# *Selected Summaries*

## Community interventions and participation in women's groups and counselling through home visits and their effect on a child's growth

Nair N, Tripathy P, Sachdev HS, Pradhan H, Bhattacharyya S, Gope R, Gagrai S, Rath S, Rath S, Sinha R, Roy SS, Shewale S, Singh V, Srivastava A, Costello A, Copas A, Skordis-Worrall J, Haghparast-Bidgoli H, Saville N, Prost A. (Ekjut, Chakradharpur, Jharkhand; Sitaram Bhartia Institute of Science and Research, New Delhi; Public Health Foundation of India, New Delhi, India; Institute for Global Health, University College London, London, UK.) Effect of participatory women's groups and counselling through home visits on children's linear growth in rural eastern India (CARING trial): A cluster-randomised controlled trial. *Lancet Glob Health* 2017;**5:**e1004–e1016.

SUMMARY

Nair *et al*. conducted a cluster-randomized controlled trial to study the effect of a strategy involving a new worker who conducted participatory group meetings and home visits, on a child's linear growth and other selected variables related to mother–child nutrition and their practices. They selected 120 adjoining clusters spread equally over two rural districts of Jharkhand (West Singhbhum) and Odisha (Kendujhar). They were stratified based on the number of villages and hamlets (0, 1–2, >2 hamlets) into three strata in each district. The six strata villages were then each randomized equally into either intervention or control group. Randomization was done in the presence of village leaders, front-line workers and members of local governance bodies, using a local lottery method. Stillbirths and neonatal deaths, infants whose mothers died, those with congenital abnormalities, multiple births and mother and infant pairs who migrated out of the study area permanently during the trial period numbering 2780 mother–infant pairs were excluded from the trial. The intervention was given to the eligible beneficiaries by a newly recruited female community worker called Su-Poshan Karyakarta (SPK) whose two main responsibilities were to provide monthly home visits to pregnant women in their 3rd trimester and their children (below 2 years of age); and facilitation of 2–3 participatory meetings with local women groups per month. The counselling during home visits mainly targeted feeding, support, hygiene, care and stimulation practices whereas women group meetings aimed to promote individual and community action for nutrition. The participatory group meetings reinforced on underlying causes of malnutrition which included birth spacing, nutrition in pregnancy, water and sanitation hygiene and women's agency; these meetings followed principles of participatory learning and action methodology based on learning acquired through previous such trials by the same author.[1] SPK were provided with the honorarium equivalent to that of an existing Anganwadi worker (AWW; ₹3000 per month) and catered to a population of approximately 1000. SPK also received training for 2 weeks and were mentored by trained supervisors. Along with health education, they were responsible for encouraging women to attend participatory women group meetings with the help of AWW. The data collection team visited the pregnant women once in the 3rd trimester and followed them up during delivery within 72 hours, 3rd, 6th, 9th, 12th, 15th and 18th month of the child's age. They followed standardized procedures for measuring length/height, weight and mid-upper arm circumference. The trained data collection team and outcome assessors/statisticians were masked to allocation. Details of certain specific self-reported health-related behaviours such as hand-washing, consumption of minimum meal frequency and dietary diversified foods were taken. The primary outcome was to study the children's mean (standard deviation [SD]) length-for-age Z (LAZ) scores at the 18th month of age. Other outcomes were to assess the change in the LAZ score following intervention, birth-weight, to estimate the prevalence of stunting, wasting and undernutrition, feeding and care practices. Intention-to-treat analysis was done.

