

Nutri-CAP: A Model for Improving Nutrition for Children, Adolescents, and Pregnant Women in Slums of Dhaka City

Dr Mustafa Mahfuz¹, Fahmida Dil Farzana¹, Gulshan Ara¹, Dr Shams El Arifeen¹, Dr Tahmeed Ahmed¹

¹icddr,b

Background

Urban slums in Bangladesh continue to face chronic food insecurity and widespread undernutrition, challenges that were further intensified during the COVID-19 pandemic. At the height of the lockdown, over 90 per cent of slum households experienced food insecurity. Despite national progress in income and health indicators, urban slums remain persistent hotspots for malnutrition. Vulnerable groups such as pregnant women, adolescent girls, and children under two are particularly at risk, yet data on pregnancy weight gain, adolescent dietary habits, and child feeding practices in these settings have been limited. To address these gaps, the Nutri-CAP project was implemented as a quasi-experimental study in the Bauniabadh slum of Dhaka,

introducing a combined package of nutrition education, micronutrient supplementation, and WASH counselling. All three vulnerable groups, i.e., pregnant women, adolescent girls and children under two years, were considered. Formative research informed the design of these interventions by identifying key dietary deficiencies, cultural factors, and environmental health risks. Counselling was provided by locally recruited women after training. This research brief highlights only the findings from the study's primary objective, offering insights for strengthening urban nutrition policies, particularly in the context of post-COVID recovery and resilience efforts.

Key Messages

Undernutrition remains widespread in Dhaka's slums

The Nutri-CAP project piloted integrated, community-based nutrition and WASH services for three vulnerable groups

Results suggest high acceptability and potential for scale-up

This model can inform national urban nutrition strategies

The Study



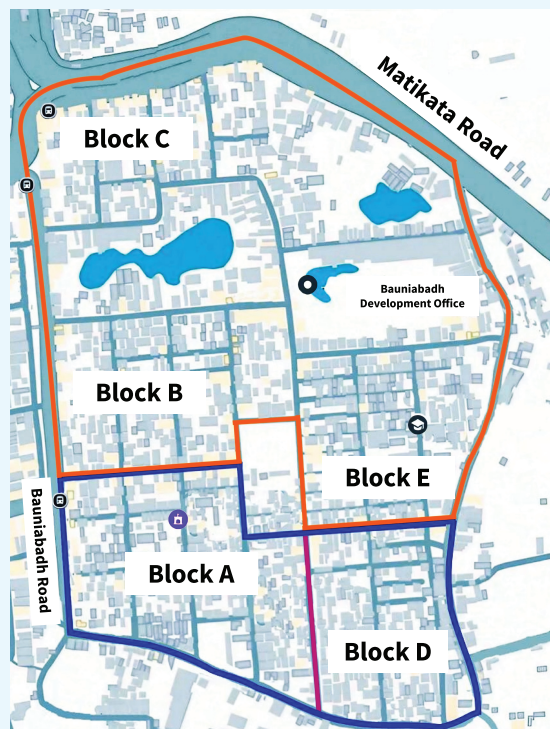
Primary objective

To develop a model to implement sustainable nutrition service delivery platforms in a slum settlement of Dhaka city

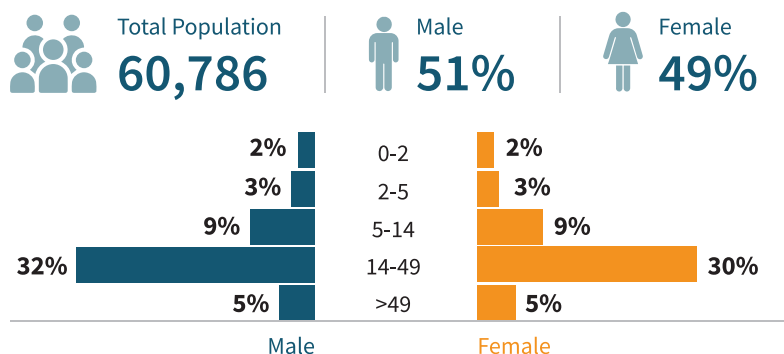
Secondary objectives

- Explore the pregnancy weight gain among pregnant women
- Examine Childhood growth indicators in children under 2 years of age
- Assess the dietary diversity of adolescent girls
- Evaluate the impact of WASH intervention

