



SUPPLEMENT

Effectiveness of Nutrition Education and Local Food-Based Supplementary Feeding to Improve Maternal Nutritional Status During Pregnancy

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Abstract

Background: Chronic Energy Deficiency (CED) among pregnant women remains a significant public health concern in Indonesia.

Objectives: This study aimed to evaluate the effectiveness of a 16-week nutrition intervention that integrated Behavior Change Communication (BCC)-based nutrition education with the provision of local food-based supplementary feeding (≥ 350 kcal/day) in improving the nutritional status of pregnant women.

Methods: A quasi-experimental pretest–posttest design was used involving 175 pregnant women in their first and second trimesters from Bogor, Serang, and Purbalingga. Anthropometric and hemoglobin data were collected before and after the intervention. Multiple linear regression analysis identified predictors of MUAC change.

Results: The intervention led to significant increases in weight (+5.8 kg), BMI (+1.5 kg/m²), MUAC (+0.9 cm), and hemoglobin (+0.8 g/dL) (all $p < 0.001$). The proportion of women at CED risk (MUAC < 23.5 cm) declined by 27.4%. Regression analysis identified snack adherence ($\beta = 0.41$), baseline Hb, and initial MUAC as significant predictors of MUAC increase, with an Adjusted $R^2 = 0.17$.

Conclusions: The integration of BCC-based education and local food supplementation effectively improved MUAC and hemoglobin, demonstrating potential for adoption in community-based antenatal services to reduce maternal undernutrition and stunting risk.

Keywords: chronic energy deficiency (CED), local food Indonesia, maternal nutrition, MUAC, nutrition education

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