Food and nutrition security in tropical sub-Saharan Africa

A meta-analysis of harmonised rural household data

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Overview

- Disease risk factors <- food security in SSA
- Knowledge gaps -> objectives
- Methods
- Results
- Limitations and further research
- Concluding remarks
Risk clusters for global burden of disease

Triple burden of disease from malnutrition

Food and nutrition security in SSA

Chronic hunger

Severe food insecurity of access
Zinc deficiency

Calcium deficiency

Sources: FAO et al., 2018;
Joy et al., 2013
Temporal vs spatial representativeness

Diets vary

So, when to sample?
Temporal vs spatial representativeness

Households, regions and countries vary

So, how to sample enough frequently?
Pathways to food and nutrition security

- Crop yield
- Farm size
- Livestock holdings
- Crop diversity

Quantity of agricultural production

- Market participation
- Off-farm income

Gross income

- Variety of agricultural production

Food and nutrition security
Objectives

- Estimate prevalence of dietary gaps
- Identify associations between dietary gaps and rural livelihoods
- Understand food sourcing behaviour throughout the year
Methods
Study sites \((n = 7,931)\)
Food and nutrition security indicators

Household food insecurity of access prevalence (HFIAP)

- Food secure
- Mildly food insecure
- Moderately food insecure
- Severely food insecure
Food and nutrition security indicators

- Diet diversity
  - Recall ‘good’ and ‘lean’ periods
  - Sourcing channels – own farm vs purchase vs free

What does this indicator tell us about nutrition?
Food balance sheets of subsistence households (n = 264)

**Nutrient requirements**
- Household composition
- Nutrient requirements by age and gender

**Nutrient availability**
- Farm production
- Consumed proportion
- Nutritional composition of food

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**Quantified household dietary gaps**

**Triangulation**

**Energy and protein**
- Inferences made on energy and protein for full sample (n = 6,353)

**Micronutrient**
- Inferences made on micronutrient ‘sources’ for full sample (n = 6,353)

**Micronutrient sources**
- 11 micronutrients
- 100 g serve
- 15% of adult male RNI

**HFIAP**
- Severe food insecurity of access – yes/no

**Diet diversity**
- Year round source of micronutrient available – yes/no
Farm type classification

- Specialised cropping
  - < 3 crops
- Diverse cropping
  - > 3 crops

- No livestock component
  - < 1.5 TLU
- Livestock component
  - > 1.5 TLU
Results
Timing of food insecurity (n = 6,353)

Unpublished results removed
Diet diversity: associations with livelihoods

Unpublished results removed
Dietary gaps: associations with livelihoods

Unpublished results removed
Channels of food sourcing by farm type

Unpublished results removed
Prevalence of dietary gaps (n = 6,353)

Unpublished results removed
Limitations and further research

- Meta-analysis – limits consistency
- Data quality
- Proxies of proxies
- Food composition tables
- Household level – intra-household allocation
- Food preparation, sanitation, exclusive breastfeeding
- Health implications

Validation?
Conclusions

- The occurrence and duration of scarcity varies
- There are several farm and household factors associated with food security – differing in association by AEZ
- Livestock keepers tend to have more diverse diets in the good and lean periods
- Household don’t necessarily supplement their lack of farm diversity through purchases
- Severe food insecurity and dietary gaps are not independent of farm type and AEZ

- There is more work to be done
“I would rather have questions I can’t answer than answers I can’t question”
– R. Feynman
Donors

- AVCD = Accelerated Value Chain Development
- BMGF = Bill and Melinda Gates Foundation
- CCAFS = Climate Change, Agriculture and Food Security
- CLiP = Crop-Livestock integration Project
- FORETS = FOrmation, Recherche, Environnement dans la TShopo
- EU
- LSHTM-IMMANA = The London School of Hygiene ...
- SAIRLA = Sustainable Agricultural Intesification Research and Learning in Africa
- USAID = U.S. Agency for International Development