

Resolving Micronutrient Deficiencies: 98 Women as Decision-Makers

The benefits of resolving micronutrient deficiencies are clear.

Infants and pre-school children will have greater chances of survival, better health and nutritional status, increased intellectual capacity, less fatigue, and reduced blindness. Resolving micronutrient deficiencies will improve pregnancy outcomes and increase productivity in women of reproductive age.

Families' micronutrient status, specifically iodine, iron, and vitamin A, can be improved by strengthening women's abilities to feed their families micronutrient-adequate meals, provide care for their children, and earn income for their households. However, in order to make this approach work, women must be engaged as decision-makers in the solution development process.

Beginning in 1995, action-research studies in Ethiopia, Kenya, Peru, Tanzania, and Thailand tested the application of this approach to resolving micronutrient deficiencies. The studies received support from ICRW through the Opportunities for Micronutrient Interventions (OMNI) Research Project, managed by the International Life Sciences Institute (ILSI) and funded by USAID's Office of Health and Nutrition.

Country Studies

Each study's trial interventions were identified and developed by women in the target communities. Not surprisingly, given women's multiple roles and responsibilities, women chose to focus on improving local food availability and accessibility as a means to achieve nutritional benefits. **And, as is so often the case, the participatory nature of developing the interventions resulted in unforeseen benefits to women's roles as household and community decision-makers.**

In Kenya, a new variety of sweet potato rich in beta carotene (precursor to vitamin A) was introduced to women farmers. The intervention included complementary health and nutrition education to heighten awareness of the contribution vitamin A makes to children's health and development and to encourage consumption of the new food crop. The intention was to create supply and demand for the new food products - in the household and for market sales.

In Peru, in order to increase iron intake of women clients, a participatory approach was used in working with women in seven community kitchens. The intervention trial focused on identifying and testing ways to improve the quality of service in terms of nutritional content of meals and management practices, and to stimulate demand for these innovations.

In Tanzania, the focus was on the adoption of new home-based solar food dryers that are more cost effective and hygienic. This technology intervention was complemented by nutrition and health education sessions, and business training for marketing surplus production of solar dried vitamin A-rich foods and food products.

In Thailand, the team built on experience from an earlier social marketing intervention that resulted in increased production and consumption of vitamin A-rich foods. In the new project, women leaders were trained in problem-solving methods and worked with their communities to develop and implement plans of action to improve iodine, iron, and vitamin A status.

In Ethiopia, the goal was to improve vitamin A and iron status. Building on women's involvement

in a dairy goat project, agricultural extension agents worked with women's groups and schools to improve food preparation and feeding practices, and production of vitamin A rich foods.

The five studies finished their intervention trials and presented preliminary results at the International Vitamin A Consultative Group (IVACG) Conference in Cairo. Final research reports and other documents will be available beginning in late 1998.

Preliminary Results

(The following are based on four of the five ICRW/OMNI studies. The Ethiopia study does not end until May 1998.)

The ICRW/OMNI studies leave us with two conclusions.

- First, using an approach that takes explicit account of women's productive, reproductive and nurturing roles can contribute directly to improving family nutrition.
- Secondly, food-based interventions can improve nutritional status, as measured by food intake and serum levels, within a short period of time, if participatory approaches are used to actively engage women as decision-makers in solution development.

The Peru study is a good example of how to build on women's roles as decision-makers, in the household and community levels, to achieve nutrition results. The project began from the perspective that women are informal decision-makers but they often may not feel they can make decisions in the public domain. CEPREN engaged women in seven community soup kitchens in a participatory process that led them to recognize that their own knowledge and experience are useful in determining how to improve quality of meals prepared and served in the kitchens. They developed new menus using locally-available, iron-rich foods (liver and gizzards, among others) and tested their acceptability. Women were trained as "quality assurance supervisors" and developed new standards for managing and running the kitchens. The result was a new perception among clients that, although the kitchens were established as a poverty assistance program, the food or the service did not have to be of poor quality. As a result, more clients began to eat at the kitchens, which increased earnings for the kitchens and improved iron-intake of women clients. This increase in income allowed at least one kitchen to buy a refrigerator and purchase food in bulk, thus reducing their costs of production and contributing to the potential self-sufficiency of the kitchens.

