

## EDITOR'S NOTE

Season's greetings! The 47th issue of POSHAN's Abstract Digest features studies on maternal nutrition, anemia, and infant and young child feeding (IYCF) practices. The maternal nutrition articles include a modeling study that examines the importance of prenatal nutrition for reducing the global burden of non-communicable diseases, and a gap analysis study to identify key elements to strengthen maternal nutrition counselling during routine health services. There are two anemia articles: one examines the association of adolescent anemia and physical growth with learning outcomes, while the other investigates the prevalence and determinants of anemia among men. Among the two articles covering IYCF practices, one assesses food group consumption patterns among children in 59 countries and the other investigates the association between IYCF practices and nutrition indicators.

Other interesting studies in this issue include two articles based on learnings from interventions through women's self-help groups, an assessment of anthropometric data quality in India's National Family Health Survey, another on implementation characteristics of father-inclusive interventions in low- and middle-income countries, and one on the perceptions, risk factors, and behaviors of overweight adults.

Below is the list of peer-reviewed articles. Please click on the title if you wish to go straight to the article or scroll down to explore the abstracts in the pages that follow.

Happy holiday reading!

### List of articles in this issue

#### **Scaling Up Prenatal Nutrition Could Reduce the Global Burden of Noncommunicable Diseases in the Next Generation: A Modeling Analysis**

Blakstad et al. 2022. *The American Journal of Clinical Nutrition* 116 (5): 1291–1302

#### **Changes in Anemia and Anthropometry During Adolescence Predict Learning Outcomes: Findings From a 3-Year Longitudinal Study in India**

Nguyen et al. 2022. *American Journal of Clinical Nutrition* 115(6): 1549–1558

#### **Prevalence and Determinants of Anaemia Among Men in Rural India: Evidence from a Nationally Representative Survey**

Singh et al. 2022. *PLOS Global Public Health*

#### **Quality of Anthropometric Data in India's National Family Health Survey: Disentangling Interviewer and Area Effect Using a Cross-Classified Multilevel Model**

Dwivedi et al. 2022. *SSM - Population Health* Volume 19

#### **Perception, Risk Factors, and Health Behaviours in Adult Obesity in Kolkata, India: A Mixed Methods Approach**

Barua et al. 2022. *BMC Public Health* 22, 2376.

**Qualitative Examination of the Role and Influence of Mothers-in-Law on Young Married Couples' Family Planning in Rural Maharashtra, India**

Dixit et al. 2022. *Global Health: Science and Practice* 10(5):e2200050

**Strengthening Maternal Nutrition Counselling During Routine Health Services: A Gap Analysis to Guide Country Programmes**

Kavle. 2022. *Public Health Nutrition*, 1-18

**Implementation Characteristics of Father-Inclusive Interventions in Low- And Middle-Income Countries: A Systematic Review**

Jeong et al. 2022. *The New York Academy of Sciences*

**Food Group Consumption Patterns Among Children Meeting and Not Meeting WHO's Recommended Dietary Diversity: Evidence from 197,514 Children In 59 Countries**

Heemann et al. 2022. *Food Policy*, 112: 102368

**Is Infant and Young Child-Feeding (IYCF) a Potential Double-Duty Strategy to Prevent the Double Burden of Malnutrition Among Children at the Critical Age? Evidence of Association from Urban Slums in Pune, Maharashtra, India**

Jeyakumar et al. 2022. *PLOS One*

**Key Learnings from an Outcome and Embedded Process Evaluation of a Direct to Beneficiary Mobile Health Intervention Among Marginalised Women in Rural Bihar, India**

Irani et al. 2022. *BMJ Open* 12(10):e052336

**Scale and Sustainability: The Impact of a Women's Self-Help Group Program on Household Economic Well-Being in India**

Raghunathan et al. 2022. *The Journal of Development Studies*

---

**PEER-REVIEWED**

---

**Scaling Up Prenatal Nutrition Could Reduce the Global Burden Of Noncommunicable Diseases in the Next Generation: A Modeling Analysis**

