FOOD AND AGRICULTURAL APPROACHES TO REDUCING MALNUTRITION: AGRICULTURE'S IMPACT ON DIET, INFECTIOUS DISEASE AND BIRTH SIZE

Helen Keller International, Bangladesh

The Challenge

In Bangladesh, rates of malnutrition are extremely high. Maternal undernutrition leads to child undernutrition with long-term effects on growth and development, livelihoods and risk of chronic disease. About one-fifth of women of reproductive age are chronically energy-deficient, a quarter of pregnant women are undernourished and one-third of children under age five are stunted.[1] Agricultural interventions that focus on increasing dietary diversity and empowering women through education to improve hygiene and infant and young child feeding (IYCF) practices could be a sustainable solution.

The Intervention

Helen Keller International's Homestead Food Production programme aims to improve the nutritional status of women and children through both direct and indirect pathways. Women are organised into farmers' groups and equipped with skills as well as productive assets, including basic gardening equipment and monetary support. They are also trained in how to sell their production surpluses to earn an income. At the same time, women received training on nutrition, hygiene and health topics, including joint cooking sessions.

The Evaluation

The Food and Agricultural Approaches to Reducing Malnutrition (FAARM) cluster-randomised trial was conducted by Heidelberg University together with HKI in Habiganj District within Sylhet Division in the Northeast of Bangladesh, which is the division with the highest stunting rates in the country. Forty-eight settlements were selected for the intervention arm and forty-eight were assigned to the control arm. The target population was women under age 30 and their children under age 3. The primary outcome of interest for the trial was stunting in children. Secondary outcomes included wasting, micronutrient status, dietary diversity, diarrhoea prevalence and size at birth.

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The Results

From the baseline survey, 2,599 women were enrolled in the study and then surveyed every 2 months. Thus far, 564 births have occurred. The intervention demonstrated a slight positive effect on: early initiation of breastfeeding, exclusive breastfeeding under six months and infant minimum dietary diversity. Prevalence of breastfeeding among children (0-6 months) was between 37% and 66% among the intervention arm compared to between 24% and 54% in the control arm. Since the start of surveillance, diarrhoea prevalence decreased in both groups, but there was no significant difference between the intervention and control arms and this change is partially attributable to older average child age in the later rounds. Nearly one-third of children born had a birth weight of less than 2.5 kilograms, with no difference between treatment and control. There were also slight improvements seen in women's dietary diversity beginning around two years after the start of the intervention. Additional outcomes will be measured at the end of the intervention in 2019.

The Lessons Learnt

At different points in the study, transport was difficult due to weather, flooding and political instability. At times, bi-monthly survey completion was delayed. The research team had to be adaptable to ensure consistent data collection. Birth surveillance had low coverage in part because women sometimes travel outside of the study area to have their delivery in their natal family. In other cases, families did not contact the surveillance team in time to reach the delivery within 72 hours. The importance of a well-designed surveillance system was proven to be crucial during this study. Flexibility during implementation of surveillance activities was necessary to ensure quality data collection.

Looking Ahead

Following this study, additional analyses will need to be completed at the end of the FAARM trial to evaluate its long-term impact on IYCF practices and child nutrition. Surveillance systems, such as the one described here, are key to understanding how a programme is functioning and how seasonal variations impact programme results. This study demonstrates how a functioning surveillance system can allow programmes to continuously monitor results and obtain a comprehensive picture of their impact pathway.

The Nutrition Embedding Evaluation Programme (NEEP) is a four-year project (Oct 2013–Oct 2017) led by PATH and funded by the UK Department for International Development. NEEP aims to build the evidence base for what works in improving nutrition by conducting credible, robust evaluations of innovative interventions implemented by civil society organisations (CSOs). The programme provides grants to 18 CSOs to evaluate their programmes in 13 different countries. For more information, see **http://sites.path.org/mchn/our-projects/nutrition/neep/.**

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[1] Helen Keller International and James P. Grant School of Public Health (JPGSPH). *State of food security and nutrition in Bangladesh*. Dhaka, Bangladesh: James P. Grant School of Public Health and National Nutrition Services; 2015.

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