POSHAN
Led by IFPRI

Partnerships and Opportunities to Strengthen and Harmonize Actions for Nutrition in India

Policy Note

No. 26 | OCTOBER 2017

Improving Nutrition in Jammu & Kashmir

Insights from Examining Trends in Outcomes, Determinants and Interventions between 2006 and 2016

INTRODUCTION

India has made considerable progress on child nutrition outcomes in the last decade. These rates of improvement, however, have been highly variable across the states, mostly due to variability in state-level changes in the determinants of nutrition and in the coverage of health and nutrition interventions. Although all of the states operate under a similar national policy and programmatic environment, the variability in trends in nutritional outcomes points to state-specific factors. An understanding of such factors can facilitate both state-specific learning and cross-state learning, and assist in identifying strategies to help India accelerate progress on nutrition. In a series of *Policy Notes*, we examine state-specific trends in nutrition outcomes, determinants and the coverage of interventions, with the overall goal of supporting the state. This *Policy Note* focuses on Jammu & Kashmir.

Jammu & Kashmir, situated in the northern part of India, mostly mountainous, accounts for 6.7 percent of the area of the country and includes 22 districts (Government of Jammu & Kashmir 2017). The district of Leh is the largest, occupying more than half of the area of the state. The state shares international borders with China and Pakistan, which is separated by a military Line of Control. The state is home to more than 12 million people (1 percent of the population of India) of which 67.2 percent are literate (Census of India 2011). Jammu & Kashmir has a sex ratio of 889 females per 1,000 males (Census of India 2011).

The purpose of this *Policy Note* is to examine the trends in undernutrition in Jammu & Kashmir and to document trends and geographic variability in the major determinants of nutrition and the coverage of key nutrition and health interventions. In doing this analysis, we aim to highlight the key areas of action to improve nutrition in Jammu & Kashmir.

METHODS

We used summary data from the recently released National Family Health Survey-4 (NFHS-4 2015–16) fact sheets (International Institute for Population Sciences 2017) and data from NFHS-3 from 2005–06 to compare trends in outcomes, determinants and interventions over a decade (International Institute for Population Sciences 2008). We also used information from fact sheets of the Rapid Survey on Children (RSoC 2013–14) (Ministry of Women and Child Development 2015) for indicators that are currently not available in NFHS-4 fact sheets. We used summary data reported in NFHS-4 district-level fact sheets to examine inter-district variability.

For outcome indicators, we examined progress on a set of global nutrition targets for maternal, infant and young child nutrition (WHO 2014).

These include stunting, wasting, low birth weight, exclusive breastfeeding, and anemia status among women of reproductive age.

We also examined the levels and changes in several immediate, underlying and basic determinants of nutrition (Black et al. 2013). For intervention coverage, we chose to examine a set of nutrition-specific interventions across the lifecycle for which data are currently available. These include interventions affecting pregnant women, newborn babies, infants, and children.

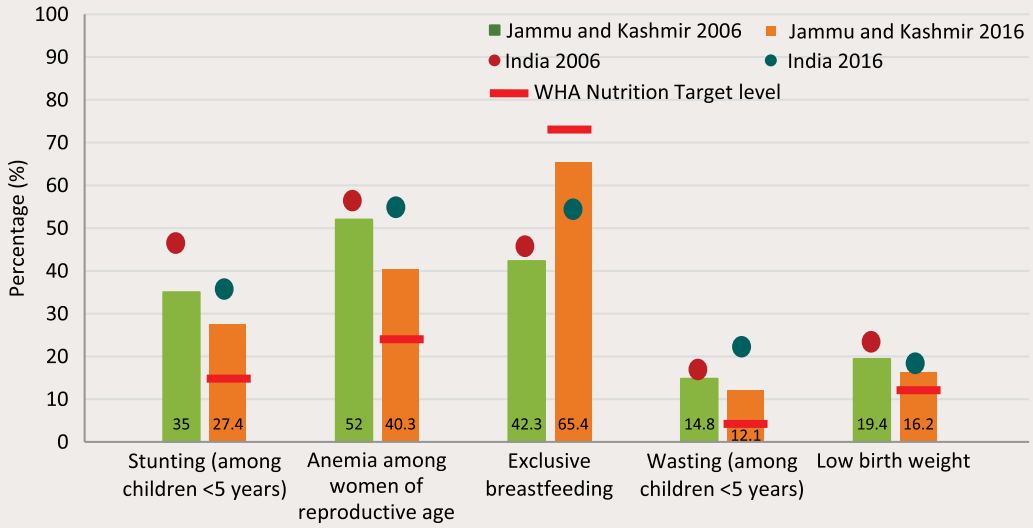
FINDINGS

Trends in nutrition outcomes and variability in outcomes by district

Overall, there have been improvements in nutrition outcomes in Jammu & Kashmir between 2006 and 2016. Stunting prevalence fell from 35 percent to 27.4 percent (Figure 1). Anemia among women of reproductive age decreased from 52 percent to 40.3 percent. The prevalence of exclusive breastfeeding also improved from 42.3 percent to 65.4 percent in the last ten years. Wasting decreased from 14.8 percent to 12.1 percent. The prevalence of low birth weight declined by 3.2 percentage points, from 19.4 percent in 2006 to 16.2 percent in 2016.

Stunting among children less than 5 years varies moderately, ranging from 18.2 percent in Anantnag to 43.1 percent in Udhampur (Map 1). In 2016, 7 out of 22 districts had high prevalence of stunting (30-40 percent). The prevalence of anemia among women of reproductive age varies across districts, with the lowest prevalence (20.7 percent) in Doda and the highest (59 percent) in Kupwara (Map 2). Anemia among women is high (40-60 percent) in nearly half of the districts, which indicates that anemia among women in Jammu & Kashmir is a considerable public health concern. Wasting ranges widely across districts from 4.2 percent (Badgam) to 24.8 percent (Srinagar) (Map 3), and 6 districts have very high wasting prevalence (>15 percent). Severe wasting ranges from 1 percent (Badgam and Kupwara) to 14.3 percent (Srinagar) (Map 4). Exclusive breastfeeding (EBF) rates are missing for seven districts. Among the remaining 15 districts, EBF is the highest (77.3 percent) in Bandipore and lowest (47.1 percent) in Reasi (Map 5).

