

School Feeding Programs: A Comparison between the United States, Ecuador, and Uganda

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Introduction

Throughout the world most countries have a school meal program providing food for children (WFP 2016). School feeding programs are important in both developing and developed nations. In developing nations school feeding programs have a goal to enhance learning and increase concentration span by reducing short-term hunger. In developed nations, like the United States, school feeding programs aim to provide a nutritiously adequate meal at a low cost. The goal of this project is to conduct a comparative analysis of four school feeding programs: the National School Lunch Program (NSLP) in the United States, the Center for InterAmerican Studies (CEDEI) school menu program in Cuenca, Ecuador (Fig. 1), a “bar” school feeding program in Cuenca public schools, and a program at Namasagali Primary School (NPS) in Uganda (Fig. 2) The analysis will determine best practices for school feeding to benefit child health in different socio-economic and cultural locations.



Figure 1 Cuenca, Ecuador



Figure 2 Namasagali Uganda



Figure 3 Ugandan children lined up for their typical school meal “nyoyo”.

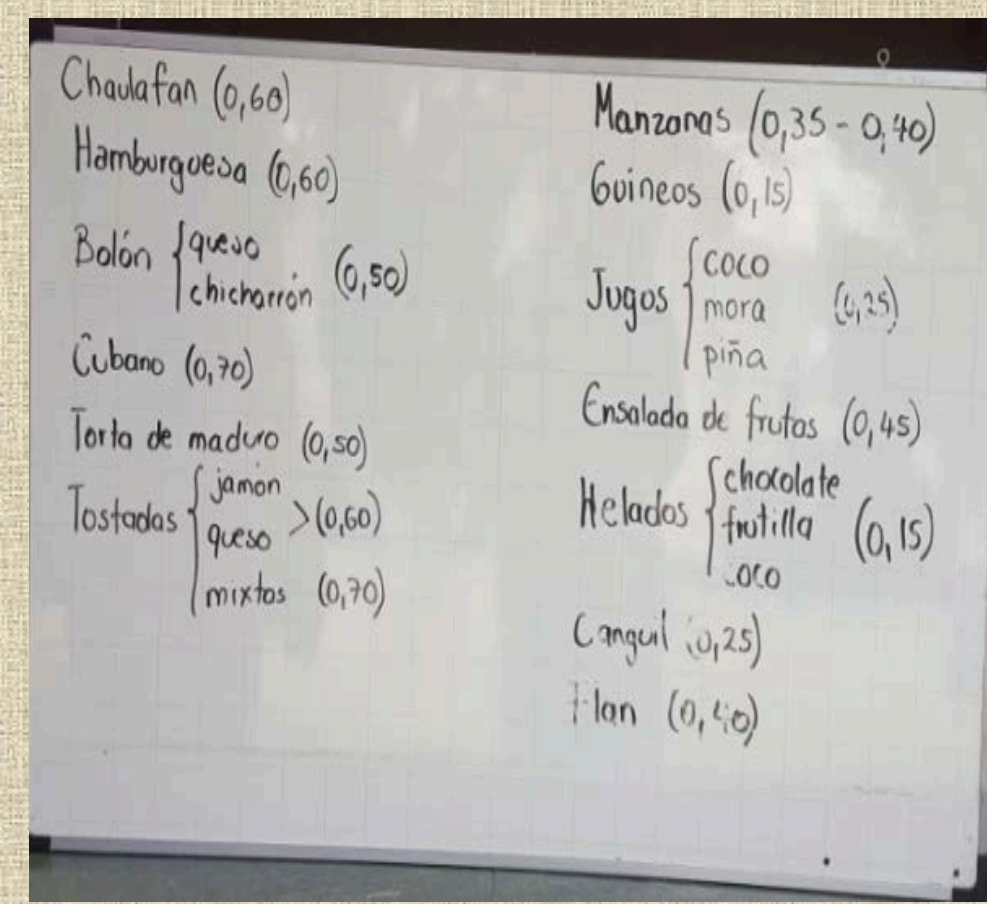


Figure 4 Typical menu found at a school bar in Cuenca, Ecuador.