The trial interventions in all five studies focused to a great extent on promoting food availability and accessibility. The fact that they were able to demonstrate nutritional results without long delays supports the value of their approach and contributes to the debate on linking food-based interventions to nutritional outcomes in a sustainable and acceptable manner.

- The Thai study found a significant increase in the proportion of school-aged girls (10-13 years old) meeting their recommended daily allowance for vitamin A - from 41 percent to 72 percent ($p < 0.01$) and among lactating women - from 32 percent to 67 percent ($p < 0.01$). Further, while serum retinol levels improved among the school girls in both the intervention (from 22.8 micrograms/dl to 34.9 micrograms/dl) and control (26.2 micrograms/dl to 29.6 micrograms/dl) communities, the change was significantly greater in the intervention communities ($p < 0.001$).
- Similarly, the trial interventions based in community soup kitchens in Peru found an improvement in iron content of the meals (from 6.20 mg to 8.09 mg per ration). This was principally due to an increase in the use of iron-rich foods --from .20 mg to 0.64 mg per ration. Vitamin A consumption increased from 359 mcg to 760 mcg retinol equivalents. The Peru intervention resulted in an overall decrease in anemia (with hemoglobin levels < 12 micrograms/dl) among all women from 49.2 percent to 41.3 percent. Further, there was a significant decrease in anemia among women 15 to 19 years old (from 36.6 percent to 14.8 percent, $p < 0.05$).

- In Kenya, a prolonged drought was experienced during the study that depressed non-root crop production in both the experimental and control communities, which reflected in a general reduction in post-intervention consumption scores of vitamin A-rich foods. Despite this, the intervention groups in the site with the highest vitamin A deficiency showed a score that increased dramatically from 4.8 to 6.4 (6.0 is the cutoff value for defining if a deficiency is likely to exist), while the control groups' score fell from 4.6 to 2.4. This may suggest that the intervention may have protected the intervention group from the full effects of the drought.

Further, market women suggested that popular breakfast and snack foods were less expensive for them to prepare when cooked, mashed orange sweet potato was substituted for white flour and sugar, and sold readily due to consumers' preferences for the taste and color of the new food product. The reduction in cost and consumers' acceptance of the new food products reduced women's financial risks and increased their profit margins.

- The Tanzania study also was able to demonstrate nutritional results based on a food-based technology intervention involving improved solar dryers. Using Helen Keller International's food frequency method for assessing vitamin A deficiency (cutoff value of 6.0), post-intervention data showed a greater improvement in HKI scores in the intervention communities (from 3.24 to 5.74) as compared to the control communities (3.56 to 4.11). This difference was significant at the $p < 0.001$ -level. In addition, adopters of the technology had significantly higher HKI scores (7.48) as compared to the nonadopters (4.75) at post-intervention ($p < 0.005$). Thus, food consumption scores remained below the cutoff value for all groups with the exception of the technology adopters.

Reports from the ICRW/OMNI Grants Program

A series of reports will be available in early 1999 through ICRW. These include:

- **Summary Reports** for each of the five country studies that will draw from the detailed country research reports.*
- **Synthesis Report** that will summarize the research results across the five studies and place them within the ICRW/OMNI framework.
- **Policy Paper** that will describe the ICRW/OMNI woman-centered approach, reasons for using it and results achieved.
- **Guidebook** that will demonstrate how to apply a woman-centered approach to achieve nutrition results.
- **Report-in-Brief** that will summarize the synthesis report.

* *The country reports prepared by the teams will not be available through ICRW. To access these complete field research reports, contact the in-country teams.*

Requesting Reports

- **ICRW-Produced Reports:** For a copy of any of the above ICRW-produced reports, contact [Miriam Escobar](#). Please specify which report(s) you would like, remembering that none will be available before early 1999.
- **Country research reports:** If you would like a copy of the detailed country-specific research reports, please contact the following Principal Investigators for each study.

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