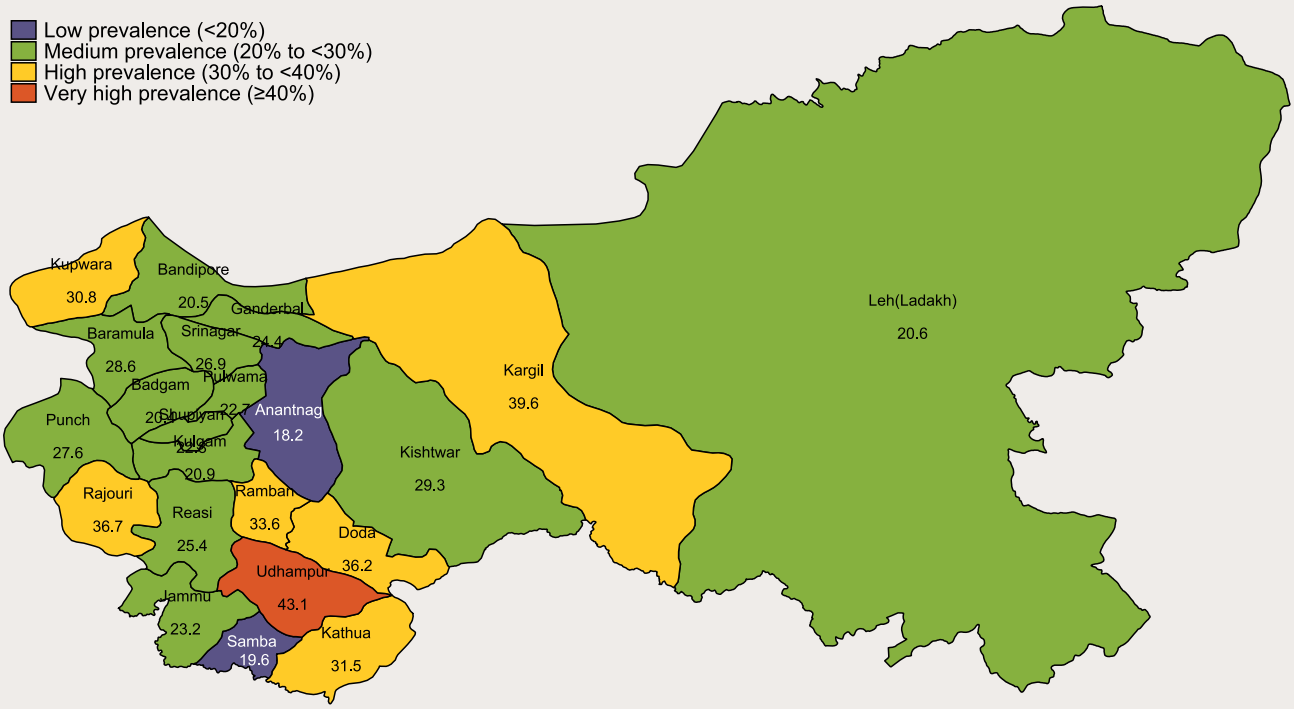
FIGURE 1 Trends in key nutrition outcomes in Jammu & Kashmir, 2006 to 2016



Source: NFHS-3 and NFHS-4; RSoC for low birth weight.

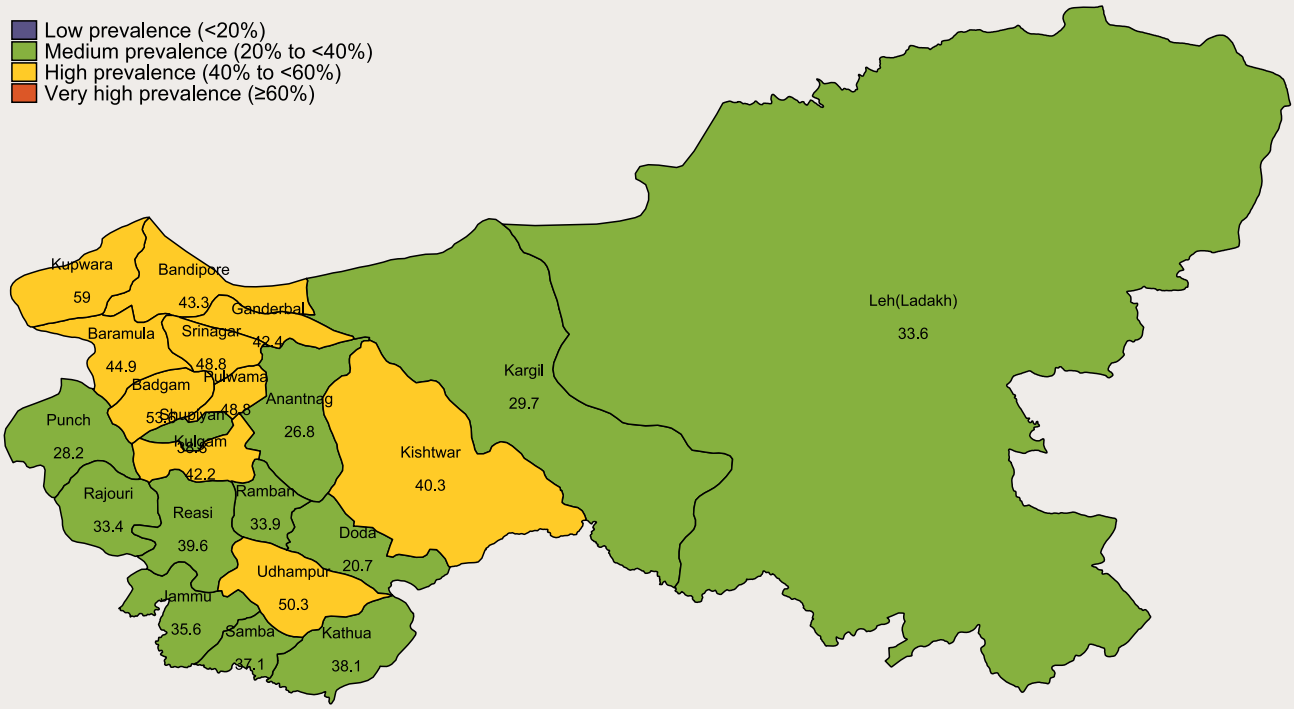
Note: A set of global nutrition targets for maternal, infant and young child nutrition were endorsed by the World Health Assembly (WHA) in 2012. The red lines represent the WHA targets to be achieved by the state, by 2025. The baseline reference year for these targets is 2012. The state baseline estimates are based on NFHS-4 (2016) as there is no survey data for 2012; Child overweight data is not available; Refer to endnotes for indicator definitions.