Blakstad, Mia M., W.W. Fawzi, M.C. Castro, A. Thompson, M. Arabi, and G. Danaei. 2022. "Scaling up prenatal nutrition could reduce the global burden of noncommunicable diseases in the next generation: a modeling analysis." *The American Journal of Clinical Nutrition* 116 (5): 1291–1302. doi: <https://doi-org.ifpri.idm.oclc.org/10.1093/ajcn/ngac214>

**Background:** Nutritional conditions during pregnancy may influence the epigenetic development of an individual and consequently their later-life risk of noncommunicable disease (NCD). Improving nutrition for pregnant females may therefore serve the dual purpose of directly improving pregnancy outcomes *and* preventing NCDs in the next generation. **Objectives:** We estimated the impact of prenatal supplementation with iron and folic acid (IFA), multiple micronutrients (MMS), or calcium at 50%, 75%, or 90% coverage on future NCDs by age and sex in 2015. **Methods:** We used secondary data sources from 132 countries to quantify the cases of diabetes and hypertension and the deaths from selected NCDs that could be averted or delayed by scaling up prenatal micronutrient supplementation. **Results:** Globally, >51,000 NCD deaths, 6 million cases of hypertension, and 3 million cases of diabetes could be prevented per offspring birth cohort if mothers were prenatally supplemented with MMS at 90% coverage. For IFA these numbers would be roughly half. Calcium supplementation at 90% could delay 51,000 deaths per birth cohort. Our model suggests that substantial numbers of NCD deaths and cases of hypertension and diabetes could be prevented in future generations by scaling up micronutrient supplementation for mothers during pregnancy. **Conclusions:** Highlighting the additional benefits of proven nutrition interventions is critical in ensuring adequate and sustained investments, and programmatic integration. As the double burden of disease continues to grow, population-wide efforts to scale up micronutrient supplementation to pregnant females could help prevent both undernutrition and chronic disease.

---

**Changes in Anemia and Anthropometry During Adolescence Predict Learning Outcomes: Findings From a 3-Year Longitudinal Study in India**

Nguyen, P.H., M. Walia, A. Pant, P. Menon, and S. Scott. 2022. "Changes in Anemia and Anthropometry During Adolescence Predict Learning Outcomes: Findings From a 3-Year Longitudinal Study in India." *American Journal of Clinical Nutrition* 115(6): 1549–1558. doi: <https://doi.org/10.1093/ajcn/nqac028>

**Background:** Anemia and poor physical growth during adolescence have far-ranging consequences, but limited longitudinal evidence exists on how changes in these factors relate to changes in learning skills as adolescents mature. **Objectives:** We examined the association between changes in anemia and physical growth during adolescence and learning outcomes. **Methods:** We used longitudinal data from the Understanding the Lives of Adolescents and Young Adults (UDAYA) project, which surveyed adolescents aged 10–19 y in northern India in 2015–2016 and 2018–2019 (n = 5963). We used multilevel mixed-effects logistic regression models to examine associations between changes in anemia/thinness/stunting status (4 groups: never, improved, new, and persistent) and reading (ability to read a story) and math proficiency (ability to solve division problems) at follow-up. **Results:** Persistent anemia and stunting were higher among girls than among boys (46% compared with 8% and 37% compared with 14%, respectively), but persistent thinness was lower (7% compared with 16%). Improvement in anemia, thinness, and stunting was 1.4–1.7 times higher among boys than among girls. Boys who were anemic in both waves were 74% [adjusted odds ratio (AOR): 0.26; 95% CI: 0.12, 0.59] and 65% (AOR: 0.35; 95% CI: 0.16, 0.76) less likely to be able to read a story and solve division problems, respectively, than boys who were nonanemic in both waves.

Persistent thinness in boys was negatively associated with both reading (AOR: 0.37; 95% CI: 0.21, 0.66) and math proficiency (AOR: 0.27; 95% CI: 0.16, 0.46). Persistent stunting contributed to lower reading and math proficiency in boys and girls (AORs: 0.29–0.46). Boys whose anemia or thinness status improved and girls whose stunting status improved had similar learning skills at follow-up as those who were never anemic/thin/stunted. **Conclusions:** Persistent anemia, thinness, and short stature during adolescence were associated with poor learning. Programs targeted at adolescents should contribute to nurturing environments that foster healthy growth and learning.

