

EDITOR'S NOTE

We are delighted to present to you the first issue of Abstract Digest for this year. This issue has two important LANCET Commission Reports. The [EAT–Lancet Commission](#) is the first of a series of initiatives on nutrition, led by *The Lancet* in 2019, followed by the [Commission on the Global Syndemic of obesity, undernutrition, and climate change](#). Along with these, we have articles from an issue of [Public Health Nutrition](#) that focuses on child and adolescent nutrition, and much more. Here are some of the highlights:

- As a part of the EAT–Lancet Commission research, [Willett and colleagues](#) (2019) addressed the need to feed a growing global population a healthy diet while also defining sustainable food systems that will minimise damage to our planet.
- In the Commission on the Global Syndemic of obesity, undernutrition, and climate change, [Swinburn and colleagues](#) (2019) looked at obesity in a much wider context of common underlying societal and political drivers for malnutrition in all its forms and climate change.
- [Tumilowicz and colleagues](#) (2018) presented an approach to implementation science in nutrition (ISN) that builds upon concepts developed in other policy domains and addresses critical gaps in linking knowledge to effective action.
- [Rieger and colleagues](#) (2019) evaluated the temporal stability of associations between height-for-age z-score (HAZ) of children aged 0–59 months and child, parental, household, and community and infrastructure factors by following 25 countries over time (1991–2014) and found that child growth displayed relatively more time stable associations with child, parental, and household factors than with community and infrastructure factors.
- Using Demographic and Health Surveys (DHS) from 43 low- and middle-income countries, [Tran and colleagues](#) (2019) determined the prevalence of co-morbidity of two important global health challenges, anaemia and stunting, among children aged 6–59 months.
- Using data from the fourth National Family Health Survey 2016, [Swaminathan and colleagues](#) (2019) developed and applied two geographic information systems methodologies to provide estimates of four child malnutrition indicators (stunting, underweight, wasting, and anemia) for the 543 parliamentary constituencies in India.
- Using height-for-age z scores (HAZ) for more than 990,000 children in 62 countries from 163 Demographic and Health Surveys (DHS), [Larsen and colleagues](#) (2019) showed how random errors in birth dates create artifacts in HAZ that can be used to diagnose the extent of age misreporting.
- In a longitudinal study from pregnancy to childhood, [Villar and colleagues](#) (2019) demonstrated that the sequence and timing of attainment of key neurodevelopmental milestones and associated behaviours among 2-year old children are similar across geographically delimited populations specially selected because of their adequate health, medical care, education, and nutrition.
- [Aizawa](#) (2019) studied the transition in body mass index distribution among men and women in India from 2005/2006 to 2015/2016 and presented new evidence for the substantial heterogeneity of the contributory factors and their impacts across the distribution.

- Addressing early childhood development issues:
 - [Bleker and colleagues](#) (2019) provided an overview of recent studies that have examined malnutrition and/or depression in pregnancy and associations with children's behavioural problems and cognitive function.
 - From the early life stress sub-study of the SPRING cluster randomised controlled trial (SPRING-ELS), [Bhopal and colleagues](#) (2019) quantified the extent to which multiple adversities are associated with impaired early childhood growth and development in rural India.
- [Gichuru and colleagues](#) (2019) conducted a systematic review and meta-analysis to explore the impact of microfinance on contraceptive use, female empowerment and children's nutrition in South Asia, Sub-Saharan Africa and Latin America and the Caribbean.
- [R.S. and colleagues](#) (2019) examined aspects of women's empowerment and use of health services and found that greater proportion of women who were self-help group members demonstrated characteristics of empowerment and use of health services compared to those who were not.
- [Sethi and colleagues](#) (2019) analysed the reach of various nutrition and health interventions for women in tribal pockets of eastern India and find that the coverage is lower among tribal population compared to the state averages.
- [Meshram and colleagues](#) (2019) studied infant and young child feeding (IYCF) practices and their association with nutritional status among children aged <3 years in India, and concluded that undernutrition is associated with low socio-economic status, illiteracy of mother, low birth weight and dietary diversity.
- [Smith](#) (2019) conducted a review of 13 health issues in more than 50 countries in four regions of the world to identify factors affecting civil society influence in the pre-implementation stages of the health policy processes in low- and middle-income countries. Smith reports that the power of civil society was enhanced when they joined broader coalition of stakeholders, were well-resourced, and were able to frame issues in ways that resonated with national policies and political priorities.
- [Bowser and colleagues](#) (2019) conducted a Benefit Incidence Analysis (BIA) in public health facilities in India and concluded that government spending on public health care has not resulted in significantly pro-poor services.

Enjoy reading!

PEER-REVIEWED

Food in the Anthropocene: the EAT–Lancet Commission on healthy diets from sustainable food systems

Willett, W., J. Rockström, B. Loken, M. Springmann, T. Lang, S. Vermeulen, T. Garnett, D. Tilman, F. DeClerck, A. Wood, M. Jonell, M. Clark, L.J. Gordon, J. Fanzo, C. Hawkes, R. Zurayk, J.A. Rivera, W.D. Vries, L.M. Sibanda, A. Afshin, A. Chaudhary, M. Herrero, R. Agustina, F. Branca, A. Lartey, S. Fan, B. Crona, E. Fox, V. Bignet, M. Troell, T. Lindahl, S. Singh, S.E. Cornell, K.S. Reddy, S. Narain, S. Nishtar, and C.J.L. Murray. 2019. *The Lancet* 393(10170): 447-492.

