HEALTH AND HUMAN SCIENCES

Nutrient Value Quantification and Evaluation of the Food Pantry Environment

Student researcher: Catharine Pickford, Junior

Food insecurity, which is the state of having inadequate access to food to live a healthy and productive life, affects 11% of U.S. households and is linked to malnutrition and chronic diseases. The Dietary Guidelines for Americans recommend improving the dietary quality of the environments we live in through specific nutrition interventions; however, there is little knowledge about the nutrient quality of U.S. food environments.

Food pantries are an example of a food environment that serves food insecure households. Even with frequent utilization of food pantries, households with food insecurity still experience nutrient intake imbalances. Quantifying the nutrients present in food pantry inventories is key to the creation of a successful intervention that improves the dietary quality of the food pantry environment.

This study will quantify and compare amounts of key nutrients in Midwest food pantries through novel application of two nutrition composition databases, the Food and Nutrient Database for Dietary Studies (FNDDS) and the National Nutrient Database for Standard Reference (SR 28), while also assessing their accuracy for food environment evaluation. Foods from eight food pantries in Indiana and South Dakota were recorded in 2014 and respectively assigned food codes using releases of FNDDS and SR 28 corresponding to that time. A "grading" rubric was developed to classify the accuracy of each database food item code assigned to each food inventory item. Grades were assigned independently twice with an additional tie-breaker grade for any discrepancies. The accuracy grades for each database will be averaged and evaluated to determine the relationship between each database and nutrient totals for all foods and food groups.

Original Food Description	Database Food Description	Grade
		0 "Best Possible Match"
		1 "Good Match"
		2 "Poor Match"
		3 "Non-determinable"

Depiction of grading rubric. The accuracy grades are assigned according to a rubric that ranks factors that might cause variation in nutrient values of foods being compared from food pantry inventories and nutritional composition databases: the best possible match, a good match, a poor match, or non-determinable.

FNDDS and SR 28 currently are designed to determine total nutrients in individual dietary intake, not nutrients in a food environment. For this reason, evaluation of each database's accuracy of food classification and nutrient quantification is imperative. Future studies and interventions targeted to improve the nutrient environment of other food environments may benefit from the study's findings.

Research advisor Heather Eicher-Miller writes: "Katie's research represents a critical first step to improving the health of the environment among low-resource U.S. populations. We need to first understand the extent to which the nutrient databases we have to estimate nutrients work in an environment, rather than for their intended purpose of quantifying individual nutrient intakes."

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