MAP 1 Stunting (among children <5 years) in Jammu & Kashmir in 2016, by district



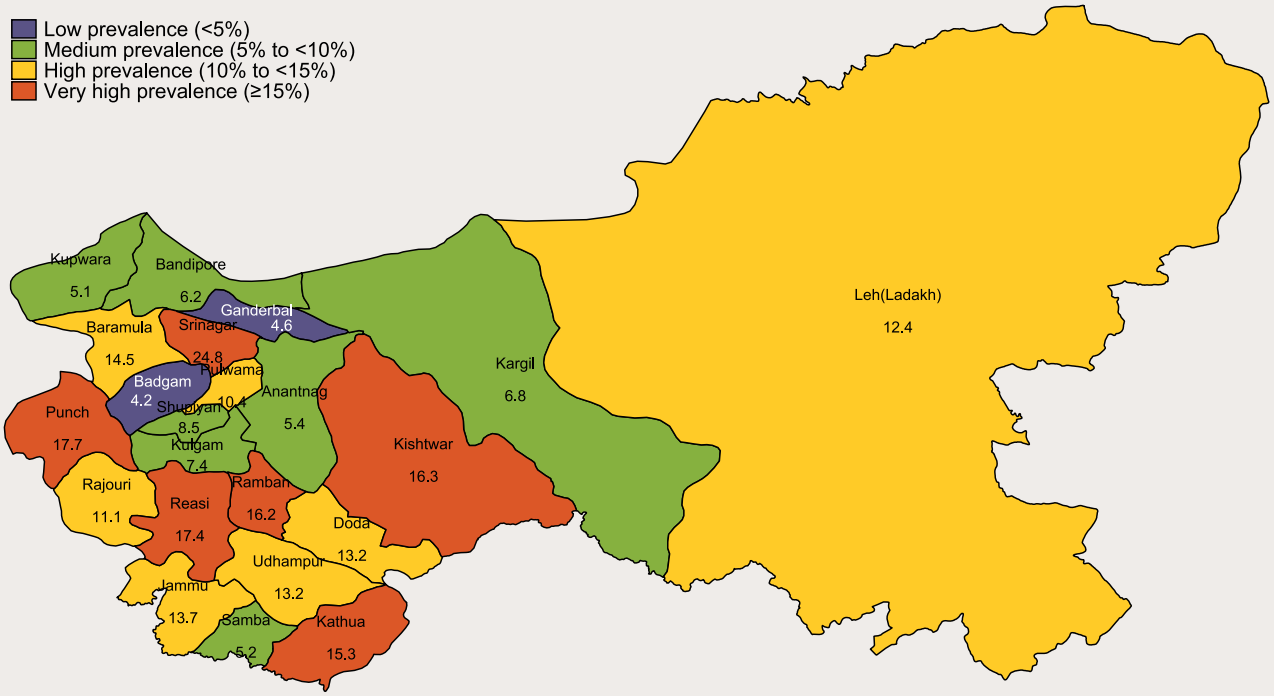
Source: NFHS-4.

MAP 2 Anemia (among women of reproductive age) in Jammu & Kashmir in 2016, by district



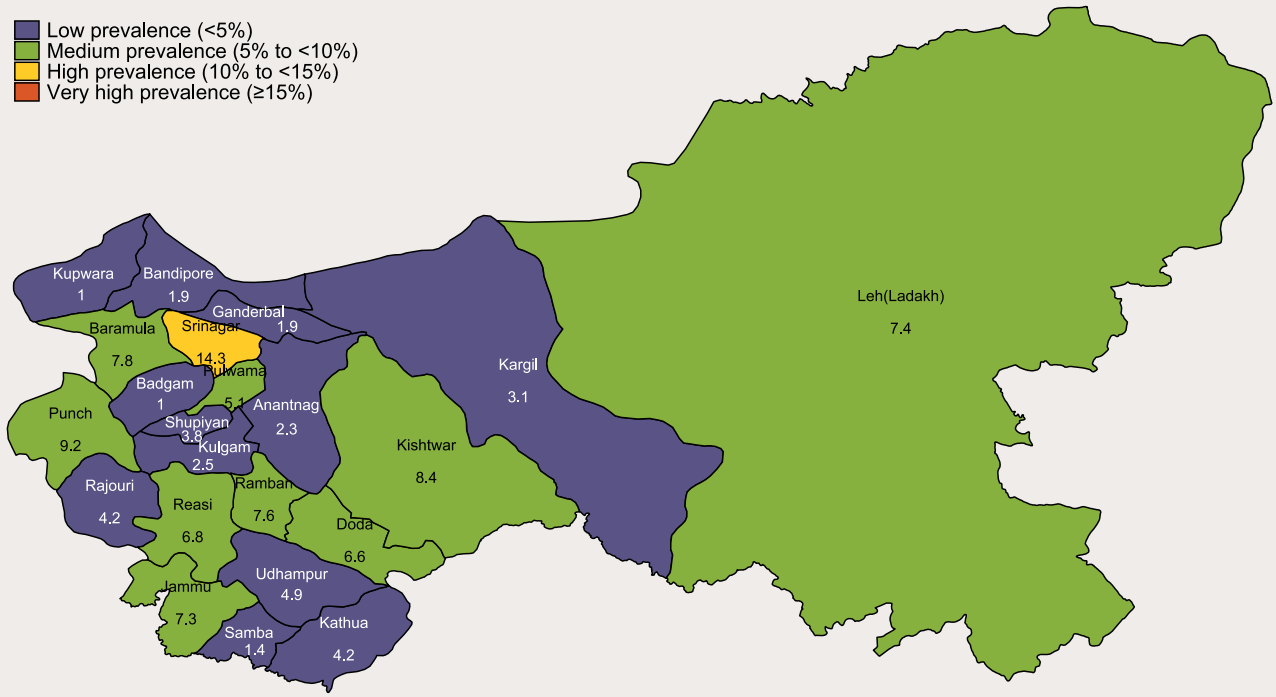
Source: NFHS-4.

MAP 3 Wasting (among children <5 years) in Jammu & Kashmir in 2016, by district



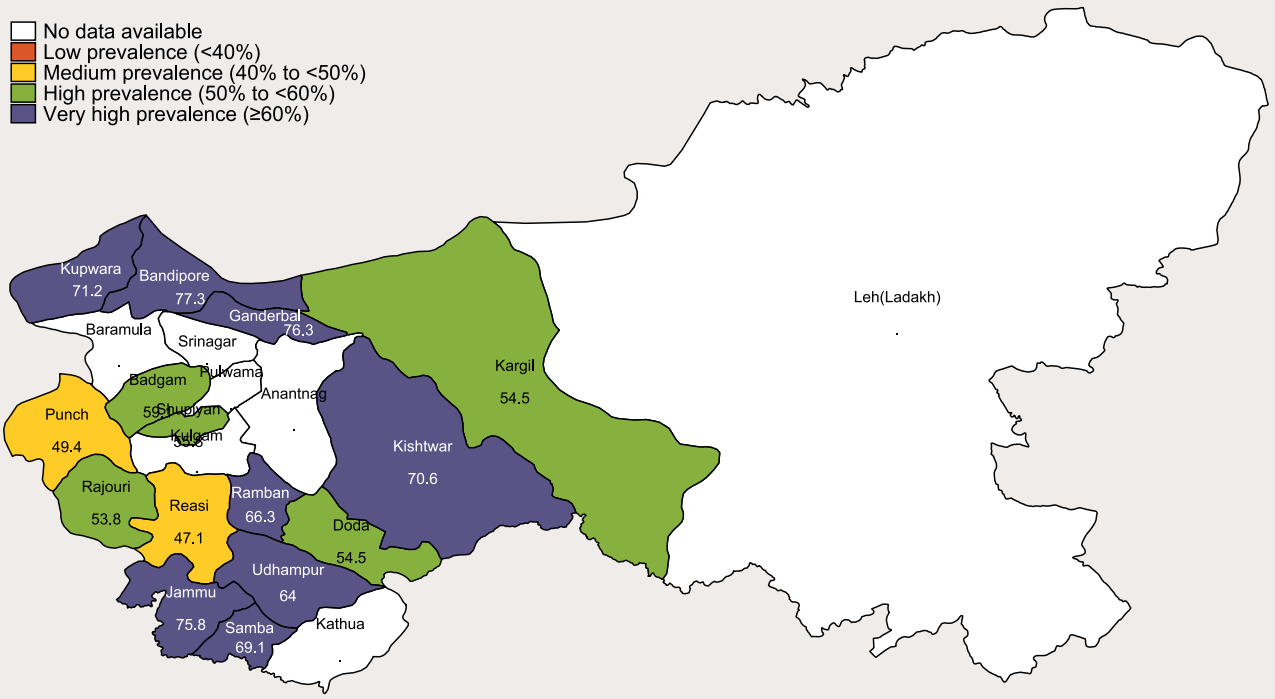
Source: NFHS-4.

