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Household Food Insecurity and Student Behavior: The Impact of One School's Second Chance Breakfast Program

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Household Food Insecurity (HFI) is a frequent challenge for children living in poverty that impacts social, emotional, and behavioral development. Federally assisted meal programs, such as the National School Breakfast Program, address HFI for students living in poverty through free or reduced-price breakfast. However, there are challenges for students to take advantage of this opportunity, and it is underutilized. In this research, all middle school students at a high poverty school were offered a free of charge meal alternative called Second Chance Breakfast. Since this program was started, student participation in school breakfast increased and behavior incidences in school dropped significantly. Along with improved behavior outcomes, teachers reported improved student academic behavior.

Keywords: Middle Schools; Household Food Insecurity; Second Chance Breakfast; student behaviors; poverty

Introduction

Manny and his family moved to a rural midwestern town two years ago so that his mom could find work at the local meat processing plant. As the older brother of three, Manny feels responsible for his two siblings as he prepares meals and cleans the house every day. As such, he hurries to school every morning just to be on time. When he first moved, Manny was a sixth-grade student at a new middle school. He works hard in school and wants to be successful but claims that in the late morning, he starts to feel lightheaded. To keep from sleeping in class, he talks a lot in class and leaves his seat repeatedly. Despite reprimands by teachers, he felt it was better to walk around talking than to fall asleep in class. At least he could still catch the class content, or at least he hoped. Two years later, as an eighth grader, he says he no longer feels lightheaded and tired in the late morning. In fact, he says that he feels he can better concentrate on his work throughout the day and no longer needs to move around to stay awake. Why?

Manny (pseudonym) was afforded free breakfast and lunch every day but missed breakfast at school because he arrived too late to eat. Lacking adequate nutrition, he sought other ways to stay alert in class. However, his walking around the classroom and talking to peers off-task got him into trouble. This changed in eighth grade when school administrators and staff at his middle school implemented Second Chance Breakfast (SCB) schoolwide. Second Chance Breakfast provided Manny breakfast every school day, and thus, he was better able to pay attention in classes throughout the day. What happened to Manny is what happens to a lot of students across

the country. The purpose of this paper is to describe the implementation and some of the immediate benefits of a SCB program.

Social and Academic Behavior

Teacher preparation programs typically provide at least one course focused on classroom behavior management, while specialized programs, such as special education, include multiple courses and additional licensure. Emphasizing student behavior support is highly important. There is a strong correlation between poor attendance, class failure rates, behavior problems, and increased risk of high school dropout (Balfanz et al., 2007). Moreover, students' aggression is related to academic performance (Sanders et al., 2020). By improving student social behavior, students spend more time on schoolwork, which provides an opportunity for improved academic performance. Changing a school culture to focus more on learning is important to the progress of its students, including minimizing dropout. Effective dropout prevention programs typically include behavioral interventions (Malloy et al., 2018).

The benefits of improving student behavior go beyond student performance. Challenging student demands or misbehavior has a moderating effect on teachers' intention to leave the profession (McCarthy et al., 2016; You & Conley, 2015). Student behavior, particularly when targeted at teachers, predicts teacher retention (Curran et al., 2019). A national survey of teachers revealed that about 80% reported experiencing some form of victimization at school within a year, including verbal harassment, theft, damage to property, or physical victimization (McMahon et al., 2014). While protecting teachers is paramount, the priority should be to prevent a potential internal cause of the students' behavior before it externalizes towards others.

Poverty and Household Food Insecurity

Behavioral theory is based on the idea that all behavior is acquired through conditioning, and effective behavior change may occur by altering the environment (Horner & Sugai, 2015). Behavioral theory gave rise to Positive Behavior Interventions and Supports (PBIS). With PBIS, every chronic and repeated behavior stems from a specific purpose or reason. Student poverty and school classroom quality are important factors associated with levels of student aggression and disruptiveness (Thomas et al., 2008). Poverty is an especially timely concern as families continue to recover from the economic impact of the recent pandemic and world events.