---

### **Prevalence and Determinants of Anaemia Among Men in Rural India: Evidence from a Nationally Representative Survey**

Singh, A., S. Ram, S. Singh, and P. Tripathi. 2022. "Prevalence and determinants of anaemia among men in rural India: Evidence from a nationally representative survey." *PLOS Global Public Health*. doi: <https://doi.org/10.1371/journal.pgph.0001159>

Anaemia among men is a significant health issue which has not been given due importance. Only a handful of studies have captured the prevalence of anaemia among men. There is dearth of evidence base on anaemia among men in India. Therefore, this study attempts to fill this research gap by examining the socioeconomic, geographic, health-related, and behavioural differentials of anaemia among rural men in India. We analysed a cross-sectional sample of 61,481 men aged between 15–54 and living in rural areas from the National Family Health Survey (NFHS-5), conducted in 2019–21. Bivariate statistics and multivariable logistic regression were employed to assess the factors associated with anaemia. In rural India, three out of ten men were found to be anaemic. Older men [49–54 years] (Odds Ratio: 1.10, 95% CI, 1.00–1.21), men without a formal education (OR: 1.36, 95% CI, 1.26–1.47), those from Scheduled Tribes (OR: 1.48, 95% CI, 1.39–1.58) and men who belonged to the poorest wealth quintile (OR: 1.24, 95% CI: 1.25–1.35) had a higher risk of anaemia. Men who were underweight were more likely to be anaemic (OR: 1.36, 95% CI: 1.30–1.43). When compared to the central region, men from the eastern (OR: 1.47, 95% CI: 1.39–1.55) parts of India had higher a risk of anaemia. The findings suggest the need to recognise anaemia among men as a public health issue. When developing policy, significant variation in socioeconomic, geographic, health-related, and behavioural factors must be taken into account. Men should also be screened on a regular basis in order to reduce the national burden of anaemia.

---

### **Quality of Anthropometric Data in India's National Family Health Survey: Disentangling Interviewer and Area Effect Using a Cross-Classified Multilevel Model**

Dwivedi, L.K., K. Banerjee, R. Sharma, R. Mishra, S. Ramesh, D. Sahu, S.K. Mohanty, and S.K James. 2022. "Quality of Anthropometric Data in India's National Family Health Survey: Disentangling Interviewer and Area Effect Using a Cross-Classified Multilevel Model." Dwivedi et al. 2022. *SSM - Population Health Volume 19*. doi: <https://doi.org/10.1016/j.ssmph.2022.101253>

India has adopted a target-based approach to reduce the scourge of child malnourishment. Because the monitoring and evaluation required by this approach relies primarily on large-scale data, a data quality assessment is essential. As field teams are the primary mode of data collection in large-scale surveys, this study attempts to understand their contribution to variations in child anthropometric measures. This research can help disentangle the confounding effects of regions/districts and field teams on the quality of child anthropometric data. The anthropometric z-scores of 2,25,002 children below five years were obtained from the fourth round of India's National Family and Health Survey (NFHS-4), 2015–16. Unadjusted and adjusted standard deviations (SD) of the anthropometric measures were estimated to assess the variations in measurements. In addition, a cross-classified multilevel model (CCMM) approach was adopted to estimate the contribution of geographical

regions/districts and teams to variations in anthropometric measures. The unadjusted SDs of the measures of stunting, wasting, and underweight were 1.7, 1.4, and 1.2, respectively. The SD of stunting was above the World Health Organisation threshold (0.8–1.2), as well as the Demographic and Health Survey mark. After adjusting for team-level characteristics, the SDs of all three measures reduced marginally, indicating that team-level workload had a marginal but significant role in explaining the variations in anthropometric z-scores. The CCMM showed that the maximum contribution to variations in anthropometric z-scores came from community-level (Primary Sampling Unit (PSU)) characteristics. Team-level characteristics had a higher contribution to variations in anthropometric z-scores than district-level attributes. Variations in measurement were higher for child height than weight. The present study decomposes the effects of district- and team-level factors and highlights the nuances of introducing teams as a level of analysis in multilevel modelling. Population size, density, and terrain variations between PSUs should be considered when allocating field teams in large-scale surveys.