MAP 4 Severe wasting (among children <5 years) in Jammu & Kashmir in 2016, by district



Source: NFHS-4.

MAP 5 Exclusive breastfeeding in Jammu & Kashmir in 2016, by district



Source: NFHS-4.

Changes in the determinants of nutrition

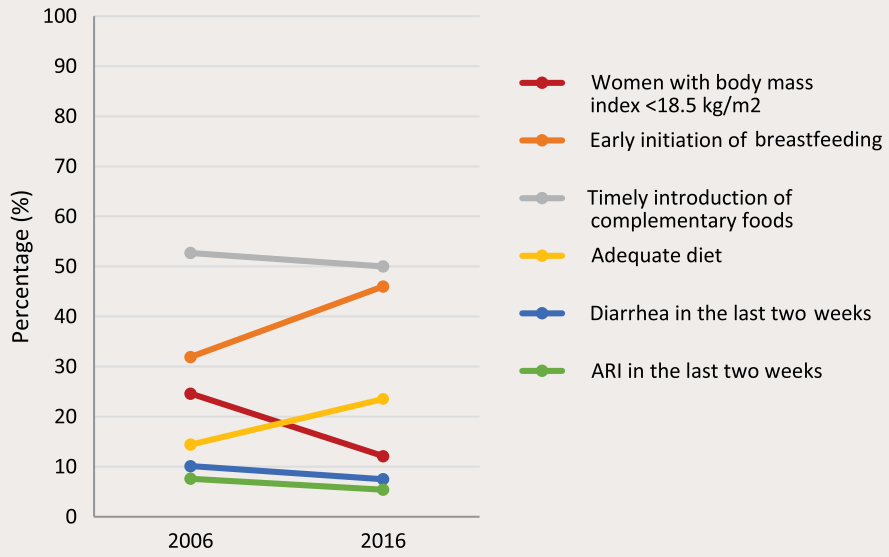
Improving nutrition for women and children requires that investments be made in changing the determinants of poor nutrition, using a variety of policy instruments and other efforts. Here, we examine changes in the immediate determinants and of nutrition-specific interventions to address those determinants. We also describe changes in the underlying determinants of nutrition. We do not examine coverage data on programs to improve the underlying determinants in this Note because data on those are not available at this time.

Changes in the ***immediate determinants*** of nutrition in Jammu & Kashmir are described in Figure 2. The proportion of women with low body mass index (BMI <18.5 kg/m^2) decreased from 24.6 percent in 2006 to 12.1 percent in 2016. Early initiation of breastfeeding improved in the last decade from 31.9 percent to 46 percent, but over half of children are still not breastfed within an hour of birth. Child morbidity reduced in the last ten years, from 10.1 percent to 7.5 percent for diarrhea, and from 7.6 percent to 5.4 percent for acute respiratory infection (ARI).

Complementary feeding is still far from adequate in Jammu & Kashmir, as it is for India. Timely introduction of complementary foods for children (between 6 and 8 months of age) declined over the last decade (from 52.7 percent to 50 percent). In 2016, the state has fared better than the national average for adequate diet in children (between 6 and 23 months of age), but it is still low at 23.5 percent.

The coverage of all ***nutrition-specific interventions*** in Jammu & Kashmir improved during the last decade (Figure 3). During pregnancy, the proportion of women who received antenatal care (ANC) during the first trimester improved by 22 percentage points, reaching 76.8 percent in 2016. The proportion of women who received at least 4 ANC visits also increased considerably from 60.4 percent to 81.4 percent. Iron and folic acid (IFA) consumption during pregnancy improved from 16.3 percent to 30.2 percent, but it is still far from optimal. Interventions related to delivery, such as institutional delivery, births assisted by health professionals, and birth registered, improved substantially by 31 to 42 percentage points, reaching 77-88 percent in 2016. During 2006-16, the coverage

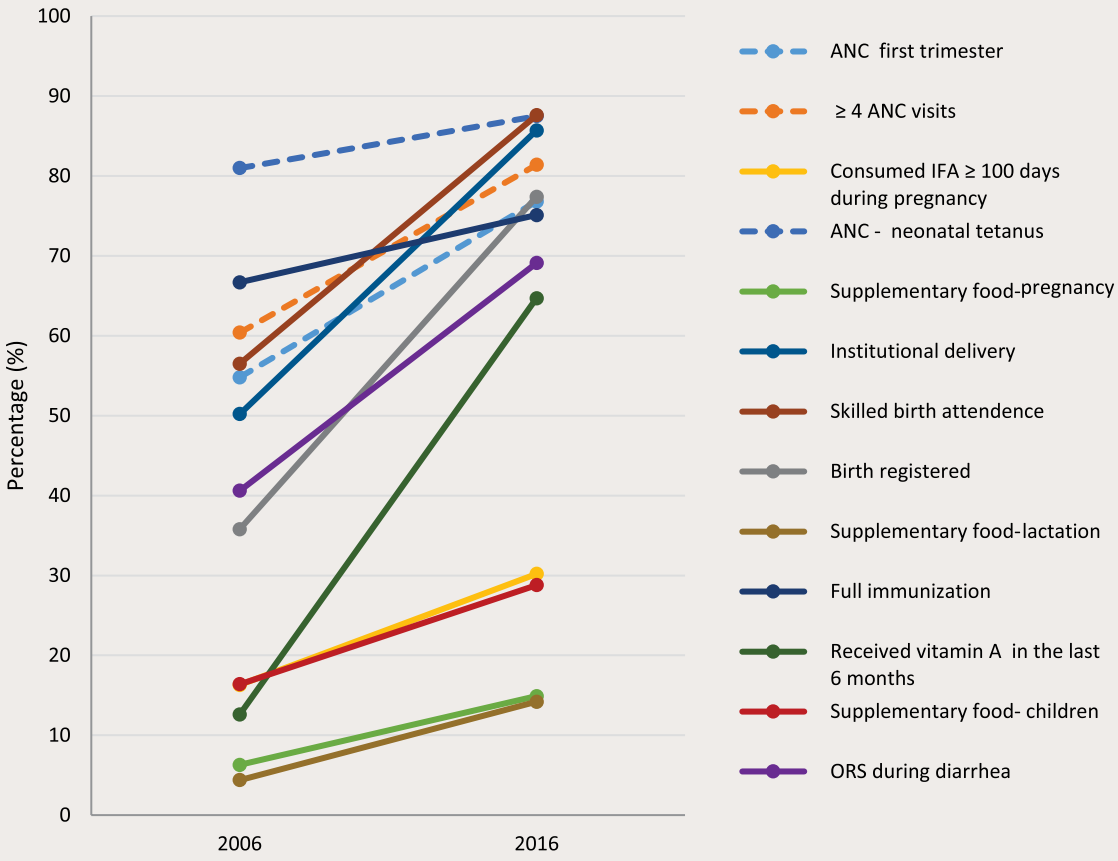
FIGURE 2 Changes in immediate determinants of nutrition in Jammu & Kashmir, 2006 to 2016



Source: NFHS-3 and NFHS-4.

