



An Intervention to Improve Dietary Iron Intake among Women and Adolescents through Community Kitchens in Lima, Peru

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I. Background:

Iron deficiency anemia (IDA) is the most prevalent nutritional problem worldwide, with women of reproductive age and children most vulnerable due to their high iron requirements of reproduction and growth. A national survey conducted in Peru in 1996 found that 36% of women of reproductive age, more than 50% of pregnant women (Zavaleta, 1997), and 57% of children under 5 years suffer from iron deficiency anemia (Encuesta Demografica y de Salud Familiar, 1996).

In order to increase the dietary intake of locally accessible, high bioavailability iron sources for adult women and adolescent girls, an educational intervention was developed by the Instituto de Investigación Nutricional (IIN) and implemented through community kitchens (CKs) in the poor urban areas that surround Lima. Community kitchens were developed in the early 1980s in an effort to make greater use of locally available resources through communal cooking by a number of families in a period of difficult economic conditions. They are organized and run by women who prepare the food and menus, thus, increasing women's knowledge of a healthier diet and their informed decisions about their nutrition and health.

II. Study Objectives:

The nine-month intervention was designed to:

- Increase awareness of anemia among adolescent girls and women;
- To promote behavior change that leads to a balanced dietary intake rich in iron through culturally acceptable modifications of the community kitchen menus;
- Increase availability and accessibility of affordable iron-rich food sources; and
- Increase the dietary iron intake in adolescent girls and women.

- Recipe booklets and menu preparation guides;
- Games and exercises with cards depicting familiar foods;
- Special folder for adolescents; and
- T-shirts, stickers, pencil cases, and rulers containing key campaign messages to increase iron intake.

4. Monitoring and evaluation

Weekly visits were initially made to the community kitchens to aid in the menu planning during the early project phase. Monitoring was conducted through interviews with the leaders of the community kitchens and the adult women and adolescent girls who participated.

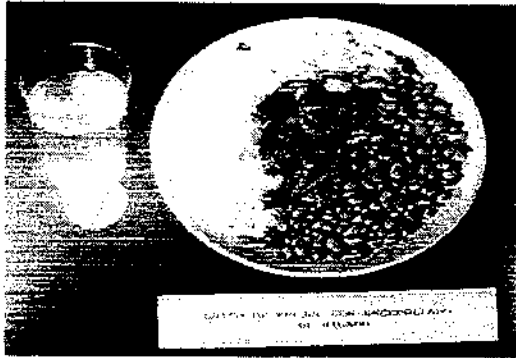
The impact of the intervention was measured through a comparison of the baseline and final survey results from the control and intervention communities.

IV. Study Outcomes:

- Following the intervention, total iron intake increased significantly from 6.6 mg/day to 8.8 mg/day in adult women and from 7.7 mg to 9.4 mg in adolescent girls. There was no change in the control group.
- Significant ($p < 0.01$) increases in intakes of heme iron and bioavailable iron were observed in both adult women (0.22 mg to 0.38 mg/day of heme iron and 0.31 mg to 0.47 mg/day in available iron) and adolescent girls (0.21 mg to 0.66 mg/day of heme iron and 0.36 mg to 0.50 mg/day in available iron). Again, there was no significant change in the control group.
- Prevalence of anemia did not change in the intervention communities (35% among adult women and 15% in adolescent girls). Anemia prevalence increased significantly ($p < 0.01$) in the control communities from 27% to 41% in adult women and 14% to 38% in adolescent girls. Although the reasons are not clear as to why anemia rates increased in the control communities, the researchers believe that this impact occurred from a nutritional decline in dietary menus of the community kitchens due to economic constraints. In contrast, the intervention had stimulated the purchase of low-cost heme iron sources and use of vitamin C with beans, which helped to protect the intervention community's iron status. There was a significant increase in knowledge of optimal diets and the prevention of anemia in the intervention groups, particularly among the adolescent girls.

V. Key Conclusions Regarding Lessons Learned:

- Community kitchen leaders said that the educational intervention was a positive experience for them, adding to their menu planning skills for improved quality and variety of meals.
- All of the participating women valued learning about more nutritious food combinations. An important achievement of the intervention was women's change in their perceptions of liver and beans. These foods are now seen as nutritious and more



Beans and rice with liver and lemonade



Poster featuring iron rich foods



Adolescent girls with IEC materials from anemia intervention