[https://doi.org/10.1016/S0140-6736\(18\)31788-4](https://doi.org/10.1016/S0140-6736(18)31788-4)

Abstract: Food systems have the potential to nurture human health and support environmental sustainability; however, they are currently threatening both. Providing a growing global population with healthy diets from sustainable food systems is an immediate challenge. Although global food production of calories has kept pace with population growth, more than 820 million people have insufficient food and many more consume low-quality diets that cause micronutrient deficiencies and contribute to a substantial rise in the incidence of diet-related obesity and diet-related non-communicable diseases, including coronary heart disease, stroke, and diabetes. Unhealthy diets pose a greater risk to morbidity and mortality than does unsafe sex, and alcohol, drug, and tobacco use combined. Because much of the world's population is inadequately nourished and many environmental systems and processes are pushed beyond safe boundaries by food production, a global transformation of the food system is urgently needed.

The Global Syndemic of Obesity, Undernutrition, and Climate Change: The Lancet Commission report

Swinburn, B.A., V.I. Kraak, S. Allender, V.J. Atkins, P.I. Baker, J.R. Bogard, H. Brinsden, A. Calvillo, O.D. Schutter, R. Devarajan, M. Ezzati, S. Friel, S. Goenka, R.A. Hammond, G. Hastings, C. Hawkes, M. Herrero, P.S. Hovmand, M. Howden, L.M. Jaacks, A.B. Kapetanaki, M. Kasman, H.V. Kuhnlein, S.K. Kumanyika, B. Larijani, T. Lobstein, M.W. Long, V.K.R. Matsudo, S.D.H. Mills, G. Morgan, A. Morshed, P.M. Nece, A. Pan, D.W. Patterson, G. Sacks, M. Shekar, G.L. Simmons, W. Smit, A. Tootee, S. Vandevijvere, W.E. Waterlander, L. Wolfenden, and W.H. Dietz. 2019. *The Lancet*. doi:

[https://doi.org/10.1016/S0140-6736\(18\)32822-8](https://doi.org/10.1016/S0140-6736(18)32822-8).

[https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(18\)32822-8/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(18)32822-8/fulltext)

Abstract: Malnutrition in all its forms, including obesity, undernutrition, and other dietary risks, is the leading cause of poor health globally. In the near future, the health effects of climate change will considerably compound these health challenges. Climate change can be considered a pandemic because of its sweeping effects on the health of humans and the natural systems we depend on (ie, planetary health). These three pandemics—obesity, undernutrition, and climate change—represent The Global Syndemic that affects most people in every country and region worldwide. They constitute a syndemic, or synergy of epidemics, because they co-occur in time and place, interact with each other to produce complex sequelae, and share common underlying societal drivers. This Commission recommends comprehensive actions to address obesity within the context of The Global Syndemic, which represents the paramount health challenge for humans, the environment, and our planet in the 21st century.

Implementation Science in Nutrition: Concepts and Frameworks for an Emerging Field of Science and Practice

Tumilowicz, A., M.T. Ruel, G. Pelto, D.L. Pelletier, E.C. Monterrosa, K. Lapping, K. Kraemer, L.M.D. Regil, G. Bergeron, M. Arabi, L. Neufeld, and R. Sturke. 2018. *Current Developments in Nutrition*. doi: nzy080.

<https://doi.org/10.1093/cdn/nzy080>

Abstract: Malnutrition in all its forms has risen on global and national agendas in recent years because of the recognition of its magnitude and its consequences for a wide range of human, social and economic outcomes. While the WHO, national governments and other organizations have endorsed targets and identified appropriate policies, programs and interventions, a major challenge lies in implementing these with the scale and quality needed to achieve population impact. This paper presents an approach to implementation science in nutrition (ISN) that builds upon concepts developed in other policy domains and addresses critical gaps in linking knowledge to effective action. ISN is defined here as an interdisciplinary body of theory, knowledge, frameworks, tools and approaches whose purpose is to strengthen implementation quality and impact. It includes a wide range of methods and approaches to identify and address implementation bottlenecks; identify, evaluate and scale up implementation innovations; and strategies to enhance the utilization of existing knowledge, tools and frameworks based on the evolving science of implementation. The ISN framework recognizes that quality implementation requires alignment across five domains: the intervention, policy or innovation being implemented; the implementing organization(s); the enabling environment of policies and stakeholders; the individuals, households and communities of interest; and the strategies and decision processes employed at various stages of the implementation process. The success of aligning these domains through implementation research requires a culture of inquiry, evaluation, learning and response among program implementers; an action-oriented mission among the research partners; continuity of funding for implementation research; and resolving inherent tensions between program implementation and research. The Society for Implementation Science in Nutrition (SISN) is a recently-established membership society to advance the science and practice of nutrition implementation at various scales and in varied contexts.

