

Accelerating Malnutrition Reduction in Orissa

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Abstract Orissa has performed better than the Indian average in terms of the rate of malnutrition reduction. This positive trend is supported by NFHS data, independent survey data and the State's own monitoring data. Despite this good news, absolute rates remain high with 40 per cent of children under five malnourished, rising to 54 per cent amongst the tribal population. Encouraging progress but recognition of a long way to go has triggered the Department of Women and Child Development to develop a new operational plan to accelerate the pace of malnutrition reduction. The Nutrition Plan is based on five principles, the key being targeting the most vulnerable in high burden districts. Review of national and international experience, analysis of the Department's data, plus primary data collection to fill information gaps, have created an evidence-based Plan which provides a challenging but realistic map for reaching an average annual malnutrition reduction of 3.5 per cent.

1 Introduction

Orissa has improved the nutritional status of children in the last decade. A total of 40 per cent of children under three and 40.7 per cent of children under five are underweight in Orissa, compared with 40.4 and 42.5 per cent in India as a whole (National Family Health Survey 3, NFHS-3). While malnutrition in India fell by only 2.3 per cent from 1998–9, Orissa saw a ten-point reduction. There was also a reduction in the infant mortality rate (IMR) from 81 to 64.7 per 1,000 live births.

This suggests that certain things have 'worked' to improve child nutrition, despite the persistently high incidence of poverty in the state where about half of the population live below the national poverty line.

According to NFHS-3 data, Orissa has India's highest weighing efficiency of children below six years (56.1 per cent as compared with the average of 18.2 per cent). NFHS-3 also shows that a higher proportion of the poorest quintiles and vulnerable groups (Scheduled Castes and Scheduled Tribes)

than the better off received supplementary food through the Integrated Child Development Service (ICDS). Indicators that support improvement in nutritional status like initiation of breast-feeding within 1 hour of birth, pre-lacteal feeding and exclusive breast-feeding are better in Orissa than elsewhere in India. The timely introduction of complementary feeding (age 6–8 months) is also higher at 66 per cent compared with 53 per cent for the rest of India. The positive improvement from NFHS-2 to NFHS-3 is confirmed by the District Level Household Surveys (DLHS) -2 and DLHS-3, conducted as part of the Reproductive and Child Health Programme (Table 1). The ICDS Management Information System (MIS) also reveals a positive trend in malnutrition reduction during this period. Despite this progress malnutrition prevalence remains unacceptably high and anaemia among children (6–35 m) has shown only marginal reduction and stands at 74.2 per cent.

In this circumstance of continual challenges in spite of progress made, the Department decided to conduct a study to inform the development of

Table 1 Nutrition input indicators, Orissa (%)

	DLHS-2	DLHS-3
Children breast-fed within 1 hour	43.9	63.7
Exclusive breast-feeding for 6 months	20.7	42.6
Fully immunised	53.3	62.4
Vitamin A supplementation	52.9	71.6
Mother had full ANC	13.7	22.7

an evidence-based nutrition plan. The purpose was to understand the factors contributing to this success and to identify persistent gaps that still need to be addressed to accelerate the reduction in malnutrition. A number of studies have highlighted the problems in delivery of nutrition and health services. It was decided to develop an integrated, evidence-based operational plan to address child malnutrition in Orissa, particularly for the most vulnerable sections. The study has three aspects; a desk review of global and context specific evidence on malnutrition interventions; secondary data analysis of the current ICDS scheme; and a field study in select districts of Orissa. These informed the preparation of the State's nutrition plan.

2 Major determinants of persistent undernutrition in Orissa

Despite recent economic growth, Orissa is one of the poorest states in India. As Table 2 shows, the poverty ratio in the southern region is highest followed by the northern and Coastal regions. The poverty ratio among the Scheduled Tribes (ST) is high across all regions in the State followed by Scheduled Castes (SC).

From Table 3, the NFHS 2005–06 data indicate that there is a significant disparity in neonatal,

post-neonatal, infant and under-five mortality rates by different caste, wealth and education groups. The lowest and second lowest groups in the wealth quintile experience the highest mortality. The infant mortality and under five mortality rates for children born of mothers with no education are about 85.3 and 122.5, respectively (male literacy in Orissa in 2001 Census is 75.96 per cent but only 50.51 per cent of females (SC-40 per cent and ST-24 per cent) are literate as against State literacy rate of 63.08 per cent, southern districts like Koraput had only 35.72 per cent literate, Malkangiri 30.53 per cent, Nawarangpur 33.93 per cent.

