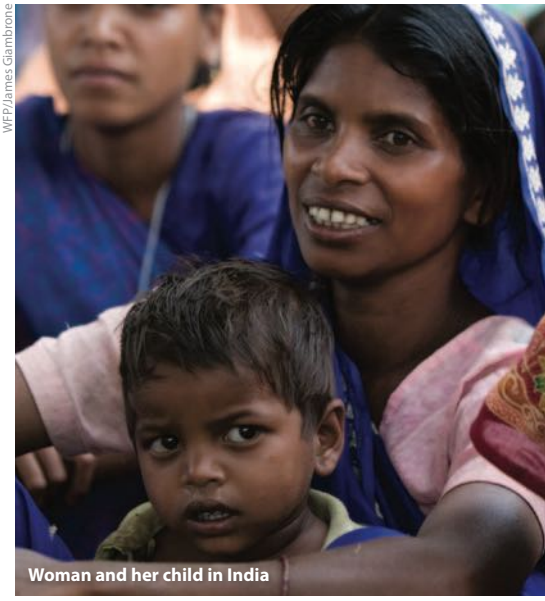
Burden of child and maternal malnutrition and trends in states of India 1990-2017

Research snapshot[1]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Woman and her child in India

India has a large and persistent burden of malnutrition. However, with a population of 1.4 billion people residing across states which are at varying levels of health transition, burdens of malnutrition are uneven. This study presents indicators of malnutrition from multiple sources for each state in India from 1990 to 2017 and models the prevalence of malnutrition up to 2030 based on the 1990-2017 trends. The projections are compared with Indian targets (India National Nutrition Mission (NNM) 2022) and global targets (World Health Organization (WHO) and the United Nations Children's fund (UNICEF) 2030) to inform state-specific policy action.

Results show that malnutrition was the predominant risk factor for death in children under five years of age in every state of India in 2017, contributing to 68.2% (95% confidence interval (CI) 65.8–70.7) of under-five deaths. Malnutrition was also the leading risk factor for loss of health for all ages and responsible for 17.3% (16.3–18.2) of total disability-adjusted life years (DALYs). The prevalence of various forms of undernutrition in India in 2017 was 21.4% (20.8–21.9) for low birth weight; 39.3% (38.7–40.1) for child stunting; 15.7% (15.6–15.9) for child wasting; 32.7% (32.3–33.1) for child underweight; 59.7% (56.2–63.8) for anaemia in children; 54.4% (53.7–55.2) for anaemia in women aged 15-49 years; 53.3% (51.5–54.9) for exclusive breastfeeding; and 11.5% (8.5–14.9) for child overweight. If the trends continue by 2022 there will be an estimated excess prevalence of 8.9% for low birthweight, 9.6% for stunting, 4.8% for underweight, 11.7% for anaemia in children, and 13.8% for anaemia in women relative to NNM targets. By 2030, if current trends persist, there will be a 10.4% excess prevalence for wasting and 14.5% excess prevalence for overweight, and 10.7% less exclusive breastfeeding compared to UNICEF and WHO targets. Burdens and gaps vary substantially between states; Uttar Pradesh, Bihar, Assam and Rajasthan had the highest burdens of malnutrition.

Results highlight that malnutrition remains one of the most serious public health challenges across India, with substantial heterogeneity across states. Higher rates of improvement will be needed for all malnutrition indicators in most states to achieve the Indian 2022 and the global 2030 targets. The policy momentum generated by the new NNM can benefit from this state-level data to try get malnutrition targets back on track.

[1] India State-Level Disease Burden Initiative Malnutrition Collaborators. The burden of child and maternal malnutrition and trends in its indicators in the states of India: the Global Burden of Disease Study 1990–2017. Lancet Child Adolesc Health. 2019; 3: 855–70. https://doi.org/10.1016/S2352-4642(19)30273-1

PAKISTAN

Effect of supplementation during pregnancy and lactation on the nutritional status of infants in Pakistan

Research snapshot[1]

Despite economic and social development, malnutrition remains a major public health problem in Pakistan, especially low birthweight, wasting, stunting and micronutrient deficiencies. A recent randomised controlled trial in the Thatta and Sujawal districts of Sindh in Pakistan studied the effects of providing fortified wheat-soya blended flour (WSB+) to pregnant and lactating women on infant nutrition outcomes.


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A lactating woman eating nutritious food at home in Pakistan

The study, which took place from 2014 to 2016, recruited 2,030 pregnant women and provided some of them with a monthly ration of 5 kg (i.e., 165 g/day) of WSB+ during their pregnancy and for the first six months of breastfeeding. Outcomes assessed were maternal weight gain, the prevalence of low birthweight and the nutritional status of the infants at six months of age. No difference was found in weight gain during pregnancy between the intervention and control groups (n = 496, 326.7 g/week 95% CI 315.2–338.1 vs. n = 507, 306.9 g/week, 95% CI 279.9–333.9, P = 0.192) nor in the prevalence of low birthweight (n = 325, 34.0%, 95% CI 31.7–36.4, vs. n = 127, 34.3%, 95% CI 27.2–41.5, P = 0.932).

However, there was a significant improvement in the nutritional status of the infants at six months who had a reduced risk of wasting (n = 1330, RR 0.77, 95% CI 0.65–0.91, P = 0.003), and being underweight (n = 1295, RR 0.77, 95% CI 0.69–0.87, P < 0.001). Although the risk of stunting at six months of age was also reduced in the intervention group, after adjusting for confounding factors, there was no statistically significant difference (n = 1318, RR 0.91, 95% CI 0.78–1.07, P = 0.253). A significant reduction in anaemia was also noted in infants at six months of age in the intervention group (n = 1328, RR 0.94, 95% CI 0.91–0.98, P = 0.002).

These results suggest that the provision of WSB+ during pregnancy and lactation is effective in reducing the risk of undernutrition and anaemia in infants at six months of age. The success of this intervention should be noted by governments, donor agencies and other implementers seeking to improve the nutritional status of infants and children in the region.

[1] Khan, G.N., Ariff, S., Kureishy, S. et al. Effectiveness of wheat soya blend supplementation during pregnancy and lactation on pregnancy outcomes and nutritional status of their infants at 6 months of age in Thatta and Sujawal districts of Sindh, Pakistan: a cluster randomized-controlled trial. Eur J Nutr (2020). https://doi.org/10.1007/s00394-020-02276-3