POSHAN
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EDITOR'S NOTE

Issue 37 of the Abstract Digest brings to you a set of global, regional, and India-focused articles on issues pertaining to undernutrition and its solutions. Global studies include the Optima Nutrition modelling assessing the likelihood of 129 countries reaching the global nutrition targets by 2030, a systematic review of economic evaluation of interventions to address undernutrition by scaling up proven interventions and identifying priority interventions, a study that identifies research priorities for social, behavioral and community engagement interventions for maternal and child health, and a review of literature on social accountability approaches. India-specific studies examine inequality in child undernutrition among urban populations, the economic feasibility of nutritionally adequate diets, and two studies focusing on frontline workers time use and factors influencing their performance. In this edition we have also included implementation research focused articles relevant for maternal and child health programs.

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Stay safe and enjoy reading! Happy holidays!

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Peven et al. 2020. *Health Policy and Planning* 35(Supplement 2: ii47–ii65.

PEER-REVIEWED

Commentary

'Severe Malnutrition': Thinking Deeply, Communicating Simply

Kerac, M., M. McGrath, N. Connell, C. Kompala, W.H. Moore, J. Bailey, R. Bandsma, J.A. Berkley, A. Briend, S. Collins, T. Girma, and J.C. Wells. 2020. "'Severe Malnutrition': Thinking Deeply, Communicating Simply." *BMJ Global Health* 5: e003023. http://dx.doi.org/10.1136/bmjgh-2020-003023

Child malnutrition is a major global public health problem which risks significant worsening with COVID-19. Current terminology is complex and limits effective communications and programme actions. 'Severe malnutrition' is a simple, advocacy-focused term in which the 'severe' highlights high risk of mortality/morbidity and encompasses different manifestations of malnutrition, context-appropriate anthropometric cut-offs and underlying causes. Advantages include improved clarity and familiarity; a focus on clinically important severe outcomes and potential to increase interprogramme linkages and synergies

Early Marriage and Early Childbearing in South Asia: Trends, Inequalities, and Drivers From 2005 to 2018

Scott, S., P.H. Nguyen, S. Neupane, P. Pramanik, P. Nanda, Z.A. Bhutta, K. Afsana, and P. Menon. 2020. "Early Marriage and Early Childbearing in South Asia: Trends, Inequalities, and Drivers From 2005 to 2018." *Annals of the New York Academy of Sciences*. Article in press. First published online on December 01, 2020. https://doi.org/10.1111/nyas.14531

Early marriage (EM) and early childbearing (ECB) have far-reaching consequences. This study describes the prevalence, trends, inequalities, and drivers of EM and ECB in South Asia using eight rounds of Demographic and Health Survey data across 13 years. We report the percentage of ever-married women aged 20–24 years (n = 105,150) married before 18 years (EM) and with a live birth before 20 years (ECB). Relative trends were examined using average annual rate of reduction (AARR). Inequalities were examined by geography, marital household wealth, residence, and education. Sociodemographic drivers of changes for EM were assessed using regression decomposition analyses. We find that EM/ECB are still common in Bangladesh (69%/69%), Nepal (52%/51%), India (41%/39%), and Pakistan (37%/38%), with large subnational variation in most countries. EM has declined fastest in India (AARR of –3.8%/year), Pakistan (–2.8%/year), and Bangladesh (–1.5%/year), but EM elimination by 2030 will not occur at these rates. Equity analyses show that poor, uneducated women in rural areas are disproportionately burdened. Regression decomposition analysis shows that improvements in wealth and education explained 44% (India) to 96% (Nepal) of the actual EM reduction. Investments across multiple sectors are required to understand and address EM and ECB, which are pervasive social determinants of maternal and child wellbeing.

Ending Malnutrition in All Its Forms Requires Scaling Up Proven Nutrition Interventions and Much More: A 129-Country Analysis

Scott, N., D. Delport, S. Hainsworth, R. Pearson, C. Morgan, S. Huang, J.K. Akuoku, E. Piwoz, M. Shekar, C. Levin, M. Toole, and C.S.E. Homer. 2020. "Ending Malnutrition in All Its Forms Requires Scaling Up Proven Nutrition Interventions and Much More: A 129-Country Analysis" *BMC Medicine* 18(356). https://doi.org/10.1186/s12916-020-01786-5