Malaria, measles, respiratory infections and diarrhoea are common infections to which poorer, malnourished infants and children are especially vulnerable. Repeat infections also worsen their nutritional status. According to the Orissa Vision 2010 document, malaria is the State's main public health problem. Orissa contributes 23 per cent of India's total malaria cases, and 50 per cent of its malaria deaths.

Despite biannual campaigns, only 29.5 per cent of children between 12 and 35 months received one dose of Vitamin A in the last six months. NFHS-3 data shows that only about 40 per cent

Table 2 Regional poverty ratio (%) by caste/ethnic groups for rural Orissa, 2004–05

Region	ST	SC	OBC	Others	All
Southern	82.8	67.2	64.7	44.1	72.7
Northern	72.8	64.4	48.6	33.9	59.1
Coastal	67.7	32.8	24.4	19.0	27.4
Rural Orissa	75.8	49.9	37.1	23.5	46.9
Rural India	44.7	37.1	25.8	17.5	28.1

Source Calculated from unit level data, NSS 61st round, 2004–5, based on URP; OBC, other backward classes.

Table 3 A summary of infant mortality and undernutrition in Orissa

Background characteristics	Neonatal, post-neonatal, infant, child and under 5 mortality in Orissa, 2005–6		Prevalence of anaemia in 6–59 months children (status by haemoglobin level)	Nutritional status of children in India, Orissa, 2005–6		
	Infant mortality	Under 5 mortality	Any anaemia (<11.0 g/dl)	Stunted (height for age)	Wasting (weight for height)	Underweight (weight for age)
India	57	74.3	69.5	48.0	19.8	42.5
Orissa	64.7	90.6	65	45.0	19.5	40.7
Caste/tribe						
SC	73.7	91.8	63.5	49.7	19.7	44.4
ST	78.7	136.3	80.1	57.2	27.6	54.4
OBC	66.0	83.5	58.7	40.8	17.8	38.1
Others	53.1	64.2	58.2	33.6	12.8	26.4
Wealth index						
Lowest	79.8	118.7	75.0	59.6	24.0	53.3
Second	73.2	98.6	61.7	41.9	18.9	41.2
Middle	51.7	64.9	53.0	39.7	15.4	32.6
Fourth	51.4	65.7	60.9	20.5	17.6	21.3
Highest	28.3	28.3	41.7	13.2	6.6	10.2

Source NFHS 2005–06.

of households use iodised salt (>15ppm iodine) – a marginal increase from NFHS-2 (35 per cent). Overall, 11.7 per cent children under five had diarrhoea in the two weeks prior to the NFHS Survey. Use of ORS was poor in households where children suffered from diarrhoea. Only 9.4 per cent of households gave more liquids and 39 per cent gave less liquids to children with diarrhoea. Four out of every five households (80.2 per cent) in Orissa do not have sanitation (NFHS-3); 21.5 per cent of households do not use improved sources of drinking water and only 18.3 per cent treat their water.

Anaemia is a major health problem in Orissa especially among women and children. Almost two-thirds (65 per cent) of children aged 6–59 months are anaemic; 34.5 per cent of them are moderate and 1.6 per cent suffer from severe anaemia. Anaemia among children aged 6–35 months is slightly higher in NFHS-3 than in NFHS-2 seven years ago. The prevalence of anaemia among ‘ever married’ women remained almost unchanged over this period.

Orissa is culturally diverse with 93 castes, 62 tribes and three main religious groups. Traditions, cultures and practices vary across caste/ethnic and religious groups, and some of these variations may have a bearing on food habits. All this diversity poses a challenge for service providers in the state. Irrespective of efforts and strategies to address determinants there remains a huge gap and the multifactorial causes of undernutrition can only be partially ameliorated by any one scheme or department. Despite all this, Orissa has shown a considerable decline in malnutrition.

3 Elements for an undernutrition reduction strategy

The Government of Orissa (GoO) is committed to improving the nutritional outcomes of women and children through effective service delivery and by increasing demand for services, by the poorest and the most difficult to reach populations. To achieve their goal, the DWCD, implemented a number of innovative approaches with other government departments, developmental partners, and NGOs.