---

### Perception, Risk Factors, and Health Behaviours in Adult Obesity in Kolkata, India: A Mixed Methods Approach

Barua, S., and N. Saikia. 2022. "Perception, risk factors, and health behaviours in adult obesity in Kolkata, India: a mixed methods approach." *BMC Public Health* 22, 2376. doi: <https://doi.org/10.1186/s12889-022-14531-9>

**Background:** World Health Organisation has described obesity as one of the most neglected public health issues. Initially, obesity was only a problem in high-income countries; however, at present, it is rising in middle and low-income countries as well, rapidly in India, especially in the urban areas. In the light of the increasing prevalence of obesity in India, it was worthwhile to study perception, risk factors and health behaviours in adult obesity holistically. **Methods:** This study resorted to a concurrent mixed methods approach, collecting and combining quantitative survey (n = 120) and qualitative interview data (n = 18). Female and male aged 25–54 years with a waist circumference of 80 cm and 90 cm or higher, respectively, and a BMI of 25 or higher were selected from Kolkata, India. Kolkata was chosen as the study area since it ranked 7th out of 640 districts, the highest among the five major urban cities in India, with around 41% of the female and 43% of the male population aged 15–49 years with a BMI of 25 or higher. **Results:** Participants confirmed that lifestyle was one of the main reasons for obesity. They believed that family history, social relations, behavioural factors, urbanisation, and time-poor were significant risk factors of obesity. Interview participants expanded that technology, lack of health education and self-care, and digital marketing of food influenced the risk of obesity. Participants confirmed that they wanted to lose weight to feel healthier. Most respondents claimed that they engaged in lightly to moderate-intensity physical activity. However, a discrepancy in opinion was observed between survey responses and interview participants' views on dietary behaviours. Participants confirmed that they rarely consulted health professionals and that the family had a minimal role in preventing obesity. Interview participants expanded that people should make better lifestyle choices at an individual level to prevent obesity. **Conclusions:** Health education is fundamental. Making better lifestyle choices is crucial, which would help increase the lifespan and health span and decrease the risk of diseases. In addition, social support and better policies are required to prevent the disease and any related complications.

---

### Qualitative Examination of the Role and Influence of Mothers-in-Law on Young Married Couples' Family Planning in Rural Maharashtra, India

Dixit, A., M. Ghule, N. Rao, M. Battala, S. Begum, N.E. Johns, S. Averbach, and A. Raj. 2022. "Qualitative Examination of the Role and Influence of Mothers-in-Law on Young Married Couples'

Family Planning in Rural Maharashtra, India." *Global Health: Science and Practice* 10(5):e2200050. doi: <https://doi.org/10.9745/GHSP-D-22-00050>

Unmet need for family planning (FP) continues to be high in India, especially among young and newly married women. Mothers-in-law (MILs) often exert pressure on couples for fertility and control decision making and behaviors around fertility and FP, yet there is a paucity of literature to understand their perspectives. Ten focus group discussions (FGDs) were carried out with MILs of young married women (aged 18–29 years) participating in a couple-focused FP intervention as a part of a cluster-randomized intervention evaluation trial (the CHARM2 study) in rural Maharashtra, India. FGDs included questions on their roles, attitudes, and decision making around fertility and FP. Audio-recorded data were translated/transcribed into English and analyzed for key themes using a deductive coding method. MILs reported having social norms of early fertility and son preference. They understood that family size norms are lower among daughters-in-law and that spacing can be beneficial but were not supportive of short-term contraceptives, especially before the first child. They preferred female sterilization, opposed abortion, had apprehensions around side effects from contraceptive use, and had misconceptions about the intrauterine device, with particular concerns around its coercive insertion. MILs mostly believed that decision making should be done jointly by a husband and wife, but that as elders, they should be consulted and involved in the decision-making process. These findings highlight the need for engagement of MILs for FP promotion in rural India and the potential utility of social norms interventions.