Note: ARI = Acute respiratory infection; Refer to endnotes for indicator definitions.

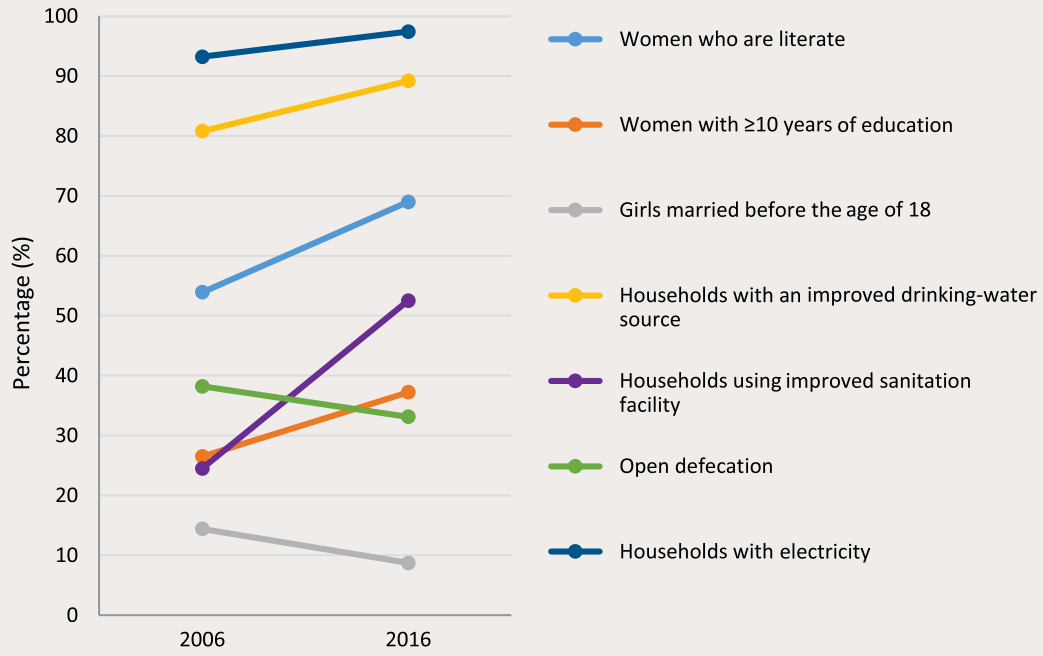
FIGURE 3 Changes in coverage of nutrition-specific interventions along the continuum of care in Jammu & Kashmir, 2006 to 2016



Source: NFHS-3 and NFHS-4; RSoC data used for food supplementation.

Note: ANC = Antenatal care; IFA = Iron and folic acid; ORS = Oral rehydration salts; Refer to endnotes for indicator definitions.

FIGURE 4 Changes in underlying determinants of nutrition in Jammu & Kashmir, 2006 to 2016



Source: NFHS-3 and NFHS-4; RSoC data used for open defecation indicator.

Note: Refer to endnotes for indicator definitions.

of food supplementation improved for pregnant women (from 6.3 percent to 14.9 percent), lactating women (from 4.4 percent to 14.2 percent) and children (from 16.4 percent to 28.8 percent), but the coverage is still low for all beneficiaries. Nutrition interventions focused on children have improved in the last ten years. The proportion of children who were fully immunized increased from 66.7 percent to 75.1 percent. Although vitamin A supplementation improved considerably from 12.6 percent to 64.7 percent, it is still not optimal. The proportion of children with diarrhea who received oral rehydration salts (ORS) increased from 40.6 percent to 69.1 percent.

Changes in the ***underlying determinants*** of nutrition are presented in Figure 4. Between 2006 and 2016 there has been an increase in the proportion of women who are literate (from 53.9 percent to 69 percent) and the proportion of women with more than 10 years of education (from 26.5 percent to 37.2 percent). Early marriage in girls reduced by 5.7 percentage points; it fell from 14.4 percent in 2006 to 8.7 percent in 2016.

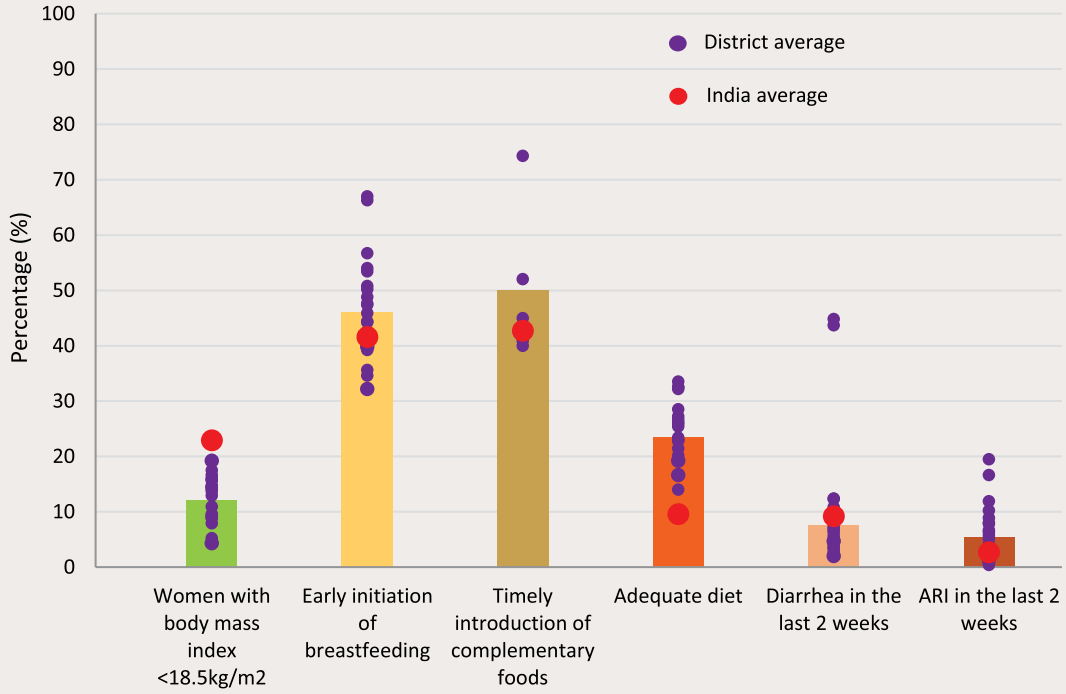
In terms of infrastructure, the proportion of households with an improved drinking-water source increased from 80.8 percent to 89.2 percent, and households with electricity improved from 93.2 percent to 97.4 percent, during 2006-16. Households using improved sanitation facility increased considerably from 24.5 percent in 2006 to 52.5 percent in 2016. The open defecation rates reduced by 5.1 percentage points to 33.1 percent in 2016 (RSoC 2013–14).

