East African Journal of Education and Social Sciences
EAJESS July – September 2021, Vol. 2, No. 3, pp. 141-150
ISSN: 2714-2132 (Online), 2714-2183 (Print), Copyright © The Author(s)
Published by G-Card
DOI: https://doi.org/10.46606/eajess2021v02i03.0112
URL: http://eajess.ac.tz

Evaluation of the National School Lunch Program at a Public Charter School in Duval County, Jacksonville, Florida, USA

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Abstract
The National School Lunch Program (NSLP) is the second largest meal program in the United States, operating in Elementary, Secondary and not for profit private schools. The goals and objectives of the NSLP is to provide free, healthy, nutritious and balanced meals to students each school day so they can develop into healthy adults. This study sought to assess whether the goals and objectives of the NSLP were being met. A mixed method with a convergent design was employed with a sample of 30 students and 2 staff. Findings revealed that majority of students believed that meals served are healthy, nutritious and balanced and are served timely. Majority of the respondents indicated that staff and servers in the school cafeteria are friendly and accommodating. It can be deduced from the findings that the school met the objectives of the program to a great extent but there is room for improvement since there are students who were served with nutritional foods but still did not consume portions of it. It is therefore recommended that the school incorporate healthy eating habits in the school's curriculum including health education and promotions, which can help to boost consumption and increase the nutritional intake of vital nutrients in students.

Keywords: *National School Lunch Program, hunger, healthy, poverty*

Introduction

Long before the global Covid-19 pandemic, households across America faced significant challenges with food security. Since the pandemic started, there has been even more food shortages than any other time in recent decades. Food insecurity in America has increased from 35 million in 2019 to more than 50 million people, including 17 million children in 2020 due to job loses as well as lack of money and resources. While food security is vital for sustainable development, millions of people have reduced access to the food they need to survive (US Chamber of Commerce, 2020).

Green Oak Charter Academy (pseudonym) which started in 2009 with over 200 students is a public Charter, tuition free Title 1 school in Duval County, Jacksonville, Florida, USA. The National Center for Education Statistics (NCES, 2020) explained that "a public charter school is a publicly funded school that is typically governed under a legislative contract or charter with the state, the district or another entity." In the US, Charter schools can be public or private, operate on a performance contract and are usually privately owned. Additionally, they are exempted from many local or state regulations that deal with the organization, operation and management that govern traditional public schools, but they are held publicly accountable for academic and financial results and are expected to follow State mandated curriculum and hire qualified/certified teachers. Today, there are more than 7, 480 Charter schools in the US (Greene, 2019).

Title 1 schools are the largest federally funded educational programs in the US for Elementary and Secondary schools. Schools in the US classified as Title 1 have a large population of students from low-income families located in low-income communities with a high concentration of poverty. The Congressional Budget Office (2010) defines a low-income area

as one in which "at least half the students in the local elementary school qualify for free or reduced-price meals." The primary purpose of Title 1 is to provide high quality educational opportunities for students and reduce the academic gap. To continue to receive funding, these schools must meet yearly progress targets on state tests (Meador, 2019).

Being a Title 1 school, Green Oak Charter Academy also participates in the National School Lunch Program (NSLP) and School Breakfast Program (SBP), which are federally assisted meal programs that operate in public and non-profit private schools. The NSLP was established in 1946 with the purpose of providing nutritionally balanced, low-cost or no-cost lunches to children each school day (USDA, 2019a). Green Oak Charter Academy also utilizes the Community Eligibility Provision (CEP), which is a non-pricing meal service option for schools in low-income areas. This provision allows schools in the nation's highest poverty areas to serve breakfast and lunch at no cost to all enrolled students without collecting household applications (USDA, 2019b).

Green Oak Charter Academy is in a low-income community and has a high concentration of immigrant students from South and Central America, Mexico and the Caribbean (particularly Latin countries like Cuba and the Dominican Republic). According to NCES (2020), 37 percent of charter schools are classified as mid-high poverty schools compared to traditional public schools (25%). In these charter schools, Black and Hispanics make up the largest portion of students qualified for free or reduced priced lunch (NCES, 2020). Approximately 70% of the student population is eligible for CEP and therefore the entire school population is provided free meals each school day.

