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Sub-optimal intakes of protein and lysine are prevalent among the poorest households in Malawi

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1. Introduction

- Plant foods, which dominate diets of low-income countries, provide low quality protein
- Malnutrition is widespread in Sub-Saharan Africa (SSA) and has been linked to inadequate protein intakes in some settings
- In some cases, protein requirements are marginally met, but the adequacy of limiting amino acids remains unclear

The objective of this study was therefore to calculate protein as well as amino acid supply in Malawian households and evaluate consumption patterns across different sections of the population

2. Approach

- The Malawi integrated household survey, IHS4 (2015-2016) was used
- Malawian Food Composition Table (FCT) and regional FCTs were used to assign protein composition data
- USDA FoodData Central database was used for indispensable amino acids (AA)
- An in-house protein and indispensable amino acid digestibility database was created and used to correct for digestibility
- Food composition data was integrated with food consumption data followed by analysis of the following:
  - Food groups supplying protein and AA
  - Effect of digestibility on supply
  - Adequacy of protein and AA across different socioeconomic groups

3. Findings

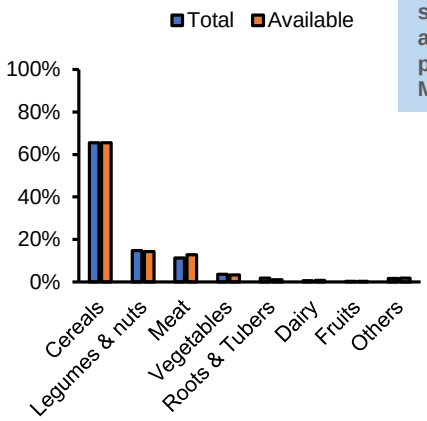

Figure 1: Food groups supplying total and available/digestible protein to the Malawian diet

- Cereal was the major food group supplying on average 66% of protein
- This is followed by legumes and nuts (15%) and animal meat including fish (11%)

3. Findings

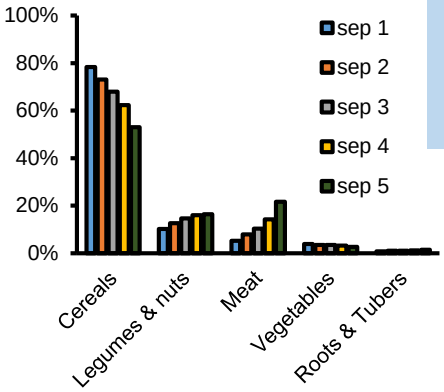

Figure 2: Food groups supplying total protein according to socioeconomic position (sep)

- As household sep/wealth increases, supply of high quality protein (meat) increases while supply of low quality protein (cereals) decreases
- Supply of protein for the poorest households is thus more affected by low digestibility of poor quality protein sources

Table 1: Median protein and lysine supply according to sep

sep	Available protein g/AME/day	Available lysine g/AME/day
sep 1	39	1.3
sep 2	55	2.0
sep 3	67	2.6
sep 4	79	3.3
sep 5	101	4.7
ALL	**65**	2.5

- Protein and amino acid supply largely depends on household wealth
- Lysine is the limiting amino acid in the Malawian diet

Table 2: Proportion of households at risk of protein and lysine deficiency due to inadequate supply

sep	Available Protein (%)	Available Lysine (%)
sep 1	**58**	**82**
sep 2	24	**47**
sep 3	13	23
sep 4	6	9
sep 5	2	3
ALL	21	**33**

4. Conclusions

- Protein, and in particular lysine supply is highly dependent on household wealth
- Lysine supply is not adequate for a third of the population and the majority of the poorest households
- Impact of digestibility is more pronounced for the poorest households
- Improving protein quality can improve available protein and AA supply for the poorest household