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An Analysis of the National School Lunch Program's Health and Education Impact on Students

Introduction

Obesity affects about 14 million children in the US as of 2017.¹ This is a potential major health issue because it leads to adverse health outcomes and leading causes of death such as cardiovascular disease, cancer, stroke, and diabetes. The prevalence of obesity and overweight among the youth (those under 18 years old) has doubled in the past two decades. Unfortunately, the majority of children in the US have not consumed the recommended servings that provide adequate nutrition for growth and development and instead consume more foods including sodium that have risk of leading to adverse outcomes.^{1,2} In addition, obesity is correlated with income level and socioeconomic status, and those who live below the federal poverty line are more likely to be obese.¹

One way the government is able to tackle this immediate issue is through the National School Lunch Program (NSLP).² The NSLP, first signed into law in 1964 under President Harry Truman, is a federally-assisted meal program that supports the provision of free or reduced cost meals to the youth in public and nonprofit private schools and childcare institutions to combat the lack of nutrition and food insecurity. A child is eligible for free meals if their family's income is below 130% of the federal poverty line or for reduced-cost meals if their family's income is between 130-185% of the federal poverty line.² Childhood intervention including the NSLP is known to have a significant impact on education. Its widespread importance is represented in recent data: in 2016, the NSLP operated in more than 100,000 public and nonprofit schools and childcare institutions to serve daily meals to over 30.4 million youth, and almost three-quarters of school cafeterias served free or reduced-cost lunches.^{2,3} 5 billion lunches through the NSLP were served in 2018.²

Therefore, the NSLP's impact remains wide and large, with stricter regulations for meals (involving reduced sodium levels, meat, and full-fat milk and use of whole grains) passed under the Obama administration in 2012.³ However, there has yet to be a coherent review of recent research delineating the NSLP's impact and limitations: study interventions are on a relatively small scale, local, and focus on one aspect of the NSLP. The need for a whole synthesis of strengths and limitations becomes more apparent with changes to the NSLP that will take effect in the next few years under the Trump administration, which were proposed earlier this year.⁴ Hence in my policy review I will examine the short-term or long-term health and education advantages and challenges facing the NSLP on the intended target group, students.

Research Findings on Quality of Food Intake of the NSLP

Studies conducted on the NSLP show significant gains in promoting healthier diets among students at school. In 2011, one study looked at the effects of the NSLP on balanced diets on 5140 elementary and middle school students in 700 different public school districts in 40 states. This was achieved through day-by-day recall of student lunch consumption by survey and qualitative observations made by researchers. Those using the NSLP had an additional 10.8 servings of fruit per week, 3.1 servings of green salad, 5.6 servings of carrots, and 5.2 servings of other vegetables per week. Despite a possible recall bias in surveys, the NSLP seemed to garner positive effects on balanced diets per week.⁵ In another study conducted just prior, researchers analyzed nutrient components of each food consumed through three different models, for 1,680 elementary, middle, and high school children from schools in the "northeast, midwest, south, and west" regions.⁶ The data for nutrient breakdown was gathered through daily interviews and observations from researchers

on what foods were not consumed. NSLP participants were more likely than other low-income non-participants to have higher, sufficient intake of essential nutrition including calcium, vitamin A, vitamin B6 and B12, and zinc.^{6,7} Hence it is likely that the NSLP does provide nutritious and more balanced diets to participants than otherwise, giving short-term health benefits.

Research Findings on Obesity Decline and Food Insecurity of the NSLP

Households that are more food insecure tend to have higher obesity rates.⁸ In context of the NSLP, across all states, a retrospective cohort analysis conducted on 2693 elementary, middle, and high school students suggested the NSLP usage is correlated with a statistical significant improvement in BMI by 3.2 percentage points over a few years.⁹ After Obama's implementation of the 2010 Healthy, Hunger-Free Kids Act, a key mandate of the Obama administration requiring healthy changes in food at schools that went into effect in 2012,³ the national Healthy Eating Index (a multicomponent measure of diet quality across the USA) increased exponentially for school-provided lunches.¹⁰ Furthermore, in 2015, research conducted in 1000 public elementary schools across the US shows significantly lower rates of food insecurity among households with children who participate in the NSLP. Data was survey for children, households, and teachers based on the USDA's standards. This is a significant finding, as food insecurity is shown to be negatively correlated with educational, scholastic performance.^{11,12} These findings suggest that the NSLP still has power over the long-term for maintaining healthier diets, is improved after enforcement of stricter regulations, and decreases food insecurity and family burden.

Research Findings on Education Outcomes of the NSLP

Another long-term benefit not immediately related to health and food is education. This link between the NSLP and education is not just an indirect one as the study on food insecurity

suggests; many studies in fact suggest a strong direct link with educational performance. In studies that looked at the positive correlation between nutrition provided at school and test scores, students who qualified for the NSLP had 40% increases in test scores (measuring before and after NSLP implementation in consenting schools) and greatly benefited over time, and that the program promotes higher educational attainment, up to one extra year of schooling, for both sexes.^{13,14} Such data was census based, pooled from 9700 elementary and middle schools over five years. This implies that qualifying students are in particular dependent on highly nutritious food provided by the NSLP that are not as accessible outside school, and this has a potential long-term impact on educational attainment and performance.