Lacour and Tissington (2011) suggested that poverty is becoming a way of life in the US as the poverty level continues to increase. They describe poverty as the extent to which individuals are unable to provide resources, including finances to meet basic needs such as food, which leads to poor nutrition. From their extensive research, they posit that poverty directly affects students' academic achievement which correlates with low socioeconomic status. Chinyoka (2014) studies the impact of poor nutrition on students' academic performance in Zimbabwe and found that poor malnutrition affects students' academic performance, cognitive development, health and deepens poverty. Students in the study who were hungry and undernourished were unable to concentrate and learn. Stuber (2014) indicated that a nutritious diet can help to improve students' health and behavior, support memory function and cognitive thinking, aid in students' ability to concentrate and learn and ultimately improve the academic performance (Wilder Research, 2014). The purpose of this program evaluation was to whether the school ensured that hungry students are being fed with free, healthy, nutritious and balanced meals each school day.

Literature Review

In the literature review, the researchers discuss a brief history of the NSLP after World the War II and how the NSLP was utilized as a response to health and national security as well as its significant elements and the establishment of nutritional standards.

A Brief History of the NSLP

The National School Lunch Program (NSLP) is the second largest federally assisted meal program operating in 100, 000 PK-12 public and non-profit private schools in the US. "The main objective of the program is to provide nutritionally balanced, low-cost or no-cost lunches to children each school day." This program was created under the Richard B. Russell National School Lunch Act in 1946 and was signed into law by President Harry Truman (Food and Nutrition Service, 2019). Through this program, over 29 million children in danger of food security and from marginal households are provided with free or low-cost lunch each school day. In 2019, more than 5 billion lunches were served in the schools at a daily cost of $14.1 billion. This figure represents more than 61 percent of the $23 billion spent on food programs under the Child Nutrition Program (Economic Research Service, 2020).

NSLP as Response to National Security and Health Risk

In the wake of the World War II, the effect of the war became more evident on the US economy as food supplies to school children was reduced, student participation in meal programs was limited and the impact on their learning was telling: "Learning is difficult because hungry stomachs and languid bodies and thin blood are

not able to feed the brain (Hunter, 1965, p. 217). This situation required an urgent response and the need to establish the NSLP as a permanent program "as a measure of national security to safeguard the health and well-being of the Nation's children (Gunderson, 2003).

Key Elements, Nutritional Standards and Access to NSLP

Some key elements of the NSLP include the following: lunches served in participating schools must meet minimum nutritional requirements under the USDA guidelines, lunches must be served without cost or with reduced cost to children who cannot afford to pay, the NSLP must be operated on a non-profit basis and lunches must use local commodities (Gunderson, 2003). Under the Child Nutrition Act (CNA) of 1966, the NSLP was extended, expanded and strengthened to "safeguard the health and well-being of the nation's children" by meeting their nutritional needs and providing more funding for schools serving low-income communities (Gunderson, 2003; Ralston, Newman, Clauson, Guthrie, & Buzby, 2008).

The National School Lunch Act requires that school meals reflect the latest dietary guidelines for Americans. This Act was amended to establish the Healthy, Hunger Free Kids Act (HHFKA) signed into law in 2010 by President Barack Obama. It targets child obesity by requiring meals served in the National School Lunch and Breakfast Programs to include and increase the availability of whole grains, fruits and vegetables, increase the portion of fruits and vegetables, set limits for grade-specific limits on sodium and calories and remove trans-fat from the meals served. It also requires the USDA to establish meal patterns based on National Research Council recommendations and to make updates to meal requirements. The meal pattern must include five components daily: fat-free or low-fat fluid milk, meat or its alternative, fruits and vegetables and whole grains, using single food-based menu planning approach. This Act established professional standards, training and certification of food service personnel and administrators (Harvard School of Public Health, 2016; USDA, 2012; Public Health Law Center, 2011).