A total of 5781 pregnant women were recruited from 120 clusters and 3001 mother–infant pairs were followed up for the primary objective. The sociodemographic details were described; however, the authors could have also mentioned if the control and intervention groups were comparable. Children's mean (SD) LAZ score at 18th month of age was –2.31 (1.12) and –2.40 (1.10) in the intervention and control arm, respectively (adjusted difference 0.107; 95% CI –0.011–0.226, p=0.08). Similarly, there was no significant difference in the change in the LAZ score from birth to 18th month of age between the intervention and control arms (–0.55 in intervention arm *v*. –0.48 in control arm; adjusted difference 0.074; 95% CI 0.062–0.211, p=0.29). There was a significant difference in mother's nutrition in pregnancy in the form of consumption of minimum dietary diversified foods (adjusted odds ratio [aOR] 1.40; 95% CI 1.03–1.90, p=0.0311) and similarly children who were given minimum dietary diversified foods (aOR 1.47, 95% CI 1.07–2.02) and with minimum meal frequency (aOR 1.60, 95% CI 1.04–2.47) was also significantly higher in the intervention arm, more mothers washed their hands before feeding children (aOR 5.23,95% CI 2.61–10.5), and fewer children were underweight at 18 months (aOR 0.81, 95% CI 0.66–0.99). Mortality was lower in the intervention arm (aOR 0.63; 95% CI 0.39–1.00, p=0.0496). SPK supported 163 participatory group meetings. The five most common child-related problems prioritized by groups were diarrhoea (61%, i.e. 100 of 163), malaria (57%), worm infestations (47%), low birth weight (36%) and acute respiratory infections (32%). The most common maternal problem identified was food restrictions during pregnancy (61%). Increased exposure to group meetings and home visits, lead to a higher LAZ; however, the increase was insignificant. The intervention did not significantly affect other variables such as exclusive breastfeeding, timely introduction of complementary foods, morbidity, appropriate home care or care-seeking during childhood illnesses. The authors not only discuss the need for intensified multisectoral approach to tackle nutrition but also address on-going trials that study the effect of various nutrition-specific and nutrition-sensitive interventions on nutrition-related behaviour change.

COMMENT

The present study focused on an important public health issue. This cluster randomized trial was well-designed and conducted as per protocol. Clusters were similar in both the intervention and control groups (ensured by stratified randomization). Allocation concealment was done effectively in the presence of the local leaders to minimize bias. The intervention was complex and the SPK was trained to provide counselling and encourage women to attend participatory group meetings. Counselling requires periodic training and practice, and its effect needs time and may show after many generations. It also requires consideration that there exist multiple homogeneous subpopulations within the study population

and assuming that a single blanket strategy would be beneficial to all may not be socially acceptable to the beneficiaries and may act as a hindrance to rapid acceptance of a new behaviour. It is a specialized skill and performance of workers after learning is contingent to many factors. Health education is expected to take a lot of time for a satisfactory behaviour change. However, behaviour change strategies alone cannot be the only way to reduce under-nutrition.

In 2017, India ranked 100 among 119 countries with a high Global Hunger Index (31.4) and was categorized as a 'serious' problem.[2] Hunger demands are required to be met much more than other strategies. The availability of good quality and affordable food in all homes is essential to a faster behaviour change. The major strength of the study was involvement of participatory women group meetings, which focused on the underlying causes of under-nutrition and was an important attempt to improve the knowledge and practices among women who are the primary care-givers to their children. The control group had access to routine governmental services and also special group meetings were held to discuss health nutrition-related aspects. As mentioned by the authors, an additional worker had been recommended in the 12th 5-year-plan to decrease the burden from the existing AWWs,[3] but a significant positive effect on the length of the child may not be seen immediately as suggested by this study. However, strengthening existing services, for example, reducing workload per worker, improving training, improving existing infrastructure, lack of coordination with different national programmes, periodic credible monitoring and supervision, involvement of both women and men in care-taking and nutrition-related decision-making with respect to quality should also be emphasized along with allocating more workers. The rapport between mother and accredited social health activist (ASHA) might have augmented the effectiveness of the group meetings and home visits in changing home-based behaviour among mothers.[4] Men not only have an important role in maternal and child health as parents and partners but also have been known to influence behaviours within their households and communities. Improved male involvement can lead to better maternal and child health outcomes and need to be incorporated into the intervention packages.[5,6]

India contributes to 30% of the world's stunted under-five children,[7] with 38% of its children with the LAZ score below –2 SD of the median.[8] The high burden of stunting, wasting and under-nutrition in India in spite of on-going nutrition programmes have speculated the need for combined nutrition-sensitive and nutrition-specific interventions. These interventions are complex and require time for their true results. India's Integrated Child Development Services Scheme (ICDS), whose main objective is provision of supplementary nutrition, attempts to tackle this major burden. However, there are speculations regarding the quality of the services being provided in various Anganwadis across India.[9,10] It may be time to reconsider the services provided under these packages and to ensure repeated quality checks.

The ASHA-facilitated participatory learning approach using women group meetings empowers pregnant women, and makes them realize their felt needs and to help them gain knowledge and to facilitate behaviour modification with better community support. Women group meetings in conjunction with the provision of good quality nutrition may be more beneficial. Systematic reviews and meta-analyses report that community-based intervention strategies with linkages to local health systems have reduced the maternal and neonatal morbidity as well as mortality.[11,12] Thus, there is a need for the development of an intensified community-based package and its emphasis in all parts of the country.