Background: Sustainable Development Goal (SDG) 2.2 calls for an end to all forms of malnutrition, with 2025 targets of a 40% reduction in stunting (relative to 2012), for wasting to occur in less than 5% of children, and for a 50% reduction in anaemia in women (15–49 years). We assessed the likelihood of countries reaching these targets by scaling up proven interventions and identified priority interventions, based on cost-effectiveness. **Methods:** For 129 countries, the Optima Nutrition model was used to compare 2019–2030 nutrition outcomes between a status quo (maintained intervention coverage) scenario and a scenario where outcome-specific interventions were scaled up to 95% coverage over 5 years. The average cost-effectiveness of each intervention was calculated as it was added to an expanding package of interventions. **Results:** Of the 129 countries modelled, 46 (36%), 66 (51%) and 0 (0%) were on track to achieve the stunting, wasting and anaemia targets respectively. Scaling up 18 nutrition interventions increased the number of countries reaching the SDG 2.2 targets to 50 (39%), 83 (64%) and 7 (5%) respectively. Intermittent preventative treatment of malaria during pregnancy (IPTp), infant and young child feeding education, vitamin A supplementation and lipid-based nutrition supplements for children produced 88% of the total impact on stunting, with average costs per case averted of US$103, US$267, US$556 and US$1795 when interventions were consecutively scaled up, respectively. Vitamin A supplementation and cash transfers produced 100% of the total global impact on prevention of wasting, with average costs per case averted of US$1989 and US$19,427, respectively. IPTp, iron and folic acid supplementation for non-pregnant women, and multiple micronutrient supplementation for pregnant women produced 85% of the total impact on anaemia prevalence, with average costs per case averted of US$9, US$35 and US$47, respectively. **Conclusions:** Prioritising nutrition investment to the most cost-effective interventions within the country context can maximise the impact of funding. A greater focus on complementing nutrition-specific interventions with nutrition-sensitive ones that address the social determinants of health is critical to reach the SDG targets.

Global Research Priorities for Social, Behavioural and Community Engagement Interventions for Maternal, Newborn and Child Health

Chan, G., J.D. Storey, M.K. Das, E. Sacks, M. Johri, T. Kabakian-Khasholian, D. Paudel, S. Yoshida, and A. Portela. 2020. "Global Research Priorities for Social, Behavioural and Community Engagement Interventions for Maternal, Newborn and Child Health." *Health Research Policy and Systems* 18(97). https://doi.org/10.1186/s12961-020-00597-7

Background: Social, behavioural and community engagement (SBCE) interventions are essential for global maternal, newborn and child health (MNCH) strategies. Past efforts to synthesise research on SBCE interventions identified a need for clear priorities to guide future research. WHO led an exercise to identify global research priorities for SBCE interventions to improve MNCH. **Methods:** We adapted the Child Health and Nutrition Research Initiative method and combined quantitative and qualitative methods to determine MNCH SBCE intervention research priorities applicable across different contexts. Using online surveys and meetings, researchers and programme experts proposed up to three research priorities and scored the compiled priorities against four criteria – health and social impact, equity, feasibility, and overall importance. Priorities were then ranked by score. A group of 29 experts finalised the top 10 research priorities for each of maternal, newborn or child health and a cross-cutting area. **Results:** A total of 310 experts proposed 867 research priorities, which were consolidated into 444 priorities and scored by 280 experts. Top maternal and newborn health priorities focused on research to improve the delivery of SBCE interventions that strengthen self-care/family care practices and care-seeking behaviour. Child health priorities focused on the delivery of SBCE interventions, emphasising determinants of service utilisation and breastfeeding and nutrition practices. Cross-cutting MNCH priorities highlighted the need for better integration of SBCE into facility-based and community-based health services. **Conclusions:** Achieving global targets for MNCH requires increased investment in SBCE interventions that build capacities of

individuals, families and communities as agents of their own health. Findings from this exercise provide guidance to prioritise investments and ensure that they are best directed to achieve global objectives. Stakeholders are encouraged to use these priorities to guide future research investments and to adapt them for country programmes by engaging with national level stakeholders.

Economic Evaluation of Interventions to Address Undernutrition: A Systematic Review

Ramponi, F., W. Tafesse, and S. Griffin. 2020. "Economic Evaluation of Interventions to Address Undernutrition: A Systematic Review." *Health Policy and Planning.* *https://doi.org/10.1093/heapol/czaa149*

Strategies to address undernutrition in low- and middle-income countries (LMICs) include various interventions implemented through different sectors of the economy. Our aim is to provide an overview of published economic evaluations of such interventions and to compare and contrast evaluations of interventions in different areas. We reviewed economic evaluations of nutrition interventions in LMICs published since 2015 and/or included in the Tufts Global registry or Disease Control Priorities 3rd edition. We categorized the studies by intervention type (preventive; therapeutic; fortification; delivery platforms), nutritional deficiency addressed and characteristics of the economic evaluation (e.g. type of model, costs and outcomes included). Of the 62 economic evaluations identified, 56 (90%) were cost-effectiveness analyses. Twenty-two (36%) evaluations investigated fortification and 23 (37%) preventive interventions. Forty-three percentage of the evaluations of preventive interventions did not include a model, whereas most of fortification strategies used the same reference model. We identified different trends in cost categories and inclusion of health and non-health outcomes across evaluations in the four different topic areas. To illustrate the implications of such trends for decision-making, we compared a set of studies evaluating alternative strategies to combat zinc deficiency. We showed that the use of 'off-the-shelf' models and tools can potentially conceal what outcomes and costs and value judgements are used. Comparing interventions across different areas is fundamental to assist decision-makers in developing their nutrition strategy. Systematic differences in the economic evaluations of interventions delivered within and outside the health sector can undermine the ability to prioritize alternative nutrition strategies.