Students raised in poverty are more likely to display attention-seeking behaviors, impatience and impulsivity, gaps in politeness, inappropriate emotional responses, and less empathy for others' needs (Jensen, 2009). Importantly, for children living in poverty, household food insecurity (HFI) is a frequent and sometimes greater challenge (Coleman-Jensen et al., 2017). Household food insecurity is "a household-level economic and social condition of limited or uncertain access to adequate food" (Economic Research Service, 2020). The humanitarian and psychological condition of HFI is a challenge for educators but also imperative for a better understanding of the complexities of academic and behavioral performance.

Household Food Insecurity and Behavior

Household food insecurity can impair students' social, emotional, and behavioral development and can impact students' behavioral issues (Food Research & Action Center, 2018). As food resources are limited in households, nutritional inadequacies may contribute to malnutrition, increased risk of hunger, poor health, chronic disease, and other outcomes (Gunderson & Ziliak, 2018; Hanson & Connor, 2014). In a study of child behavior when feeling hungry, Huppert and colleagues (2020) found that hungry children were less likely to share with peers but still expected fairness from others even when behaving differently themselves. In other words, as food insecurity contributes to hunger, it impacts one's behavior towards others but not the expectations of behavior received by others. Moreover, the mediating effects of HFI may encourage competition and selfishness despite understanding how one should behave (Shaw et al., 2012). It is important to establish whether a student with chronic behavior problems has HFI. If so, it is important to address the child as a whole regardless of HFI or misbehavior (Jensen, 2009). Simply reacting to a student's misbehavior is ineffective because it ignores the cause of the behavior.

One way to aid students with HFI is to provide access to healthy food in the school environment where they spend the majority of their time. One strategy is to provide free school breakfast to all students regardless of eligibility and enrollment status. According to a survey of secondary students, 16.7% of high schoolers do not eat breakfast, and 66.9% miss at least one daily breakfast meal during the week (Centers for Disease Control and Prevention, 2019). School breakfast may improve several aspects of students' academic lives (e.g. attention span) of which the student may not be aware (Hearst et al., 2019). The National School Breakfast Program (NSBP) is a federally funded program that provides breakfast meals meeting federal nutrition requirements (USDA, 2021). Students who participate in school breakfast improve social and academic behavior, academic performance, and attendance (Anzman-Frasca et al, 2015; Basch, 2011, Pucher et al., 2013).

Second Chance Breakfast

When students experience good health, they have an increased potential for success in school (Food Research & Action Center, 2018). Teachers have known this for years. Many teachers keep extra food in their classrooms to provide for students who they know are hungry (Masur, 2018). This isn't done directly as part of a behavior plan but rather for the personal care of children and their health. Also, because this support is limited to individual teachers, not all students who need nutritional support are served. This leads to an inequitable approach to nutrition. Additionally, students may resist receiving such support because of the potential stigma associated with being in poverty (Bailey-Davis et al., 2013). A systemic approach is needed to improve the nutrition of all students aimed at helping students' social and academic behavior.

Second chance breakfast is an existing systemic approach used around the United States to provide timely nutrition that all students can access. This approach provides breakfast during a short break in the morning, typically between the first two periods of the day and midway between breakfast and lunch (No Kid Hungry, 2020). Second Chance Breakfast does not need to

be an elaborate meal but rather one with nutrition to help curb hunger in the late morning before lunch. In this study, we addressed the following questions:

RQ1: What is the impact of SCB on student performance?

RQ2: What barriers might prevent future implementation of SCB?

Method

School and District Demographic Data

The study was conducted in a central U.S. rural town of approximately 20,000 people, with the largest ethnicity being Hispanic (52%). The town has a median household income of \$40,639 and a median earning for individuals of \$23,182 annually. Approximately 30% of families are single-parent homes. The participating middle school has 474 sixth, seventh, and eighth-grade students comprised of 90.9% Hispanic, 5.7% White, and 1.5% multi-racial backgrounds. Ninety-three percent of students receive free or reduced school meals (N=364 free meals eligible and N=78 reduced meals eligible).

Implementation Development

With a large percentage of the student population eligible to receive free and reduced lunch and breakfast, the middle school administration sought to implement a free breakfast later in the morning. This needed to occur school-wide so that students who received free and discounted meals would not be socially isolated and to reduce the stigma of receiving a meal. Prior to implementation, breakfast participation was less than 10% of the population.