Furthermore, in the present study, there was a limited focus on the maternal condition and nutrition in the first two trimesters. Nutrition in the first 1000 days of life is essential for neurocognitive development, and poor nutrition in this phase may have serious consequences to the growth and development of the child.[13] It was also seen that improved nutrition in early childhood may not show positive effects in short-term studies, as neurodevelopment is a biological process across the lifespan and changes take long time to develop and may require continuation of consistent efforts to improve nutrition. Disease status during the maternal period, environment and psychosocial stress affecting the mother also contribute to the child's nutritional status.[14] Studies show that foetal growth is most vulnerable to maternal nutritional status during the peri-implantation period and the 1st trimester (period of rapid placental development).[15,16] In a study in Ghana by Wemakor and Mensah,[17] it was reported that children of depressed mothers were three times more likely to be stunted compared with their non-depressed counterparts (adjusted OR –2.48, 95% CI 1.29–4.77, p=0.0011). Thus, there are many factors which can be related to the child's growth and just rectifying nutrition which may be a direct cause, may not solve the problem. This again underpins the need for ASHA-facilitated women group meetings or community-based intervention package with strong community engagement/participation. Many such interventions which promote maternal and foetal growth have been developed by the health system using community-based approaches. Interventions which have supplemented pregnant women with micronutrients mainly iron-folic acid and balanced protein–energy supplementation have been associated with lower risk of low birth weight babies.[18–20] However, we have limited data on the direct effect on these community-based packages on the child's growth.

The NITI Aayog's National Nutritional Strategy considers preventive and integrative management, with a continuum of care/life cycle approach. There was emphasis on various components such as infant and young child feeding practices, maternal nutrition and anaemia, water and sanitation hygiene practices, prevention and management of micronutrient deficiencies and common illnesses, psychosocial care and need for multisectoral coordination especially among the various ministries and programmes such as ICDS, Ministry of Health and Family Welfare, Rajiv Gandhi Scheme for Empowerment of Adolescent Girls also known as Sabla scheme and Swacch and Swasth Bharat.[21] NITI Aayog aims to reduce the burden of stunting and under-nutrition among 0–6-year-old children by 2% per annum. The main initiatives target the backward districts and are improving awareness by enhancing information, education and communication (IEC) activities, provision of accessible and affordable foods, sanitation through Rural Drinking Water programme and Swachh Bharat, full immunization by Mission Indradanush, iron and deworming tablet supplementation, early breastfeeding programmes, and Women empowerment. However, the financial and workforce challenges act as a barrier towards achieving this goal. The National Health Mission is run mainly by ASHA workers, auxiliary nurse midwives (ANMs) and AWWs at the grassroots level. They are known to be not only 'overloaded' with work but also are 'underpaid' contract workers who work mainly due to the lack of opportunities. With such low financial resources considering adding an extra similar worker for each village may act as a double-edged sword and needs to be considered with great caution. Financing mechanisms and sustainability for

these additional cadre of worker also will need clarity before creating an additional cadre of AWWs.

Thus, a package which caters to all these factors needs to be developed and be reciprocated in various settings with the involvement of both governmental and non-governmental organizations to generate better evidence.

*Conclusions*

Chronic malnutrition, which is a result of long-term energy/calorie and protein deficit leads to stunting. From the time of conception to the second birthday of the child, also known as the first 1000 days of life, is the most vulnerable period for growth and development. This period determines the future health status of the child. Hence, we need interventions targeting this crucial period and in line with the findings of the above-mentioned study, the recommendation for an additional worker to supplement or augment the service package being provided at the community, appears to be feasible and may also reduce the burden on existing AWWs; however, strengthening the existing nutrition-related services with integrated focus of both nutrition-specific and -sensitive interventions (with community participation by including beneficiaries, schools, non-governmental organizations, mahila samitis, self-help groups, de-addiction centres, village health committees, ASHAs, ANMs, AWWs) in the entire duration of the first 1000 days of life seems to be a better approach for studying the effect of these interventions on child's growth.

*Conflicts of interest.* None declared

## REFERENCES


1 Tripathy P, Nair N, Sinha R, Rath S, Gope RK, Rath S, *et al*. Effect of participatory women's groups facilitated by accredited social health activists on birth outcomes in rural Eastern India: A cluster-randomised controlled trial. *Lancet Glob Health* 2016;**4:**e119–28.