Inequality in Child Undernutrition Among Urban Population in India: Decomposition Analysis

Singh, S.K., S. Srivastava, and S. Chauhan. 2020. "Inequality in Child Undernutrition Among Urban Population in India: Decomposition Analysis." *BMC Public Health* 20(1852). https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-020-09864-2

Background: With increasing urbanization in India, child growth among urban poor has emerged as a paramount public health concern amidst the continuously growing slum population and deteriorating quality of life. This study analyses child undernutrition among urban poor and non-poor and decomposes the contribution of various factors influencing socio-economic inequality. This paper uses data from two recent rounds of National Family Health Survey (NFHS-3&4) conducted during 2005–06 and 2015–16. **Methods:** The concentration index (CI) and the concentration curve (CC) measure socio-economic inequality in child growth in terms of stunting, wasting, and underweight. Wagstaff decomposition further analyses key contributors in CI by segregating significant covariates into five groups-mother's factor, health-seeking factors, environmental factors, child factors, and socio-economic factors. **Results:** The prevalence of child undernutrition was more pronounced among children from poor socio-economic strata. The concentration index decreased for stunting (− 0.186 to − 0.156), underweight (− 0.213 to − 0.162) and wasting (− 0.116 to − 0.045) from 2005 to 06 to 2015–16 respectively. The steepness in growth was more among urban poor

than among urban non-poor in every age interval. Maternal education contributed about 19%, 29%, and 33% to the inequality in stunting, underweight and wasting, respectively during 2005–06. During 2005–06 as well as 2015–16, maternal factors (specifically mother's education) were the highest contributory factors in explaining rich-poor inequality in stunting as well as underweight. More than 85% of the economic inequality in stunting, underweight, and wasting among urban children were explained by maternal factors, environmental factors, and health-seeking factors. **Conclusion:** All the nutrition-specific and nutrition-sensitive interventions in urban areas should be prioritized, focusing on urban poor, who are often clustered in low-income slums. Rich-poor inequality in child growth calls out for integration and convergence of nutrition interventions with policy interventions aimed at poverty reduction. There is also a need to expand the scope of the Integrated Child Development Services (ICDS) program to provide mass education regarding nutrition and health by making provisions of home visits of workers primarily focusing on pregnant and lactating mothers.

Promoting Family Integrated Early Child Development (During First 1000 Days) in Urban Slums of India (Fine Child 3-3-1000): Study Protocol

Das, M.K., S. Seth, N. Mundeja, A.K. Singh, S.B. Mukherjee, M. Juneja, P. Khuda, R. Fatima, and A. Bhatnagar. 2020. "Promoting Family Integrated Early Child Development (During First 1000 Days) in Urban Slums of India (Fine Child 3-3-1000): Study Protocol." *Journal of Advanced Nursing* 76(7): 1823-1830. https://pubmed.ncbi.nlm.nih.gov/32281161/

Aims: This project tests a novel, targeted home visitation programme for child development targeted behaviour change during the first 1,000 days for families in Delhi urban slums. **Background:** The first 1,000 days have highest brain development potential and is dependent on the available nutrition, health, social and cognitive stimulus. Over 1.3 million children are born annually in the slums of India and are at risk of limited development potential. The children in urban slums at multiplicity of adversities at family, society and environmental levels. No tools are available for the community health functionaries to support the families to promote child development. **Design:** This cohort study targets provision of behaviour change interventions targeted at three groups (pregnant women, infants and children in year 2) to document the impact on child development. **Methods:** This implementation project delivers nutrition, health and child stimulation integrated services for the families through existing government community health workers and nurses. These workers shall train the families using audio-visual messages in tablets and demonstration kits for practice through quarterly home visits. Data on health, nutrition and child development shall be collected at baseline, midterm and after one year. The data from these participants shall be compared with data from recently delivered women, children aged 13 months and 25 months without intervention to document the impact. **Discussion:** The successful implementation of the project has potential for future integration of the child development components into the existing programme at scale. The learning from this project shall be useful for India and other developing countries. **Impact:** The first 1,000 days are critical period in human brain development and cognitive function acquisition potential, which is dependent on the available nutrition, health, social and cognitive stimulus. The development potential in children born and living in the slums, who are exposed to various adversities, can be mitigated through appropriate family-level practices with support from the community health workers and Nurses. This study is documenting the feasibility and impact of home visit linked coaching of families for improving child development status during the first 1,000 days in three sums of Delhi, India.

Race, Ethnicity, and Racism in the Nutrition Literature: An Update For 2020

Duggan, C.P., A. Kurpad, F.C. Stanford, B. Sunguya, and J.C. Wells. 2020. "Race, Ethnicity, and Racism in the Nutrition Literature: An Update For 2020." *The American Journal of Clinical Nutrition* 112(6): 1409–1414. https://doi.org/10.1093/ajcn/nqaa341

Social disparities in the US and elsewhere have been terribly highlighted by the current COVID-19 pandemic but also an outbreak of state-sponsored violence. The field of nutrition, like other areas of science, has commonly used 'race' to describe research participants and populations, without the recognition that race is a social, not a biologic, construct. We review the limitations of classifying participants by race, and recommend a series of steps for authors, researchers and policymakers to consider when producing and reading the nutrition literature. We recommend that biomedical researchers, especially those in the field of nutrition, abandon the use of racial categories to explain biologic phenomena but instead rely on a more comprehensive framework of ethnicity; that authors consider not just race and ethnicity but many social determinants of health, including experienced racism; that race and ethnicity not be conflated; that dietary pattern descriptions inform ethnicity descriptions; and that depersonalizating language be avoided.