Inter-district variability in selected determinants and coverage of interventions in Jammu & Kashmir, in 2016

The 22 districts of Jammu & Kashmir for which NFHS-4 data is available cover a range of socio-economic characteristics. As seen in Figures 5-7, among these districts there is a high degree of inter-district variability for most of the immediate, coverage and underlying determinants. The only two indicators that have less inter-district variability are the coverage of Mother and Child Protection (MCP) card and households with electricity, which are generally high across most of the districts. For timely introduction of complementary foods, data is only available for five districts.

For many indicators, for example, ANC, early initiation of breastfeeding, use of Janani Suraksha Yojana (JSY), use of ORS and zinc during diarrhea, full immunization and adequate diet in children, most districts in Jammu & Kashmir are doing better than the national average. Women with low body mass

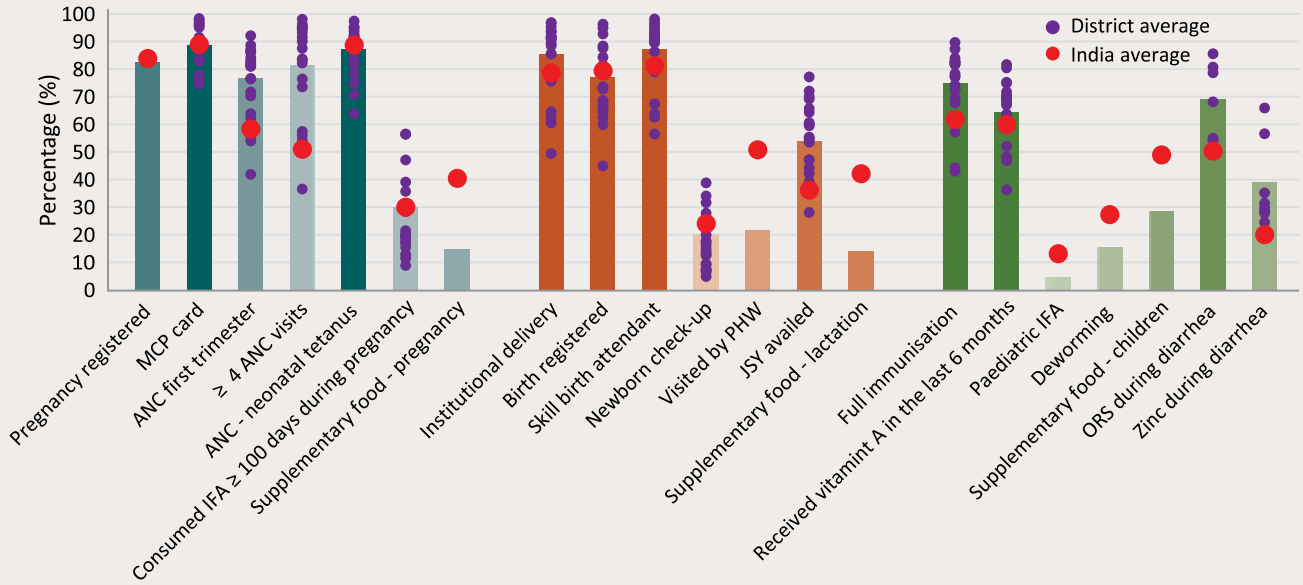
FIGURE 5 Inter-district variability in immediate determinants in Jammu & Kashmir, in 2016



Source: NFHS-4.

Note: Bars represent state averages; ARI= Acute respiratory infection; Refer to endnotes for indicator definitions.

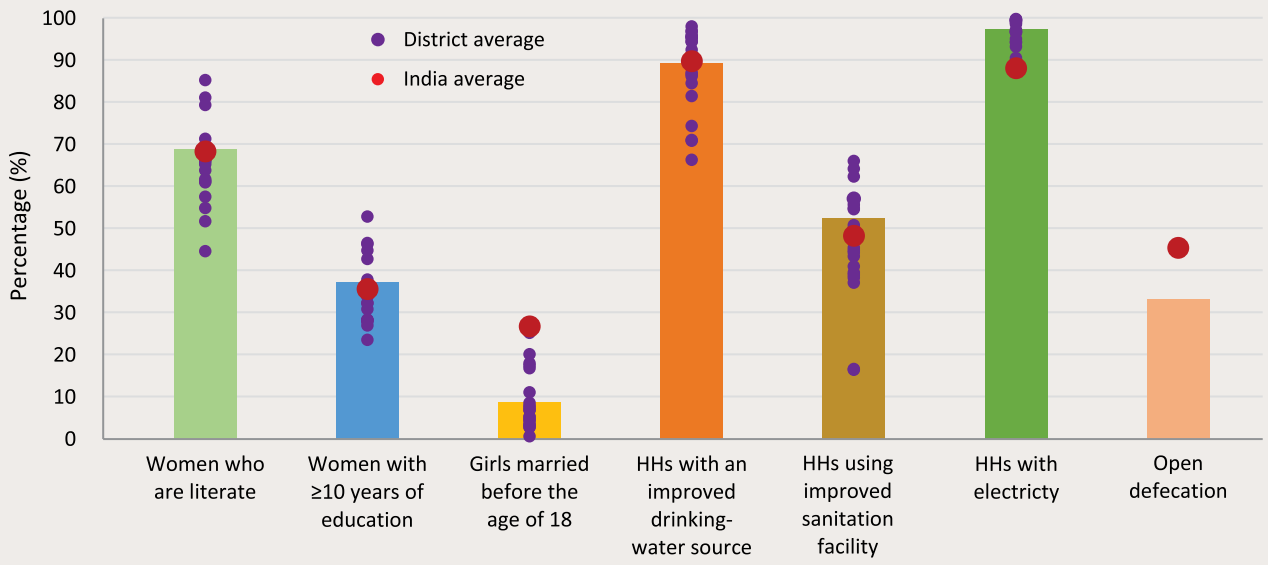
FIGURE 6 Inter-district variability in coverage of selected interventions in Jammu & Kashmir, in 2016



Source: NFHS-4; RSoC data was usedfor indicators on pregnancy registration, food supplementation during pregnancy, lactation and for children, visits by health worker, pediatric IFA and deworming for children.

Note: Bars represent state averages; As RSoC data is not representative at the district-level, district variablity is unavailable for these indicators; ANC= Antenatal care; IFA= Iron and folic acid; JSY= Janani Suraksha Yojana; ORS= Oral rehydration salts; MCP= Mother and child protection; PHW= Primary health worker; Refer to endnotes for indicator definitions.

FIGURE 7 Inter-district variability in underlying determinants in Jammu & Kashmir, in 2016



Source: NFHS-4; RSoC data is used for indicator for open defecation.

