How to increase heights in short populations such as the Philippines

Interactions between nutrition and various infections in developing countries are complex and analyses of the inter-relationships requires data from longitudinal studies spanning several years and a comprehensive framework facilitating the formulation of food and health policies. There has been emphasis in the recent nutrition literature on interventions in the "First 1000 days". Historically, it was recognized that there is considerable “catch-up” growth during periods of child growth though the extent may be diminished due to infections as older children are exposed to a range of pathogens including via intakes of contaminated food and water. In fact, the Dutch School Milk programs after the Second World War encouraged children to consume up to 5 glasses of milk per day for becoming “M-Brigadiers” and have apparently led to the Dutch being the tallest population in the world. However, such programs were gradually discontinued in the 1980’s so that the Dutch heights are beginning to show a slight decline in the recent years. From a food policy standpoint in developing countries, it is important to investigate how to best allocate nutritional and other resources over children’s growth periods especially in short populations such as the Philippines for increasing the completed adult heights.

In this article, the effects of dietary intakes in the Philippines for birth outcomes, heights, weights and sicknesses during 2-24 months, heights and weights during 8-19 years, and completed adult heights were analyzed. Data on over 3000 children from Cebu Longitudinal Health and Nutrition Survey were modeled in four sets of analyses. Cross-sectional models were estimated for length and weight at birth. Dynamic random effects models were estimated for children’s heights, weight, and morbidity levels during 2-24 months. Children’s heights and weights during 8-19 years were modeled using random effects models. Children’s heights at 22 years were modeled for investigating the effects of nutritional intakes in early years and in adolescence.

The main findings were that maternal anthropometric indicators and energy intakes and sociodemographic variables were significantly associated with children’s length and weight at birth. Second, dynamic models for children’s heights and weights during 2-24 months showed significant effects of calcium and protein intakes; child morbidity levels were significantly associated with heights and weights, and higher ?–carotene intakes were significantly associated with lower morbidity levels. Third, analyses of data on children during 8-19 years showed significant effects of protein and calcium intakes and of morbidity levels on heights and weights. Fourth, models for children’s heights at 22 years indicated significant effects of protein and calcium intakes during early years and in adolescence.

Overall, the results underscored the need for formulating long-term food and health policies that enhance children’s physical development and ultimately their adult stature that is important for physical work capacity and labor productivity. It is important to supply critical nutrients at various stages of growth; focusing exclusively on the “First 1000 days” is likely to be counter-productive

and will lead to a misallocation of scarce resources. Of course, it is also important to immunize children in the early months for enhancing their immunity systems so that increasing adult heights requires comprehensive food and health policy interventions.

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