Characterization of foods stored in Oaxacan and African-American households in New Brunswick, NJ

Rutgers University has made this article freely available. Please share how this access benefits you. Your story matters. [https://rucore.libraries.rutgers.edu/rutgers-lib/59488/story/]

This work is the VERSION OF RECORD (VoR)
This is the fixed version of an article made available by an organization that acts as a publisher by formally and exclusively declaring the article "published". If it is an "early release" article (formally identified as being published even before the compilation of a volume issue and assignment of associated metadata), it is citable via some permanent identifier(s), and final copy-editing, proof corrections, layout, and typesetting have been applied.

Citation to Publisher Version: No citation available.


Terms of Use: Copyright for scholarly resources published in RUcore is retained by the copyright holder. By virtue of its appearance in this open access medium, you are free to use this resource, with proper attribution, in educational and other non-commercial settings. Other uses, such as reproduction or republication, may require the permission of the copyright holder.

Article begins on next page
Characterization of Foods Stored in Oaxacan and African-American Households in New Brunswick, NJ

Scott D. Schefske, Cara L. Culle, Carol Byrd-Bredbenner, William K. Hallman

Introduction

Characterizing the quantity and nutritional quality of food products in consumers’ homes is important to developing programs to educate consumers on healthy dietary habits and increasing healthy food availability. It has been well-documented that the availability of healthy food directly contributes to the quality of a diet. However, obtaining an accurate picture of food stored in the home for everyday use can be extremely difficult. Self-reports by consumers and estimations derived from food-frequency questionnaires typically have significant margins of error. Traditional line-item written records have shown to be accurate but time consuming. Therefore, estimating the nutritional adequacy of household food supplies is quite difficult and new technological approaches may be warranted.

Recent research comparing Universal Product Code (UPC) scanning and traditional line-item recording found that UPC scanning produced a 32% time savings while also having 95.6% accuracy.1 UPC scanning to conduct household kitchen audits is a new novel methodology that can be used to obtain an accurate picture of food stored in the home.

The objective of this study is to provide an accurate assessment of the caloric and nutrient content of household food inventories of Oaxacan and African-American households and also to compare and contrast findings from previous kitchen audits conducted in a reference sample of households of varying socioeconomic status (SES).

Methods

Through the use of electronic scanning technology and pre-existing databases of foods and their nutrient content, 60 New Brunswick, New Jersey household pantries were audited. Alcoholic beverages, baby food and formula, pet foods, dietary supplements, and leftovers were not recorded during the audit. 30 Oaxacan and 30 African-American households were recruited to participate in the study. Women who were the age of 17 years with at least one child under the age of 12 years were eligible to participate. Snowball sampling was then employed to identify other potential participants. Demographic information, attitudes concerning emergency preparedness and other psychosocial factors of participating mothers were assessed using a survey instrument. The reference sample used for this study was part of a larger study conducted by Byrd-Bredbenner et al. that contained 100 New Jersey households of varying SES.2

Results

The food stores of both the Reference and the African-American samples had 15% of their calories made up of proteins, 57% from carbohydrates, and 29% from fats. In contrast, proteins contributed 13% of the calories to the household food stores of the Oaxacan sample, while 70% were from carbohydrates, and 17% from fats (Figure 1).

The mean household NARs for vitamin A for the Oaxacan and African-American populations are 0.98±0.001SD and 0.91±0.053SD, respectively versus the reference sample’s mean household NAR for vitamin A of 1.39±0.25SD. In regards to vitamin C, the Oaxacan sample has a mean household NAR of 1.90±1.40SD; the reference sample has a mean household NAR of 1.57±0.09SD while the African-American sample has a mean household NAR of 0.72±0.56SD. The reference sample has a mean household NAR for calcium of 0.91±0.47SD. The Oaxacan and African-American sample have a mean household calcium NARs of 0.63±0.25SD and 0.72±0.56SD respectively. Mean household NARs for iron had no significant difference between the three groups. The Oaxacan, African-American, and reference samples were 0.97±0.32SD, 0.99±0.30, and 1.00±0.27 respectively.

In terms of sodium, the Oaxacan sample had a mean household NAR for sodium with 0.74±0.51SD. The African-American mean household NAR for sodium is 1.49±0.35SD. The reference sample has a mean household NAR for sodium of 1.26±0.34SD.

The household food stores in both the African-American and Reference samples had Nutrient Adequacy Ratios (NARs) for total fat that approached 1.00 (0.99±0.26SD, and 0.99±0.21SD respectively). In contrast, the Oaxacan sample had a mean household NAR of 0.81±0.32SD. Similarly, in terms of saturated fat, the African-American and Reference samples had similar a mean household NARs of 0.96±0.13SD and 0.94±0.35SD, versus 0.66±0.43SD in the Oaxacan sample. No significant differences were observed in the mean household NARs for cholesterol.

The African-American and Reference samples had similar mean NARs for carbohydrates (0.95±0.14SD and 0.96±0.13SD respectively), while that of The Oaxacan sample was 1.17±0.95SD. Mean household NARs for fiber for the Oaxacan, African-American, and Reference samples were 1.22±0.52SD, 0.93±0.37SD, and 0.98±0.35SD respectively. The Reference sample had a mean household NAR for sugar of 2.02±0.88SD while the Oaxacan and African-American samples had mean NARs of 1.55±0.71SD and 1.58±0.50SD respectively.

The mean household NAR for protein of the reference sample was 1.49±0.29SD and not significantly different from both the Oaxacan and African-American mean household NARs for protein. The mean household NARs for protein of the Oaxacan and African-American samples were found to be 1.38±0.32SD and 1.56±0.31SD respectively and also significantly different from each other.

Conclusions

In terms of macronutrients, African-American and the reference sample proportions were similar to each other, and were within reference ranges of Dietary Recommended Intake guidelines of the Institute of Medicine. Two out of the three Oaxacan sample’s proportions were not within the reference ranges of Dietary Recommended Intake for macronutrient guidelines set forth by the Institute of Medicine. Percentage of carbohydrates (~70%) was higher than the reference range (~55%) and percentage of fat (~17%) was less than the reference range (20-35%).3 This could explain why the Oaxacan sample had the lowest mean household NARs for total fat and saturated fat and the highest mean household NAR for total carbohydrate as well as dietary fiber.

References

4. Dietary Reference Intakes for Calcium, Phosphorous, Magnesium, Vitamin D, and Fluoride.