Assessing the Economic Feasibility of Assuring Nutritionally Adequate Diets for Vulnerable Populations in Uttar Pradesh, India: Findings from a "Cost of the Diet" Analysis

Kachwaha, S., P.H. Nguyen, M. DeFreese, R. Avula, S. Cyriac, A. Girard, and P. Menon. 2020. "Assessing the Economic Feasibility of Assuring Nutritionally Adequate Diets for Vulnerable Populations in Uttar Pradesh, India: Findings from a "Cost of the Diet" Analysis." *Current Developments in Nutrition* 4(12). https://academic.oup.com/cdn/article/4/12/nzaa169/5981607

Background: Healthy diets can help reduce undernutrition, morbidity, and mortality. However, evidence on the accessibility and affordability of recommended diets is limited, particularly in poor-resource settings including India. **Objectives:** This study examined: 1) the minimum cost of different types of household diets; 2) how economic constraints can prevent households from accessing a nutritious diet; and 3) how home production and social protection can improve access to nutritious diets. **Methods:** We conducted 24 market and 125 household surveys in Uttar Pradesh, India, to obtain food prices and consumption patterns. Cost of Diet, a linear programming software, was used to assess the minimum cost of different diets, estimate affordability of nutritious diets, and model scenarios of home production and social protection interventions to improve affordability. **Results:** The minimum-cost nutritious diet that met all recommended nutrient requirements [904 US dollars (US$)/y] was over twice as expensive as the diet that only met energy requirements (US$393/y). The nutritious diet was unaffordable for 75% of households given current income levels, consumption patterns, and food prices. Household income and dietary preferences, rather than food availability, were the key barriers to obtain nutritious diets. Home production had potential to reduce the cost of nutritious diets by 35%, subsidized grains by 19%, and supplementary food by 10%. The poorest households could only afford recommended nutritious diets with access to multiple interventions. **Conclusions:** Practical, habitual, diet-related behavior change communication to middle- and high-income households and additional social protection for poorer households could enable individuals to achieve optimal nutrient intakes.

Associations of Breastfeeding or Formula Feeding with Infant Anthropometry and Body Composition At 6 Months

Tahir, M.J, K. Ejima, P. Li, E.W. Demerath, D.B. Allison, and D. A. Fields. 2020. "Associations of Breastfeeding or Formula Feeding with Infant Anthropometry and Body Composition At 6 Months." *Maternal & Child Nutrition*. e13105. https://doi.org/10.1111/mcn.13105

The objective of this study was to investigate the associations of mode of feeding with infant anthropometric and body composition variables at 6 months of age. We studied 259 infants whose exclusive mode of feeding (breast or formula) to 1 month was confirmed. Standard anthropometric characteristics of the infants (weight, length and weight-for-length *z* scores) were obtained, and body composition (total fat mass, fat-free mass, trunk fat mass and body fat percent) was measured using dual-energy X-ray absorptiometry (DXA) at 6 months (±12 days). General linear models were used to test the associations of mode of feeding with infant anthropometric and body composition variables at 6 months after adjustment for maternal and infant covariates. In this cohort of predominantly breastfed, White infants of highly educated mothers, fat-free mass was lower (P = .002), and trunk fat mass (P = .032) and body fat percent (P < .001) were greater in breastfed infants than in formula-fed infants at 6 months of age. After adjustment for covariates, total fat-free mass was significantly lower (β = −372 g, [SE = 125, P = .003]), and body fat percent was significantly greater (β = 3.30, [SE = 0.91, P < .001]) in breastfed infants than in formula-fed infants. No other significant associations were observed. These findings support those of previous studies reporting greater fat-free mass in formula-fed infants during the first 6 months of life. Additional research is warranted to explore whether differences in infant body composition by mode of feeding persist throughout the life course and to assess causality.

Observed Feeding Behaviours and Effects on Child Weight and Length at 12 Months of Age: Findings from the SPRING Cluster-Randomized Controlled Trial in Rural India

Boucheron, P., S. Bhopal, D. Verma, R. Roy, D. Kumar, G. Divan, B. Kirkwood. 2020. "Observed Feeding Behaviours and Effects on Child Weight and Length at 12 Months of Age: Findings from the SPRING Cluster-Randomized Controlled Trial in Rural India." *PLoS ONE* 15(8): e0237226. https://doi.org/10.1371/journal.pone.0237226

