

Ahmednagar District, Maharashtra, the second most populated state in India. A comparison was made between socio-economic conditions, adoption of new technologies, changing cropping pattern, and market access to identify the drivers of dietary diversity in a transitional scenario moving from subsistence agriculture in upland regions towards commercial production in lowland regions. Hilly upland region has thick forests, sparse population, small land holdings and rainfed-organic subsistence agriculture. This region has poor transport, communication, and healthcare facilities. In contrast, lowland region scores better on these development parameters. Here, cropping pattern is dictated by market trends and farmers use irrigation facilities and modern farm implements for high productivity. Through our Nutrition Awareness Programme this study also focused on analysing dietary behaviours of primary school children in the villages.

Methods Qualitative methods used were semi-structured interviews, seasonal calendar, 24 hrs. dietary recall and focussed group discussions. The data was quantitatively analysed using Stata 12.0 and AnthroPlus 1.0.4.

Results Results (at 95% confidence) indicated a high household dietary diversity score (HDDS) and Women's Dietary Diversity Score (WDDS) amongst the adult population in both the regions – Upland: HDDS 6.4, WDDS 4.0; Lowland: HDDS 7.3 and WDDS 4.7. Upland students exhibited a balanced dietary pattern of different food groups with Dietary Diversity Score (DDS) of 7 whereas for lowland it stood at 6. However, over 50% of upland students were stunted with HAZ < -2; over 10% risked being overweight; 50% were wasted with low BAZ scores. Higher percentage of upland students were malnourished despite higher DDS, especially, girls exhibited a lower DDS and were more severely wasted.

Conclusions The study establishes that improved irrigation, livestock ownership, crop diversification, and easy access to the markets have scope to increase dietary diversity in this region.

Food systems

2 ADDRESSING NUTRITIONAL GAPS AND SUGGESTING A PRACTICAL FRAMEWORK TO REDUCE THE RISK OF MALNUTRITION AND IMPROVE NUTRITION SECURITY IN SANTHAL TRIBAL COMMUNITIES IN INDIA

¹Sarah Armes*, ¹Sally Ayyad*, ¹Xunhan Li**, ¹Wanja Nyaga**, ¹Sanchita Banerjee, ²Arundhita Bhanjdeo, ¹Luke Buckner, ¹Debashis Chakraborty, ²Shuvojit Chakraborty, ¹Harmanpreet Kaur, ¹Asim Manna, ²Ayesha Pattnaik, ⁴Nivedita Narain***, ³Nitya Rao***, ^{1,5,6}Sumantra Ray***. ¹NNEdPro Global Institute for Food, Nutrition and Health, Cambridge, UK; ²Professional Assistance for Development Action (PRADAN), New Delhi, India; ³School of International Development, University of East Anglia, Norwich, UK; ⁴Charities Aid Foundation, India; ⁵School of Biomedical Sciences, Ulster University at Coleraine, Coleraine, UK; ⁶School of Humanities and Social Sciences, University of Cambridge, Cambridge, UK; *Joint first authorship; **Joint second authorship; ***Joint corresponding authors

10.1136/bmjnph-2023-nnedprosummit2022.5

Background The double burden of malnutrition is a growing problem, which is disproportionately represented across the Indian population, with undernutrition dominating rural areas. This study aimed to identify nutritional gaps in traditional recipes of Santhal tribes, create a recipe book to address deficiencies and support diet diversity.

Methods Food Frequency Questionnaires (FFQ) were conducted to analyse dietary patterns of Santhal communities. Recipes were collected from five villages and shortlisted into 37 dishes based on availability, acceptability and popularity. Commonly consumed templates were based on FFQ findings and individual dishes. Nutritics software was used to identify nutritional gaps. In total, 24 recommended templates, were created to satisfy adequate intake of nutrients. Mann-Whitney and unpaired t-test were performed and findings were presented as mean (standard deviation(SD)) and median (25th–75th percentile).

Results Less than one-fifth of consumed templates met energy requirements, 27% met protein recommendations, and 4% met requirements for fibre, total fat, monounsaturated and polyunsaturated fat. Other nutrients of concern included vitamins B12, B9, iodine, calcium and iron. Recommended templates significantly increased energy (Consumed (C): 996.0kcal (930-1090); Recommended (R): 1183.0kcal(1094-1341); p<0.0001), protein (C: 25.0g(8.4); R: 40.5g(33.2-52.3); p<0.0001), total fat (C: 7.4g(6.1-8.8); R: 17.2g(14.1-22.9); p<0.0001) and fibre (C: 5.0g(4.0-6.5); R: 8.2g(5.8-11.7); p=0.0013) compared to consumed templates. Additionally, calcium (C: 108.5mg(36.0-302.5); R: 245.5mg(152.3-528.3); p=0.0121), iron (C: 5.3mg(2.1-8.2); R: 10.7mg(8.2-13.2); p=0.0002), vitamin B6 (C: 0.4mg(0.3-0.7); R: 1.1mg(0.6-1.6); p=0.0001), B9 (C: 54.5ug(36.3-172.8); R: 252ug(179.4); p=0.0026) and B12 (C: 0ug(0-0); R: 1.0ug(0-2.1); p=0.0001) were also significantly increased.

Conclusion This study provides a novel insight on the nutritional adequacy of indigenous Santhal recipes and highlights the need to enhance the nutrition status of these communities. Concerted efforts should be made to increase communication for nutritional advocacy, both nationally and internationally. Future research should evaluate the acceptability, practicality, and uptake of this recipe book in addressing malnutrition in rural communities.

Acknowledgements We would like to acknowledge and thank the INDIVIDUALS, particularly Sucheta Mitra, ORGANISATIONS (UEA, PRADAN, NNEdPro, Bhavishya Shakti) and FUNDING (GRTA) who generously shared their time and resources for the purposes of this project.

3 COSTING A NUTRITIONALLY BALANCED THALI: IS AN ORGANIC DIET AFFORDABLE?

¹Suveera Gill, ¹Ramanjit Kaur Johal, ²Kalyani Singh. ¹Panjab University, Chandigarh, India; ²Post Graduate Government College for Girls, Sector-42, Chandigarh, India

10.1136/bmjnph-2023-nnedprosummit2022.6

Background and Objectives Affordability is probably an impediment to improving diets in India. However, evidence for the relationship between the healthfulness of foods and price is scarce. In addition, little is known about the underlying cost taxonomies for alternate food systems. To address these gaps in the literature, the present study endeavours to determine the cost of a nutritionally balanced, healthy North-Indian vegetarian thali (platter). Further, the price differential between organic and conventional thalis has been determined.

Methods This research is an exploratory attempt to quantify what it costs to prepare nutritionally balanced organic and conventional North-Indian vegetarian lunch and dinner thalis for an Indian adult male and female engaged in moderately