Temporal stability of child growth associations in Demographic and Health Surveys in 25 countries

Rieger, M., S.K.Trommlerová, R. Ban, K. Jeffers, and M. Hutmachers. 2019. *SSM – Population Health* 7.

<https://doi.org/10.1016/j.ssmph.2019.100352>

Background: Socio-economic and demographic determinants of child growth at ages 0–5 years in developing countries are well documented. However, Precision Public Health interventions and population targeting require more finely grained knowledge about the existence and character of temporal changes in child growth associations. **Methods:** We evaluated the temporal stability of associations between height-for-age z-score (HAZ) of children aged 0–59 months and child, parental, household, and community and infrastructure factors by following 25 countries over time (1991–2014) in repeated cross-sections of 91 Demographic and Health Surveys using random effect models and Wald tests. **Results:** We found that child growth displayed relatively more time stable associations with child, parental, and household factors than with community and infrastructure factors. Among the unstable associations, there was no uniform geographical pattern in terms of where they consistently increased or decreased over time. There were differences between countries in the extent of temporal instability but there was no apparent regional grouping or geographic pattern. The instability was positively and significantly correlated with annual changes in HAZ. **Conclusions:** These findings inform about the generalizability of results stemming from cross-

sectional studies that do not consider time variation – results regarding effects of child, parental, and household factors on HAZ do not necessarily need to be re-evaluated over time whereas results regarding the effects of infrastructure and community variables need to be monitored more frequently as they are expected to change. In addition, the study may improve the Precision Public Health population targeting of interventions in different regions and times – whereas the temporal dimension seems to be important for precision targeting of community and infrastructure factors, it is not the case for child, parental, and household factors. In general, the existence of temporal instability and the direction of change varies across countries with no apparent regional pattern.

Co-morbid anaemia and stunting among children of pre-school age in low- and middle-income countries: a syndemic

Tran, T., B. Biggs, S. Holton, H. Nguyen, S. Hanieh, and J. Fisher. 2019. *Public Health Nutrition* 22(1): 35-43. doi:10.1017/S136898001800232X
<https://www.cambridge-org.ifpri.idm.oclc.org/core/journals/public-health-nutrition/article/comorbid-anaemia-and-stunting-among-children-of-preschool-age-in-low-and-middleincome-countries-a-syndemic/ECEFAA6E9052F48F4E1627CCCB21F4E6>

Objective: To determine the prevalence of co-morbidity of two important global health challenges, anaemia and stunting, among children aged 6–59 months in low- and middle-income countries. **Design:** Secondary analysis of data from Demographic and Health Surveys (DHS) conducted 2005–2015. Child stunting and anaemia were defined using current WHO classifications. Sociodemographic characteristics of children with anaemia, stunting and co-morbidity of these conditions were compared with those of ‘healthy’ children in the sample (children who were not stunted and not anaemic) using multiple logistic models. **Setting:** Low- and middle-income countries. **Subjects:** Children aged 6–59 months. **Results:** Data from 193 065 children from forty-three countries were included. The pooled proportion of co-morbid anaemia and stunting was 21.5 (95 % CI 21.2, 21.9) %, ranging from the lowest in Albania (2.6 %; 95 % CI 1.8, 3.7 %) to the highest in Yemen (43.3; 95 % CI 40.6, 46.1 %). Compared with the healthy group, children with co-morbidity were more likely to be living in rural areas, have mothers or main carers with lower educational levels and to live in poorer households. Inequality in children who had both anaemia and stunting was apparent in all countries. **Conclusions:** Co-morbid anaemia and stunting among young children is highly prevalent in low- and middle-income countries, especially among more disadvantaged children. It is suggested that they be considered under a syndemic framework, the Childhood Anaemia and Stunting (CHAS) Syndemic, which acknowledges the interacting nature of these diseases and the social and environmental factors that promote their negative interaction.

Burden of Child Malnutrition in India: A View from Parliamentary Constituencies

Swaminathan, A., R. Kim, Y. Xu, J.C. Blossom, W. Joe, R. Venkataramanan, A. Kumar, and S.V. Subramanian. 2019. *Economic & Political Weekly* 54(2).
https://www.epw.in/system/files/pdf/2019_54/2/SA_LIV_2_120119_Akshay_Swaminathan_with_Appendix.pdf

Abstract: In India, monitoring and surveillance of health and well-being indicators have been focused primarily on the state and district levels. Analysing population data at the level of parliamentary constituencies has the potential to bring political accountability to the data-driven policy discourse that is currently based on district-level estimates. Using data from the fourth National Family Health Survey 2016, two geographic information systems methodologies have been developed and applied to provide estimates of four child malnutrition indicators (stunting, underweight, wasting, and anemia) for the 543 parliamentary constituencies in India. The results indicate that several

constituencies experience a multiple burden of child malnutrition that must be addressed concurrently and as a priority.

