

An Examination of the Effects of U.S. School Nutrition and Food Service Programs on Child Nutrition and Obesity

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Introduction

Childhood obesity rates in the United States have increased dramatically in recent years. In 1980, the occurrence of obesity in children age 6-11 was 7 percent -- this rate was approximately 18 percent in 2012. It has been well studied that obesity rates are linked with income level, meaning that those who reside near, at, or below the federal poverty line are more likely to be overweight in the childhood and into adulthood. More than a third of American children and adolescents were categorized as 'overweight' or 'obese' in 2012¹.

One form of government intervention geared at combatting this growing issue of youth obesity and nutrition is the National School Lunch Program (NSLP). The program was established by Pres. Harry Truman in 1946 and is meant to provide supplemental support for low-income families with subsidized and nutritious meals before school, during school, after school, and to a lesser extent, over summer months. These federal programs financed over 5.1 billion lunches for 32 million children in 2013 and funding for the program was approximately \$16.3 billion dollars in 2014³. However, only 7.4 percent of school-aged children participated in the School Breakfast Program (SBP) and only around 2.3 million children receive meals during the summer.

The goal of these programs is to improve child nutrition through free or reduced priced breakfast, milk, after-school snacks, and lunches for students who qualify. These students are

generally from families who receive assistance from the Temporary Assistance for Needy Families (TANF) program or use food stamp benefits. The School Lunch Program entitlement strives to reduce some financial burden, as the average SNAP benefit per person is about \$125 per month^{2,4}.

However, school lunches do not only affect low-income children, as a significant proportion of higher income students also purchase and consume foods provided in school food service programs. Students have access to not only the cafeteria lunches but also to a la carte foods, vending machines, and student stores and canteens. Government regulation of these foods, called 'competitive foods,' is minimal at best.

As the obesity epidemic grows, school nutrition and food service programs are being increasingly scrutinized. Their effects on children's diets and nutrition are being (and should be) more extensively studied to determine efficacy and overall value. In this policy I will examine research regarding both the federal school meal programs and competitive foods available in cafeterias and analyze the potential outcomes on student nutrition.

Research Findings

Determining the relationship between school nutrition programs and child weight is important. Overweight preschool and school-aged children have a higher likelihood of becoming obese adults, and early primary school nutrition interventions may have the potential to lessen this trend.

Research has been conducted looking at participation in the NSLP and SBP and its effect on child weight in later years. Participation in the SBP in kindergarten and child weight in the 3rd grade has a negative causal relationship. The causal relationship between NSLP participation and child weight was found to be positive. These

results imply that while the School Breakfast Program is valuable in reducing childhood obesity, the National School Lunch Program has adverse effects, causing increased weight gain⁵. Research has found that there are nutritional benefits associated with participation in both SBP and NSLP, but when students only partake in the NSLP, they do not experience the effect of increased nutrition⁶. This seemingly contradictory relationship is placated when looking at nutritional value standards for federally funded school lunches. Typical breakfast includes yogurt, fruit, cereal, juice and milk; U.S. school lunches often contain more carbohydrate-heavy and lower nutrition foods such as chicken nuggets, hamburgers, tater tots, and chocolate chip cookies.

Students who eat school lunches consume more calories at lunch -- on average 40 calories -- than students who bring a brown bag lunch from home. This greater number of calories consumed is not observed at other times of the day. These additional calories lead to a potential two to four percent increase in obesity rate among children who eat school lunches⁷. This is problematic for all students, but especially for low-income students who rely on school lunches. Low-income status already serves as a risk factor for obesity rates and the poorer nutrition of school-prepared lunches exacerbate the issue.

It appears that school lunches are meeting the minimum federal recruitments in terms of nutrients and vitamins, but do so at the expense of introducing calorie-dense and high fat content foods. However, it has also been found that participants of the NSLP and SBP are found to consume more fruits and vegetables at school than nonparticipants, but less away from school⁸. This suggests that students on free or reduced lunch have strong incentive to consume fruits and vegetables at school because they may not have means of access at home.

It has also been suggested that health benefits and a reduction in obesity as a result of school nutrition programs are offset by the presence of 'competitive foods.' Competitive foods include cookies, chips, sodas, and other snacks that are available through snack bars, 'a la carte' lines, and vending machines on campus. Food distributed through breakfast and lunch programs must meet federal standards but food that can be obtained through other outlets on school premises do not. Nearly 20 percent of elementary schools, 33 percent of middle schools, half of high schools nationwide have a school store or snack bar where students can purchase snacks and beverages. Vending machines are available at 21 percent of elementary schools, 62 percent of middle schools, and 86 percent of high school⁹. These outlets supply a wealth of unhealthy food options.

Research has found that having no access to a la carte and snack foods is associated with higher fruit consumption among primary school children and higher vegetable consumption among middle school students⁹. Though competitive foods are likely geared toward higher income students, unhealthy snack foods may also be a draw for lower income students. Seeing their peers purchase these foods may incentivize them to use their limited sources of money to purchase them as well. Schools have made minimal effort to regulate the nutritional value of these vended snacks and the effect on student health is becoming more evident.

It has been observed that well-rounded nutrition programs are effective in preventing childhood obesity. Research has shown that students from schools who incorporated healthy eating programs into their curriculum had lower rates of obesity, overall healthier diets, and more active lifestyles than students from schools without such programs¹⁰. The former category of schools had practices in place to offer healthy menu

alternatives and had educational policies and programming. Students who attended these schools exhibited better overall dietary habits -- they consumed more fruits and vegetables and had lower caloric intake from fatty foods -- and lower prevalence of overweight and obesity. This implies that school policies may have an impact on students' dietary choices both in and out of school.