The SCB program was set midway between the beginning of breakfast and the beginning of lunch. The SCB program was funded partially through federal funds of the NSBP program and partially through local private funding. The private funding was secured from in-town businesses interested in the welfare of their employee's children. The procedures for the breakfast included staggered times when classes would pick-up the bagged and prepared breakfast items, typically including a fruit, cereal bar, and a drink of either milk or juice. The few students who elected not to participate would stand outside the cafeteria as classmates walked through the distribution line. Once each student obtained the bagged breakfast, they returned to their classrooms to eat and reconvene the class lesson. At most, the trip to obtain the food and return to class took 5 minutes.

Data Collection

In-class discipline referrals and violations of school rules, assault on other students, a verbal or physical threat against another student or teacher, and truancy were recorded from each grade over two academic years, 2017-18 (year 1) and 2018-19 (year 2). Year 2 represented the first year of the implementation of SCB. Data were collected from the first to the last school day each year by the school principal and assistant principal using procedures consistent across both years. Cases where there was ambiguity in the categorization, were discussed by both administrators and upheld per the district's code of conduct.

Social Validity Survey

To further determine the impact of SCB, teachers at the middle school were surveyed about their impression of student behavior as it may relate to SCB. This survey was delivered at the beginning of year 3 of the study, the second year of implementation. The researchers employed a non-experimental, mixed-methods design, including quantitative and qualitative data through a focused survey with all 20 teachers (50% of classroom teachers) who were present in year 1, the year prior to SCB implementation, year 2, the first year of SCB implementation, as well as the beginning of the following year, when the survey was delivered.

Distribution of the survey happened in two parts. The first was an introductory email from the school's administration announcing that a survey would be sent electronically to determine the effectiveness of the program and that prospective participants could voluntarily consent to participate. The survey was designed to take approximately 10 minutes to complete. Next, the school district distributed the survey for teachers to complete anonymously.

The survey used in this study followed education research guidelines (Watson et al., 2017). We developed a pool of survey items based on the literature specific to potential school impacts of HFI. Based on administration input, it was hypothesized that there were academic and behavioral reasons for the continuation of the SCB. Since no survey research was found specific to teachers' beliefs on SCB programs, we field tested the survey with school administrators to obtain feedback on the items and improve the survey. Based on their feedback, we narrowed our items to reduce the length of the survey. The final version of the survey included demographic information and open- and closed-ended questions.

a. As a teacher, how difficult was the implementation of SCB?

Teachers rated this item on a five-point scale (Easy; Slightly Easy; Neither Easy nor Difficult; Slightly Difficult; and Difficult).

Next, participants were required to complete two closed-ended questions regarding the potential impact of the SCB.

b. Have you seen a change in behavior due to second chance breakfast?

c. Have you seen a change in student academic performance due to 2nd Chance Breakfast?

Teachers rated these items on a five-point scale (Definitely Yes; Probably Yes; Uncertain; Probably Not; and Definitely Not).

We concluded the survey with two open-ended items regarding the perceived benefits and drawbacks of the SCB program at the school.

d. What, if any, are the benefits of the 2nd Chance Breakfast program?

e. What, if any, are the drawbacks of the 2nd Chance Breakfast program? How could these be resolved?

The survey was distributed in October of the second year of implementation, and the final collections ended in early November. Survey data were synthesized to determine trends in quantitative data and descriptive coding of qualitative data (Leech & Onwuegbuzie, 2009).

Data Analysis

We collected data electronically. The lead researcher removed potentially identifying information. For the quantitative data, the researchers used descriptive statistics to summarize the findings. For qualitative, open-ended items, the lead researcher followed a descriptive coding protocol (Saldaña, 2015) using a software program to reduce data into excerpts most relevant to central constructs (social factors, academic factors, potential drawbacks) aligned with the research questions. In instances where responses included multiple constructs of interests, items were coded to reflect all the themes (Ames et al., 2005). Authors and school administration reached a consensus on all coding categories through research meetings.