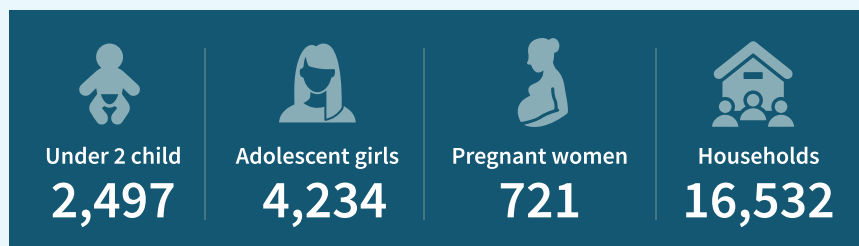
Bauniabadh, Dhaka at a Glance



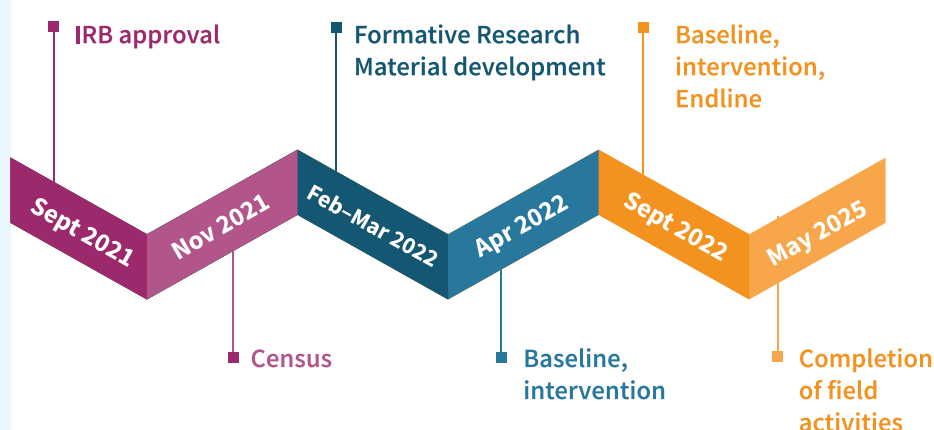
Population Pyramid and Gender Distribution of Bauniabadh



Population of Nutri-CAP



Implementation



Between late 2021 and early 2022, the Nutri-CAP conducted a census, screened participants, provided training, and initiated baseline data collection.

Counselling and supplementation began in April 2022.

The intervention was delivered using locally tailored flipcharts and government-developed information, education, and communication materials.

Formative Research Summary


Nutrient Intake of Pregnant Women (in % of Recommended Daily Allowance)

314% Carbohydrate	79% Protein	42% Iron
20% Calcium	56% Zinc	32% Vitamin A


- Qualitative and quantitative methods highlighted serious deficiencies in protein, iron, calcium, and vitamin A intake among pregnant women, alongside overconsumption of carbohydrates.
- Market surveys indicated seasonal and affordability constraints.
- Focus group discussions and interviews uncovered taboos, knowledge gaps, and social influences that shaped dietary practices.
- WASH assessments revealed unsafe drinking water practices and inadequate sanitation infrastructure.

Intervention Package Overview


Coverage Acheived



Pregnant women received monthly counselling and micronutrient supplements



Adolescents attended fortnightly group sessions and took iron and zinc supplements



Children received monthly Growth Monitoring and Promotion (GMP)

Stunted children were given eggs and Multiple Micronutrient Powders (MNPs)

Community-wide WASH campaigns supported environmental health

The intervention exceeded enrolment targets. For example, 248 pregnant women were enrolled in the intervention arm (124% of the target). Adolescents showed over 80% follow-up completion, with pregnant women around 70%. Endline data was collected in May 2025.

Key Findings

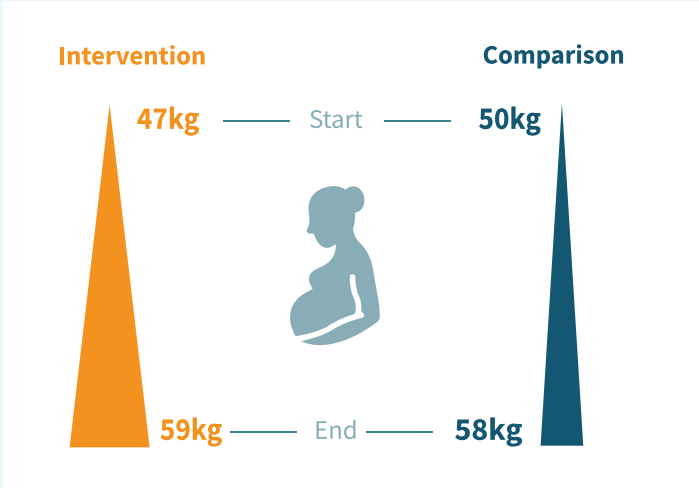
Child’s Nutritional Status

27% Prevalence of Stunting
(Low height-for-age)

5% Prevalence of Wasting
(Low weight-for-height)