Limitations of the NSLP and Factors Promoting Success

However, the NSLP is not without its significant limitations. Namely, earlier studies of the NSLP produced a mixed bag of results on participation, which hinders reliability of research and study results. Declining participation has been a recurring issue with the NSLP.^{3,10} Studies delineate two main reasons: stigma and competitive foods.

Multiple studies suggest stigma is a common reason hindering students from using NSLP to its full use, despite the fact that obvious discriminatory practices separating students due to family income level are strictly prohibited. In fact, in 2011 and 2014, according to surveys conducted in several schools in the northeastern region (study did not give absolute numbers), 20% of parents whose children were eligible for the NSLP said stigma was a reason they opted out, and another study using phone surveys for 1220 households in five low-income cities in New Jersey showed that parental involvement was one of the most significant factors in determining participation.^{15,16} On the other hand, when another study conducted an intervention in 2011 in seven public middle and high schools

in San Francisco to clear stigma and assist facilitate the NSLP with these parents, students, directors of the schools' food programs, student participation significantly increased.¹⁵ Hence the importance of targeting the parents and food staff as part of the demographic audience (not just the students) is re-emphasized.

The availability of competitive food may also limit the NSLP. Competitive foods involve foods and drinks sold on campus that are not served by the school food service programs and can range from snacks including cookies and sodas to à la carte entrees and vending machines.¹⁶ While schools in the NSLP provide meals following its guidelines, competitive foods have no obligation to do so. In the same 2011 intervention, researchers also measured the impact of competitive foods on the NSLP by recording participation of students in the seven San Francisco schools. They reported that removing competitive foods led to higher participation rates among low-income students qualifying for NSLP.^{15,16} Hence competitive foods may be a limiting factor in participation and offset the health benefits associated with the NSLP.

Yet another sizable factor determining the success of the NSLP in schools involves great variation of foods served.¹⁷ In a 2013 intervention in which this flexibility was utilized to account for student preferences and increased food choice in eight school districts in Missouri, participation and positive attitudes among students greatly increased.¹⁸ However, this minimal governmental control over how food is prepared can also lead to stagnant, limited food choices with minimal preparation by school staff.¹⁹

Policy Recommendations

Further rigorous research with a variety of study types seems imperative, as many studies are drawn from broad census data, surveys, or interventions narrowed to a few districts in one state. More recent research is also encouraged as research 2016 onwards has been minimal.

On a local scale, I suggest the need of including more interventions and support programs that involve more participation and acceptance among students, parents, and cafeteria staff should be implemented, as they proved to be successful in in the San Francisco and Missouri interventions. Based on the research presented, programs more successful increased participation by workshops reducing stigma for students and parents, removing competitive food, and providing support for staff to account for student preferences in broader meal options.^{15,16,18,19} School nutrition programs that educate students and parents on essential nutrients including vitamins and minerals are also recommended. Schools in the NSLP should look to reaching out for more guidance towards the most impacted demographic—students, parents, and staff.

In addition, I encourage further collaboration between USDA and NSLP on a federal level. This collaboration can provide similar long-term interventions to schools, host conventions discussing the recent benefits of the NSLP and diminish overall stigma, and allow the targeted demographic to share experiences and advice. In addition, the USDA could restrict or heavily regulate competitive foods, as they seem to offset health benefits from the NSLP.¹⁶

Current debate

The current administration states “nutritious school meals don’t do any good if kids just throw them in the trash (low participation) [...] food is being wasted” and they would thus like to relax standards,¹⁰ yet this does not seem to be supported by current research. This contradicts the USDA’s recent findings that higher student participation was correlated with higher standards for healthy meals. Research suggests the stricter regulations have provided positive benefits, low participation involves other confounders including stigma and competitive foods, and food waste overall remains unchanged.^{2,10} Based on overall research, it seems that relaxing Obama’s Healthy, Hunger-Free Kids Act may not be beneficial for student health. Therefore, my

first recommendation of further recent research and strong advocates from the targeted demographic may help turn this push back around.

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Additional Resources

Official Website of the NSLP:
<https://www.fns.usda.gov/nslp>

Basic Information and Recent Research on the NSLP: <https://www.ers.usda.gov/topics/food-nutrition-assistance/child-nutrition-programs/national-school-lunch-program/>

Non-Profit Organization Advocating for the NSLP: <https://www.feedingamerica.org/take-action/advocate/federal-hunger-relief-programs/national-school-lunch-program>

Other Nutrition Assistance Programs under the USDA:
<https://www.nal.usda.gov/fnic/usda-nutrition-assistance-programs>