Misreporting Month of Birth: Diagnosis and Implications for Research on Nutrition and Early Childhood in Developing Countries

Larsen, A.F., D. Headey, and W.A. Masters. 2019. *Demography*. <https://doi.org/10.1007/s13524-018-0753-9>

<https://link.springer.com/content/pdf/10.1007%2Fs13524-018-0753-9.pdf>

Abstract: A large literature has used children's birthdays to identify exposure to shocks and estimate their impacts on later outcomes. Using height-for-age z scores (HAZ) for more than 990,000 children in 62 countries from 163 Demographic and Health Surveys (DHS), we show how random errors in birth dates create artifacts in HAZ that can be used to diagnose the extent of age misreporting. The most important artifact is an upward gradient in HAZ by recorded month of birth (MOB) from start to end of calendar years, resulting in a large HAZ differential between December- and January-born children of -0.32 HAZ points. We observe a second artifact associated with round ages, with a downward gradient in HAZ by recorded age in months, and then an upward step after reaching ages 2, 3, and 4. These artifacts have previously been interpreted as actual health shocks. We show that they are not related to agroclimatic conditions but are instead linked to the type of calendar used and arise mainly when enumerators do not see the child's birth registration cards. We explain the size of the December–January gap through simulation in which 11 % of children have their birth date replaced by a random month. We find a minor impact on the average stunting rate but a larger impact in specific error-prone surveys. We further show how misreporting MOB causes attenuation bias when MOB is used for identification of shock exposure as well as systematic bias in the impact on HAZ of events that occur early or late in each calendar year.

Neurodevelopmental milestones and associated behaviours are similar among healthy children across diverse geographical locations

Villar, J., M. Fernandes, M. Purwar, E. Staines-Urias, P.D. Nicola, L.C. Ismail, R. Ochieng, F. Barros, E. Albernaz, C. Victora, N. Kunnawar, S. Temple, F. Giuliani, T. Sandells, M. Carvalho, E. Ohuma, Y. Jaffer, A. Noble, M. Gravett, R. Pang, A. Lambert, E. Bertino, A. Papageorghiou, C. Garza, A. Stein, Z. Bhutta, and S. Kennedy. 2019. *Nature Communications* 10:511.

<https://doi.org/10.1038/s41467-018-07983-4>

Abstract: It is unclear whether early child development is, like skeletal growth, similar across diverse regions with adequate health and nutrition. We prospectively assessed 1307 healthy, wellnourished 2-year-old children of educated mothers, enrolled in early pregnancy from urban areas without major socioeconomic or environmental constraints, in Brazil, India, Italy, Kenya and UK. We used a specially developed psychometric tool, WHO motor milestones and visual tests. Similarities across sites were measured using variance components analysis and standardised site differences (SSD). In 14 of the 16 domains, the percentage of total variance explained by between-site differences ranged from 1.3% (cognitive score) to 9.2% (behaviour score). Of the 80 SSD comparisons, only six were $>\pm 0.50$ units of the pooled SD for the corresponding item. The sequence and timing of attainment of neurodevelopmental milestones and associated behaviours in early childhood are, therefore, likely innate and universal, as long as nutritional and health needs are met.

Transition of the BMI distribution in India: evidence from a distributional decomposition analysis

Aizawa, T. 2019. *Journal of Bioeconomics*. <https://doi-org.ifpri.idm.oclc.org/10.1007/s10818-019-09283-3>

<https://link-springer-com.ifpri.idm.oclc.org/article/10.1007/s10818-019-09283-3>

Abstract: India is facing a public health problem of both over-nutrition and persistent under-nutrition. This paper studies the transition in body mass index distribution in India from 2005/2006 to 2015/2016. The change in the distribution is characterized not only by a locational shift but also a shape change. As well as the mean difference decomposition, this study implements a quantile decomposition analysis and decomposes the differentials at various quantile points of the distributions. For both men and women, the largest increases are observed in the middle and upper quantiles of the distribution. These increases are well explained by the changes in the individual's characteristics. The improvement in living standards makes a significant contribution to the increase in BMI at the right tail of the distribution, where its higher relative importance is observed. This study shows new evidence for the substantial heterogeneity of the contributory factors and their impacts across the distribution.

Depression and malnutrition in pregnancy and associations with child cognition and behaviour: a review of recent evidence on unique and joint effects

Bleker, L., S.R. de Rooij, and T. Roseboom. 2019. *Canadian Journal of Physiology and Pharmacology*. <https://doi.org/10.1139/cjpp-2018-0381>

Background and aim: Accumulating studies suggest that prenatal experiences can shape children's neurodevelopment. Malnutrition and depression occur in pregnancy relatively often and may affect child neurodevelopment independently as well as synergistically. We aimed to provide an overview of recent studies that have examined malnutrition and/or depression in pregnancy and associations with children's behavioural problems and cognitive function. **Methods:** We conducted a literature search in Pubmed, using the main search terms: 'depression', 'nutrition', 'BMI', 'pregnancy', 'offspring', 'cognition', and 'behaviour'. We included studies in human populations published from 2013 onwards. **Results:** The literature search yielded 1531 articles, of which 55 were included in the current review. We presented the evidence on the associations between prenatal markers of nutritional status and/or depression and child behaviour and/or cognitive function. We additionally discussed interventions and mechanisms. **Conclusion:** Both malnutrition depression in pregnancy are associated with increased externalizing behavioural problems and attentional deficits, and to some extent with poorer cognitive function in the children, but the evidence is not conclusive. Studies on synergistic effects of both factors on child behaviour and cognitive function are still scarce, and more research is needed. Potential shared mechanisms include the hypothalamic pituitary adrenal axis, the immune system, epigenetics, and oxidative stress.