While the focal point of the HHFKA is to improve child nutrition, another important goal is to ensure that children have access to the nutrition they need to grow into healthy adults. This concept is made possible through the CEP, which aims to ensure that children from low-income communities have access to free, healthy school meals each school day without requiring their families to fill out application. Community eligibility means that the schools are located in high poverty areas with 40 percent or more of the students directly certified for free school meals. Since its implementation in 2015, more than 14,000 schools and over 6 million children have participated (USDA, 2013; USDA, 2015, National Conference of State Legislators, 2011).

Performance Measures

The outcome and performance measures that were assessed include the examination of the food menu and meal pattern served to students each day, including the quantity, packaging and serving of meals as well as how quickly students receive and consume their lunch. The qualification and certification of staff and the facilities were also examined.

Program Activities

Green Oak outsourced its meal provision to licensed food service companies who are registered with the NSLP that usually bid for the contract through written proposals. These service providers prepare, package, deliver and serve the meals to students in a coordinated effort with school staff members. All meals are preapproved and preplanned as per school menu. Students are escorted to the school cafeteria by their teachers, after which they are organized and then sent into the lunch collection line where they have access to sanitizers, collect their lunch and walk across to the assistant director who checks the plate to ensure that the required food items and quantity are on each plate. The director uses a check list to count each student participating in the meal programs each school day.

Staffing directly related to the NSLP at Green Oak include the director and assistant director of the school lunch program, the contracted food service provider's staff and at least three other staff members. The director is responsible for quality assurance and compliance with USDA standards and guidelines, menu planning, contracting and licensing food service providers and ensuring that eligible students access and participate in the meal programs.

Research Methodology

A mixed method research orientation with a convergent design was used in this study. This methodological approach merges qualitative and quantitative data to provide a comprehensive analysis of the NSLP (Creswell & Creswell, 2018; Creswell, 2014). This design was specifically chosen because of its usefulness to utilize the strengths of both quantitative and qualitative research in providing a more thorough and complete understanding of the research problem (Creswell & Creswell, 2018).

Population and Sampling

Green Oak Charter Academy consists of three campuses: A K-2 campus, a Grade 3-8 campus and a High school campus. The research site was the Grade 3-8 Elementary and Middle school campus located in a low-income area in Duval County, Jacksonville, Florida. A total of 32 respondents participated in the study. A simple random probability sampling technique was used to collect data from thirty (30) students. Only students that who obtained signed parental consent were given questionnaires to complete. Two staff in senior administrative positions were interviewed. One was an American with the responsibility for staff supervision and K-8 Curriculum who previously served as teacher at the school. The other was an immigrant from the Ukraine who served as the director of the NSLP at the school. Both had at least 10 years of service at the school. Fifty percent were in the 8 to 10 age group, twenty percent were in the 11 to 13 age group and thirty percent were at least 14 years old.

Students were asked to identify their nationality – Americans and Immigrants. One half of respondents to the questionnaire were immigrants. They were from countries like Cuba, Ukraine, Columbia, Dominica, El Salvador, Honduras, Mexico, and Puerto Rico. Forty-three percent were Americans. Nearly seven percent did not indicate their nationality. When asked to identify their Race or Ethnicity, four main groups emerged – Hispanics, Latino, and Black and White. Students who self-identified as Hispanics (50%) and Latinos (16.7%) made up over sixty-six percent of all respondents. The Black (16.7%) or White (16.7%) made up more than thirty-three percent of the remaining respondents.

Data Collection

Before any data was collected at the research site, written permission was sought and obtained from the school principal. Observation, interview protocols and a questionnaire were sources of data. The researchers maintained a non-participant posture throughout the observation process (Creswell, 2014). The processes and activities involved in serving meals to students were observed. In addition to observing the delivery processes of meals, the facility, documents (e.g., tally sheets, menu plans, staff and facility certifications and NSLP documents) and meals served (breakfast and lunch) were observed.