2 The Inequalities of Hunger. Global Hunger Index–A Peer-Reviewed Publication; 2017. Available at *www.globalhungerindex.org* (accessed 24 Aug 2018).

*3 Twelfth Five Year Plan (2012–2017)*. New Delhi, India. Thousand Oaks, California:SAGE Publications; 2013.

4 Paul VK. Participatory women's groups: Time for integration into programmes. *Lancet Glob Health* 2016;**4:**e74–5.

5 Tokhi M, Comrie-Thomson L, Davis J, Portela A, Chersich M, Luchters S, *et al.* Involving men to improve maternal and newborn health: A systematic review of the effectiveness of interventions. *PLoS One* 2018;**13:**e0191620.

6 Davis J, Vyankandondera J, Luchters S, Simon D, Holmes W. Male involvement in reproductive, maternal and child health: A qualitative study of policymaker and practitioner perspectives in the pacific. *Reprod Health* 2016;**13:**81.

7 International Food Policy Research Institute. *Global nutrition report 2016: From promise to impact: nding malnutrition by 2030.* Washington, DC:IFPRI; 2016.

8 National Family Health Survey (NFHS-4) Haryana; 2015–16. Available at *www.rchiips.org/nfhs/pdf/NFHS4/HR_FactSheet.pdf.*

9 Chudasama R, Patel U, Verma P, Vala M, Rangoonwala M, Sheth A, *et al.* Evaluation of Anganwadi centres performance under integrated child development services (ICDS) program in Gujarat state, India during year 2012-13. *J Mahatma Gandhi Inst Med Sci* 2015;**20:**60–5.

10 Malik A, Bhilwar M, Rustagi N, Taneja DK. An assessment of facilities and services at Anganwadi centers under the integrated child development service scheme in Northeast district of Delhi, India. *Int J Qual Health Care* 2015;**27:**201–6.

11 Lassi ZS, Bhutta ZA. Community-based intervention packages for reducing maternal and neonatal morbidity and mortality and improving neonatal outcomes. *Cochrane Database Syst Rev* 2015;**(3):**CD007754.

12 Prost A, Colbourn T, Seward N, Azad K, Coomarasamy A, Copas A, *et al.* Women's groups practising participatory learning and action to improve maternal and newborn health in low-resource settings: A systematic review and meta-analysis. *Lancet* 2013;**381:**1736–46.

13 Schwarzenberg SJ, Georgieff MK; Committee on Nutrition. Advocacy for improving nutrition in the first 1000 days to support childhood development and adult health. *Pediatrics* 2018;**141**. pii: e20173716.

14 Walker SP, Wachs TD, Grantham-McGregor S, Black MM, Nelson CA, Huffman SL, *et al.* Inequality in early childhood: Risk and protective factors for early child development. *Lancet* 2011;**378:**1325–38.

15 United Nations Children's Fund. *Improving child nutrition: The achievable imperative for global progress*. New York:United Nations Children's Fund; 2013:124.

16 Wu G, Bazer FW, Cudd TA, Meininger CJ, Spencer TE. Maternal nutrition and fetal development. *J Nutr* 2004;**134:**2169–72.

17 Wemakor A, Mensah KA. Association between maternal depression and child stunting in Northern Ghana: A cross-sectional study. *BMC Public Health* 2016;**16:**869.

18 Fall CH, Fisher DJ, Osmond C, Margetts BM; Maternal Micronutrient Supplementation Study Group. Multiple micronutrient supplementation during pregnancy in low-income countries: A meta-analysis of effects on birth size and length of gestation. *Food Nutr Bull* 2009;**30:**S533–46.

19 Imdad A, Bhutta ZA. Maternal nutrition and birth outcomes: Effect of balanced protein-energy supplementation. *Paediatr Perinat Epidemiol* 2012;**26** (1 Suppl)**:** 178–90.

20 English R, Peer N, Honikman S, Tugendhaft A, Hofman KJ. 'First 1000 days' health interventions in low- and middle-income countries: Alignment of South African policies with high-quality evidence. *Glob Health Action* 2017;**10:**1340396.

21 Nourishing India. National Nutrition Strategy. NITI AAYOG; 2018. Available at *www.niti.gov.in/writereaddata/files/document_publication/Nutrition_Strategy_Booklet.pdf*. (accessed on 28 Feb 2018).



OLIVIA MARIE JACOB

SUMIT MALHOTRA

*Centre for Community Medicine*
*All India Institute of Medical Sciences*
*New Delhi*
*drsumitaiims2012@gmail.com*