

ABSTRACT

Objectives: Women in Kenya are at high risk of multiple micronutrient deficiencies due to low intake through monotonous diets. Country-specific food based dietary recommendations (FBRs) facilitate dietary improvement. Main objective was to develop and evaluate FBRs based on the existing diet using linear programming for women of reproductive age from Mbooni division, Eastern Kenyan. **Methods:** A consumption study was conducted among 205 woman (19-50 yrs.) using three nonconsecutive 24-hour recalls. Excel, Access and SPSS were used to prepare required model parameters (foods consumed by >10% of women, including median portion size, weekly frequency consumption, food composition values, food group patterns (median and range), staple/snacks. Linear programming (‘Optifood’) was used to develop and evaluate FBRs. **Results:** Out of 62 foods, 30 foods were consumed by more than 10% of the surveyed women. Fat, iron, folate and vitamin-B12 requirements could not be met both in worst ($\times 70\%$ RNI) and best case ($\times 100\%$ RNI) scenario diets, covering 43.6%, 48.4%, 30.0% & 18.8% of RNI. Calcium, vitamin A, riboflavin, niacin, B6 and zinc intake was inadequate, but requirements could be met by inclusion of kale, pumpkin leaves, red beans, cow's milk and cooking fat. **Conclusions:** Realistic food based dietary guidelines based on locally available foods for Kenyan women were successfully developed using linear programming. These guidelines will ensure at least 70% RNI of energy, protein, calcium, vitamin A, C, B1, B2, B5, B6, and zinc. To obtain adequate amounts of fat, folate, iron and vitamin-B12 in the women's diet, alternative strategies are required.