Background: Child undernutrition results in poor growth in early childhood, undermines optimal development and increases the risk of mortality. Responsive feeding has been promoted as a key intervention for improving nutritional status, however measurement of this remains difficult and has rarely considered child behaviour. We therefore developed a new observed feeding tool to assess both child and caregiver behaviours, as well as their interaction during feeding, and investigate the effect of these on children anthropometric measures at 12-months of age in rural India. Methods: Our study was nested within the SPRING cluster-randomized controlled trial in Rewari, North India. Outcomes were children length-for-age (LAZ), weight-for-length (WLZ) and weight-for-age (WAZ) Z scores at 12 months of age, based on the WHO Child Growth standards. Trained non-specialists live-coded feeding episodes using the newly designed tool. Scores were then created using principal components analysis representing child behaviour, caregiver behaviour and caregiver-child interaction. Mixed effects linear regression was used to assess associations between feeding behaviours and anthropometric outcomes. Results: 857 children had a meal observation and were included. Anthropometric status was poor (mean length-for-age -1.59 (SD = 1.11); mean weight-for-length -0.58 (0.95); mean weight-for-age -1.22 (1.04)). There were positive linear differences in weight-for-length per unit increase in caregiver responsive behaviours score (adjusted β-coeff = 0.006, 95%CI = (0.001, 0.011), p = 0.01), in length-for-age and weight-for-age per unit increase in child responsive behaviours score (respectively adjusted β-coeff = 0.004, 95%CI = (0.001, 0.007), p = 0.02, and adjusted β-coeff = 0.003, 95%CI = (0.00001, 0.006), p = 0.049), and in both weight-for-length and weight-for-age per unit increase in caregiver-child interaction score (respectively adjusted β-coeff = 0.007, 95%CI = (0.003, 0.012), p = 0.001, and adjusted β-coeff = 0.005, 95%CI = (0.001, 0.011), p = 0.01). No association was seen between child behaviours and weight-for-length, caregiver behaviours and length and caregiver-child interaction and length. Conclusions: We found that trained non-specialists could assess feeding episodes using a newly designed checklist. Further, child and caregiver behaviours were associated with weight and length at only 12 months of age, a

reminder of the importance of interventions to improve responsive feeding quality as we strive towards achievement of the sustainable development goals.

Anganwadi Worker Time Use in Madhya Pradesh, India: A Cross-Sectional Study

Jain, A., D.M. Walker, R. Avula, N. Diamond-Smith, L. Gopalakrishnan, P. Menon, S. Nimmagadda, S.R. Patil, and L.C.H. Fernald. 2020. *BMC Health Services Research* 20(1130). https://doi.org/10.1186/s12913-020-05857-4

Background: Anganwadi Workers (AWWs) are a group of 1.4 million community health workers that operate throughout rural India as a part of the Integrated Child Development Services program. AWWs are responsible for disseminating key health information regarding nutrition, family planning, and immunizations to the women and children in their catchment area, while maintaining detailed registers that track key beneficiary data, updates on health status, and supply inventory beneficiaries. There is a need to understand how AWWs spend their time on all of these activities given all of their responsibilities, and the factors that are associated with their time use. **Methods:** This cross-sectional study conducted in Madhya Pradesh, collected time use data from AWWs using a standard approach in which we asked participants how much time they spent on various activities. Additionally, we estimated a logistic regression model to elucidate what AWW characteristics are associated with time use. **Results:** We found that AWWs spend substantial amounts of time on administrative tasks, such as filling out their paper registers. Additionally, we explored the associations between various AWW characteristics and their likelihood of spending the expected amount of time on preschool work, filling out their registers, feeding children, and conducting home visits. We found a positive significant association between AWW education and their likelihood of filling out their registers. **Conclusions:** AWWs spend substantial amounts of time on administrative tasks, which could take away from their ability to spend time on providing direct care. Additionally, future research should explore why AWW characteristics matter and how such factors can be addressed to improve AWWs' performance and should explore the associations between Anganwadi Center characteristics and AWW time use.

Factors Influencing the Performance of Community Health Workers: A Qualitative Study of Anganwadi Workers from Bihar, India

John, A., N. Nisbett, I. Barnett, R. Avula, and P. Menon. 2020. "Factors Influencing the Performance of Community Health Workers: A Qualitative Study of Anganwadi Workers from Bihar, India." *PLoS One* 15(11): e0242460. https://pubmed.ncbi.nlm.nih.gov/33237939/

Globally, there remain significant knowledge and evidence gaps around how to support Community Health Worker (CHW) programmes to achieve high coverage and quality of interventions. India's Integrated Child Development Services scheme employs the largest CHW cadre in the world-Anganwadi Workers (AWWs). However, factors influencing the performance of these workers remain under researched. Lessons from it have potential to impact on other large scale global CHW programmes. A qualitative study of AWWs in the Indian state of Bihar was conducted to identify key drivers of performance in 2015. In-depth interviews were conducted with 30 AWWs; data was analysed using both inductive and deductive thematic analysis. The study adapted and contextualised existing frameworks on CHW performance, finding that factors affecting performance occur at the individual, community, programme and organisational levels, including factors not previously identified in the literature. Individual factors include initial financial motives and family support; programme factors include beneficiaries' and AWWs' service preferences and work environment; community factors include caste dynamics and community and seasonal migration; and organisational factors include corruption. The initial motives of the worker (the need to retain a

job for family financial needs) and community expectations (for product-oriented services) ensure continued efforts even when her motivation is low. The main constraints to performance remain factors outside of her control, including limited availability of programme resources and challenging relationships shaped by caste dynamics, seasonal migration, and corruption. Programme efforts to improve performance (such as incentives, working conditions and supportive management) need to consider these complex, inter-related multiple determinants of performance. Our findings, including new factors, contribute to the global literature on factors affecting the performance of CHWs and have wide application.