Results

The number of students who took part in a school-based morning meal increased significantly. Prior to the implementation of the SCB, under 10% of the students took part in the breakfast program, despite 93.2% being eligible to receive free or discounted breakfast. After implementation, an average of 76% of students took part in the breakfast.

During the year when SCB was employed, behaviors of in-class violations, assault, threats to students or teachers, and truancy fell in frequency (Figure 1).

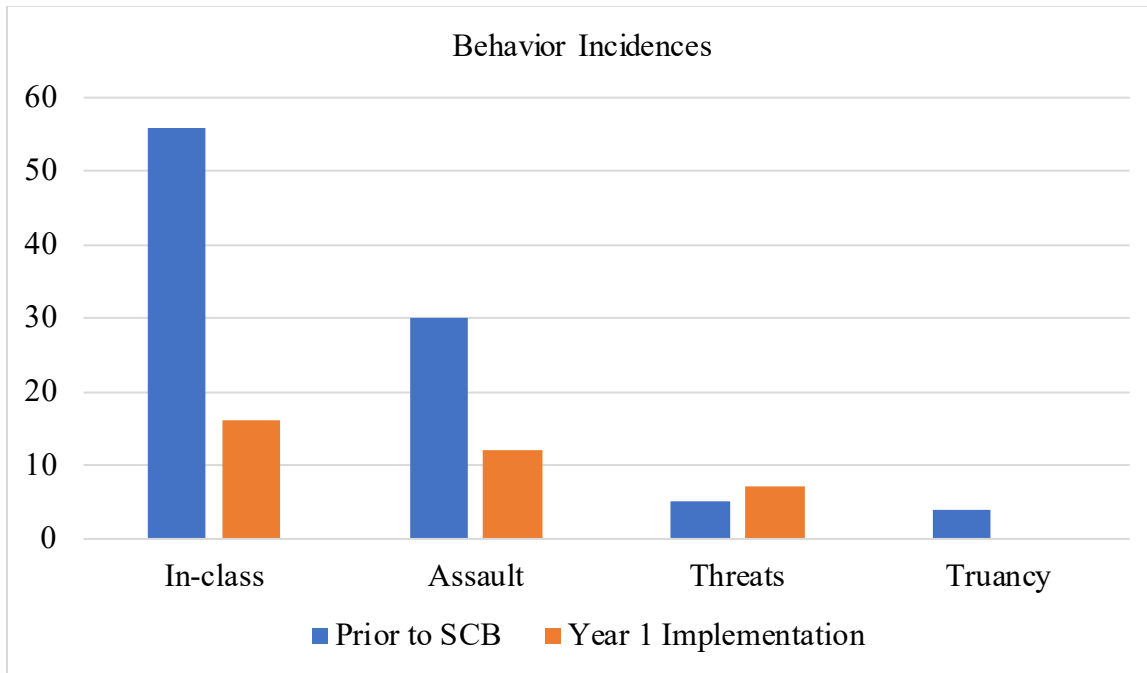


Figure 1. Behavior Incidences Before and After Second Chance Breakfast

Note. This figure shows the differences in the number of behavior incidences prior to and during the implementation of SCB.

There were 40 fewer in-class behavior incidences when comparing before and after SCB implementation. Less frequent incidents remained low after the implementation of SCB, as

threats increased by two truancy cases, assaults decreased by 18, and truancy decreased by four. However, these included lower numbers of incidents before SCB, and it is noteworthy that there were no cases of truancy during the year when SCB was implemented.

Teacher Survey Data

The 20 teachers who worked at the school from the year prior to implementation, the first year of implementation, and returned for the following year completed a survey on the social validity of the SCB. Reflections focused on changes to students’ behavior and academics.

Teacher Perceptions on Behavior Change

Teachers responded whether they saw a change in the behavior of the students when SCB was implemented. Sixty percent of the teachers marked *Definitely Yes*, and 35% marked *Probably Yes*. Merely five percent marked *Uncertain*, and zero percent of teachers marked *Probably Not* or *Definitely Not*.