Data Analysis

During the interview process, probing skills was used so that the meaning of sentences and certain phrases used by participants were clarified. After electronically recording interviews, the data was transcribed verbatim using electronic software. The transcripts were edited and minor grammatical errors were corrected. A copy was sent to each participant to verify the content and accuracy of the transcript. Member checking was utilized to ensure interview content accuracy. The interview transcripts were read many times, using line-by-line and in Vivo coding method (Saldana, 2013) to summarize sentences and paragraphs, condensing them into meaningful categories. The Questionnaire was designed with a Likert scale with categories ranging from 4 = strongly agree to 1= strongly disagree and was used to measure students' attitude and interest in meals served at the school cafeteria. The data was analyzed descriptively.

Validity and Reliability

Validity of the instruments was ensured through experts who looked into the instruments to make sure they actually measure what they were intended to measure. The Cronbach's coefficient alpha statistical tool was used to check the internal consistency of the items in the questionnaire. While Nunnally (1978) recommends a reliability minimum standard of 0.70 or better for an instrument to be classified as reliable, the Cronbach's alpha based on standardized test was found to be 0.73, which suggests the instrument had a fairly strong internal consistency.

Results and Discussion

The question to be answered in this program evaluation was: How does the school ensure that hungry students are being fed with free, healthy, nutritious and balanced meals each school day?

From the data analysis, three main themes were developed: purpose, fighting to eliminate hunger and process to provide nutritious and balanced meals.

Purpose

The interview with senior staff members captured their perspective on the purpose of the NSLP program. What they shared indicates their understanding of the purpose of the NSLP, which may suggest how the schools approach it. The *interviewee # 2 shared four purposes of the NSLP which are (1) to fight hunger by absorbing the information, (2) for kids to receive all the nutrition that we are providing in school, (3 to encourage them to eat everything and (4) to increase participation in the lunch program.* The Interviewee #1 shared similar feelings that *"the purpose is to feed the children to help ensure learning" and "feeding nutritionally healthy meals multiple times each day.*"

When students were asked about their participation in the Lunch Program, each participant indicated that they ate lunch at school, representing a 100% affirmative response. When asked if meals served at the school cafeteria are healthy and nutritious, 83.3% of respondents agreed. They also agreed that meals served at the school cafeteria are balanced. This may suggest that most students were happy and satisfied with the quality and composition of the meals served.

Fighting to Eliminate Hunger

Fighting hunger is a major theme that emerged from the qualitative data with more than 15 references made in interviews about hungry students. Consequently, three subthemes were developed: hungry kids cannot learn, well-fed kids learn better and providing free and healthy meals. One of the main functions of the NSLP and the SBP is to fight hunger, food insecurity and poverty. Most children who participated in the NSLP and SBP are from low-income families. According to a recent research, over 35 million Americans live in homes that struggle against hunger every day. One in every ten persons experienced food insecurity and one in eight households with children cannot afford to buy food. Homes headed by African Americans and Hispanics have the highest rate of food insecurity compared to other groups (Coleman-Jensen, Rabbitt, Gregory & Singh, 2020). It is reported that participation in the school meal programs at school reduce food insecurity by as much as 14 percent (FRAC, 2019).

Hungry Kids Cannot Learn

Interviewee # 2 indicated that "a lot of our kids are immigrants. We have a huge Spanish community here." *"You can see how hungry the kids are" for "a lot of poor kids are around the area."* From her observation and experience, she noted that hungry students "cannot absorb the information during class. They are thinking about food, they are hungry. When you are hungry how can you pay attention to Math, Science or any subject?" On reflection, she recounted some difficult times of her own when she herself struggled with hunger as a child: "I'm from the Soviet Union. Once the Union was over in the country, it was really a difficult situation. I remember then I didn't eat for several days. I could not learn anything y. I could not do my tests. This was really, really difficult." She believed the NSLP helps to change this problem for immigrant students and other poor kids for it "fights hunger, by not having hungry kids at school" and "eliminate hunger by providing nutritious and balanced meals." She believed the best way to fight hunger is for "every school to feed their kids for free and to "have students that are not starving." The Interviewee # 1shared the feeling that: students who are hungry do not learn well and have shorter attention span.