Note: Bars represent state averages; HHs= Households; Refer to endnotes for indicator definitions.

index (<18.5 kg/m^2) is one indicator for which most districts in Jammu & Kashmir are doing worse than the national average. For the rest of the indicators for which data is available, for example, children with diarrhea and acute respiratory infection, women with over ten years of education, and sanitation, the coverage for most districts in Jammu & Kashmir is nearly close to the national average.

LOOKING FORWARD: IMPLICATIONS & RECOMMENDATIONS

In the era where India has now embraced the sustainable development goals, it is an opportune time for Jammu & Kashmir to set its own nutrition targets to be achieved by 2025, and to set in motion accelerated actions for improved nutrition. In the last ten years, the state has seen improvements in the coverage of most nutrition-specific interventions, such as care during pregnancy and delivery, postnatal care and care for children. These improvements seem to commensurate with the progress in all nutrition outcomes in the state, that is, reduction of stunting, anemia among women, wasting and low birth weight.

To achieve progress in nutrition, the state should invest in improving the coverage of interventions targeting the first 1000 days of life. On nutrition-specifc interventions during pregnancy, Jammu & Kashmir has made good progress in the coverage of ANC visits but further improvement is required since close to one-fourth of women still do not receive ANC visits during the first trimester. Special efforts are needed to improve the low coverage of IFA consumption (30.2 percent. There have been considerable improvements in interventions related to delivery in the last ten years but efforts are required for further improvement in order to achieve full coverage in the state.

Significant investments are needed to strengthen the coverage of several postnatal interventions, particularly infant and young child feeding practices where the coverages are either less than half (exclusive breastfeeding) or have gotten worse

(timely introduction of complementary foods) in the last 10 years. Even though adequate diet in children is higher than the national average, the coverage is still less than one-fourth. For other postnatal care related interventions, such as full immunization, vitamin A supplementation and ORS during diarrhea, more improvements are required as the coverage is still not optimal (65-75 percent). In addition, supplementary food requires special attention as it is still very low for pregnant women (14.9 percent), lactating women (14.2 percent) and children (28.8 percent).

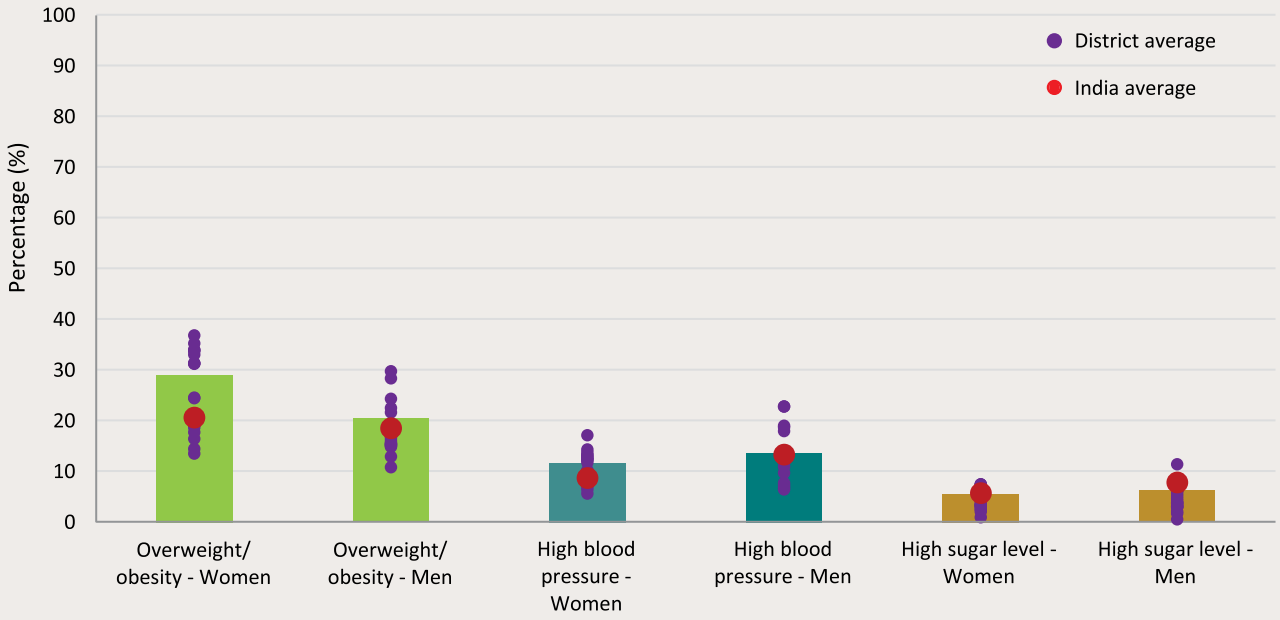
On underlying determinants, Jammu & Kashmir has made progress in female literacy, women's education, early marriage in girls and sanitation. Further efforts are required to improve the status of women with over 10 years of education, which is still very low (37.2 percent). Sanitation also requires more improvement as over 40 percent of households still do not use an improved sanitation facility. The state should continue to sustain the good progress in infrastructure made in the last 10 years. There are nearly 90 percent households with an improved drinking-water source and nearly 100 percent with electricity. Finally, the inter-district variability across outcomes and multiple determinants calls for district-specific strategies to bridge these gaps.

Alongside investments in improving early nutrition, it is also important for Jammu & Kashmir to consider the challenge of non-communicable diseases. As Figure 8 below shows, the challenge is fast emerging in Jammu & Kashmir, with 29.1 percent of women and 20.5 percent of men being overweight or obese, which is higher than the national average. High blood pressure and high blood sugar are other significant public health challenges in Jammu & Kashmir. High blood pressure is more than the national average for women and around the level of national average for men. This suggests that Jammu & Kashmir needs to consider ways to simultaneously address undernutrition and emerging non-communicable diseases related to nutrition.

NOTE

1. Indicator definitions, in alphabetical order:

FIGURE 8 Levels of non-communicable diseases in Jammu & Kashmir and India, in 2016



Source: NFHS-4.

Note: Bars represent state averages; Refer to endnotes for indicator definitions.

Acute respiratory infection (ARI) in the last two weeks: Percentage of children below 5 years of age with symptoms of ARI in 15 days preceding the survey.

Adequate diet: Percentage of children 6–23 months old who received 4 or more food groups and a minimum meal frequency.

ANC (4 or more visits): Percentage of mothers receiving at least 4 ANCs for the last birth in the last 5 years.

ANC (first trimester): Percentage of mothers who received antenatal care during the first trimester of pregnancy for the last birth in the last 5 years.

ANC-neonatal tetanus injections: Percentage of mothers who were protected against neonatal tetanus for the last birth in the last 5 years.

Anemia among women of reproductive age: Percentage of women 15–49 years old who are anemic (<12.0 g/dl for non-pregnant women and <11.0 g/dl for pregnant women).

Birth registered: Percentage of children under age 5 years whose birth was registered.

Consumed IFA ≥ 100 days during pregnancy: Percentage of mothers who took iron and folic acid supplements for at least 100 days for the last birth in the last 5 years.

