (NSLP), and the purpose of the NSLP is “improves nutrition and focuses on reducing childhood obesity” (Schwartz and Rothbart, 2020, p. 4). While schools are following the physical activity mandate set by their state, a large number of schools throughout the United States are failing to follow the school nutrition mandates set by the federal government in 2004 and 2014. Despite legislation, at least 20% of NSLP schools are not complying (Cisse-Egbuonye et al., 2016). Not complying is defined by offering two or more choices per day of energy-dense food (Cisse-Egbuonye et al., 2016).

The purpose of this school improvement plan is improve the food quality and nutrition in this school district. Schools can improve their food quality and nutrition, which can lead to better student academic performance and on task behavior (Adolphus, Lawton & Dye (2013).

Recent studies reflect the need of healthy food education for students in school. In a study by Kumar et al. (2016), students in grades 6-8 from Southwest Kansas judged the health and appealing nature of food based on sensory properties. Of the students surveyed, 27 adolescents cared about taste; 12 cared if it was healthy; seven cared if it was cheap, quick, and sweet; and three cared about appearance. In response to what is healthy eating, students responded with comments such as, “basically, I think of the word diet,” “I guess maybe salad,” “(ice cream) is healthy because of the milk.” According to the findings, the students have limited knowledge of what healthy foods are. While student knowledge of healthy foods was limited, the findings also

showed that student knowledge of unhealthy foods to be strong. In response to what is unhealthy eating, students responded with comments such as, “a lot of junk food,” “soda, sugary foods, candy,” “fried food.” The findings of Kumar et al. (2016) indicate that students know what unhealthy food is and what healthy is. Students knowledge of what healthy foods are needs to increase. Healthy food education during health class can increase this knowledge base for students.

Vending machines typically offer more than foods of minimal nutritional value; they also offer beverages. Typically the beverages in vending machines are sugar-sweetened (Terry-McElrath, et al., 2012). In a study by Capacci, Mazzocchi, & Shankar (2018), 1,517 French students ages 6-18 who had access to vending machines in school were found to have an increase in energy-dense, sugary food intake. The results of this study concerned parents and some students who participated, but school administrators and stakeholders turned a blind eye to it because of the revenue generated from the vending machines (Capacci, Mazzocchi, Shankar, 2018). Similar findings were found in a study by Terry-McElrath, et al., (2014). In this study, 50% of the students had at least one type of low-nutrient energy-dense snack available through vending machines. This study was conducted in the United States and consisted of 600 middle and high schools in 380 school districts. Additionally, results of this study showed that 88% of high schools profited from vending machines, compared to 80% of middle schools. In other words, despite knowing the food choices in the vending machines are foods of minimal nutritional value, administrators and stakeholders did not remove the vending machines because of the profit generated. This is a negligent practice that puts money before the wellbeing of students. The health and safety of the students should be the first priority of administrators and stakeholders.

In a study by Snelling, Beard, & Young (2015), 1,000 students in the Mid-Atlantic region of the United States self-reported grades. The students who self-reported grades of Ds and Fs had a higher consumption of soda and fast food than the students who self-reported grades of As and Bs.

Childhood eating habits are created in school and at home. Eating habits created in childhood can lead to obesity. Knowing eating habits are partly created in school, companies target schools with their beverages in vending machines. “Bottling contracts, or competitive foods in school are related to potential health problems according to the American Academy of Pediatrics”(Terry-McElrath, et al., 2012, p. 44). Competitive foods are meals not sponsored by the National School Lunch Program. Federally sponsored meal programs are required to meet specified nutrition recommendations, but competitive foods do not have regulations to meet (Terry-McElrath, et al., 2012).

Research has shown food choices in schools needs to change to help decrease obesity in children. This school improvement plan aims to provide this school district with food education and healthier food choices. The healthier food choices could lead to fewer students being overweight or obese, better behavior and attention in the classroom, and better eating habits among children.

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