

Complementary Feeding in India: Evidence from NFHS-5

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RATIONALE

Research across biology, neuroscience, and early childhood development highlights nutrition's pivotal role during the thousand days spanning a woman's pregnancy to a child's second birthday. A recent UNICEF report titled 'Fed to Fail' emphasises that children require higher nutrition per kilogram of body weight between 6 months and 2 years than any other life stage (UNICEF, 2021: 8).

Breastfeeding sufficiently nourishes infants from birth to six months. However, at 6 months, solid and semi-solid foods must be introduced, as breast milk alone lacks essential nutrients for this developmental stage. Inadequate feeding practices up to age two significantly contribute to child malnutrition, impacting academic performance and later productivity (Glewwe et al., 2001; Hoddinott et al., 2018; Black et al., 2013).

India hosts the largest number of malnourished children globally, reflecting poor diets and feeding practices. The National Family Health Survey 5 (NFHS 5) reveals the persistent severity of malnutrition across several Indian states, some of which have witnessed an increase in malnourishment (IIPS & ICF, 2021).

Our study aims to analyse and present stylised facts on India's complementary feeding practices using data from NFHS-4 and 5.

DATA & METHODS

We frequently utilise three key indicators, as defined by the WHO, to gauge diet and feeding quality: Minimum Dietary Diversity (MDD), Minimum Meal Frequency (MMF), and Minimum Acceptable Diet (MAD). MDD, representing nutrient-rich intake, is achieved with five out of eight food groups: breastmilk, grains, roots, tubers, legumes, nuts, dairy, flesh foods, eggs, vitamin A-rich fruits and vegetables, and other fruits and vegetables.

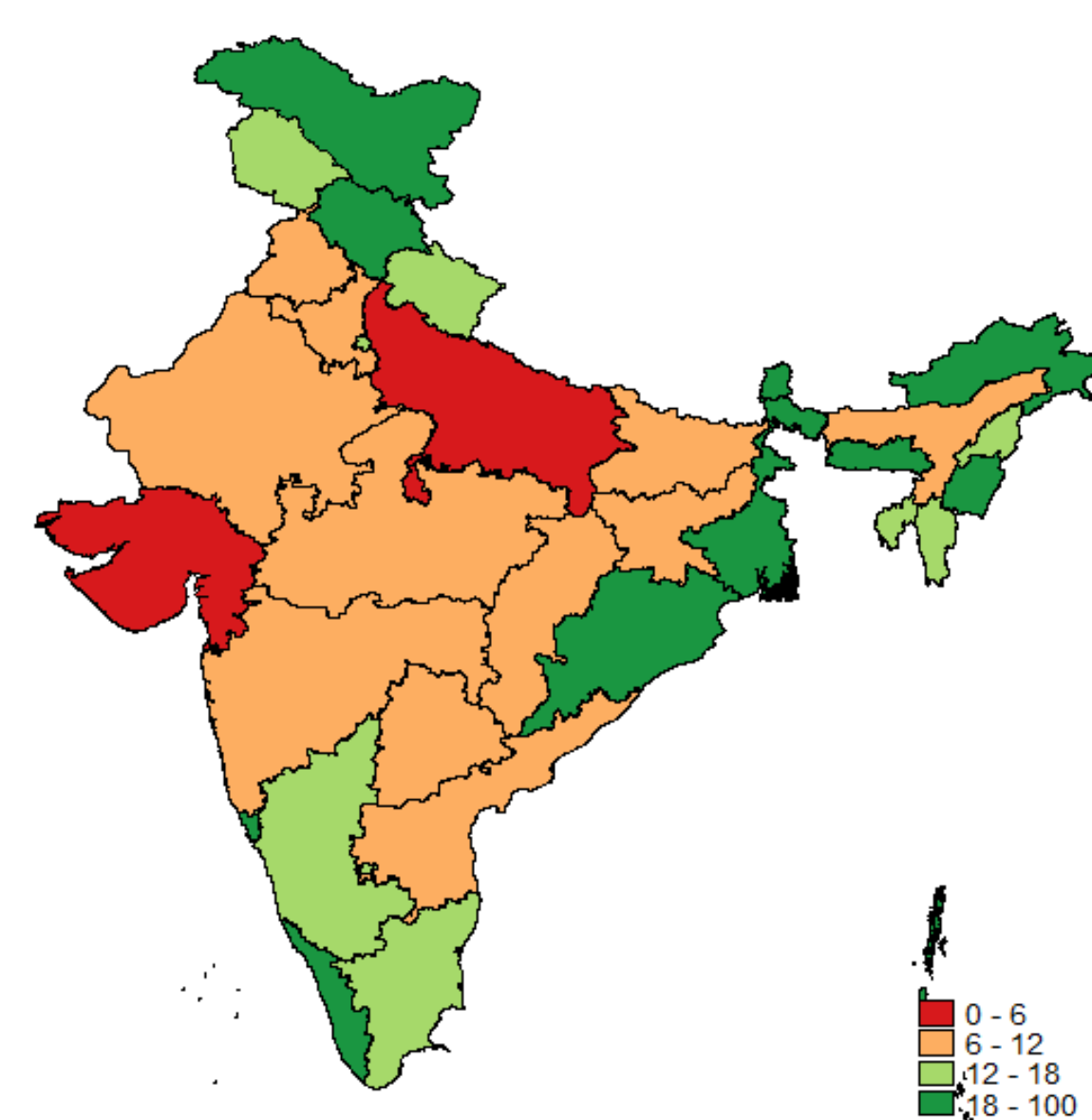
Minimum meal frequency varies for breastfed and non-breastfed children. Breastfed infants aged 6-8 months require at least two solid, semi-solid, or soft food meals daily, while those aged 9-23 months need at least three. Non-breastfed children meet this criterion with four or more solid, semi-solid, soft, or milk feeds, including at least one solid, semi-solid, or soft feed.