Materials and Methods

- Obtained observational data about CEDEI and public schools in Cuenca during an international internship.
- Gathered recipes for the CEDEI and public school menus from online sources and the Ministerio de Salud Publica Del Ecuador.
- Created nutrient profile for average weekly intake for NSLP using MyDietAnalysis and for Cuenca programs using SuperTracker.
- Utilized resources from the Iowa State University Parks Library.

Program Overviews

National School Lunch Program, USA (NSLP): In 2012 NSLP provided nutritious, low-cost/free lunches to over 31 million children in the United States. Lunches are regulated by the federal government and are required to meet nutritional requirements in order to receive government funding.

CEDEI School, Ecuador (CEDEI): Program is based off of monthly menus which are created by the principal and cooks at CEDEI, a private school. The children are fed two snacks, the first around 9:30 am and the second around 11:00 am. Parents contribute monthly in order for their children to participate.

Cuenca “bar,” Ecuador (bar): A typical representation of public school feeding in Ecuador. A “bar” serves a variety of foods that can be purchased by the children. They have free choice over what they are eating. The bar menus rotate about four to five times each school year. An example of the bar menu can be seen in Figure 4.

Namasagali, Uganda (NPS): The school feeding program is coupled with a school garden program. Parents are asked to provide grain for the school lunches as a fee for their children. The meal served, “nyoyo” is supplemented with produce raised in the garden. The students receive 250g of nyoyo each day which includes maize, beans, vegetables, oil, iodized salt, and once a week egg. Figure 3 shows Ugandan children receiving nyoyo for their school meal.

Results

Total Calorie Comparison: The NPS feeding program supplied the most calories per meal, followed by the NSLP, CEDEI, and lastly was a typical bar in Cuenca. The NPS program operates on the assumption that the lunch meal will be the main meal for the pupils. In Cuenca, the children eat with their families after their school day ends, so the meals contain fewer calories because they aren’t meant to be the primary meal of the day. The NSLP aims to have a lunch that contains 1/3 of the child’s typical calories

Macronutrients: NPS had low fat meals because only a small amount of vegetable oil was added to the meals. The meal does not contain many animal-sourced proteins which lowered the fat content compared to other menus. The overall protein content was high because protein energy malnutrition is very prevalent in Uganda and the menus were planned accordingly. The NSLP had higher levels of macronutrients compared to the CEDEI and the bar programs because the Cuenca meals were much smaller and resembled snacks more than meals.

Sodium: Data were available only from the Cuenca programs and the NSLP. The NSLP had significantly higher amounts of sodium in their food most likely due to the use of highly processed foods. CEDEI had higher sodium than the bar, which is most likely due to CEDEI serving more food than the bar.

Added Sugar, Saturated Fat, Fiber Content: NSLP had very high levels of saturated fat compared to the Cuenca programs, which is most likely due to the consumption of processed foods. Added sugars are extremely high in the bar in Cuenca because sugary juice usually accompanies each meal. Sugary juice was limited at CEDEI due to an initiative to cut down on the consumption of added sugars, explaining why CEDEI had a much lower value than the bars.