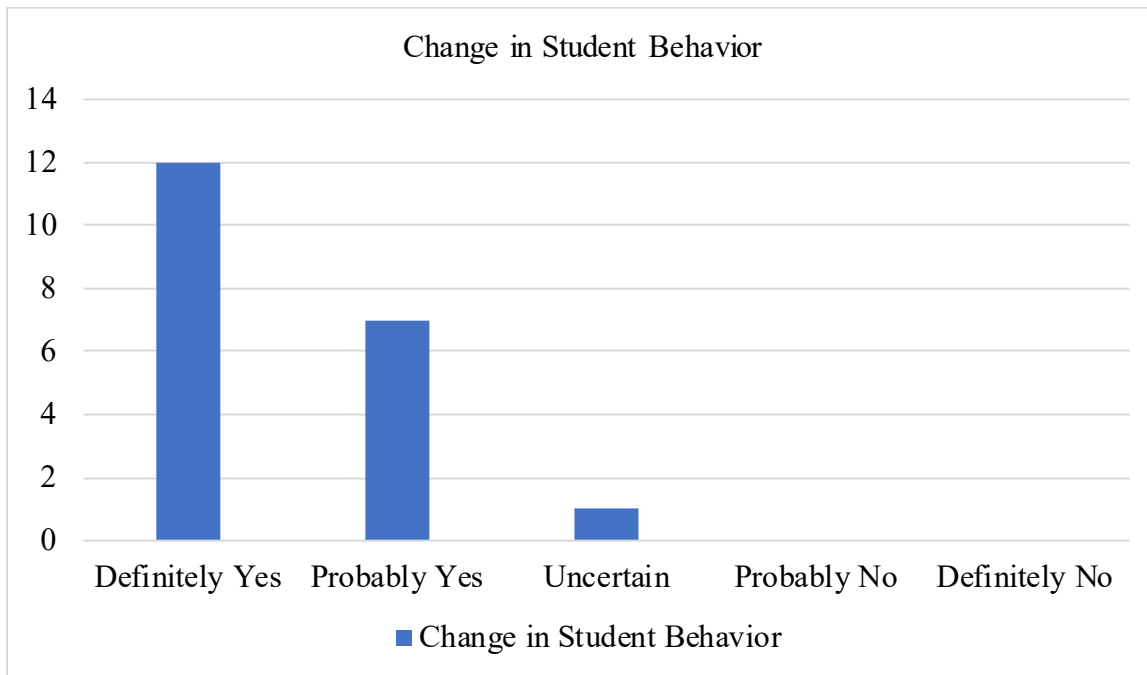


Figure 2. Teacher Perceptions of Change in Student Behavior

Teacher Perceptions on Academic Change

A majority of teachers noticed a change in students’ academic performance when SCB was implemented. When asked if they saw a change, 15 teachers (55%) marked *Definitely* or *Probably Yes*, while only one teacher (5%) marked *Probably Not*.

