Can local diets meet nutrient adequacy of young children in Ethiopia? Evidence from National FCS

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Abstract

The objective of this poster is to portray how local foods can be used to create a nutrient adequate diet for young children. Data from the Ethiopian National Food Consumption Survey (FCS) of 1544 children of 12-23 mo of age in Amhara, Tigray, Oromiya and SNNP regions of Ethiopia were used. Average breast milk intake was assumed. Linear goal programming (Optifood developed by LSHTM in collaboration with WHO) was used to identify critical nutrients for which the local diet cannot fulfill requirements. Frequently consumed foods, average portion sizes, minimum and maximum number of servings per week, dairy milk consumption and breast feeding status were described in each region. Promising local foods and fortified foods that could contribute to micronutrient intake were identified. Findings revealed that the local diet can fulfill iron requirements in all regions but cannot fulfill zinc requirements in all regions, and calcium, niacin, and vitamin A requirements in some of the regions. Additional interventions will be required to fill these nutrient gaps.

Background

- Ensuring optimal infant and Young Child Feeding (YCF) practices has been identified as one of the most effective public health interventions to improve child survival in developing countries.
- Appropriate complementary feeding should start at six months of age with a focus on local foods, while maintaining breast feeding until at least 24 months of age (PAHO/WHO).
- There are no standard dietary recommendations for appropriate complementary feeding practices in Ethiopia.

Objective

- To determine nutrient adequacy of young children’s diet
- To formulate realistic, optimised food-based complementary feeding recommendations (CFR) in the four regions.
- To identify possible additional interventions to fill critical nutrient gaps.

Methods

- Linear programming (Optifood) was applied to develop population specific local food-based CFR and to identify critical nutrients.
- For the purpose of this presentation we only used food intakes of children 12-23 mo, in four regions. Results of younger children (6-8,9-11 mo) will be presented later.
- Data preparation
  - Recipes were disaggregated in single ingredients
  - Listed foods consumed by >3% of the target population
  - Identified average amount of reported intake of each listed food by age group

Optifood

- Set and check model parameters for target group
  - Constraints on food pattern set based on foods consumed by >3% of population, serving size and serving frequency.
  - All models are set to deliver 100% of energy requirements.
- Formulate nutritionally best diet and identify critical nutrients that remain low in the best diet.
- Identify nutrient dense foods.
- Compare alternative Food Based Recommendations (FBR), and choose the nutritionally best alternatives.

Results

Table 1. Reported intakes among children 12-23 months (24 hour recall), by region

<table>
<thead>
<tr>
<th>Food Group</th>
<th>Tigray</th>
<th>Amhara</th>
<th>Oromiya</th>
<th>SNNPR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumed Breast milk</td>
<td>86%</td>
<td>90%</td>
<td>85%</td>
<td>92%</td>
</tr>
<tr>
<td>No. foods consumed by any child</td>
<td>137</td>
<td>199</td>
<td>194</td>
<td>163</td>
</tr>
<tr>
<td>No. foods consumed by &gt;3% of children</td>
<td>48</td>
<td>52</td>
<td>53</td>
<td>56</td>
</tr>
</tbody>
</table>

- Completed data available from 1544 children.
- Portion sizes were small: 62-73% of consumed foods were eaten in daily portion size of <15 grams.
- Dairy milk was consumed in large quantities in each region (10% consumed >126 grams in Tigray to 32% consumed >422 grams in Oromiya).
- Wheat was consumed in all regions but in moderate quantities (25 grams per day in SNNP to >100 grams in Tigray).
- **Problem nutrients** are those nutrients in the diets which fail to reach 100% of RNI in the best diets.
- **No food pattern** means the best diet that can deviate from average food pattern, but remains within the upper and lower food group constraints.

Conclusion

- Improved local food-based complementary food recommendations can meet some of the nutrient requirements of Ethiopian young children but should be field-tested.
- RNI for iron is fulfilled for all regions.
- However, even under the best circumstances, the local diet cannot fulfill all nutrient requirements and additional interventions are required to fill the gaps.
- Zinc is a critical nutrient for all regions.
- Calcium, Niacin, and/or Vitamin A are critical nutrients in some regions.

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