

Multidimensional effects of food insecurity on child development



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**>100 million children
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What does this
mean for their
development?

Early Child Development



Early Child Development

- Over 200 million children under five in developing countries are not meeting their developmental potential



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- Over 200 million children under five in developing countries are not meeting their developmental potential
- Failure to meet developmental milestones has lifelong implications, contributing to a cycle of poor nutrition and development



Food Insecurity & Child Development

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 - Undernutrition before age two leads to adverse long-term effects
- **Food insecurity and child development**
 - Association not well established, especially in developing countries and in early childhood

Lake Victoria's History

1900-
50s

1960s

1980-
2000

2000s



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High biodiversity and productivity
Traditional artisanal fishery

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Fish declines
Food insecurity



Study Context: Lake Victoria, Kenya



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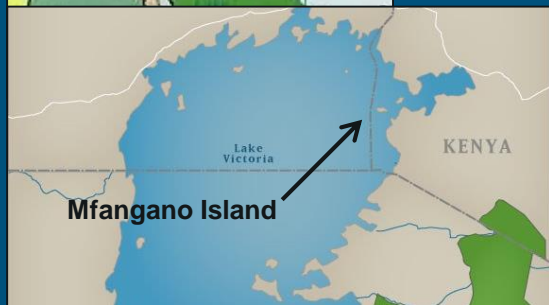
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- Fish important for livelihoods
- Fish critical for protein, fatty acids
- Child development around lake not studied

Longitudinal Cohort Study in Kenya

- 2 year longitudinal prospective cohort study
- 3 month visits, 9 time points
- 304 households on Mfangano Island with children under 2 years
- Measures: sociodemographics, anthropometry, household food insecurity, child development



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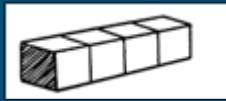


Household Food Insecurity

- Complex and challenging to measure
- Household Food Insecurity Access Scale (HFIAS)
- 3 dimensions:
 1. Timing- 3 months before outcome
 2. Intensity- severity over 2 years
 3. Duration- amount of time insecure over 2 years

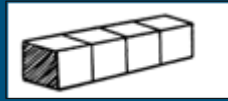


ASQ:I Child Development Measure



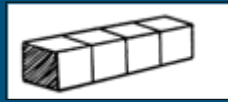
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- Ages & Stages Questionnaire: Inventory by age
- 3 subscales: gross motor, communication, personal social
- Piloted, translated, and adapted to local context
- Administered using mothers' recall with child present
- Demonstrations with child



Research Question

How does the timing, intensity, and duration of household food insecurity impact child gross motor, communication, and socio-emotional development?

Sociodemographics & Child Characteristics

	Mean (SD) or n (%)
Household size	6 (2)
Maternal education (not complete primary)	155 (52%)
Child age (months) at baseline	12 (7)
Stunting (height-for-age) at study start	64 (21%)
Stunting (height-for-age) at study end	78 (26%)
Underweight (weight-for-age) at study start	29 (10%)
Underweight (weight-for-age) at study end	17 (6%)

Effects of Food Insecurity on Child Development

	Timing	Intensity	Duration
Gross motor	-0.14**	-0.047***	-0.050**
Communication	-0.16**	-0.042**	-0.042*
Personal social	-0.20***	-0.042**	-0.037*

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Timing: Children in households with more food insecurity 3 months ago had lower current developmental scores

Intensity: Greater severity of food insecurity over 2 years was associated with lower developmental scores

Duration: Longer periods of food insecurity over 2 years was associated with lower developmental scores

How Food Insecurity Impacts Child Development

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- Stunting was significant, lies on pathway between food insecurity and child development



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- Stunting was significant, lies on pathway between food insecurity and child development
- Maternal education significantly explained some of association



Conclusions

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 - Chronic malnutrition/stunting pathway
- More research on early child development risk factors and mediators in developing countries needed
- Implications for integrated interventions and targeted policies and programs

Thank you!

Mfangano Island RECH participants
Organic Health Response Research Team
Malowa and Akoth family

Fernald Research Group
Biodiversity, Health, and Livelihoods Group