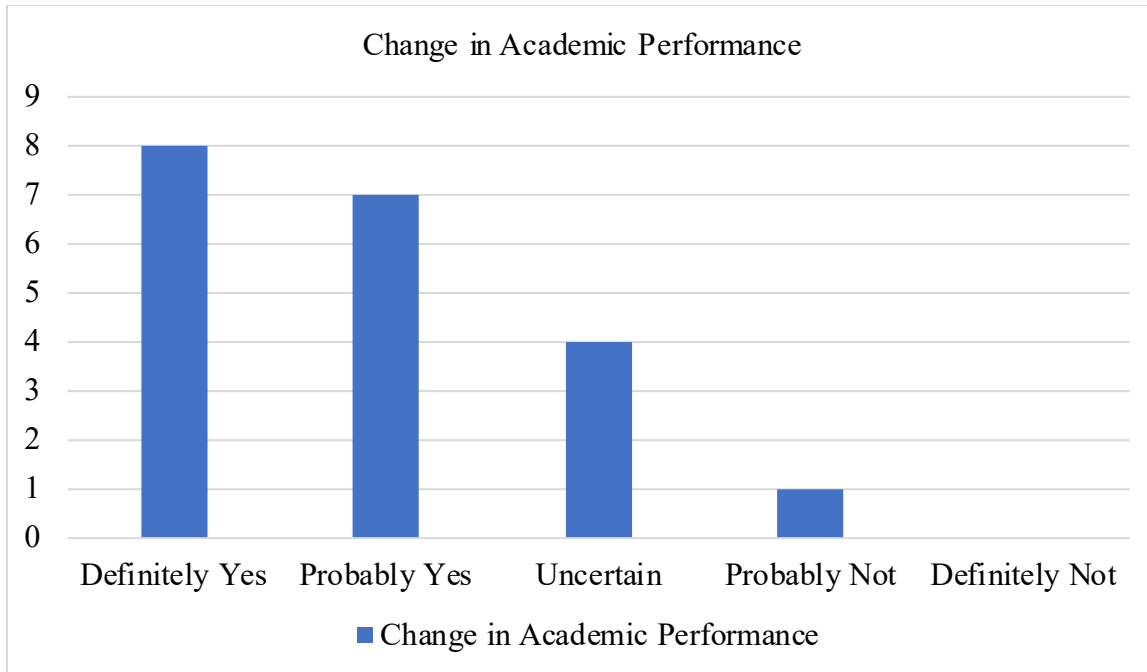


Figure 3. Teacher Perceptions of Change in Student Academic Performance

Ease of implementation

There was a difference in teachers’ responses on the ease of implementation when comparing years 1 and 2. While in the first year, teachers varied in their impression of the ease of implementation, by the second year, almost every teacher saw the implementation as easy.

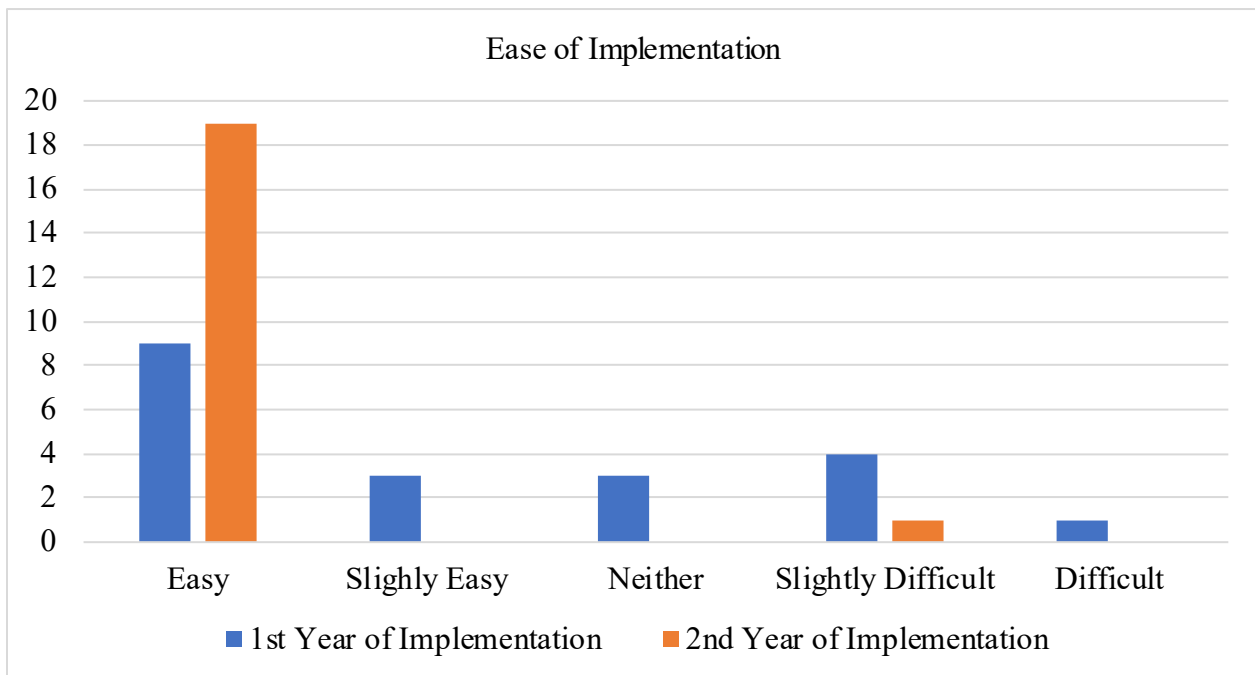


Figure 4. Teacher Perceptions of Ease of Implementation

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In the first year of implementation, only 45% of teachers rated implementation as *Easy*, while 25% rated it as *Slightly Difficult* or *Difficult*. Beginning the second year of implementation, 95% of teachers rated implementation as *Easy*.