---

### Strengthening Maternal Nutrition Counselling During Routine Health Services: A Gap Analysis to Guide Country Programmes

Kavle, J.A. 2022. "Strengthening maternal nutrition counselling during routine health services: a gap analysis to guide country programmes." *Public Health Nutrition*, 1-18. doi: <https://doi.org/10.1017/S1368980022002129>

**Objective:** The WHO recommends counselling on healthy eating, weight gain, and physical activity during antenatal care (ANC) and postnatal care (PNC), yet advice and information are often not tailored to women's nutritional needs and contexts. The purpose of the gap analysis was to identify key elements related to the provision of maternal nutrition counselling during routine health contacts and provide programme considerations to strengthen quality service delivery. **Design:** A search of PubMed, Cochrane Library, CINAHL Plus and Scopus databases was conducted to retrieve studies from January 2010 to December 2021. Using inclusion criteria, quantitative, qualitative and mixed methods studies were included in the final gap analysis. **Setting:** Low-, middle- and high-income country contexts. **Participants:** Following application of gap analysis criteria, thirty-seven articles from sixteen countries were included in the analysis. **Results:** Gaps in delivery of maternal nutrition counselling include provider capacity building, frequency, content and delivery platforms. Globally, counselling on appropriate weight gain during pregnancy is often not delivered with the desired content nor quality, while targeted counselling to overweight and obese women was provided in several high-income country contexts. Delivery of maternal nutrition counselling through multiple delivery platforms demonstrated improvements in maternal diet and/or weight gain during pregnancy. **Conclusions:** Strengthening the integration of maternal nutrition counselling into pre- and in-service curricula, routine health provider training, supportive supervision and provider mentoring is needed. Future efforts may consider generating global and regional weight gain guidelines and incorporating maternal nutrition counselling indicators as part of quality-of-care ANC/PNC standards and routine health systems

---

### **Implementation Characteristics of Father-Inclusive Interventions in Low- And Middle-Income Countries: A Systematic Review**

Jeong, J., E.F. Sullivan, J.K. McCann, D.C. McCoy, and A.K. Yousafzai. 2022. "Implementation characteristics of father-inclusive interventions in low- and middle-income countries: A systematic review." *The New York Academy of Sciences*. doi: <https://doi.org/10.1111/nyas.14941>

Although prior reviews have documented the effectiveness of engaging male caregivers in early childhood interventions, little is known about how these interventions have been designed and implemented to reach, engage, and support male caregivers in low-resource global settings. We searched five bibliographic databases for intervention studies that engaged male caregivers to improve nurturing care for children under 5 years of age in low- and middle-income countries. Forty-four articles met the inclusion criteria, which represented 33 interventions. Fathers specifically were the most common type of male caregivers targeted in these interventions. The majority of interventions invited fathers to participate alongside their female partners. Community-based peer-groups were the most common delivery model. Most interventions used the same program structure for fathers as applied to mothers, with few considering whether implementation adaptations were needed for men. Intervention curricula were multicomponent and largely targeted child nutrition, health, and couples' relationships. A minority of programs addressed parenting, psychosocial wellbeing, violence prevention, gender attitudes, or economic support. Behavior change techniques were limited to interactive counseling and peer learning. Male caregivers remain missing from caregiving interventions for young children. A greater focus on implementation research can inform better inclusion, engagement, and support for male caregivers in nurturing care interventions.

---

### **Food Group Consumption Patterns Among Children Meeting and Not Meeting WHO's Recommended Dietary Diversity: Evidence From 197,514 Children In 59 Countries**

Heemann, M., R. Kim, S. Sharma, S. Vollmer, and S.V. Subramanian. 2022. "Food group consumption patterns among children meeting and not meeting WHO's recommended dietary diversity: Evidence from 197,514 children in 59 countries." *Food Policy*, 112: 102368. doi: <https://doi.org/10.1016/j.foodpol.2022.102368>

The minimum dietary diversity (MDD) indicator as defined by the WHO is commonly used to assess micronutrient deficiency in young children. However, individual food item-specific consumption patterns may be overlooked when focusing solely on this indicator. We provide a comprehensive view on food item and food group consumption patterns of children aged 6–23 months old using DHS data from 59 low- and middle-income countries. Consumption levels of food items ranged from 79.0 % for breastfeeding to 5.9 % for organ meats, showing particularly low levels for protein rich food items. There were significant differences in food item consumption levels for different countries as well as household correlates' relevance such as a household's wealth decile and the child's age group, hinting towards potential underlying mechanisms such as regional availability, household's available resources and awareness of food group's importance from early age. The results suggest that the analysis of MDD should be complemented with information on individual food item consumption to identify priorities for policy makers aiming to fight undernutrition across the globe.