Table 4 ICDS coverage and utilisation of ICDS services in Orissa, 2005-06

Background characteristics	ICDS coverage						Utilisation of ICDS services by women						
	Percentage of 0-71 month-old children		Percentage of 0-59 month-old children who were weighed at an ALUC		During pregnancy		Health and nutrition education		Supplementary food		While breast-feeding		
	Supplementary food	Any immunisation	Supplementary food	Any immunisation	Supplementary food	Health and nutrition education	Supplementary food	Health and nutrition education	Supplementary food	Health and nutrition education	Supplementary food	Health and nutrition education	
Caste/tribe													
SC	58.3	44.3	60.2	44.3	44.5	23.4	40.9	16					
ST	62.2	43.7	61.1	43.7	61.5	26.4	50.8	18					
OBC	45.6	42	55.9	42	43.5	21.9	40.7	17.4					
Others	44.3	35.8	45.7	35.8	24.2	177	23.6	13.4					
Wealth index													
Lowest	58.4	42.7	60.3	42.7	55.5	24.5	46.9	16.3					
Second	54.5	40.5	59.3	40.5	43.6	26	40.5	20.1					
Middle	49.7	46.3	53.7	46.3	31.1	22.2	33.8	21.9					
Fourth	37.9	37.6	43.4	37.6	29.7	177	25.9	8.5					
Highest	20.2	27	28.1	27	9.7	5.8	9.7	5.8					
Total	52.5	41.6	56.1	41.6	44.6	23	39.8	16.7					

Source NFHS, 2005-6.

- ICDS: The Integrated Child Development services (ICDS) under DWCD implements interventions aimed at reducing undernutrition. It provides a package (supplementary nutrition, immunisation, health check-up, referral services, preschool and nutrition and health education) of services to children below six years and pregnant and nursing mothers in order to improve their nutrition and health. With the universalisation of ICDS, outreach has expanded. This is the only programme in the state which has an extension worker, an *anganwadi* worker (AWW), in each and every village. Starting from one project in 1975–6 ICDS now has 326 projects (314 rural and 12 urban) covering all blocks. There are now 41,697 *Anganwadi* Centres (AWCs) and 4,819 mini AWCs and the Ministry has approved almost 50 per cent additional AWCs. Table 4 shows that use of ICDS was highest by children and women from ST and SC communities and by the lowest wealth quintiles. ICDS has succeeded in reaching those with the worst nutritional indicators.
 - Also under DWCD Mission Shakti, a campaign for empowering women, was launched in 2001 and now has a Self Help Group (SHG) with members across the state who have increased women's participation in various government programmes, including ICDS.
 - Capacity building on IYCF (Integrated and Young Child Feeding) and IMNCI (Integrated management of Neonatal Childhood illness) has improved and focused the counselling skills of frontline workers on key behaviours such as the early initiation of breast-feeding.
 - Kishori Shakti Yojana (KSY) and Nutritional Programme for Adolescent Girls (NPAG) are designed to strengthen the life cycle approach and enhance the understanding of adolescent girls to acquaint them with different services related to health and nutrition.
- Programmes implemented in the KBK districts like Western Orissa Rural Livelihood Project (WORLEP) to improve livelihoods and food security. These have a direct bearing on the nutrition of children and women. National Rural Employment Guarantee Scheme (NREGS) in Orissa also impacts on household food security. The Water Sanitation Mission, Reproductive and Child Health Programme, Malaria Control Programme, and the policy of 33 per cent reservation of seats for women in the *Panchayat Raj*, are all likely to have contributed to the reduction of malnutrition in the state.

Key factors for effectiveness in these programmes include:

- Intersectoral convergence between departments most specifically with the Department of Health (health check-ups, immunisation, management of malnutrition, treatment of diarrhoea, de-worming and distribution of simple medicines, referral services and verbal autopsy) and Rural Development are key contributing factors
- Capacity building of AWWs and the AWW reward mechanism has motivated front-line workers
- Growth monitoring more specifically community based nutrition analysis and prevalence of malnutrition analysis
- The involvement of community groups like SHGs and mothers' committees has brought a healthy competitive environment of change in the village.

4 Findings from the research

Despite these promising trends in nutrition outcomes, behaviours and programming, the DWCD wanted to develop a more evidence based nutrition action plan.

