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INTRODUCTION

Inappropriate feeding and caring practices can lead to chronic undernutrition among children aged less than two years. In 2010, Cambodian stunting rates were still the second highest in Southeast Asia. Since 2012, an increasing number of nutrition programmes in Cambodia started to provide nutrition education on complementary feeding practices; however, the number of children under two years receiving an age-appropriate diet remains low (<30%).^[1] Adequate young child feeding practices are influenced by a multitude of factors at different levels which affect growth development. A combination of feeding indicators as well as household food security indicators are important for assessing reasons of growth faltering and inappropriate complementary feeding practices.

Research Objectives

To explore linkages between household access to food, household diet, child feeding practices and nutritional status of children under two years of age in rural Cambodia (see figure 2).



Figure 1: Cambodian home garden

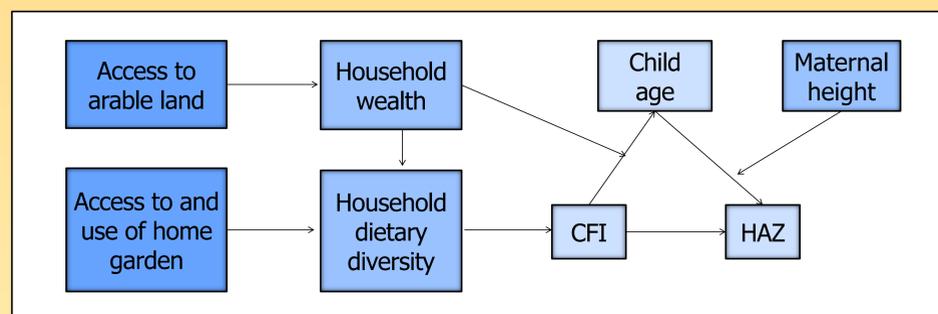


Figure 2: Expected linkages between household characteristics and child feeding and nutritional status

METHODS

In September 2012, a cross-sectional nutrition baseline survey looking at determinants of child malnutrition was conducted in September 2012 within the project area of a food security project by the Food and Agriculture Organization of the United Nations in north west Cambodia. Two-stage cluster sampling proportional to population size was used to select 1,124 households with children under two years of age. The primary caregivers were interviewed using a standardized questionnaire on socio-economic status, diet (particularly of children) and household's access to agricultural land.

A child feeding index (CFI) was developed based on the model of Ruel and Menon (2002).^[2]



Figure 3: Child feeding

Scores were given for breastfeeding, no bottle feeding, meal frequency, dietary diversity and food frequency adjusted for three age groups: 6-8, 9-11 and 12-23 months. The highest possible score was 10. Anthropometric data on length/height and weight were collected from children under two years and their mothers. Correlations between height-for-age z-score (HAZ) and CFI were explored with regression analysis.

References:

- [1] Measure DHS. Cambodia Demographic and Health Survey 2010. ICF Macro, Calverton, Maryland, USA, 2011. [cited 2012 July 20] Available from: <http://dhsprogram.com/publications/publication-FR249-DHS-Final-Reports.cfm>
- [2] Ruel MT, Menon P. Child Feeding Practices Are Associated with Child Nutritional Status in Latin America: Innovative Uses of the Demographic and Health Surveys. *J Nutr.* 2002;132 (6):1180-7.

RESULTS

A total of 1,028 caregiver-child-pairs were enrolled with age of the child ranging from 5 - 731 days. Main household characteristics are presented in table 1.

Table 1: Household characteristics (N= 1,028)

Characteristics	%
Ownership of arable land (mean size = 2 ha)	93
Ownership of home garden	69
Growing vegetables	63
Ownership of animals	90
Household dietary diversity:	
Low dietary diversity (<5 food groups)	11
Medium dietary diversity (5-8 food groups)	75
High dietary diversity (>8 food groups)	15

Child feeding and nutritional status:

- Exclusive breastfeeding was 83% in children aged < 6 months.
- CFI showed a mean score of 6.7 ± 1.7 (N= 797).
- Mean HAZ score was -1.16 ± 1.11 (Min: -5.82, Max: 4.15). HAZ levels decreased with age. Overall, 21.4% children were stunted (-2SD).

Associations between child feeding, nutrition status, household diet and home gardens:

- **CFI and HAZ correlated significantly ($R^2=0.035$, $B=0.123$, $Beta=0.187$, $p < 0.01$) for children under 2 years of age.** Mean CFI was lowest among 18-23 month olds. With increasing child age, the impact of higher CFI scores on HAZ decreased.
- Children with lower CFI scores live in households with significantly lower dietary diversity (see figure 4).
- **Wealth had a small indirect positive effect on HAZ through the mediator CFI (Kappa-squared = 0.02)**
- No significant correlations were identified between access to agricultural land, home gardens, wealth and household dietary diversity.
- The size of land owned or access to a home garden did not influence CFI or HAZ scores.

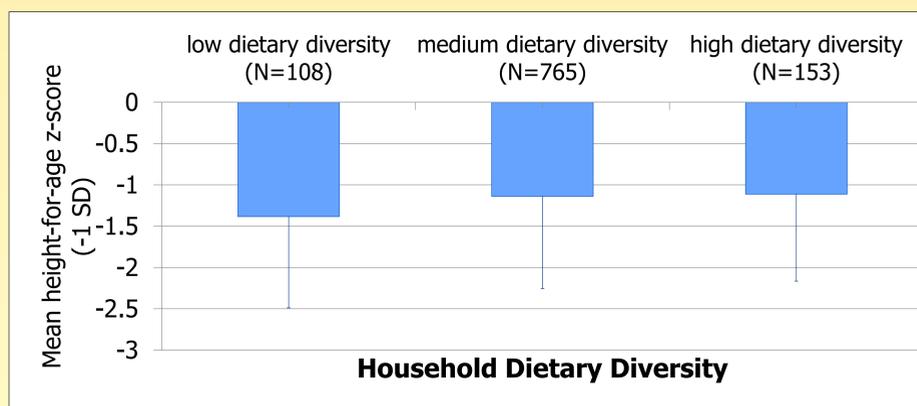


Figure 4: Mean HAZ scores by household dietary diversity group

DISCUSSION & CONCLUSION

- CFI is an appropriate measure to monitor adequacy of infant feeding as it is associated with growth.
- Household food accessibility alone did not have an impact on child feeding and nutritional status. This indicates the importance of nutrition education to increase the utilization of foods and awareness of appropriate infant and young child feeding.
- Associations between increased utilization of home gardens and/or seasonal food shortages and improved child feeding practices need further investigation.