---

### **Is Infant and Young Child-Feeding (IYCF) a Potential Double-Duty Strategy to Prevent the Double Burden of Malnutrition Among Children at the Critical Age? Evidence of Association from Urban Slums in Pune, Maharashtra, India**

Jeyakumar, A., P. Babar, P. Menon, R. Nair, S. Jungari, A. Tamboli, D. Dhamdhare, K. Hendre, T. Lokare, A. Dhiman, and A. Gaikwad. 2022. "Is Infant and Young Child-feeding (IYCF) a potential

double-duty strategy to prevent the double burden of malnutrition among children at the critical age? Evidence of association from urban slums in Pune, Maharashtra, India." *PLOS One*. doi: <https://doi.org/10.1371/journal.pone.0278152>

**Background:** This study characterized undernutrition among children (0–24 months) by age groups specified for Infant and Young Child-feeding (IYCF) and determined the association between child malnutrition and IYCF. **Methods:** This cross-sectional survey recruited mother-children dyads (N = 1443). WHO standards were used to assess nutritional status and IYCF indicators. Multivariate analyses were performed to assess the association between IYCF and nutritional indicators. **Results:** Stunting, underweight, wasting, overweight, and obesity were prevalent in 33.1%, 26%, 20.2%, 4.6%, and 2.9% of the children, respectively. Age-wise distribution of undernutrition identified severity of stunting and underweight at 10–24 months (median < -1.6 SD; < -1.2 SD; 25th percentile at -2.6 & -2.2 SD respectively) and wasting highest at 0–6 months (25th percentile close to -2SD). Boys manifested higher stunting (lower value -5.2 SD) and were more wasted (lower value -4.7 SD). IYCF prevalence recorded early initiation at 45.2%, exclusive breastfeeding at 23.1%, and prelacteal and bottle-feeding at 37.5 and 22.5% respectively. Child minimum diet diversity (MDD)  $\geq 4$  was not achieved by 84%. Minimum meal frequency and minimum acceptable diet were achieved by 75% and 14% respectively. Bottle-feeding increased the odds of wasting [AOR: 1.501 (95% CI: 1.062–2.121)], severe stunting [AOR: 1.595 (95% CI: 1.079–2.358)] and underweight [AOR: 1.519 (95% CI: 1.102–2.094)]. Wasting according to BAZ scores was associated with delayed initiation of breastfeeding [AOR: 1.387 (95% CI: 1.018–1.889)] and bottle feeding [AOR: 1.538 (95% CI: 1.087–2.175)]. Delayed introduction of complementary feeding increased the odds of severe stunting [AOR: 2.189 (95% CI: 1.090–4.399)]. Formula feeding increased the odds of underweight [AOR: 1.738 (95% CI: 1.046–2.888)] and obesity [AOR: 4.664 (95% CI: 1.351–16.10)]. Prelacteal feeding increased the odds of severe forms of stunting and underweight by 56% and 79% respectively, and overweight by 96%. **Conclusion:** Setting and age-specific interventions to improve age-appropriate child-feeding practices are vital to address the double burden of malnutrition in the critical age group.

---

### Key Learnings from an Outcome and Embedded Process Evaluation of a Direct to Beneficiary Mobile Health Intervention Among Marginalised Women in Rural Bihar, India

Irani, L. S., S. Verma, R. Mathur, R.K. Verma, D. Mohan, D. Dhar, A. Seth, I. Chaudhuri, M.R. Chaudhury, A. Purthy, A. Nanda, S. Singh, A. Gupta, and A.E. LeFevre. 2022. "Key Learnings from an Outcome and Embedded Process Evaluation of a Direct to Beneficiary Mobile Health Intervention Among Marginalised Women in Rural Bihar, India." *BMJ Open* 12(10):e052336. doi: <https://doi.org/10.1136/bmjopen-2021-052336>