4.1 The field study

The DWCD conducted a field study in five districts to assess the coverage of AWC services and identify the key barriers to service utilisation. It also aimed to identify good practice and the extent of convergence between departments at different levels. The study indicates that 70 per cent of the children in the age group six months to three years and 3–6 years used ICDS services. Some 76.5 per cent of pregnant mothers (PM) and 64 per cent of lactating mothers (LM) used

In partnership with the GoO a number of international agencies also provided technical and operational support to reducing malnutrition in Orissa:

- The Integrated Nutrition and Health Project (INHP) was implemented in 30 per cent of the State from 1996. The Positive Deviance approach which was initiated in 2004 in three projects has now expanded to 16 per cent.

ICDS services. The study supports NFHS findings that the uptake of services is highest in tribal districts. But despite this, undernutrition remains significantly higher in these communities. Only 8 per cent of AWCs have toilets, 54 per cent have water, 18 per cent do not have weighing scales (16 per cent have non-working scales). Only 42 per cent of AWWs are educated up to standard nine. Though 96 per cent of the AWWs were trained, the majority felt that the quality of training needed improvement. Key findings from the study were: that reorganising sectoral boundaries, strengthening service delivery through staff placement, regular monitoring at all levels and effective convergence between Health, ICDS, RWSS, would help to increase the impact of the ICDS programme. Front-line contact with mothers supported by strengthening counselling skills was found to be essential.

4.2 The desk review and secondary data analysis

Estimating the prevalence of undernutrition among children in the 0–3 year and 3–6 year age groups in different areas of the State for the year 2007–08 reveals the concentration in the southern districts and tribal belts. Trends over the last ten years of moderate and severely malnourished children 0–3 years in KBK districts, shows that the decline is not as fast as non-KBK districts, despite better uptake of ICDS services. However, given the poverty gap it is possible that the gap would have been wider in the absence of ICDS.

ICDS services were designed to address the multidimensional causes of malnutrition. However, findings from studies carried out by different agencies point to the need to refocus ICDS services on the most important determinants of malnutrition. Involving communities in implementation and monitoring strengthened the implementation of ICDS in Orissa. The gaps between ICDS policies and implementation have to be addressed. Monitoring and evaluation activities could be strengthened through the establishment of joint review mechanisms at all levels. Through decentralised planning and monitoring the information generated at the district and block levels should be analysed and used for decision making. A literature review indicates that all the approaches used to combat malnutrition nationally and internationally include a package of the following interventions: *Practices* at

institutional, community and household levels; like the early initiation of exclusive breast-feeding, timely initiation of complementary feeding. *Social security measures* such as the provision of supplementary nutrition to all households, micronutrient supplementation, measles immunisation, iodised salt, and fortification of staple foods. Strong behaviour *change* and *mobilisation* components like; counselling of mothers and care givers on infant and young child feeding practices. *Capacity building of service providers and community groups* – skill upgrading of AWWs and community motivators for effective counselling and behaviour change activities, ensuring access to safe drinking water, sanitation and adoption of proper hygiene practices.

Emphasis on disease control and prevention activities, education to improve home-based childcare, feeding practices and micronutrient supplementation, better targeting of vulnerable age groups (children under two and pregnant women), regular growth monitoring, community involvement in planning, implementation and monitoring all strengthened the implementation of ICDS in Orissa.

The evidence unequivocally highlights the extremely poor nutritional status of scheduled tribes, and scheduled castes. To address the substantial gaps and to better respond to their needs a two-pronged approach is proposed: (1) Improving and strengthening the service delivery with decentralised planning and monitoring being the state wide approach and (2) ensuring community participation and integrated behaviour change communication in the high burden districts. Establishment of state and district project management units in high burden districts is planned to fast track the implementation of quality services. A web-based MIS is proposed to help inform decisions at local level.

