

What is the Charitable Food Nutrition Index (CFNI)?

Background

- In 2020, Healthy Eating Research (HER) released its Nutrition Guidelines for the Charitable Food System.
- HER Guidelines ranks food based on the amount of saturated fat, sodium, and added sugars they contain. The guidelines use colors to rank individual foods (Green = Choose Often, Yellow = Chose Sometimes, Red = Choose Rarely).
- HER Guidelines rank individual foods. A measure is needed to assess the overall nutritional quality of an *assortment* of food within food banks and pantries. To serve this purpose, the CFNI was developed and validated as a new tool.



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The CFNI summarizes the overall nutritional quality of a set of foods into a single score. It is based on the percentages of ranked foods according to HER Guidelines or SWAP tools.



How can the CFNI be used by charitable food agencies?

The CFNI can be applied at all levels of the charitable food system: a food ordered, procured, stocked, or distributed to clients. Agencies can use it in a number of ways:

- ✓ **To measure change in nutritional quality of food over time**
- ✓ **To report changes in nutritional quality to stakeholders**
- ✓ **To compare nutritional quality of food from different sources**
- ✓ **As a tool for decision-makers (e.g., those placing food orders)**



How can the CNFI be calculated?

1. Go to: <https://uconnruddcenter.org/cfni-calculator/>
2. Enter the pounds of green, yellow, and red foods in the appropriate cell
3. Percentages of green, yellow, and red foods and an overall index (CFNI) are calculated

Validation and Creation of the Charitable Food Nutrition Index (CFNI)



Purpose

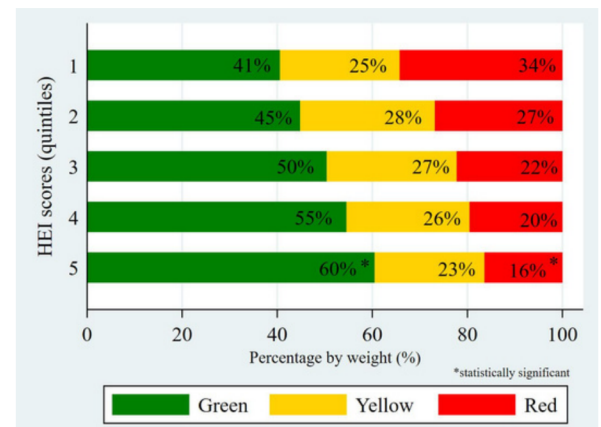
First, this project assessed the criterion validity of the HER Guidelines for the charitable food system using the Healthy Eating Index-2015 (HEI).

Next, the percentages of green, yellow, and red foods were converted into a single nutritional quality index, CFNI.

Finally, construct validity of CFNI was assessed in a food pantry intervention.

Criterion Validity

- To assess criterion validity, the percentage of foods in each rank (green, yellow, red) was compared with a "gold standard" measure.
- The Healthy Eating Index-2015 (HEI) was used as the "gold standard" measure. HEI measures how well a set of foods aligns with the Dietary Guidelines for Americans (DGA).
- Data on food selected by 503 clients in 16 Minnesota food pantries were used in the validation. For each client, an HEI score (0-100) was calculated. The percentages by weight of green, yellow, and red foods were also calculated. Percentages were compared by HEI quintiles.
- HEI scores were positively associated with green foods and negatively associated with red foods.



The Charitable Food Nutrition Index (CFNI)¹

Statistical learning was used to generate weights for each color to contribute to a formula to calculate a summary measure. This summary measure was named the CFNI. The CFNI demonstrated a moderate-to-strong correlation (0.58) with the HEI.

$$CFNI = \left(\left((0.7773 \times \%Green) + (0.5923 \times \%Yellow) + (0.3753 \times \%Red) \right) - 37.53 \right) / 40.20 \times 100$$

The CFNI is a continuous measure of overall nutritional quality for any set of foods that aligns with the Dietary Guidelines for Americans (DGA).

Construct Validity

- To assess construct validity, this project tested whether the CFNI behaved in a way that would be expected to in theory.
- CFNI scores of client carts were compared across two groups. The intervention group included post-assessments of clients (n=85) in 5 pantries randomized to receive an intervention (SuperShelf) aimed at improving the nutritional quality of food selected by food pantry clients. The control group included clients (n = 102) from 6 pantries that received no intervention.
- CFNI scores were higher in the intervention group compared to the control group. Additionally, CFNI scores were higher in pantries where the intervention was implemented with higher intervention fidelity.
- CFNI detected expected intervention effects in the food pantry setting.