Schools that have a fresh fruits and vegetables policy show an increased intake of fruits in the home environment, although the same trend was not found with vegetables. For students who attended schools who did not offer French fries or tater tots one or more days a week, there was an increased rate of vegetable consumption at home⁸. Schools that encourage healthy eating at schools may find that students will take those habits into their home environments as well.

Overall, it is evident that nutrition services are an important part of school health programs. Only two percent of school-aged children meet the food pyramid serving recommendations for the five major food groups. 51 percent eat less than one serving of fruit per day and 29 percent eat less than one serving of unfried vegetables¹¹. Schools may have the ability to play a crucial role in reversing current childhood obesity trends. School nutrition policies which include nutrition education programs, healthy school environment and lunch options, and community partners promote healthy dietary and physical activity behaviors, especially for low-income students who may not have access to this otherwise. Improved overall nutrition in turn may have a positive effect on student cognitive performance and educational achievement, but further research must be conducted to confirm¹¹.

Existing Policy

The two programs that have been discussed in detail, the National School Breakfast Program and National School Lunch Program, are federally

funded and overseen by the Food and Nutrition Service (FNS) of the US Department of Agriculture.

To qualify for free meals, students must reside in households with family incomes at or less than 130 percent of the federal poverty level. To be eligible for reduced price meals, family income must fall between 130 and 185 percent of the poverty line⁵. As noted before, the budget for the school lunch program is much larger than that for the school breakfast program.

School meals are regulated and must meet federal nutrition requirements. For breakfast, no more than 30 of calories may be derived from fat, and saturated fat must make up less than 10 percent. These meals must also provide 25 percent of the recommended daily allowance for protein, calcium, Vitamin A, Vitamin V, and iron. The same fat restrictions apply for school lunches but the meal must provide 33 percent of RDA. The government recommends that provided meals have lower levels of cholesterol and sodium as well as for higher levels of dietary fiber⁵. Beyond these guidelines, there are no other regulations on the components of school breakfasts and lunches.

As mentioned before, there are currently no government policies on reducing access to competitive foods or for regulating their caloric and nutritional value. There are also no specific or national policies regarding developing well-rounded school health and nutritional programs and policies.

Policy Recommendations

Research shows that the nutritional benefit of the school breakfast program is greater than that for school lunches. As such, the SBP should be expanded to a similar scale as the NSLP. This will supply a nutritious meal to start the day for many students, especially those who receive free or reduced meals.

School lunches should be more strongly regulated. Too many school lunches technically meet federal requirements, but are far too calorie-dense. There is little mention about carbohydrates and sugar content in government mandates. Grain-based and starchy foods are popular in school lunches -- macaroni and cheese, pizza, nachos, corn dogs, potato wedges, and spaghetti are foods commonly seen in elementary and secondary school cafeterias. The restrictions on fat content in school-distributed lunches are important, but there should be a greater crackdown on carbohydrates, as these can often be unhealthy and contribute to higher rates of obesity. School breakfast and lunch should provide healthy alternatives and a wealth of fruits and vegetables beyond corn and potatoes. This will have a significant impact, especially for low-income students who rely on lunches as 1/3 of their meals Monday through Friday.

Competitive foods in vending machines, student stores, and a la carte lines should be strictly regulated. These are a large source of empty calories on school campuses, but because they are not funded by the federal government, they tend to be overlooked. Policies must be put into place to ensure that only foods that fall into certain nutritional standards in terms of fat, carbohydrate, and sugar content are allowed to be dispensed or sold through the non-reimbursed sectors of school food services.

Perhaps most importantly, school nutrition programs should be developed and implemented in K-12 schools nationwide. These programs will create a healthy environment for all students. Nutrition education programs provide important information about nutrients, vitamins, and healthy diets for students to follow and incorporate into their home life -- these programs have the potential to make a large impact on eating habits. To combat childhood obesity in schools, a multi-faceted nutrition and wellness

program must be developed -- one that can be applied to both the academic and home environment; such a program will have substantial health benefits for all students, not just the ones who are considered low-income.

Links of Interest

- ❖ USDA Food and Nutrition Service: <http://www.fns.usda.gov/nslp/national-school-lunch-program-nslp>
- ❖ California School Nutrition Association: <http://www.calsna.org/>
- ❖ Childhood Obesity Facts: <http://www.cdc.gov/healthyyouth/obesity/facts.htm>

References

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- ⁴ Federal School Nutrition Programs. New America Foundation Web site. <http://febp.newamerica.net/background-analysis/federal-school-nutrition-programs>. Published on April 24, 2014. Accessed February 27, 2015.

⁵ Millimet DL, Tchernis R, Husain M. School nutrition programs and the incidence of childhood obesity. *J Hum Resources*. 2010; 45(3): 640-654.

⁶ Campbell BL, Nayga RM, Park JL, Silva A. Does the national school lunch program improve children's dietary outcomes? *Am J Agr Econ*. 2011; 93(4): 1099-1130.

⁷ Schanzenbach DW. Do school lunches contribute to childhood obesity? *J Hum Resources*. 2009; 44(3): 684-709.

⁸ Ishdorj A, Crepinsek MK, Jensen HH. Children's consumption of fruits and vegetables: do school environment and policies affect choices at school and away from school? *Applied Econ Perspectives and Policy*. 2013; 35(2): 341-359.

⁹ Larson N, Story M. Are 'competitive foods' sold at school making our children fat? *Health Affairs*. 2010; 29(3): 430-435.

¹⁰ Veugelers PJ, Fitzgerald AL. Effectiveness of school programs in preventing childhood obesity: a multilevel comparison. *Am J Public Health*. 2005 March; 95(3): 432-435.

¹¹ Briggs M, Safaii S, Beall DL. Nutrition services: an essential component of comprehensive school health programs. *J Am Dietetic Assoc*. 2003; 103(4): 505-514.