SUSTAINABLE AGRICULTURE AND PRODUCTION LINKED TO IMPROVED NUTRITION STATUS, RESILIENCE, AND GENDER EQUITY

SAPLING RESEARCH BRIEF: INFANT FOOD CONSUMPTION SURVEY

BACKGROUND

The Sustainable Agriculture and Production Linked to Improved Nutrition Status, Resilience, and Gender Equity, (SAPLING) a USAID-funded Resilience Food Security Activity, has supported over 57,000 households across five sub-districts (upazilas) in Bandarban District of the remote Chittagong Hill Tracts (CHT) region of Bangladesh. Many of these households include, pregnant women and children under the age of two years.

The first 1,000 days of life, between conception and two years of age, is a critical period for the foundation of optimum health, growth, and neurodevelopment for an infant. A key program aim was to improve child nutrition through changing behavior around complementary feeding of young children.

STUDY OBJECTIVE

In 2017, SAPLING undertook an infant food consumption study to customize complementary feeding guidelines for children 9-15 months of age with the three largest ethnic groups in the SAPLING area. These included members from the Bengali, Marma, and Mro communities, comprising 84.5% of SAPLING households.

The research identified nutrient constraints and foods currently consumed which could help overcome nutrient inadequacies.

The Optifood tool was used for the first time in the Chittagong Hill Tracts for this study.[1]

[1]Optifood was developed by the World Health Organization (WHO) in collaboration with the London School of Hygiene and Tropical Medicine, Food and Nutrition Technical Assistance (FANTA) project, and Blue-Infinity. The tool supports designing appropriate complementary feeding recommendations and tools for programmatic action. B Daelmans, E Ferguson, CK Lutter, N Singh, H Pachón, H Creed-Kanashiro, M Woldt, N Mangasaryan, E Cheung, R Mir, R Pareja, and A Briend. 2013, Maternal & Child Nutrition, pp. 116-130

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METHODOLOGY

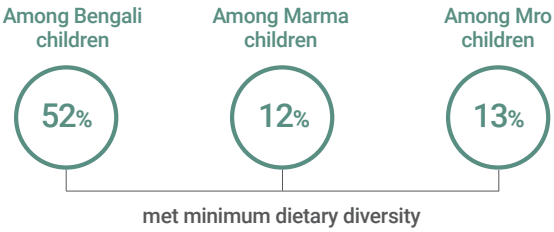
Optifood software tests food-based recommendations in actual dietary practices of a community and identifies the gaps between intake and requirements for specific nutrients from locally available foods.

The dietary data for children 9-15 months were collected using a cross-sectional 24-hour recall survey. Respondents comprised 41 Bengali households, 38 Marma households, and 28 Mro households. Researchers also collected data on the height and weight of these target groups.

RESULTS

Age and anthropometry were similar across groups.

Minimum dietary diversity varied across ethnic groups.



Bengali children were able to meet more nutrient requirements with their existing diet than Marma and Mro children.

Due to the diversity of the Bengali children's diet, Optifood produced a greater number and more diverse feeding recommendations for Bengali children compared to the Marma and Mro children.

SUMMARY OF PROBLEM NUTRIENTS

Problem nutrients identified for children in each ethnic group, and categorized as absolute or partial problems.

Bengali children met nutrient requirements for Vitamin C, Folate, Vitamin B12, and Vitamin A. All other micronutrients were absolute or partial problem nutrients.

Marma children met requirements for Vitamin C and vitamin B12. All other micronutrients were absolute problem nutrients.

Mro children did not meet any nutrient requirements in the existing diet for children under two. All micronutrients were absolute or partial problem nutrients.

Calcium was an absolute problem nutrient for all ethnic groups, indicating that no group could meet this requirement with the foods currently consumed.

Iron and Zinc were absolute problem nutrients for Bengali and Marma, but only partial problem nutrients for Mro children.

ABSOLUTE AND PARTIAL PROBLEM NUTRIENTS BY ETHNIC GROUP

Nutrient	Bengali children	Marma children	Mro children
Calcium	Absolute	Absolute	Absolute
Vitamin C	Requirements Met	Partial	Requirements Met
Thiamin	Partial	Absolute	Partial
Riboflavin	Partial	Absolute	Partial
Niacin	Partial	Absolute	Partial
Vitamin B6	Partial	Absolute	Partial
Folate	Requirements Met	Absolute	Partial
Vitamin B12	Requirements Met	Requirements Met	Partial
Vitamin A	Requirements Met	Absolute	Absolute
Iron	Absolute	Absolute	Partial
Zinc	Absolute	Absolute	Partial
Number of absolute problem nutrients	3	9	2
Number of partial problem nutrients	4	0	9

EXISTING DIETS AND MEETING NUTRITIONAL REQUIREMENTS

Food groups that could help to reduce the nutrient gaps were analyzed. Using the minimum and maximum servings observed among the children, complementary feeding recommendations were generated that conformed to the “usual diet”.

Recommendations included eggs, vegetables, fruit, meat, and fish, though with different food items, serving sizes, and frequencies recommended for children of each ethnic group.

The recommendations improved potential nutrient adequacy but could not alone ensure that children met 65% of the Optifood threshold for minimal adequate intake. The improved combinations of local foods tested in the analysis were unable to meet dietary adequacy for all twelve micronutrients.

In other words, children could not get all necessary nutrients by just eating more. They would need to take supplements, or new foods would need to be introduced to the existing diets.

HOMESTEAD FOOD PRODUCTION HELPS MEET NUTRITIONAL NEEDS

SAPLING recommended the consumption of more locally-available foods while also supporting increased, year-round production of diverse, nutritious foods. It helped families gain access to more vegetables, fruit, poultry, and eggs. A dietary recommendation was prepared using Optifood linear programming based on the addition of the SAPLING-supported foods (not including meat).

The analysis found a diet with egg and additional fruits and vegetables combined could achieve the RNI requirements of nine nutrients for Bengali, ten nutrients for Marma, and seven nutrients for Mro children. But this would not meet the 12 nutrient requirements for any group.

Nutrient gaps after testing recommendations using foods introduced by SAPLING

IRON	CALCIUM	VITAMIN C & A
Fe	Ca	Vit. C, Vit. A
for all groups	for Bengali and Mro children	for Mro children

This document is made possible by the generous support of the American people through the United States Agency for International Development (USAID). The contents are the responsibility of Hellen Keller Intl and do not necessarily reflect the view of USAID or the United States Government.

CONCLUSION

SAPLING’s Infant Food Consumption Survey informed targeted complementary feeding recommendations developed in Optifood and based on locally-available foods. The analysis found the increased egg, fruit, and vegetable production and consumption introduced by SAPLING could improve micronutrient intake among Bengali, Marma, and Mro children under the age of two.

However, the increased consumption of these combined foods will still not fill gaps in iron, calcium, Vitamin C, and Vitamin A for some children.