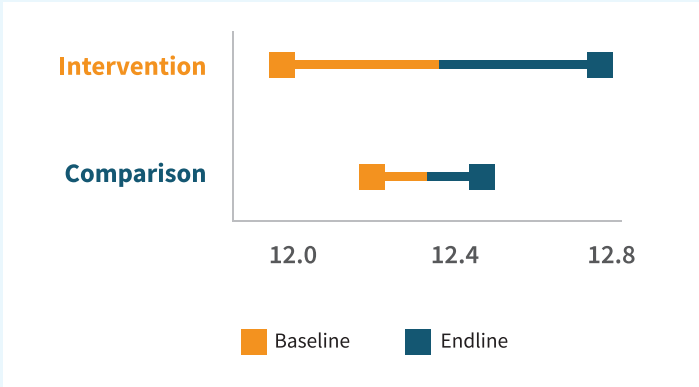
20% Prevalence of Underweight
(Low weight-for-age)

Pregnancy Weight Gain

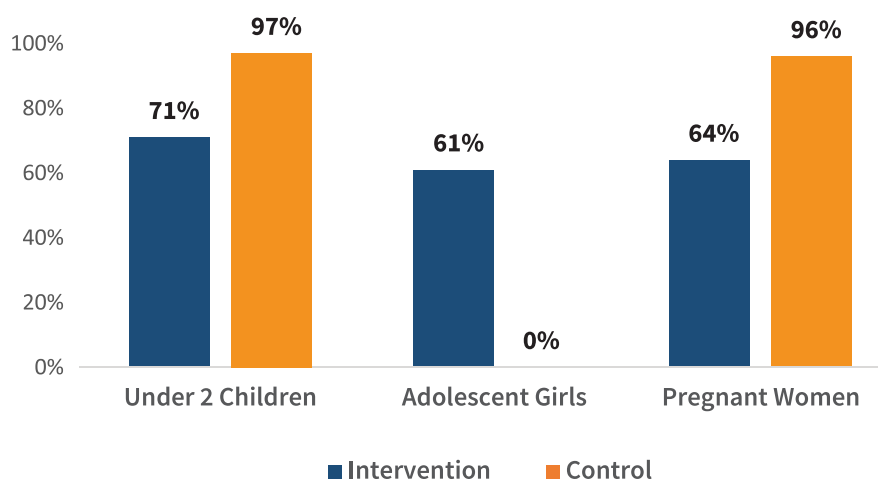


- Community engagement is essential for dismantling taboos and promoting participation.
- Peer counselling and the use of context-specific materials have proven to be effective strategies.
- Integrated services were feasible to deliver even in dense, resource-poor settings.
- The pregnant women in the intervention group gained more weight, had higher chances of achieving optimum weight gain, and showed faster weight gain over time.
- Most importantly, their babies were less likely to be born small for gestational age, highlighting the value of low-cost, community-based counselling and supplementation in slum settings.
- Significant changes in the level of haemoglobin have been found among the groups.
- Adolescent girls in the intervention group reported a greater rate of positive change compared to those in the comparison group.
- The analysis of the children’s data is ongoing. However, the preliminary cost analysis indicates that the programme can be effective in reducing the out-of-pocket expenditure in the intervention group.

Changes in Hemoglobin (mg/dl) in Adolescents



Out-of-Pocket Expenditure (Cost Driver)



Out-of-pocket health expenditure was lower among households receiving the intervention, particularly for pregnant women and children. This expenditure mainly included direct costs for medicines and diagnostic services, which were identified as the primary cost drivers.

Policy Relevance

The first 1,000 days of life and adolescence are widely recognised as strategic entry points for reducing malnutrition and its long-term consequences. However, urban health services in Bangladesh remain fragmented and under-resourced, particularly in informal settlements. The Nutri-CAP project offers a replicable, evidence-informed model that delivers integrated nutrition

and WASH support across critical life stages. Its community-driven design and operational feasibility demonstrate high potential for scale and alignment with national nutrition priorities. For donors seeking high-impact, cost-effective investments in urban health and resilience, Nutri-CAP provides a compelling blueprint.

Way Forward

- Scale up integrated nutrition and WASH services through urban slum health platforms to enhance impact across life stages.
- Institutionalise peer-led counselling and community-based growth monitoring to promote early action and sustained behaviour change.
- Align nutrition programming with WASH interventions, particularly handwashing at critical times and infrastructure investments such as garbage disposal systems, to address underlying causes and maximise the return on investment.

This Study is funded by Global Affairs Canada (GAC) through the Advancing Sexual and Reproductive Health and Rights (AdSEARCH) by icddr,b project. Grant number: SGDE-EDRMS-#9926532, Purchase Order 7428855, Project P007358.



Advancing Sexual and Reproductive Health and Rights (AdSEARCH) by icddr,b

68, Shaheed Tajuddin Ahmed Sarani, Mohakhali, Dhaka 1212

Email: adsearch_official@icddr.org | **Website:** adsearch.icddr.org

 [icddr-b-adsearch](https://www.linkedin.com/company/icddr-adsearch)  [/icddr.adsearch](https://www.facebook.com/icddr.adsearch)