The minimum acceptable diet is a composite variable that encompasses diet diversity and meal frequency.

RESULTS- STYLISED FACTS FROM NFHS-5 & 4

1. Uttar Pradesh and Gujarat perform the worst on MAD, with an incidence of only 5.9% (Figure 1). On the other hand, Meghalaya with 28.5% is at the top even though more than 7 out of every 10 children in the state do not get an acceptable diet. In general, NFHS-5 finds that small and Northeastern states do better on MAD provision. Moreover, there is only a weak relationship between MAD and per capita Gross State Domestic Product (GSDP).

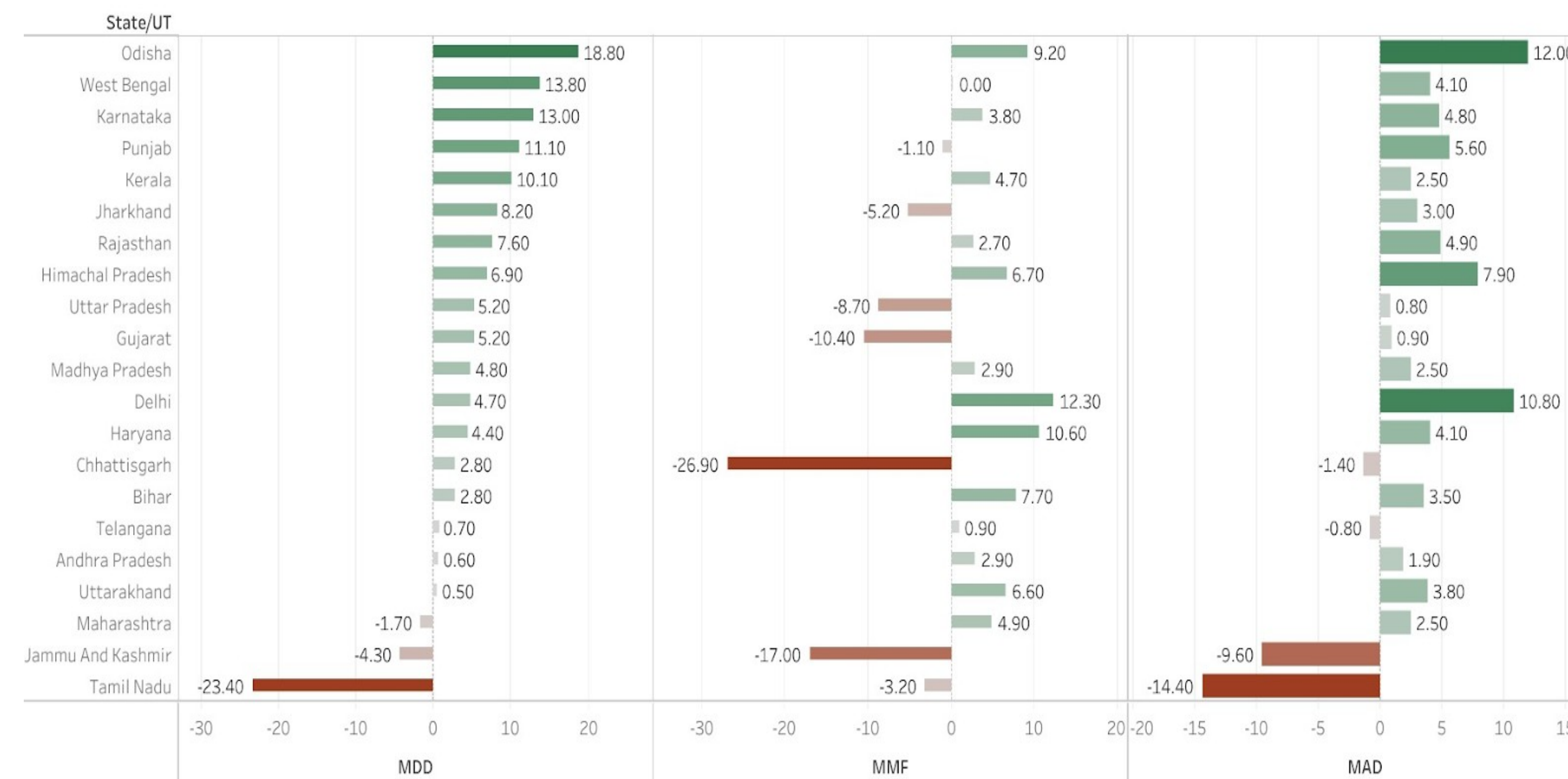
Figure 1. Percentage of children receiving MAD in 2019-21