Conclusions and Recommendations

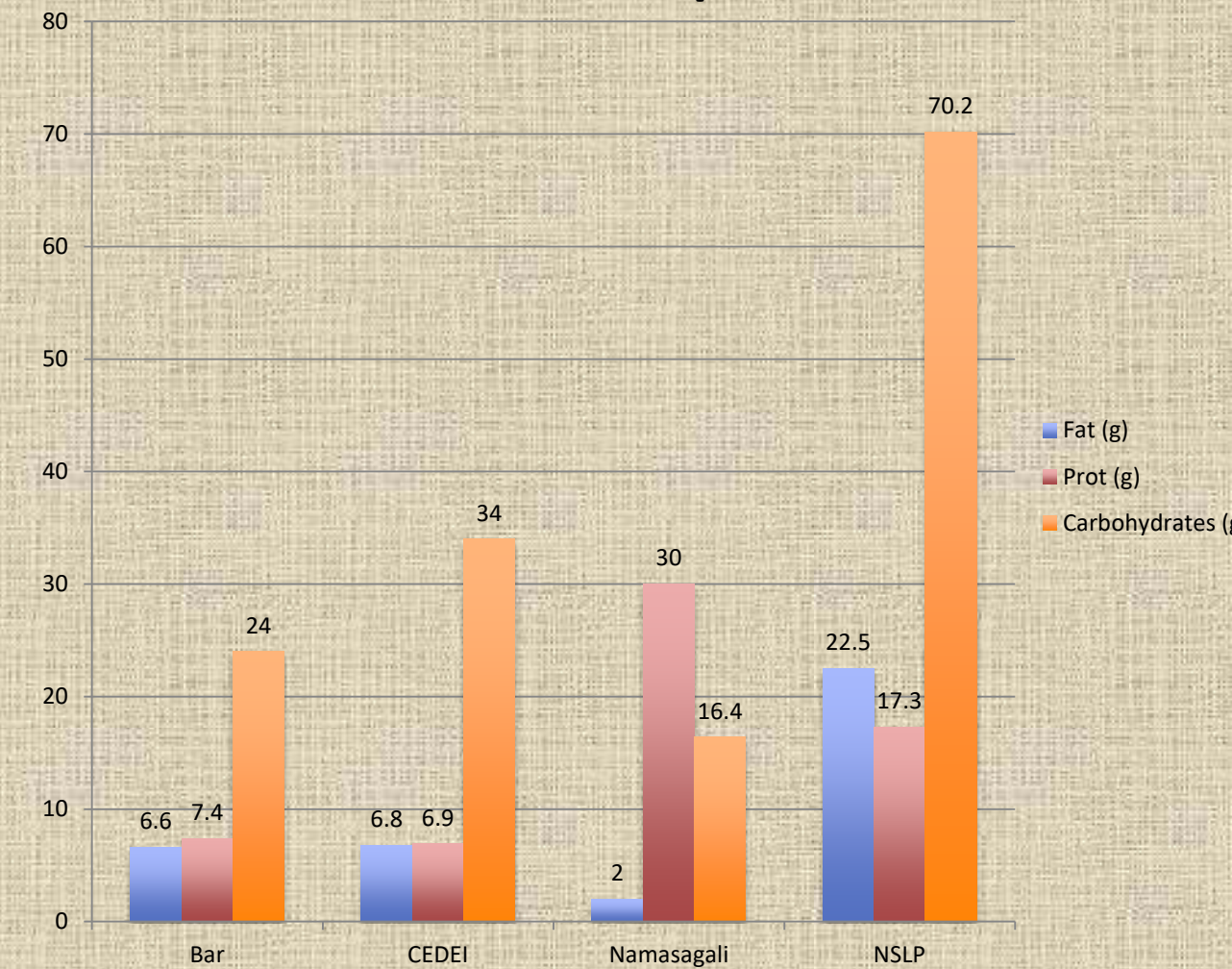
United States: Include more fresh fruits and vegetables and limit processed foods that contribute to high sodium, saturated fat, and added sugar intake.

Ecuador: Increase the amounts of fruits and vegetables eaten as healthy alternatives to processed foods and also increase the consumption of micronutrients. Decrease the amount of extra sugar added to drinks and foods. Provide snacks and meals that contain adequate levels of macronutrients at the schools so the children will have energy during the school day before they eat lunch with their families at home.