Table 1

Teacher Perception of Ease of Implementation

Implementation	Easy	Slightly Easy	Neither	Slightly Difficult	Difficult
1st Year	9	3	3	4	1
2nd Year	19	0	0	1	0

Open-ended Teacher Survey Data

Teachers’ reflection responses relating to the perceived benefits of the SCB program were codified into three different themes: Classroom Social Behavior, Academic Engagement, and Humanitarian. Of the 20 teachers surveyed, five (25%) provided answers that highlighted classroom behavior improvements since the SCB was initiated. For example, one teacher commented that “students are much more compliant,” relating it to the difficulties of the previous year. Likewise, another teacher commented, “Less fights,” affirming that more aggressive behavior had been present in at least the prior year. Finally, one teacher summed up the strength of SCB is that it “Cuts down on behavior issues among the students.”

Seven teachers (35%) highlighted increased student engagement. The word “focus” or “focused” was used in four of the 20 responses (20%). As one teacher stated, “Students are more focused after breakfast and seem to be more eager to learn and participate.” Another teacher stated, “It allows students who may not have eaten breakfast at home a chance to eat something. I believe the opportunity to eat when the student is more awake helps as well. I have seen more engagement from students who have had 2nd Chance Breakfast in class.” Summing it up, one teacher stated that when “students aren’t hungry, they have a greater degree of focus during the morning portion of the school day.” Getting this basic need met allows students to engage better in school.

Six teachers’ responses (30%) went beyond behavior and classroom engagement in what we coded as humanitarian since they wanted better health and wellness for their students, no matter the response in a school setting. Two teachers discussed the difficulty of students receiving breakfast at home: “Students aren’t concentrated on lunch for those who didn’t eat breakfast, or cannot afford breakfast at home” and “It provides the majority of our students a breakfast that they most likely are not getting at home.” One teacher highlighted the concern that some children just can’t eat early in the morning, “It also provides students time to eat later in the morning if they are not an early eater.” Another teacher appreciated that SCB, “Students are not hungry in the morning for long.”

Fourteen drawbacks were identified. Some of the drawbacks responses included “None,” “I don’t see any drawbacks,” and “I think the system works well for this year.” The most frequently stated drawback (N=4, 20%) was around the topic of waste, “Much of the food and milk is tossed in the trash.” Three teachers (15%) remarked on the potential mess caused by the meal,

“A few housekeeping issues, but a redirect of expectations is the key to resolving this issue.” Three teachers asked for more protein in the meal, “There needs to be more protein and less carbs.”

However, even with the drawbacks mentioned, some teachers wished that they could provide more help for their students, “perhaps a snack at the end of the day” and “You don’t know what they are going to eat at home.” Despite these drawbacks, teachers made it clear that they support the approach, “Only drawback is class time is taken away, but this is to benefit the student.”

Discussion

Skipping breakfast becomes a missed opportunity for necessary energy and nutrients for growth and healthy development (Rampersaud et al., 2005). The change in behavior from before to after the initiation of the SCB was noteworthy and supported the work of Anzman-Frasca et al. (2015), who found a connection between positive behavior and eating breakfast. The assault decrease also supports the work of Huppert and colleagues (2020), who found a connection between hunger and aberrant behavior. Also, it is important to note that in small rural schools, where faculty turnover may be more frequent, decreasing assault may likely impact teacher turnover (McMahon et al., 2014). The decrease in in-class violations was impactful because it increases students’ potential to learn. By decreasing in-class inappropriate or aberrant behavior, students have more time to focus on learning, which, in turn, may lead to increased academic performance and well-being (Balfanz et al., 2007; Hoyland et al., 2009). This aligns with the qualitative feedback received from teachers in the study who noticed a drastic shift in students’ eagerness to learn and focus after breakfast consumption.