Source of all figures: Author's calculations using NFHS-5 & 4 microdata

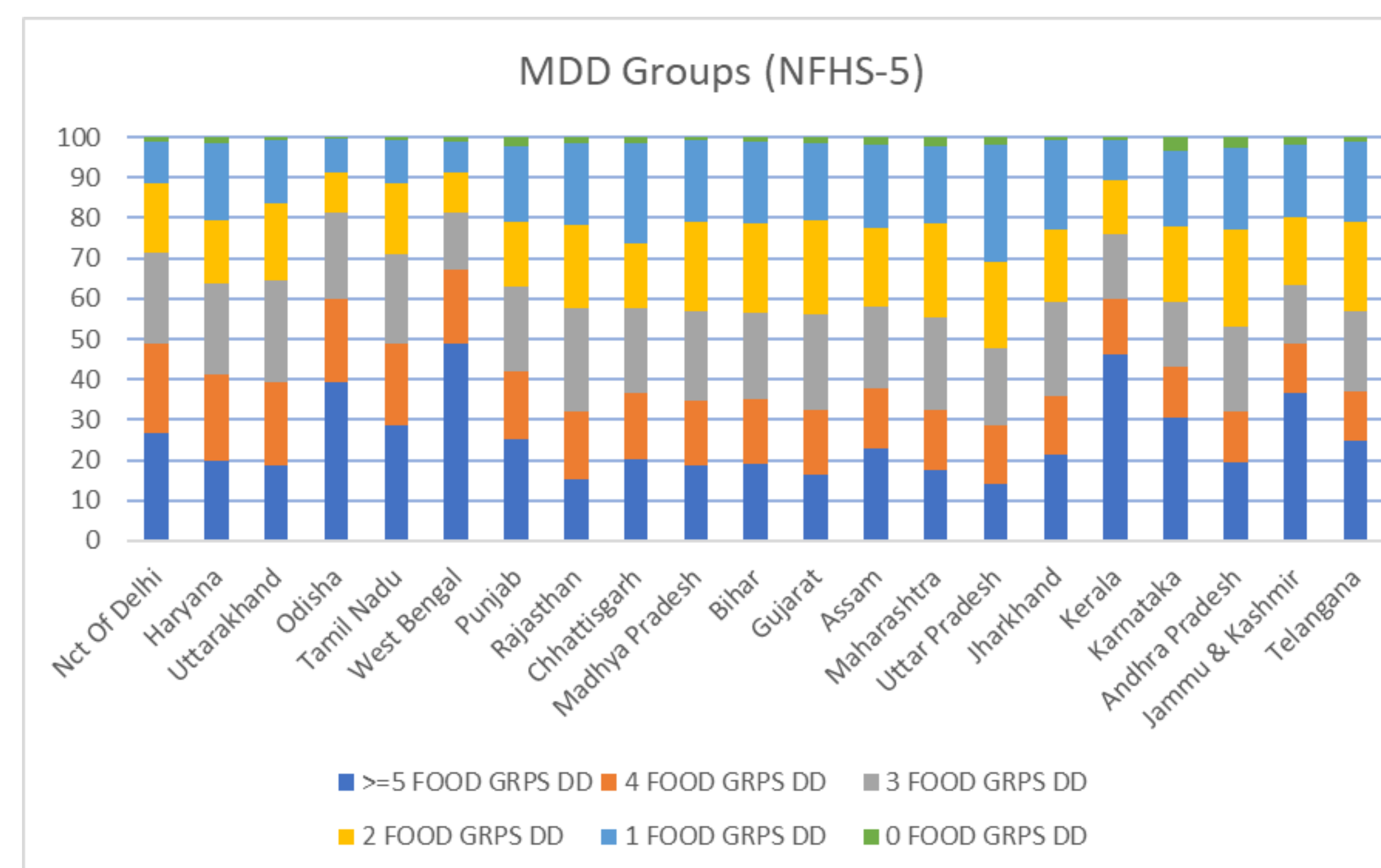
2. As discussed earlier, MAD is a combination of two indicators - MDD and MMF. Taken separately, we find impressive progress on each one of them between NFHS-4 and NFHS-5 in several states, despite some hiccups in others (Figure 2). For example, Tamil Nadu and Jammu & Kashmir have registered big declines in all three indicators. Chhattisgarh has seen a large fall in the minimum meal frequency indicator. Even Uttar Pradesh and Gujarat have done quite well in providing a minimally diverse diet to 6-23-month-old children.