Well-Fed Kids Learn Better

Both interviewees believe that well-fed students learn better. *Interviewee # 1 indicated that "it's a well proven fact that students perform better when they are not hungry*." They established a correlation between the NSLP and higher academic performance of students. *Interviewee #2 stated "I think this program really helps a lot to boost the grade of the school and students are better able to absorb a higher level of education. Interviewee #1 concurred: "I definitely see a difference in hungry children compared with children that are not." "Because those who are not hungry are not focused on their growling stomach, they can hear what the teacher is*

saying. Research suggests that "student participation in the School Breakfast Program is associated with better grades and standardized test scores, reduced absences and improved memory" (CDC, 2020). Other research also shows that participation in the school meal programs helps to improve students' attendance, behavior, academic performance and achievement, and reduces tardiness (FRAC, 2019; Hecht, Pollack Porter & Turner, 2020).

Providing Free and Healthy Meals

This subtheme emphasized the provision of healthy free meals. From interview, participants indicated students "do not have to pay. It is completely free because students get free breakfast, free lunch, free snacks each day when they choose to participate. The provision of free meals each school day received a 100% affirmation by students who indicated "yes" when asked about receiving free lunch each school day. Nearly 77 percent of students indicated "no" when asked if they have ever been asked to contribute money to get lunch at school. Based on the researchers' observation, no student contributed money to receive lunch. It was completely free except for those students who paid one dollar to get an extra slice of pizza, after receiving the recommended portion of meal pattern. On observation, the students seemed to be happy and delighted with their meals.

When asked if students usually get their lunch quickly in the cafeteria, 66.7 % of students surveyed agreed. Receiving lunch quickly can affect its taste and palatability. Past research suggests that warm food taste better (Talavera, Ninomiya, Winkel, Voets & Nilius, 2006; Staughton, 2019) which, in effect, increases nutritional intake. Research also indicates that when students are given at least a 30-minute lunch period, 20 minutes of which they are seated to enjoy their meals and socialize, they are more likely to consume their meals and obtain the required nutritional intake (CDC, 2019, Bergman, Buergel, Englund, & Femrite, 2004).

Procedures to Provide Nutritious and Healthy Meals

The leadership at the school follows a series of steps to ensure that students are fed with healthy and nutritious meals each school day. These steps include checking, planned menu, meal outsourcing services, student food committee and pilot testing new recipes.

Checking: The leadership responsible for the NSLP carries out a series of quality assurance measures he called "checking." During the interview, the NSLP director was asked to explain the different ways that she ensures that students are not only eating but they are eating nutritious and balanced meals. She advises that "we do not implement anything in our school before I check out the labels. This is a requirement of the National School Lunch Program.

Planned Menu: Lunch and breakfast menus are planned for each day based on approved recommendations by the NSLP according to documents observed. The recommended meal pattern for each meal includes fruits, vegetables, grains, meat or meat alternatives. The researchers observed and took pictures of meals served to students at breakfast and lunch. The meals for lunch contained two slices of peperoni or cheese pizza, one half orange, carrots (each student received a specified quantity), fat-free chocolate or low-fat (1%) milk. In another observation of lunch served, student lunches contained whole wheat bread, chicken nuggets, pinto beans and chocolate milk. At one breakfast observed, meals contained French toast, cereals and one slice white bread, options for low-fat flavored milk, canned peach or apple, 100% apple juice and eggs. At the second breakfast observed, waffles, cereal, white bread, canned fruit, apple juice and liquid milk options were served. After each student's plate is checked by the assistant director before the meal is consumed, when any meal component is missing from students' plate, they are sent back to the service point for it and returned for a recheck to ensure they have all the required components being served at the time. When students were asked if the amount of food served was sufficient, sixty percent agreed compared to forty percent that disagreed. These results may infer that a significant portion of students may still experience some level of hunger after each meal and may quite likely be lacking in significant nutritional intake, which may impact upon their concentration and academic performance. Seventy percent of students surveyed agreed that staff and servers are friendly and accommodating compared to thirty percent who did not share that view. This may indicate that nearly a third of the students surveyed may be tuned off or unhappy by the treatment, attitude or lack of acceptance and

unfriendliness of the staff and may have negative impact at mealtime. If student's morale is low, they may feel depressed or unhappy (Novotney, 2010).