Do Social Accountability Approaches Work? A Review of the Literature from Selected Low- and Middle-Income Countries in the WHO South-East Asia Region

Naher, N., D. Balabanova, E. Hutchinson, R. Marten, R. Hoque, S.N.B.K. Tune, Bushra Z. Islam, and S.M. Ahmed. 2020. "Do Social Accountability Approaches Work? A Review of the Literature from Selected Low- and Middle-Income Countries in the WHO South-East Asia Region." *Health Policy and Planning* 35(Supplement 1): i76–i96. https://doi.org/10.1093/heapol/czaa107

Governance failures undermine efforts to achieve universal health coverage and improve health in low- and middle-income countries by decreasing efficiency and equity. Punitive measures to improve governance are largely ineffective. Social accountability strategies are perceived to enhance transparency and accountability through bottom-up approaches, but their effectiveness has not been explored comprehensively in the health systems of low- and middle-income countries in south and Southeast Asia where these strategies have been promoted. We conducted a narrative literature review to explore innovative social accountability approaches in Bangladesh, Bhutan, India, Indonesia, the Maldives, Myanmar and Nepal spanning the period 2007–August 2017, searching PubMed, Scopus and Google Scholar. To augment this, we also performed additional PubMed and Google Scholar searches (September 2017–December 2019) to identify recent papers, resulting in 38 documents (24 peer-reviewed articles and 14 grey sources), which we reviewed. Findings were analysed using framework analysis and categorized into three major themes: transparency/governance (eight), accountability (11) and community participation (five) papers. The majority of the reviewed approaches were implemented in Bangladesh, India and Nepal. The interventions differed on context (geographical to social), range (boarder reform to specific approaches), actors (public to private) and levels (community-specific to system level). The initiatives were associated with a variety of positive outcomes (e.g. improved monitoring, resource mobilization, service provision plus as a bridge between the engaged community and the health system), yet the evidence is inconclusive as to the extent that these influence health outcomes and access to health care. The review shows that there is no common blueprint which makes accountability mechanisms viable and effective; the effectiveness of these initiatives depended largely on context, capacity, information, spectrum of actor involvement, independence from power agendas and leadership. Major challenges that undermined effective implementation include lack of capacity, poor commitment and design and insufficient community participation.

Designing and Implementing At-Scale Programs to Improve Complementary Feeding

Frongillo, E.A. 2020. "Designing and Implementing At-Scale Programs to Improve Complementary Feeding." *Nutrition Reviews* 78(Supplement 2): 62–70. https://doi.org/10.1093/nutrit/nuz043

Advancing knowledge about how to improve complementary feeding at large scale is a high priority. This article identifies strategies for designing and implementing programs to improve complementary feeding at large scale, drawing on lessons learned from three initiatives: Alive & Thrive, which implemented large-scale programs in 3 countries; a low-burden intervention in Mexico

that used scripted messages; and Estrategia Integral de Atención a la Nutrición, which is introducing large-scale programs tied to Mexico's conditional cash transfer program. These initiatives illustrate different ways of designing and implementing large-scale programs, with lessons about the importance of having partnerships and alliances; well-grounded understanding from research; a public health strategy; scalable program modes and elements; using existing systems where possible; monitoring, learning, and evaluating; and adopting a model aimed at successfully implementing programs at scale. Improving complementary feeding globally is challenging because of the complex behaviors involved, and the development of specific programs geared to complementary feeding is necessary. Designing and implementing such specific programs at large scale is achievable with the intention, commitment, appropriate strategies, and financial support to do so from the outset.

Editorial

Implementation Research in LMICs—Evolution Through Innovation

Sheikh, K., J. Hargreaves, M. Khan, and S. Mounier-Jack. 2020. "Implementation Research in LMICs—Evolution Through Innovation." *Health Policy and Planning* 35(Supplement 2): ii1–ii3. https://doi.org/10.1093/heapol/czaa118

Major global health gains can be achieved by strengthening the delivery of public health policies and programmes in low- and middle-income countries (LMICs). The population impact of evidence-based technologies and interventions such as drugs, vaccines and health know-how can only be maximized where programmes optimally identify and reach target populations and support them to take up and sustain their effective use. Examples include significant gaps in the coverage and quality of maternal health, newborn, immunization, non-communicable disease, primary care and adolescent sexual and reproductive health services—all issues tackled in this supplement. While structural change and increased funding are essential, much can be gained through ongoing improvements in programme delivery (Paina and Peters, 2012). Implementation gaps are also widely implicated in the failure of broader health policies and reforms in LMICs (Haines *et al.*, 2004), such as for decentralization, health care regulation and primary health care. This makes it important also to analyse the implementation of policies at all levels, including studying the negotiations and interactions of actors in social and political contexts, understanding gaps in the effectiveness of public policies and helping to resolve them.