Impact of adversity on early childhood growth & development in rural India: Findings from the early life stress sub-study of the SPRING cluster randomised controlled trial (SPRING-ELS)

Bhopal, S., R. Roy, D. Verma, D. Kumar, B. Avan, B. Khan, L. Gram, K. Sharma, S. Amenga-Etego, S.N. Panchal, S. Soremekun, G. Divan, and B.R. Kirkwood. 2019. *PLoS ONE* 14(1): e0209122.

<https://doi.org/10.1371/journal.pone.0209122>

Introduction: Early childhood development is key to achieving the Sustainable Development Goals and can be negatively influenced by many different adversities including violence in the home, neglect, abuse and parental ill-health. We set out to quantify the extent to which multiple adversities are associated with impaired early childhood growth & development. **Methods:** This was

a substudy of the SPRING cluster randomised controlled trial covering the whole population of 120 villages of rural India. We assessed all children born from 18 June 2015 for adversities in the first year of life and summed these to make a total cumulative adversity score, and four subscale scores. We assessed the association of each of these with weight-for-age z-score, length-for-age z-score, and the motor, cognitive and language developmental scales of the Bayley Scales of Infant Development III assessed at 18 months. **Results:** We enrolled 1726 children soon after birth and assessed 1273 of these at both 12 and 18 months of age. There were consistent and strongly negative relationships between all measures of childhood adversity and all five child growth & development outcome measures at 18 months of age. For the Bayley motor scale, each additional adversity was associated with a 1.1 point decrease (95%CI -1.3, -0.9); for the cognitive scales this was 0.8 points (95%CI -1.0, -0.6); and for language this was 1.4 points (95%CI -1.9, -1.1). Similarly for growth, each additional adversity was associated with a -0.09 change in weight-for-age z-score (-0.11, -0.06) and -0.12 change in height-for-age z-score (-0.14, -0.09). **Discussion:** Our results are the first from a large population-based study in a low/middle-income country to show that each increase in adversity in multiple domains increases risk to child growth and development at a very early age. There is an urgent need to act to improve these outcomes for young children in LMICs and these findings suggest that Early Childhood programmes should prioritise early childhood adversity because of its impact on developmental inequities from the very start.

Is microfinance associated with changes in women's well-being and children's nutrition? A systematic review and meta-analysis

Gichuru, W., S. Ojha, S. Smith, A.R. Smyth, and L. Szatkowski. 2019. *BMJ Open* 9(1): e023658. doi:10.1136/bmjopen-2018-023658. <http://dx.doi.org/10.1136/bmjopen-2018-023658>

Background: Microfinance is the provision of savings and small loans services, with no physical collateral. Most recipients are disadvantaged women. The social and health impacts of microfinance have not been comprehensively evaluated. **Objective:** To explore the impact of microfinance on contraceptive use, female empowerment and children's nutrition in South Asia, Sub-Saharan Africa and Latin America and the Caribbean. **Design:** We conducted a systematic search of published and grey literature (1990–2018), with no language restrictions. We conducted meta-analysis, where possible, to calculate pooled ORs. Where studies could not be combined, we described these qualitatively. **Data sources:** EMBASE, MEDLINE, LILACS, CENTRAL and ECONLIT were searched (1990–June 2018). **Results:** We included 27 studies. Microfinance was associated with a 64% increase in the number of women using contraceptives (OR 1.64, 95%CI 1.45 to 1.86). We found mixed results for the association between microfinance and intimate partner violence. Some positive changes were noted in female empowerment. Improvements in children's nutrition were noted in three studies. **Conclusion:** Microfinance has the potential to generate changes in contraceptive use, female empowerment and children's nutrition. It was not possible to compare microfinance models due to the small numbers of studies. More rigorous evidence is needed to evaluate the association between microfinance and social and health outcomes.

Context for layering women's nutrition interventions on a large scale poverty alleviation program: Evidence from three eastern Indian states

R. S., R., K. Dinachandra, A. Bhanot, S. Unisa, G.T. Menon, N. Agrawal, V. Bhatia, M. Ruikar, A. Daniel, S. Bhattacharjee, R.N. Parhi, H. P. S. Sachdev, R.K. Gope, A.D. Wagt, and V. Sethi. 2019. *PLoS ONE* 14(1): e0210836. <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0210836>