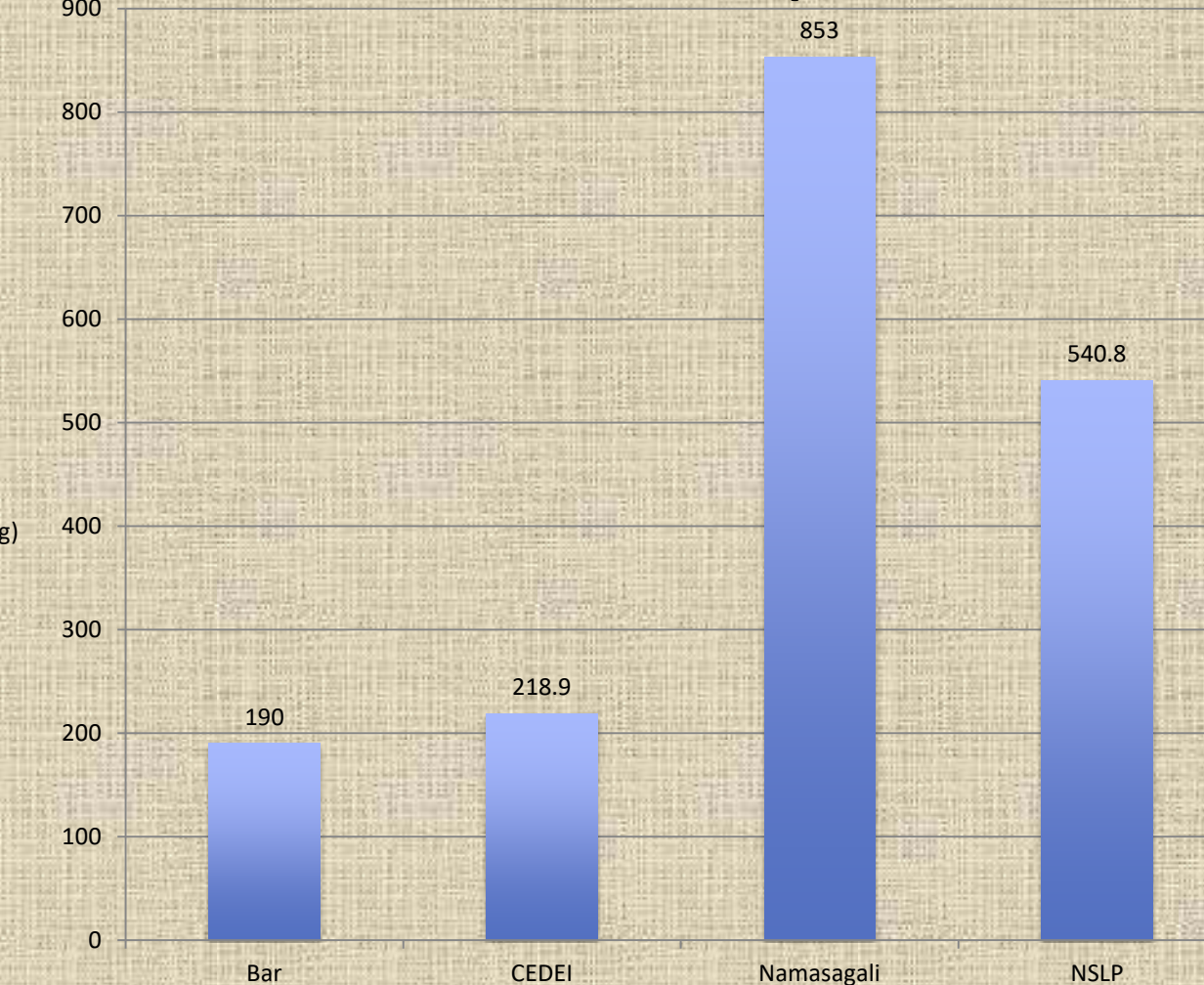
Namasagali, Uganda: Use biofortification to provide more micronutrients that may be limiting for the child’s growth. Include the use of animal source protein to provide increased protein and fat consumption into the diets. families at home.

Recommendations: Obtain access to actual recipes used in school feeding programs to increase the accuracy of the nutrient profiles.