**Introduction:** Mobile Vaani was implemented as a pilot programme across six blocks of Nalanda district in Bihar state, India to increase knowledge of rural women who were members of self-help groups on proper nutrition for pregnant or lactating mothers and infants, family planning and diarrhoea management. Conveners of self-help group meetings, community mobilisers, introduced women to the intervention by giving them access to interactive voice response informational and motivational content. A mixed methods outcome and embedded process evaluation was commissioned to assess the reach and impact of Mobile Vaani. **Methods:** The outcome evaluation, conducted from January 2017 to November 2018, used a quasi-experimental pre-post design with a sample of 4800 married women aged 15-49 from self-help group households, who had a live birth in the past 24 months. Surveys with community mobilisers followed by meeting observations (n=116), in-depth interviews (n=180) with self-help group members and secondary analyses of system generated data were conducted to assess exposure and perceptions of the intervention. **Results:** From the outcome evaluation, 23% of women interviewed had heard about Mobile Vaani. Women in the intervention arm had significantly higher knowledge than women in the comparison arm for two

of seven focus outcomes: knowledge of how to make child's food nutrient and energy dense (treatment-on-treated: 18.8% (95% CI 0.4% to 37.2%,  $p < 0.045$ )) and awareness of at least two modern spacing family planning methods (treatment-on-treated: 17.6% (95% CI 4.7% to 30.5%,  $p < 0.008$ )). Women with any awareness of Mobile Vaani were happy with the programme and appreciated the ability to call in and listen to the content. **Conclusion:** Low population awareness and programme exposure are underpinned by broader population level barriers to mobile phone access and use among women and missed opportunities by the programme to improve targeting and programme promotion. Further research is needed to assess programmatic linkages with changes in health practices.

---

### Scale and Sustainability: The Impact of a Women's Self-Help Group Program on Household Economic Well-Being in India

Raghunathan, K., N. Kumar, S. Gupta, G. Thai, S. Scott, A. Choudhury, M. Khetan, P. Menon, and A. Quisumbing. 2022. "Scale and Sustainability: The Impact of a Women's Self-Help Group Program on Household Economic Well-Being in India." *The Journal of Development Studies*. Doi: <https://doi.org/10.1080/00220388.2022.2154151>

Microfinance groups are a prominent source of small-scale rural credit in many developing countries. In India, evidence of the impact of the now ubiquitous women-only savings and credit self-help groups (SHGs) on household consumption and asset accumulation is inconclusive and based on small-scale interventions. Further, little is known about the sustainability of impacts at scale. We use panel data on close to 2500 households from five states in India to estimate the impact of SHG membership on household expenditure and asset ownership. Over four years, we find small but significant impacts of SHG membership on household expenditure and livestock ownership. Membership duration has a modest effect, suggesting that initial impacts may taper off as the program scales up, though small sample sizes limit our ability to draw inferences. Accompanying evidence on pathways is compelling; related work shows that SHG participation improves information, empowerment, and access to entitlements. While the direct impacts of SHG membership may not suffice to fill gaps in access to credit faced by the rural poor, impacts along these additional pathways could intensify the benefits of these groups.

### NON-PEER REVIEWED

---

#### Odisha Millet Mission: A transformative food system for mainstreaming sustainable diets

Garg, S., M. Muthukumar, D. Balam, and B. Mohanty. 2022. "Odisha Millet Mission: A transformative food system for mainstreaming sustainable diets" In *Routledge Handbook of Sustainable Diets*. <https://www.taylorfrancis.com/chapters/edit/10.4324/9781003174417-34/odisha-millet-mission-saurabh-garg-muthukumar-dinesh-balam-bindu-mohanty?context=ubx&refId=86b090a4-9c99-42e1-860b-e42554dc09bb>

Millet largely are adapted to dry and hot climates, they have been readily grown in many dryland areas and provide nutritional benefits, and as such, are an example of a key staple that could be valuable in sustainable diets. This chapter builds the case that millets could again be central to socio-cultural food systems among the indigenous communities of Odisha. Since the 1960s they have been largely replaced by rice and wheat, which has adversely impacted their nutritional security and the resilience of the agriculture systems. The Odisha Millets Mission (OMM) was launched to improve nutritional security. OMM has a multi-stakeholder framework with an end-to-end design that focuses on farmer-preferred cultivars, addressing millet-value chain constraints, promotion of culturally appropriate recipes, enhancing consumer awareness, building entrepreneurial capacity of women collectives in the millet value chain, and inclusion in government food welfare schemes. This

case study documents the transformative food system of OMM, which allows healthy diets to be affordable and accessible through decentralised community engagement, resulting in external gains such as increases in rural incomes, women's economic empowerment, and conservation of agricultural biodiversity.