Meal Outsourcing Services: The school does not prepare food for students or owns a farm. Instead, it outsources the breakfast and lunch services to companies certified and licensed by the NSLP which meet nutritional standards established by the USDA. One of the interviewees revealed that for a catering company to submit a bid, "it has to be licensed by National School Lunch Program. So, they have to know all these requirements before they come to me and offer me a bid because when I look in their proposal, I go to the National School Lunch Program website and I need to see them there. If I do not see them there, I cannot pick them. This means that the outsourcing program is done very well.

Pilot testing food recipes: During one observation session during lunch, the researchers noted the contents of the lunch served to students which included pizza, milk, carrots, oranges, and apple juice. All the students ate their pizza and most drank the milk, but more than half dumped the carrots into the waste bin and quite a few did not touch the oranges served. This may indicate that even though students were served with nutritional foods, vital nutrients were still not being consumed by some students. This finding is similar to previous studies (Handforth, Gilboy, Harris & Melia, 2016). Reduced levels of vegetables and fruit consumption limits nutritional intake and may inhibit health and academics. One study indicated that fruits and vegetable intake is low among adolescents and correlates with low consumption (Labyak, Jahan-Mihan, Seabrooks-Blackmore & Rodriguez, 2017). Several studies highlight positive benefits of fruit and vegetable consumption including improvement in brain and memory function and overall wellbeing (Liu, 2003; Slavin & Lloyd, 2012; Amao, 2018). One study concluded that the rate and frequency of fruits and vegetable consumption among participants increase in tandem with the health education and promotional benefits received (Nti, Hagan, Bagina, & Seglah, 2011). This challenge could be resolved through pilot testing. The food services director at the school established a student food committee which was used to pilot test recipes, provide feedback and make recommendations. This committee met once per year and was comprised of 10 students of different age, different nationality and gender. They met to discuss questions about the lunches, what they liked more and shared food related concerns for improvement. The USDA suggest that taste testing food is a creative strategy that schools can employ before introducing new recipes to minimize or prevent plate waste (USDA, 2019c; Stuber, 2014).

Conclusions and Recommendations

This section presents the conclusions and corresponding recommendations of the study.

Conclusions

It is concluded that NSLP leadership at the school carefully followed the NSLP guidelines and procedures in planning meals in compliance with the USDA nutritional standards and in its hiring and purchasing practices to ensure that healthy and nutritional meals are served to students each school day. The meal patterns were in keeping with the USDA nutritional requirements, American Dietary Guidelines and the Healthy, Hunger-Free Kids Act. Food service personnel at the school carried out sufficient steps to ensure that students have access to and are provided with nutritious, balanced and healthy meals each school day free of cost. Students at the school are being fed with healthy, nutritious and balanced meals each school day.

Students at the school were fed with healthy, nutritious and balanced meals each school day, which aids their academic performance. Therefore, the school has met the goals and objectives of the NSLP to a great degree but there is room for improvement since there are students who were served with nutritional foods but still did not consume portions of it.

While a significant percent of students at the school agreed that lunches served are balanced, healthy, and nutritious, more than half of them did not eat their vegetables and fruits. This level of plate waste was consistent among all grades based on observation. Insufficient meals served to students contribute to hunger and maybe inhibiting nutritional health and academics. Some students lacked vital nutrients due to limited consumption of fruits and vegetables resulting from disposing them in the waste bin. However, hunger at the school has been significantly reduced, prevented or eliminated.

Recommendations

Based on the findings of this study, there is need to incorporate healthy eating in the school's curriculum including health education and promotions, which can help to boost consumption and increase the nutritional intake of vital nutrients in students. The identified deficiencies can be reduced by undertaking action research or develop a health program to increase the fruits and vegetable consumption among students, thereby increasing the nutritional intake of students. There is also a need to do more pilot testing or food tasting at least once each quarter to discover what students like better and utilize the same in the nutritious menu planning creatively.

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