Deworming: Percentage of children 6–59 months old who were given deworming medication in the last 6 months.

Diarrhea in the last two weeks: Percentage of children below 5 years of age who had diarrhea in 15 days preceding the survey.

Early initiation of breastfeeding: Percentage of children who were breastfed within one hour of birth.

Exclusive breastfeeding: Percentage of infants 0–5 months old who were exclusively breastfed.

Full immunization: Percentage of children 12–23 months old who received BCG, measles, and three doses each of DPT and polio vaccine (excluding polio vaccine given at birth).

Girls married before the age of 18 years: Percentage of women 20–24 years old married before the age of 18 years.

High blood pressure: 15–49 years old men and women with systolic ≥140 mm of Hg and/or diastolic ≥90 mm of Hg.

High blood sugar: 15–49 years old men and women with blood sugar level >140 mg/dl.

Households with an improved drinking-water source: Percent distribution of households with an improved drinking water source.

Households with electricity: Percentage of households with electricity.

Households using improved sanitation facility: Percent distribution of households using improved sanitation facilities.

Institutional delivery: Percentage of births delivered in a health facility for births in the last 5 years.

Janani Suraksha Yojana (JSY) availed: Percentage of women who received financial assistance under JSY for births delivered in an institution for the last birth in the last 5 years.

Low birth weight: Percentage of live births in the last 5 years weighing less than 2,500 grams at birth.

Mother Child Protection (MCP) card: Percentage of registered pregnancies for which the mother received an MCP card.

Newborn check-up: Percentage of children who received a health check after birth from a doctor/nurse/LHV/ANM/midwife/ other health personnel within 2 days of birth.

Open defecation: Percentage of households having no sanitation facilities.

ORS during diarrhea: Percentage of children below 5 years of age who received ORS during diarrhea.

Overweight/obesity: 15–49 years old men and women with body mass index ≥25 kg/m^2.

Pediatric IFA: Percentage of children 6-59 months old who received iron and folic acid supplement in the last 6 months.

Pregnancy registered: Percentage of pregnancies registered among women who had a live birth in the 35 months preceding the survey.

Severe wasting: Percentage of children 0–59 months old who are <-3SD from median weight for height of the WHO Child Growth Standards.

Skilled birth attendant: Percentage of births assisted by a doctor/nurse/LHV/ANM/other health personnel.

Stunting: Percentage of children 0–59 months old who are <-2SD from median height for age of the WHO Child Growth Standards.

Supplementary food (children): Percentage of children 6–35 months old covered by an *Anganwadi* center (AWC) who received supplementary food provided at the AWC in the last 12 months.

Supplementary food (lactation): Percentage of mothers with children under the age of 6 years in areas covered by an AWC who received supplementary nutrition from the AWC during lactation.

Supplementary food (pregnancy): Percentage of mothers with children under the age of 6 years in areas covered by an AWC who received supplementary nutrition from the AWC during pregnancy.

Timely introduction of complementary foods: Percentage of infants 6–8 months old who received solid and semi-solid foods and breastmilk.

Visited by primary health worker (PHW): Percentage of women who were visited by a primary health worker (AWW/ ASHA/ANM) at home within one week of delivery/discharge from health institution, among those who had a live birth in 35 months preceding the survey.

Vitamin A: Percentage of children 9–59 months old who received vitamin A supplements in the last six months.

Wasting: Percentage of children 0–59 months old who are <-2SD from median weight for height of the WHO Child Growth Standards.

Women who are literate: Percentage of women who are literate.

Women with at least 10 years of education: Percentage of women 15–49 years old having at least 10 years of schooling.

Women with body mass index (BMI) <18.5kg/m^2: Percentage of women 15–49 years old with BMI less than 18.5 kg/m^2.

Zinc during diarrhea: Percentage of children below 5 years of age who received zinc during diarrhea.

REFERENCES

Black, R.E., C.G Victora, S.P. Walker, Z.A. Bhutta, P. Christian, M.D. Onis, M. Ezzati, et al. 2013. "Maternal and Child Undernutrition and Overweight in Low-Income and Middle-Income Countries." *The Lancet* 382 (9890): 427–51.

Census of India. Accessed April 2017. http://censusindia.gov.in/2011census/censusinfodashboard/.

Global Targets 2025. World Health Organization. 2014. Accessed April 2017. http://www.who.int/nutrition/global-target-2025/en/.

Government of Jammu & Kashmir. Accessed April 2017. https://jk.gov.in/jammukashmir/?q=index.

India Report. NFHS-3 (National Family Health Survey-3), International Institute for Population Studies. 2008. Accessed April 2017. http://rchiips.org/nfhs/volume_1.shtml.

India Fact Sheet. NFHS-4 (National Family Health Survey-4), International Institute for Population Studies. 2017. Accessed April 2017. http://rchiips.org/NFHS/pdf/NFHS4/India.pdf.

RSoC (Rapid Survey on Children), Ministry of Women and Child Development, Government of India. 2014. Accessed February 2017. http://wcd.nic.in/acts/rapid-survey-children-rsoc-2013-14.

Led by IFPRI

Partnership members:

Institute of Development Studies (IDS)

Public Health Foundation of India (PHFI)

One World South Asia

Vikas Samvad

The Coalition for Food and Nutrition Security (CFNS)

Save the Children, India

Public Health Resource Network (PHRN)

Vatsalya

Centre for Equity Studies

WRITTEN BY

Neha Kohli, Senior Research Analyst, IFPRI

Phuong Hong Nguyen, Research Fellow, IFPRI

Rasmi Avula, Research Fellow, IFPRI

Purnima Menon, Senior Research Fellow, IFPRI

SUGGESTED CITATION

Please cite this Note as: Kohli, N., P.H. Nguyen, R. Avula, and P. Menon. 2017. *Improving Nutrition in Jammu & Kashmir: Insights from Examining Trends in Outcomes, Determinants and Interventions between 2006 and 2016*. POSHAN Policy Note 26. New Delhi: International Food Policy Research Institute.

ACKNOWLEDGEMENTS

Financial support for this Policy Note was provided by the Bill & Melinda Gates Foundation through POSHAN, led by the International Food Policy Research Institute. The funder played no role in decisions about the scope of the analysis or the contents of this Note. We thank Abhilasha Vaid (IFPRI) for her help in reviewing this Note.

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 POLICY NOTES

POSHAN Policy Notes aim to provide evidence-based guidance to support policy and program actions for nutrition in India.

CONTACT US

Email us at IFPRI-POSHAN@cgiar.org

IFPRI-NEW DELHI

INTERNATIONAL FOOD POLICY RESEARCH INSTITUTE

NASC Complex, CG Block,
Dev Prakash Shastri Road,
Pusa, New Delhi 110012, India
T +91.11.66166565
F +91.11.66781699

IFPRI-HEADQUARTERS

INTERNATIONAL FOOD POLICY RESEARCH INSTITUTE

2033 K Street, NW,
Washington, DC 20006-1002 USA
T. +1.202.862.5600
F. +1.202.467.4439
Skype: IFPRIhomeoffice
ifpri@cgiar.org
www.ifpri.org