Figure 2. Changes between 2015-16 and 2019-21 in various indicators for big states (>10 million population)



3. We can even move beyond the binary MDD variable to study the proportion of children getting different numbers of food groups across states (Figure 3). Uttar Pradesh and Chhattisgarh have a very high percentage of children getting none or one food group in 2019-21. Moreover, Karnataka has the highest share of children consuming no food groups at all. But the figure also shows that for states already performing well on MDD, there is an even greater scope for improvement since their 4-food group proportion is also higher than other states.

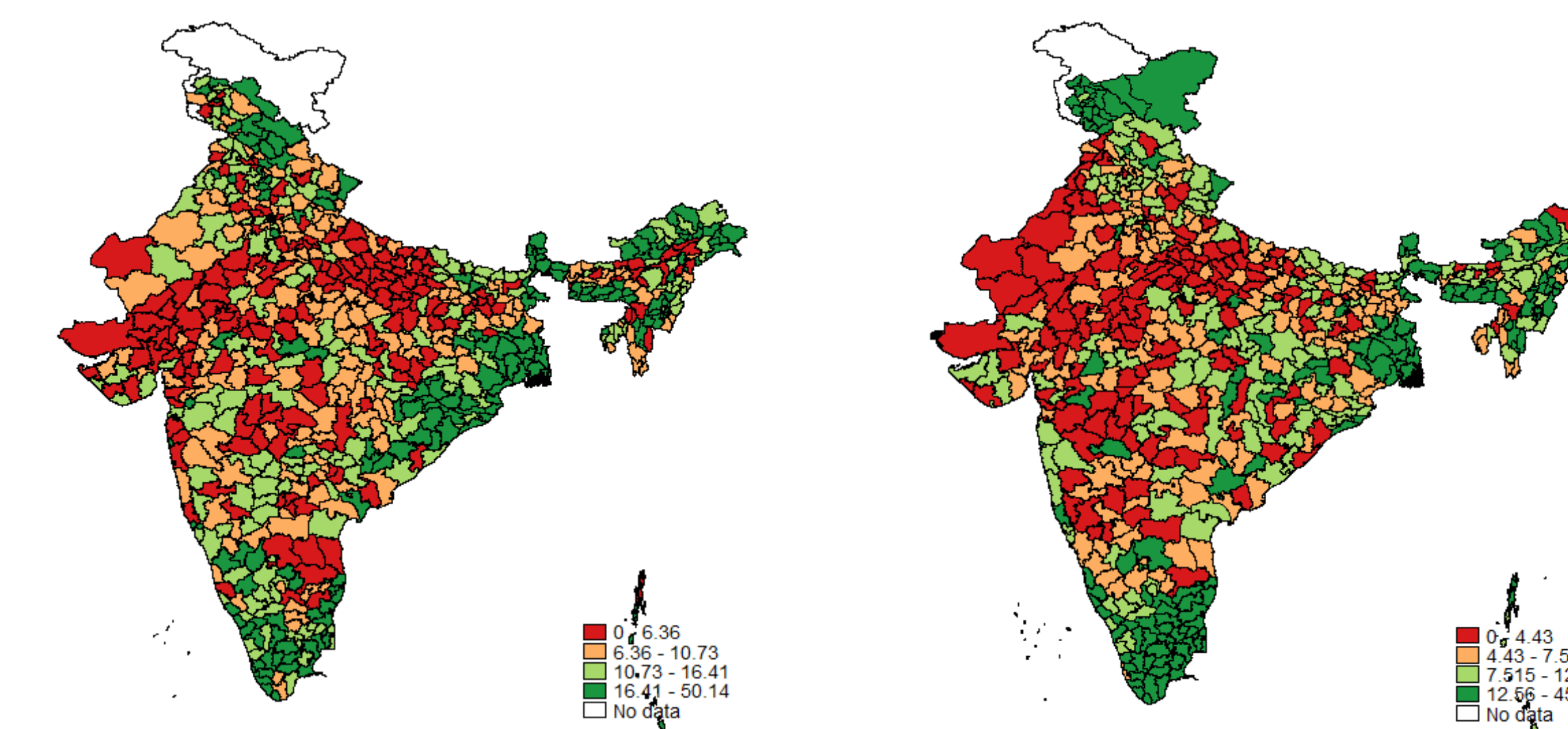
Figure 3. Number of food groups consumed by children aged 6-23 months



4 Microdata from the NFHS allows us to construct district-level estimates for nutritional indicators. As expected, the dispersion in values across districts is much larger than what we observe for states - the worst-performing district has a MAD percentage of 5% while the best-performing district is at 70%. Some well-performing states have laggard districts and vice versa.

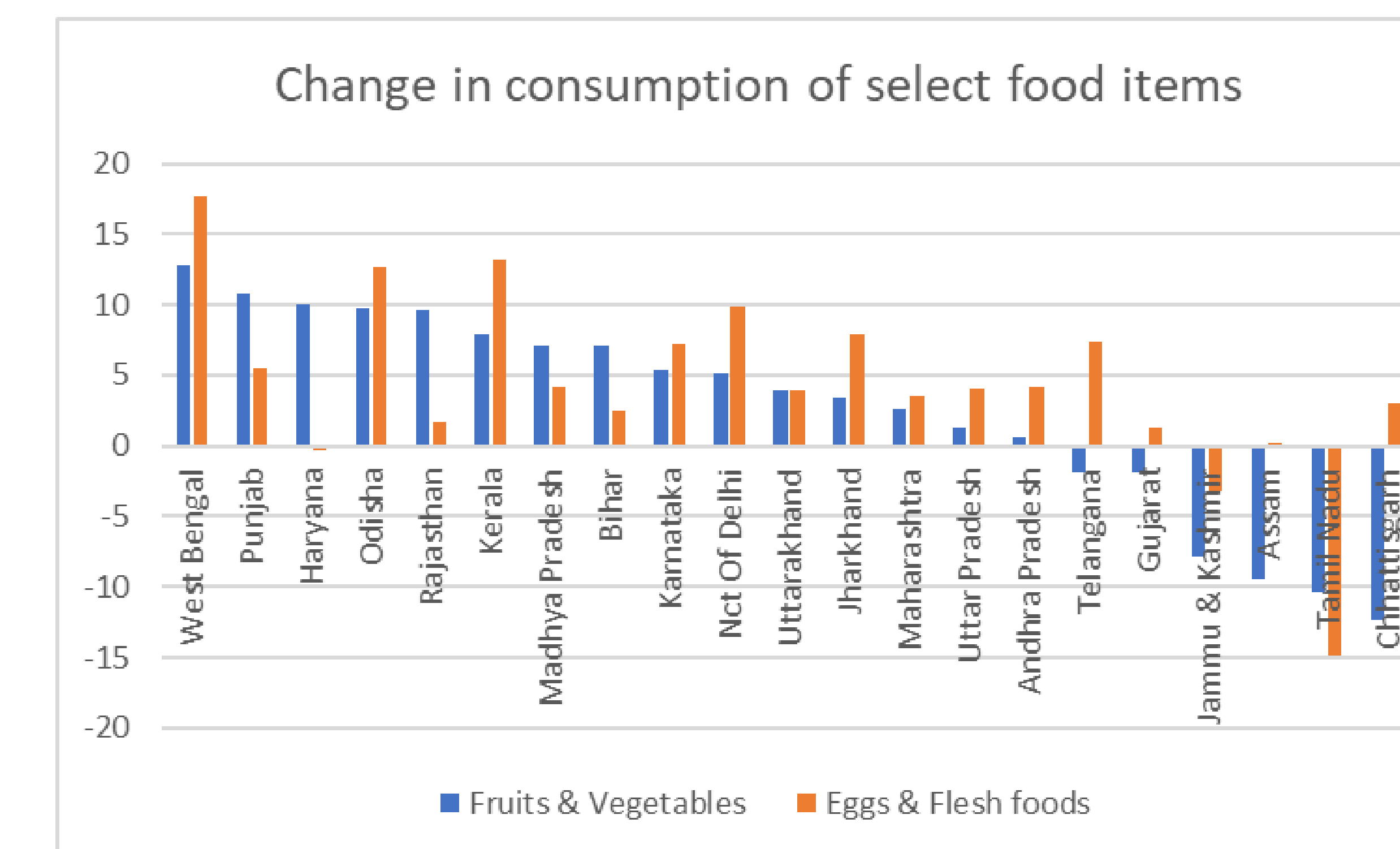
Figure 4: Percentage of children receiving MAD in 2019-21 & 2015-16