Student behavioral needs aren’t restricted to school discipline, as a student’s behavior in school is often a reflection of home life. Teachers shared their concerns about how humanitarian efforts can extend beyond behaviors in the school environment. Productive behavior can impact daily living and even academic growth and development in subsequent years. Increasing positive behavior and effort is highly important to improving student academic performance (Witzel, 2007), proper growth and development, and the prevention of various health conditions (U.S. Department of Agriculture and U.S. Department of Health and Human Services, 2020). Poor diet and childhood obesity are resulting in the early onset of chronic diseases such as type 2 diabetes, cardiovascular disease, arthritis, and hypertension; these are diseases that historically appeared later in life but are now presenting in childhood and adolescence. Early onset of such diseases adds a strain to our health system as children carry these conditions into adulthood. The Centers for Disease Control and Prevention estimates that obesity costs the U.S. \$173 billion annually (Ward et al., 2021). There is evidence of social and economic benefits of the Child Nutrition Programs that extend into local communities. These include improvements in the diet of other family members, healthier options in the grocery store, economic stimulus to communities, stable customers for American agriculture, job creation, and poverty reduction (Cohen et al., 2022).

There are several possible limitations to the study. While the behavior and teacher survey data yielded confirming results for SCB, identifying SCB as the sole factor in decreasing inappropriate or aberrant behavior cannot be made from this research. For example, there was a

turnover of three teachers from the year prior to the year of implementation of the SCB study, which could have affected student behavior. Additionally, we delivered surveys over a year removed from the first year of implementation. Any participating teachers' critiques of the program may be clouded by the positive data on student behavior over the year of implementation. Per the research design, there was no control group of students denied breakfast, so that a comparison could be made.

Additionally, as in most schools, these were not all the same group of students from year to year; since the 8th-grade class of year 1 moved on to high school and year 2 had a new group of students, the 6th-grade class. Finally, many students live with migrant workers meaning students move in and out of schools with more frequency than in other situations. However, the administration reported that the high number of student behavior concerns seen in year 1 of this study had occurred for years before initiating the program.

If these data continue or could be generalized to other schools across a region, then it is important for those regions to consider a SCB. With limited per pupil spending in areas of low income (Heise, 2019), money must be spent wisely to level the impact of poverty on student performance. Reallocation of money to a SCB program may improve students' performance by helping them feel cared for and decreasing problem behaviors (Flannery et al., 2009). Many students, like Manny in the opening vignette, experience HFI which impacts both behavior and academics. Priorities need to focus on students' welfare and health in the school environment. Among the Healthy People 2030 Nutrition and Healthy Eating goals is to reduce HFI and hunger (NWS-01) and increase participation in School Breakfast (AH-04) (USHHS, 2021). Breakfast recommendations on nutrient intake and their translation into culturally tailored food-based dietary advice can help policy makers, educators, and the industry to develop better public health nutrition strategies to optimize food choices that are accessible and available to schoolchildren at breakfast. During the COVID-19 pandemic, schools served children in or near their homes for the betterment of families. An integrated system of nutrition support against food insecurity for millions of America's children and improved nutrition needs to continue as schools engage in full-time in-person learning and build upon successes of the Healthy, Hunger-Free Kids Act and lessons learned during the pandemic. Every five years, and in 2022, Congress has the opportunity to review and advance legislation related to major child nutrition programs, including school breakfast provision and supporting child health and health equity. Thus, we support further research on the impact of improved nutrition for all children.

Author Notes

Brad Witzel, Ph.D., is the Adelaide Worth Daniels Distinguished Professor in the School of Teaching and Learning at Western Carolina University where he studies academic and behavior interventions for students with intensive support needs. He works with multiple schools and state departments on improving students' performance through empirically validated practices.

Elizabeth Wall-Bassett, Ph.D., RDN, FAND, is a professor of Nutrition and Dietetics in the School of Health Sciences at Western Carolina University. She has continually assembled and integrated public and private resources to assess disease risk, nutritional status, and nutrition

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needs of “at-risk” populations to improve food insecurity and contribute to policy and program decisions that benefit society. Elizabeth has been recognized through numerous community engagement awards and presented and published with interdisciplinary teams around food insecurity throughout her career.

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