Abstract: Over 70 million women of reproductive age are undernourished in India. Most poverty alleviation programs have not been systematically evaluated to assess impact on women's empowerment and nutrition outcomes. National Rural Livelihoods Mission's poverty alleviation and livelihoods generation initiative is an opportune platform to layer women's nutrition interventions being tapped by project Swabhimaan in three eastern Indian states—Bihar, Chhattisgarh and Odisha. A cross-sectional baseline survey covering 8755 mothers of children under-two years of age, one of the three primary target groups of program are presented. Standardized questionnaire was administered and anthropometric measurements were undertaken from October 2016 to January 2017. 21 indicators on women's empowerment, Body Mass Index and Mid-upper Arm Circumference for nutrition status, food insecurity indicators as per the Food Insecurity Experience Scale and selected indicators for assessing women's access to basic health services were included. National Rural Livelihoods Mission operates in contexts with stark social and gender inequalities. Self-help group members exhibited better control on financial resources and participation in community activities than non-members. Using Body Mass Index, at least 45% mothers were undernourished irrespective of their enrolment in self-help groups. Higher proportion of self-help group members (77%-87%) belonged to food insecure households than non-members (66%-83%). Proportion of mothers reporting receipt of various components of antenatal care service package varied from over 90% for tetanus toxoid vaccination to less than 10% for height measurement. Current use of family planning methods was excruciatingly low (8.2%-32.4%) in all states but positively skewed towards self-help group members. Participation in monthly fixed day health camps was a concern in Bihar. Layering women's nutrition interventions as stipulated under Swabhimaan may yield better results for women's empowerment and nutrition status under National Rural Livelihoods Mission. While this opportunity exists in all three states, Bihar with a higher proportion of matured self-help groups offers more readiness for Swabhimaan implementation.

Delivering Essential Nutrition: Interventions for Women in Tribal Pockets of Eastern India

Sethi, V., S. Bhattacharjee, S. Sinha, A. Daniel, A. Lumba, D. Sharma, and A. Bhanot. 2019. *Economic & Political Weekly* 54(4).

<https://www.epw.in/journal/2019/4/special-articles/delivering-essential-nutrition.html>

Abstract: In India, despite provisions for tribal development, 32% of tribal women are chronically undernourished, as opposed to 23% among those not belonging to tribal households. Large-scale surveys and routine monitoring are currently deficient in measuring the nutrition status of women, especially tribal women. This study was undertaken to analyse the reach of various health-related schemes for tribal women in Chhattisgarh, Jharkhand, and Odisha. In the light of its findings, it is recommended that all national schemes should be reviewed through a tribal lens, as tribes remain outside the ambit of most nutrition safety nets. Proven measures like strengthening tribal development nodal agencies, motivational incentives to fieldworkers and organised community involvement, need to be scaled up.

Infant and young child feeding practices, sociodemographic factors and their association with nutritional status of children aged <3 years in India: findings of the National Nutrition Monitoring Bureau survey, 2011–2012

Meshram, I., K.M. Rao, N. Balakrishna, R. Harikumar, N. Arlappa, K. Sreeramakrishna, and A. Laxmaiah. 2019. *Public Health Nutrition* 22(1): 104-114. doi:10.1017/S136898001800294X.

<https://www.cambridge.org/core/journals/public-health-nutrition/article/infant-and-young-child-feeding-practices-sociodemographic-factors-and-their-association-with-nutritional-status-of-children-aged-3-years-in-india-findings-of-the-national-nutrition-monitoring-bureau-survey-20112012/1383C7B40380974200A468EE5EC065F1>

Objective: To study infant and young child feeding (IYCF) practices and their association with nutritional status among young children. **Design:** A community-based, cross-sectional study was carried out in ten states of India, using a multistage random sampling method. Anthropometric measurements such as length/height and weight were conducted and nutritional assessment was done using the WHO child growth standards. **Setting:** National Nutrition Monitoring Bureau survey, 2011–2012. **Participants:** Children aged <3 years and their mothers. **Results:** Only 36 % of infants received breast-feeding within an hour of birth and 50 % were exclusively breast-fed up to 6 months. Prevalence of underweight, stunting and wasting was 38, 41 and 22 %, respectively. The chance of undernutrition among <3-year-old children was significantly higher among those from scheduled caste/scheduled tribe communities, the lowest-income group, with illiterate mothers and lack of sanitary latrine. Among infants, the chance of undernutrition was significantly higher among low-birth-weight babies, and among children whose mother had not consumed iron–folic acid tablets during pregnancy. Immunization practices and minimum dietary diversity were observed to be associated with undernutrition among 12–23-month-old children. **Conclusions:** Undernutrition is still an important public health problem in India and observed to be associated with low socio-economic status, illiteracy of mother, low birth weight and dietary diversity. Improving socio-economic and literacy status of mothers can help in improving maternal nutrition during pregnancy and thus low birth weight. Also, improving knowledge of mothers about IYCF practices will help in improving children’s nutritional status.

Factoring civil society actors into health policy processes in low- and middle-income countries: a review of research articles, 2007–16

Smith, S.L. 2019. *Health Policy and Planning*. <https://doi.org/10.1093/heapol/czy109>.