Unpacking the Implementation Blackbox Using 'Actor Interface Analysis': How Did Actor Relations and Practices of Power Influence Delivery of a Free Entitlement Health Policy in India?

Parashar, R., N. Gawde, A. Gupt, and L. Gilson. 2020. "Unpacking the Implementation Blackbox Using 'Actor Interface Analysis': How Did Actor Relations and Practices of Power Influence Delivery of a Free Entitlement Health Policy in India?" *Health Policy and Planning* 35(Supplement 2): ii74–ii83. https://doi.org/10.1093/heapol/czaa125

Exploring the implementation blackbox from a perspective that considers embedded practices of power is critical to understand the policy process. However, the literature is scarce on this subject. To address the paucity of explicit analyses of everyday politics and power in health policy implementation, this article presents the experience of implementing a flagship health policy in India. Janani Shishu Suraksha Karyakram (JSSK), launched in the year 2011, has not been able to fully deliver its promises of providing free maternal and child health services in public hospitals. To examine how power practices, influence implementation, we undertook a qualitative analysis of JSSK implementation in one state of India. We drew on an actor-oriented perspective of development and used 'actor interface analysis' to guide the study design and analysis. Data

collection included in-depth interviews of implementing actors and JSSK service recipients, document review and observations of actor interactions. A framework analysis method was used for analysing data, and the framework used was founded on the constructs of actor lifeworlds, which help understand the often neglected and lived realities of policy actors. The findings illustrate that implementation was both strengthened and constrained by practices of power at various interface encounters. The implementation decisions and actions were influenced by power struggles such as domination, control, resistance, contestation, facilitation and collaboration. Such practices were rooted in: Social and organizational power relationships like organizational hierarchies and social positions; personal concerns or characteristics like interests, attitudes and previous experiences and the worldviews of actors constructed by social and ideological paradigms like their values and beliefs. Application of 'actor interface analysis' and further nuancing of the concept of 'actor lifeworlds' to understand the origin of practices of power can be useful for understanding the influence of everyday power and politics on the policy process.

Evaluating Implementation Strategies for Essential Newborn Care Interventions in Low- and Low Middle-Income Countries: A Systematic Review

Peven, K., D. Bick, E. Purssell, T.A. Rotevatn, J.H. Nielsen, and C. Taylor. 2020. "Evaluating Implementation Strategies for Essential Newborn Care Interventions in Low- and Low Middle-Income Countries: A Systematic Review." *Health Policy and Planning* 35(Supplement 2: ii47–ii65. https://doi.org/10.1093/heapol/czaa122

Neonatal mortality remains a significant health problem in low-income settings. Low-cost essential newborn care (ENC) interventions with proven efficacy and cost-effectiveness exist but have not reached high coverage (≥90%). Little is known about the strategies used to implement these interventions or how they relate to improved coverage. We conducted a systematic review of implementation strategies and implementation outcomes for ENC in low- and low middle-income countries capturing evidence from five medical and global health databases from 1990 to 2018. We included studies of implementation of delayed cord clamping, immediate drying, skin-to-skin contact (SSC) and/or early initiation of breastfeeding implemented in the first hour (facility-based studies) or the 1st day (community-based studies) of life. Implementation strategies and outcomes were categorized according to published frameworks: Expert Recommendations for Implementing Change and Outcomes for Implementation Research. The relationship between implementation strategies and outcomes was evaluated using standardized mean differences and correlation coefficients. Forty-three papers met inclusion criteria. Interventions included community-based care/health promotion and facility-based support and health care provider training. Included studies used 3–31 implementation strategies, though the consistency with which strategies were applied was variable. Conduct educational meetings was the most frequently used strategy. Included studies reported 1–4 implementation outcomes with coverage reported most frequently. Heterogeneity was high and no statistically significant association was found between the number of implementation strategies used and coverage of ENC. This review highlights several challenges in learning from implementation of ENC in low- and low middle-income countries, particularly poor description of interventions and implementation outcomes. We recommend use of UK Medical Research Council guidelines (2015) for process evaluations and checklists for reporting implementation studies. Improved reporting of implementation research in this setting is necessary to learn how to improve service delivery and outcomes and thereby reduce neonatal mortality.