---

### **Food inflation and child undernutrition in low- and middle-income countries**

Headey, D., and M. Ruel. 2022. "Food inflation and child undernutrition in low- and middle-income countries." IFPRI Discussion Paper 2146. Washington, DC: International Food Policy Research Institute (IFPRI). <https://doi.org/10.2499/p15738coll2.136457>

The 21st Century has been marked by increased volatility in food prices, with global price spikes in 2007-08, 2010-11, and again in 2021-22. The impact of food inflation on the risk of child undernutrition is not well understood, however. This study explores the potential impacts of food inflation on wasting and stunting among 1.27 million pre-school children from 44 developing countries. On average, a 5 percent increase in the real price of food increases the risk of wasting by 9 percent and severe wasting by 14 percent. These risks apply to young infants, suggesting a prenatal pathway, as well as to older children who typically experience a deterioration in diet quality in the wake of food inflation. Male children and children from poor and rural landless households are more severely impacted. Food inflation during pregnancy and the first year after birth also increases the risk of stunting for children 2-5 years of age. This evidence provides a strong rationale for interventions to prevent food inflation and mitigate its impacts on vulnerable children and their mothers.

## **UPCOMING EVENTS & DEADLINES**

---

### **8th Annual Agriculture, Nutrition and Health (ANH) Academy Week**

The 8th annual Agriculture, Nutrition & Health Academy Week will take place from 19 to 30 June 2023, online and in Lilongwe, Malawi. The programme will feature online Learning Labs followed by a full hybrid conference in Lilongwe. We invite the global community of researchers and research users to participate in this event. Speakers and participants will have the choice of joining in a number of ways.

**When:** June 19–30, 2023

**Where:** Online and Malawi

**For more information:** <https://www.anh-academy.org/academy-week/2023>

---

## ABOUT POSHAN

Partnerships and Opportunities to Strengthen and Harmonize Actions for Nutrition in India (POSHAN) is a multi-year initiative that aims to build evidence on effective actions for nutrition and support the use of evidence in decision-making. It is supported by the Bill & Melinda Gates Foundation and led by IFPRI in India.

## ABOUT ABSTRACT DIGEST

In each issue, the POSHAN Abstract Digest brings you some of the new and noteworthy studies on maternal and child nutrition. It focuses on India-specific studies and also brings to you other relevant global or regional literature with broader implications for maternal and child nutrition. The Abstract Digest is based on literature searches to identify selected studies that we think are most relevant to nutrition issues in India and to Indian programs and policies. We share with you a collection of abstracts from articles published in peer-reviewed journals, as well as selected non-peer-reviewed articles by researchers in reputed academic and/or research institutions and which demonstrated rigor in their research objectives, methodology, and analysis. The abstracts in this document are reproduced in their original form from their source, and without editorial commentary about specific articles.

## CONTACT US

Email us at [IFPRI-POSHAN@cgiar.org](mailto:IFPRI-POSHAN@cgiar.org)

### IFPRI-NEW DELHI

INTERNATIONAL FOOD POLICY RESEARCH INSTITUTE  
NASC Complex, CG Block, Dev Prakash Shastri Road, Pusa, New Delhi 110012, India  
T +91.11.66166565  
F +91.11.66781699  
<http://poshan.ifpri.info/>

### IFPRI-HEADQUARTERS

INTERNATIONAL FOOD POLICY RESEARCH INSTITUTE  
2033 K Street, NW, Washington, DC 20006-1002 USA  
T. +1.202.862.5600 F. +1.202.467.4439  
Skype: IFPRIhomeoffice  
[ifpri@cgiar.org](mailto:ifpri@cgiar.org)  
[www.ifpri.org](http://www.ifpri.org)

This publication has been prepared by POSHAN, and has not been peer reviewed. Any opinions stated herein are those of the author(s) and do not necessarily reflect the policies of the International Food Policy Research Institute. Please contact [Dr. Rasmi Avula](#) for any questions.

Copyright © 2022 International Food Policy Research Institute. All rights reserved. For permission to republish, contact [ifpri-copyright@cgiar.org](mailto:ifpri-copyright@cgiar.org).