<https://doi.org/10.1093/heapol/czy109>

Abstract: Civil society actors have substantially increased their participation in global and national health policymaking processes since the 1970s. Civil society roles in shaping such significant global health milestones as the Doha Declaration on Intellectual Property Rights, the Framework Convention on Tobacco Control and the recently adopted United Nations Sustainable Development Goals are well documented, but knowledge of civil society actor influence on health policy processes in low- and middle-income countries remains fragmented. This study analyses 24 peer-reviewed research articles published between 2007 and 2016 to identify factors affecting civil society influence in the pre-implementation stages of the policy process. The articles reviewed span 13 health issues and more than 50 countries in four regions of the world. This body of work focuses on civil society as represented by formal groups, primarily domestic and to some extent international non-governmental organizations, but also social movements, professional associations and faith-based organizations, among others. The studies document several actor-centred and contextual factors that affect civil society actor power, commonly across stages of the policy process. Crucially, civil society actors were challenged to impact the process in countries that lacked participative norms and governing structures. When repressive conditions existed, regime changes and donors sometimes helped to open doors to participation. The power of civil society actors was enhanced when they joined strong epistemic networks and broader coalitions of stakeholders, were resourced, and framed issues in ways that resonated with national policies and political priorities. The synthesis offers guidance to practitioners on factors to consider in strategy development and points to several issues for further investigation by health policy analysis scholars, including the implications of issue (non)adoption by civil society actors and contestation dynamics among those with differing perspectives.

Benefit incidence analysis in public health facilities in India: utilization and benefits at the national and state levels

Bowser, D., B. Patenaude, M. Bhawalkar, D. Duran, and P. Berman. 2019. *International Journal for Equity in Health* 18(13).

<https://doi.org/10.1186/s12939-019-0921-6>

Background: Benefit Incidence Analysis (BIA) is used to understand the distribution of health care utilization and spending in comparison to income distribution. The results can illustrate how effectively governments allocate limited resources towards meeting the needs of the poor. In analyzing the distribution of public spending on inpatient, outpatient, and deliveries, this paper represents the most recent BIA completed in India. **Methods:** In order to conduct the BIA statistical analysis for this project, 2014 utilization data from the most recently completed Indian National Sample Survey (NSS) was used. Unit costs were estimated for primary care, hospital inpatient, hospital outpatient, and deliveries. Concentration curves and concentration indices were estimated both at the national and state levels. Analyses were reported for overall utilization, as well as for the gross and net benefits for inpatient, outpatient, and deliveries. **Results:** According to the results, utilization of government inpatient and delivery services is pro-poor. When gross and net benefits are included in the analysis, services become more equal and less pro-poor. Gross benefits, which are measured with state-level unit costs, are virtually equal for all services. Although there are some pro-poor gross benefits trends for national outpatient services, the results also show that the equality of national gross benefits trends hides a significant disparity across Indian States. While a number of Indian States have outpatient gross benefits that are pro-poor, few show pro-poor benefits for inpatient and delivery services. Net benefits, which considers both unit costs for each respective service, and out-of-pocket (OOP) expenditures, trend similarly to gross benefits. In addition, those who use public facilities spend considerable OOP to supplement government services. **Conclusions:** This BIA reveals that government spending on public health care has not resulted in significantly pro-poor services. While some progress has been made relative to deliveries and outpatient services, inpatient stays are not pro-poor. In addition, national results mask significant disparities across Indian states.

NON-PEER REVIEWED

Changes in open defecation in rural north India: 2014 - 2018

Aashish Gupta, Nazar Khalid, Devashish Deshpande, Payal Hathi, Avani Kapur, Nikhil Srivastav, Sangita Vyas, Dean Spears, and Diane Coffey. 2019. *Discussion Paper Series*. Bonn, Germany: IZA – Institute of Labor Economics.

<http://ftp.iza.org/dp12065.pdf>

Abstract: Since October 2014, the Government of India has worked towards a goal of eliminating open defecation by 2019 through the Swachh Bharat Mission (SBM). In June 2014, we reported the results of a survey of rural sanitation behaviour in north India. Here, we report results from a late 2018 survey that revisited households from the 2014 survey in four states: Bihar, Madhya Pradesh, Rajasthan, and Uttar Pradesh. Although rural latrine ownership increased considerably over this period, open defecation remains very common in these four states. There is substantial heterogeneity across states in what the SBM did and how. Many survey respondents report that the SBM attempted to coerce latrine construction, including by withholding or threatening to withhold government benefits. ST and SC households were especially likely to face coercion. Variation in SBM coercion is correlated with variation in sanitation outcomes: in villages where more people report coercive SBM activities, more people also reported switching to latrine use. These outcomes suggest the need for transparent, fact-based public dialogue about the SBM: its costs and benefits, its accomplishments and means.