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5. Children's diets often lack two major food groups- fruits and vegetables, and eggs and flesh foods. States that have done well on MAD between the last two rounds have seen significant improvements in access to these items. For instance, West Bengal's fruits and vegetables' consumption has risen by over 12 percentage points, while eggs and flesh foods' consumption has grown by almost 17 pp between NFHS-4 and NFHS-5. States like Haryana, although making negligible improvement in the flesh foods indicator, have done quite well in fruits and vegetables (10 pp. increase).

Figure 5: Change in consumption of select food items between 2015-16 and 2019-21



IMPLICATIONS & CONCLUSION

We also studied the key areas in which their states' policies under the Integrated Child Development Services (ICDS) scheme differ from each other and the main findings are summarized in the table below.

State	Month of interaction	Best practices
Odisha	June 2022	Mamta scheme; involving men in VHNDs; decentralised procurement of THR by empowering AWWs; 3 eggs per week in THR; vegetable gardens in AWCs
Uttar Pradesh	June 2022	Involving SHGs in making THR; training AWWs on BF & CF; UNICEF collaboration for technical expertise & building an AWW manual
NCT of Delhi	June 2022	Creche facility
Karnataka	June 2022	Ksheera Bhagya (Milk scheme) - whole milk 5 days a week; recent increase in honorarium for AWWs by 25%

State	Month of interaction	Best practices
West Bengal	June 2022	HCF with vegetables like potato and soya; 6 eggs a week; banana in THR
Madhya Pradesh	August 2022	State nutrition policy; MM-BASK (more intensive and frequent engagement than in VHNDs); THR made by a federation of SHGs; trained mothers' committees at village level to monitor & conduct social audits; actively involving community & NGOs
Haryana	August 2022	Vegetables in THR; high salaries for AWWs; 500 gm milk powder daily (216 crore scheme launched from August 2020)
Kerala	August 2022	Data-driven administration; high honorarium for AWWs and helpers

Most of the states that do well on MAD attach high priority to the Women and Child Development Department.. Many of these states also spend more money on ICDS to increase the nutritional diversity of their THR and HCF. Well-performing states give higher honorariums to AWWs who are at the frontline of this crucial endeavour. Clearly, improving CF may require more resources but given the burden of undernutrition that improperly fed children carry through the rest of their lives, investing at an early stage is likely to be very cost effective.