NON-PEER REVIEWED

COVID-19 Metrics across Parliamentary Constituencies and Districts in India

Wang, W., J. Blossom, J. Kim, P. deSouza, W. Zhang, R. Kim, R. Sarwal, and S.V. Subramanian. 2020. "COVID-19 Metrics across Parliamentary Constituencies and Districts in India." HCPDS Working Paper Volume 20, Number 4. The Harvard Center for Population and Development Studies, Harvard University. Cambridge, Massachusetts, United States. https://cdn1.sph.harvard.edu/wp-content/uploads/sites/1266/2020/11/20_Subramanian-et-al_covid_19-Metrics-for-PCs-in-India_Vol-20_No-4_final.pdf

In India, Parliamentary Constituencies (PCs) could serve as a regional unit of COVID-19 monitoring that facilitates evidence-based policy decisions. In this study, we presented the first estimates of COVID-19 cumulative cases and deaths per 100,000 population, and the case fatality rate (CFR) between January 7th, 2020 and October 18th, 2020 across 543 PCs and 721 districts of India. We adopted a novel geographic information science-based methodology called crosswalk to estimate COVID-19 outcomes at the PC-level from district-level information. We found a substantial variation of COVID-19 burden within each state and across the country. Access to PC-level and district-level COVID-19 information can enhance both central and regional governmental accountability of safe reopening policies.

Achieving Nutritional Security in India: Vision 2030

Jose, S., A. Gulati, and K. Khurana. 2020. "Achieving Nutritional Security in India: Vision 2030." NABARD Research Study No. 9. Indian Council for Research on International Economic Relations (ICRIER), New Delhi, India. http://icrier.org/pdf/Achieving_Nutritional_Security_in_India-Vision_2030.pdf

Globally, there were 809.9 million undernourished people, of which 194.4 million people (24 per cent) were in India in 2016-18. India had around 30.9 per cent (46 millions) of the world's stunted children under five years of age and 50.9 per cent (25.2 million) of the world's wasted children in 2016-18 (FAO, IFAD, UNICEF, WFP and WHO, 2019). Moreover, a study by Kharas et al. (2018) projects that India will account for 33 per cent of stunted under five years of age and 21 per cent of wasted children worldwide by 2030 unless stringent actions are taken. Given this backdrop, the pertinent question that the report aims to address is how India can achieve nutritional security by 2030. To address this, the paper identifies the multi-dimensional determinants of malnutrition and also explores the linkage between nutrition and income, poverty, food security and agriculture.

A Simplified Measure of Nutritional Empowerment Using Machine Learning to Abbreviate the Women's Empowerment in Nutrition Index (WENI)

Saha, S., and S. Narayanan. 2020. "A Simplified Measure of Nutritional Empowerment Using Machine Learning to Abbreviate the Women's Empowerment in Nutrition Index (WENI)." Working Paper No. 31. Indira Gandhi Institute of Development Research, Mumbai, India. http://www.igidr.ac.in/pdf/publication/WP-2020-031.pdf

Measuring empowerment is both complicated and time consuming. A number of recent efforts have focused on how to better measure this complex multidimensional concept such that it is easy to implement. In this paper, we use machine learning techniques, specifically LASSO, using survey data from five Indian states to abbreviate a recently developed measure of nutritional empowerment, the Women's Empowerment in Nutrition Index (WENI) that has 33 distinct indicators. Our preferred Abridged Women's Empowerment in Nutrition Index (A-WENI) consists of 20 indicators. We validate

the A-WENI via a field survey from a new context, the west- ern Indian state of Maharashtra. We find that the 20-indicator A-WENI is both capable of reproducing well the empowerment status generated by the 33-indicator WENI and predicting nutritional outcomes such as BMI and dietary diversity. Using this index, we find that in our Maharashtra sample, on average, only 51.2% of mothers of children under the age of 5 years are nutritionally empowered, whereas 86.1% of their spouses are nutritionally empowered. We also find that only 22.3% of the elderly women are nutritionally empowered. These estimates are broadly consistent with those based on the 33-indicator WENI. The A-WENI will reduce the time burden on respondents and can be incorporated in any general purpose survey conducted in rural contexts. Many of the indicators in A-WENI are often collected routinely in contemporary household surveys. Hence, capturing nutritional empowerment does not entail significant additional burden. Developing A-WENI can thus aid in an expansion of efforts to measure nutritional empowerment; this is key to understanding better the barriers and challenges women face and help identify ways in which women can improve their nutritional well-being in meaningful ways.

UPCOMING EVENTS & DEADLINES

Nutrition 2021

Over 3,500 of the top nutrition professionals from around the world will gather to advance nutrition science and its practical application.
When: July 10-13, 2020
Where: Online
For more information: https://meeting.nutrition.org/n21/

Nutrition for Growth 2021

Nutrition for Growth (N4G) is a historic opportunity to transform the way the world tackles malnutrition by uniting financial commitments, policy solutions, knowledge and resources from country governments, donors and philanthropies, businesses, NGOs and beyond. Partners will convene at the Tokyo N4G Summit in 2021 to change the world's current nutrition trajectory by:

- Adopting stronger, evidence-based nutrition policies at global, regional, and country levels
- Pledging to increase financing for proven nutrition-specific and nutrition-sensitive interventions
- Committing to align and harmonize actions across sectors and stakeholders

Together, we can ensure individuals and families have the nutrition they need to live healthy and productive lives and that countries have the human capital they need to fuel health, social, and economic development in the final decade of the SDGs.

When: December 2021
Where: Tokyo, Japan
For more information: https://nutritionforgrowth.org/

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.

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