Food and Nutrition Security: The India Story

Khadka, S., and D. Anand. 2018. In *Hunger and Malnutrition as Major Challenges of the 21st Century*, edited by R. Jha, 179-197. Australian National University, Australia, World Scientific Series in Grand Public Policy Challenges of the 21st Century.

https://doi.org/10.1142/9789813239913_0006

Abstract: Despite gains on the economic front, India is facing huge crisis especially in ensuring food and nutrition security for its citizens. The country has alarmingly high levels of poverty and undernutrition, warning, that the benefits of demographic dividend would otherwise become a challenge. The country has been undergoing nutrition transition over the past 30 years, resulting in the change of food baskets with decreasing intake of cereals, pulses, fruits and vegetables, and increasing intake of meat products, fat and salt. The situation is further worrisome as levels of physical activity are declining and mental stress is increasing, leading to high levels of obesity and non-communicable diseases. It is worthy that the country has numerous policies and programmes in place to correct the food and nutrition security situation; however, due to critical gaps, the results are not so encouraging. Only recently is the multi-dimensional and multi-causal nature of nutrition increasingly being realized, and nutrition is also seen as being critical to the development of human capital. Although, the recent strategy papers clearly articulate the action points for revolutionizing the nutrition sector of the country, there is a need to scale-up nutrition services and improve feeding and caring practices in the home, improve the efficiency and effectiveness of the safety nets and work towards increasing farm incomes especially for small and marginal farming households.

Agriculture and Female Malnutrition in India

Rampal, P., and R.B. Swain. 2018. In *Hunger and Malnutrition as Major Challenges of the 21st Century*, edited by R. Jha, 241-265. Australian National University, Australia, World Scientific Series in Grand Public Policy Challenges of the 21st Century.

https://doi.org/10.1142/9789813239913_0008

Abstract: It is widely recognized that combating malnutrition for women is central not only for their own health but also for the attainment of nutritional adequacy for future generations, including infants, children and adolescents. Attaining adequate nutrition for women is necessary throughout their life, but particularly so before, during and after pregnancy, if intergenerational nutritional adequacy is to be attained. Adequacy of nutrition also helps an individual become more productive and saves medical treatment costs that may otherwise have occurred. However, India's less than satisfactory record of female, infant and child nutrition underscores the need to take urgent steps, particularly if the Sustainable Development Goals (SDGs) are to be attained. With this as the background the present chapter focuses on the role of agriculture in providing adequate nutrition for women and the methods through which women in the rural sector can leverage existing institutions and programs to ameliorate nutritional inadequacy. This would require the design of informative indices of nutritional attainment and close cooperation in policy between governments, civil society organizations and international advisory groups. The chapter reviews some ways in which these can be attained.

Community Hunger Fighters: An Adult Nutrition Literacy Programme

Narayanan, R., D.J. Nithya, A.K. Panda, and R.D. Wagh. 2018. *Leveraging Agriculture for Nutrition in South Asia*, and M. S. Swaminathan Research Foundation Chennai, Tamil Nadu.

https://www.researchgate.net/profile/D_J_Nithya/publication/330577404_Community_Hunger_Fighters_An_Adult_Nutrition_Literacy_Programme_Experiences_in_integrating_nutrition_literacy_as_part_of_the_Farming_system_for_Nutrition_Study_under_Leveraging_Agriculture_for_Nutriti/links/5c4947a7a6fdccd6b5c440d9/Community-Hunger-Fighters-An-Adult-Nutrition-Literacy-Programme-Experiences-in-integrating-nutrition-literacy-as-part-of-the-Farming-system-for-Nutrition-Study-under-Leveraging-Agriculture-for-Nutriti.pdf

Abstract: While nutrition literacy per se helps in generating awareness about healthy eating, when combined with interventions to augment household food security, has the potential to bring sustainable transformative behaviour in households towards dietary diversity. This report documents the processes and outcomes of a nutrition literacy programme undertaken by the M S Swaminathan Research Foundation (MSSRF) as part of a research study which attempted to find out the effectiveness of farming system interventions in improving nutrition security at the household level. Nutritional literacy here does not refer to literacy in the traditional sense which is reading and writing but involves a sensitization programme in nutrition based on principles of adult literacy and not the mere dissemination of technical messages.

UPCOMING EVENTS & DEADLINES

Call for Papers: IUSSP Population, Poverty and Inequality Research Conference, University of Michigan

Description: The IUSSP Scientific Panel on Population, Poverty and Inequality aims to produce policy-relevant evidence on the interactions between population dynamics and poverty and inequality. With funding provided by the William and Flora Hewlett Foundation, the panel will host two international conferences that address the central theme of the Panel. The conference will be held at the Institute for Social Research (ISR) at the University of Michigan, a leader in developing and applying new social science methods, committed to educating the next generation of social scientists. The conference program will include a set of keynote speakers who have made influential contributions in these areas.

When: June 27-29, 2019

Deadline for submissions: February 18, 2019

Where: Ann Arbor, Michigan, United States

For more information: <https://iussp.org/en/iussp-population-poverty-and-inequality-research-conference>

West Indies Economic Conference (WECON)

Description: The Department of Economics, (UWI-Mona), will be hosting the third annual West Indies Economic Conference (WECON); March 21-22, 2019. The department welcomes papers in every field of economics. Papers on econometric methods and the economic issues of developing economies are especially welcome. Inter-disciplinary papers that incorporate economics are also encouraged.

When: March 21-22, 2019

Where: Regional Headquarters, The University of the West Indies, Mona Campus, Kingston 7, Jamaica, W.I

For more information: <https://wecon-mona.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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