5 Developing the nutrition plan

The comprehensive Orissa Health Sector Plan (OHSP 2007–12) provides an opportunity for the GoO to align itself with the Government of India and various development partners' resources to combine efforts to meet the state's goals and overcome major shortcomings in public and private health provision. The plan aims to achieve equity in health outcomes and focuses on

access and utilisation of services by vulnerable and marginally deprived groups i.e. women, scheduled castes and scheduled tribes. It aims to deliver accountable and responsive health care to reduce maternal mortality; infant and child mortality; reduce the burden from infectious diseases; undernutrition and nutrition-related diseases and disorders. DWCD constituted an Advisory committee (External experts and Development Partners are joint members with GoO officials) under whose supervision the plan was developed. This took almost six- months to collate evidence and review the field study as well as many rounds of discussion between the DWCD, other Departments and nutrition and planning specialists. The nutrition operation plan has been reviewed by the Advisory Committee under the Chair of the Development Commissioner. Instead of 11 high burden districts 15 high burden districts were suggested: Anugul, Bhadrak, Bolangir, Gajapati, Jharsuguda, Kalahandi, Kandhamal, Keonjhar, Koraput, Malkangiri, Nawarangpur, Nuapada, Raygada, Sambalpur and Sundergarh.

Principles of the Nutrition Plan include:

- *Targeting the most vulnerable:* While there are some strategies which apply across the state, the plan focuses interventions on 15 (KBK+) high burden districts of Orissa. These are: Anugul, Bhadrak, Bolangir, Gajapati, Jharsuguda, Kalahadi, Kandhamal, Keonjhar, Koraput, Malkangiri, Nawarangpur, Nuapada, Raygada, Sambalpur and Sundergarh.
- *Flexibility:* Implementation of innovative strategies so that districts are able to take greater responsibility and ownership of their ICDS schemes. In high burden districts provision of extra funds to carry out innovative strategies to ensure maximum out reach.
- *Evidence and outcome-based participatory planning:* By expanding partnerships with communities, PRIs, and NGOs, and by encouraging Public Private Partnerships.
- *Stronger convergence:* Convergence with other services such as Health is integral to achieving results. Collaboration with Rural Development (RDD) to mainstream nutrition

concerns into their programmes, recognising that livelihoods are a major determinant of nutrition, there is a need to coordinate with RDD's employment guarantee schemes. Promoting access to sanitation, safe drinking water, and the adoption of positive hygiene practices are also critical.

- *Monitoring a results-based framework:* Results-based implementation mechanism aims at an approach to management that integrates strategy, people, resources, processes and measurements to improve decision-making, transparency, and accountability. The focus is on outcomes, implementing performance measurement and learning.

The Nutrition Plan is expected to produce results in the entire state with measurable change in 15 high burden districts for the reduction of moderate and severe malnutrition in children under two years, reduction in the proportion of newborns with a birth weight under 2.5 kg, and reduction in nutritional anaemia in women and children.

6 Conclusions

While undernutrition in Orissa has decreased substantially over the past five years, it remains at high levels. Importantly, the burden is very unevenly spread with the ST and SC groups remaining the worst off despite the highest usage rates of ICDS. We conducted some additional analysis to help guide the new nutrition action plan for Orissa. The focus is on improving ICDS and on improving convergence with other Departments by strengthening supply and demand for undernutrition services through a combination of strengthening existing structures and activities and innovations. Strengthening the current base together with new actions is expected to accelerate the pace of malnutrition reduction. The Four-Year Plan has the aim of reducing malnutrition by 3.5 per cent annually. As the article has shown, there are many unresolved puzzles about why undernutrition has declined. To understand how future public policy has contributed to future changes in undernutrition, there is a clear need for stronger impact analysis.

Note

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References

- Agarwal, K.N.; Agarwal, D.K. and Sharma, Anshu (2005) *Anaemia in Pregnancy Interstate Differences*, Scientific Report 16, Nutrition Foundation of India
- International Institute of Population Sciences (IIPS) (2008) *District Household and Facility Survey 3*, Mumbai: IIPS
- International Institute of Population Sciences (IIPS) (2004) *District Household and Facility Survey 2*, Mumbai: IIPS
- International Institute for Population Sciences (IIPS) and ORC Macro (2007) *National Family Health Survey (NFHS-3), 2005–06: India*, Mumbai: IIPS
- International Institute for Population Sciences (IIPS) and ORC Macro (2000) *National Family Health Survey (NFHS-2), 1998–99: India*, Mumbai: IIPS
- National Sample Survey Organisation (2004–2005) *National Sample Survey (NSS) 61*, Kolkata/ New Delhi: NSSO
- United Nations World Food Programme (2008) *Food Insecurity Atlas of Rural India*, Rome: WFP