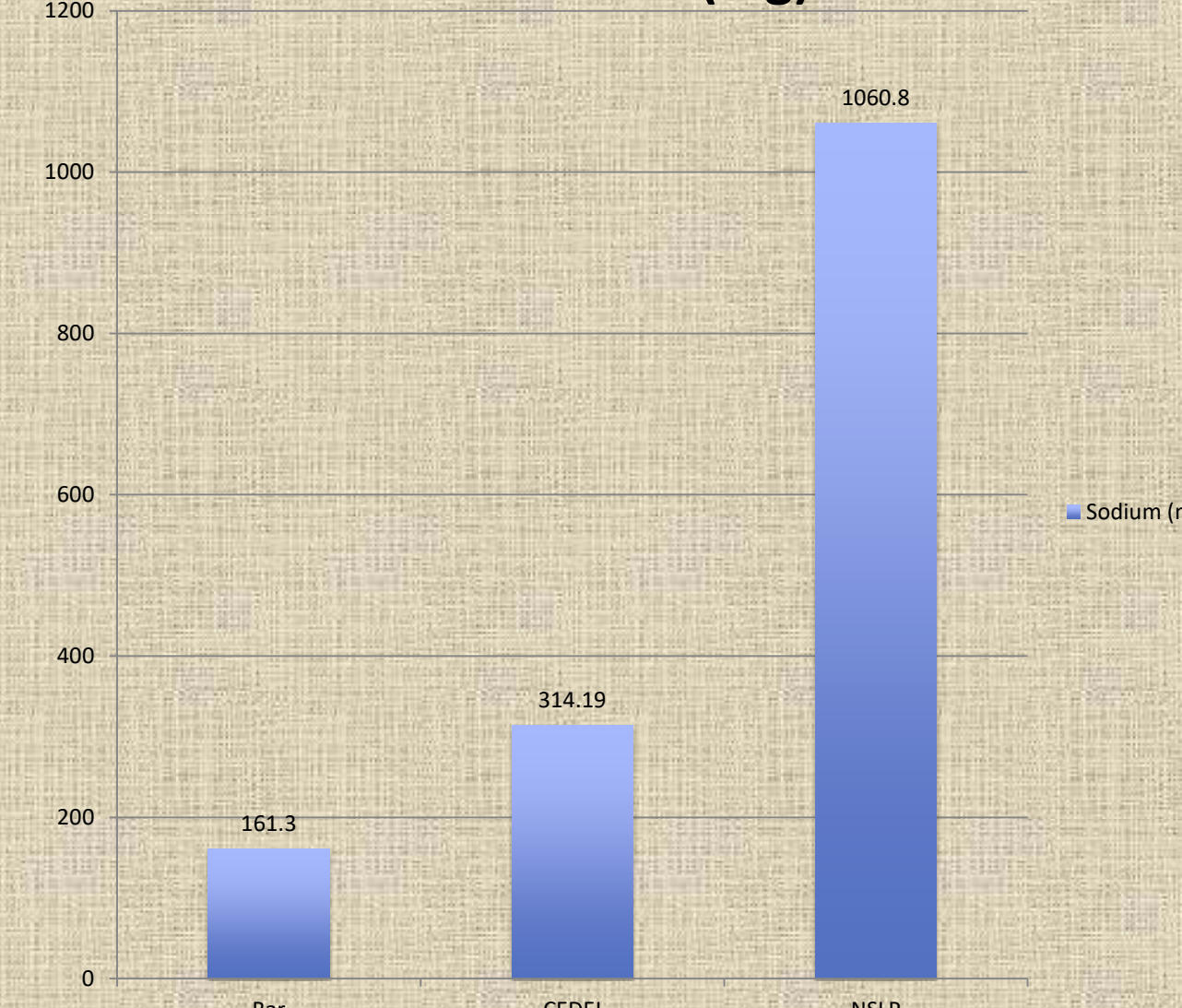
Macronutrient Comparison



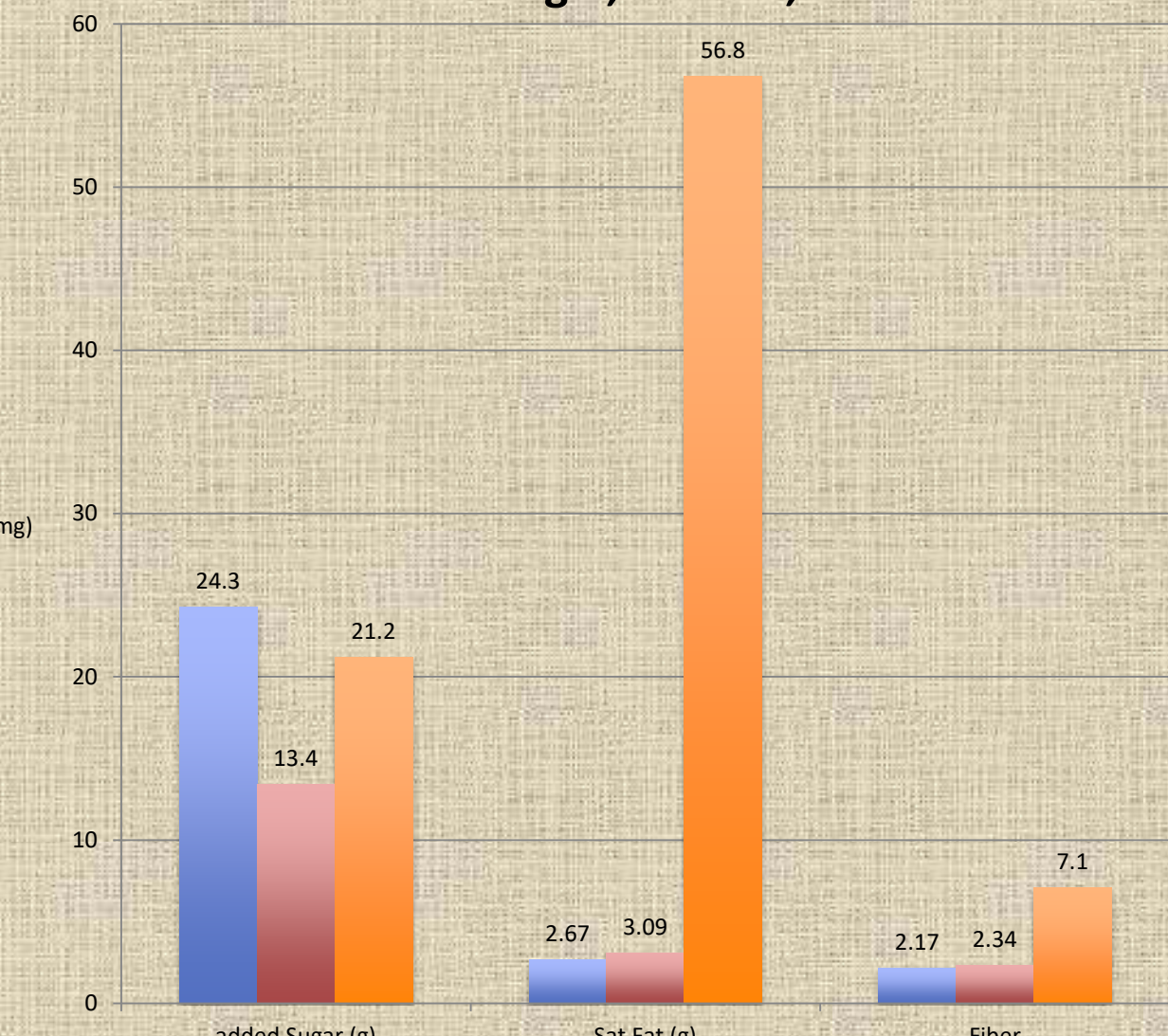
Total Calorie Comparison



Sodium (mg)



Added Sugar, Sat. Fat, Fiber Content



Literature Cited

WFP. School Meals. 2016. World Food Program; [accessed 2016 Nov 16]. <https://www.wfp.org/school-meals>