

## Original Research Article

# Utilization of take-home ration and complementary feeding practices among women and young children in tribal Jharkhand: a mixed-methods study

Vishal Chandra\*, Akash Satpathy, Ruth Sangita Kerketta

Department of Public Health, Tata Steel Foundation, B.H. Area, Road No. 3, Jamshedpur, Jharkhand, India

**Received:** 01 April 2026

**Accepted:** 14 June 2026

### \*Correspondence:

Dr. Vishal Chandra,

E-mail: [drvishal.chandra@tatasteelfoundation.org](mailto:drvishal.chandra@tatasteelfoundation.org)

**Copyright:** © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

### ABSTRACT

**Background:** Take-home ration (THR) under the Integrated Child Development Services (ICDS) is a key intervention to address nutritional gaps among pregnant women, lactating mothers, and young children. However, evidence suggests that program effectiveness is often constrained by gaps in utilization at the household level, particularly in tribal settings.

**Methods:** A cross-sectional mixed-methods study was conducted between January and February 2024 in the Kolhan division of Jharkhand. A total of 146 respondents, including pregnant women, lactating mothers, and Anganwadi Workers, were interviewed using structured questionnaires. Additionally, 12 focus group discussions (FGDs) with 8-12 participants each were conducted. Quantitative data were analyzed using descriptive statistics, and qualitative data were analyzed thematically.

**Results:** While THR distribution was reported to be regular, significant gaps were observed in its utilization. Awareness regarding recommended quantity and preparation methods was limited among beneficiaries. THR was commonly shared among household members, reducing its consumption by intended beneficiaries. Complementary feeding practices were suboptimal, with most children being fed from the family pot rather than receiving age-appropriate semi-solid foods. Increasing reliance on packaged foods for children was also reported. Qualitative findings highlighted behavioural, cultural, and practical barriers influencing these practices.

**Conclusions:** Optimal utilization of THR remains limited despite adequate program delivery. Addressing behavioural and knowledge-related barriers through strengthened counselling and community engagement is essential for improving nutritional outcomes.

**Keywords:** Complementary feeding, ICDS, Jharkhand, Take-home ration, Tribal health

### INTRODUCTION

Malnutrition continues to be a major public health challenge in India, particularly among women and children in tribal and socio-economically vulnerable populations. Despite sustained efforts through national programs, including the Integrated Child Development Services (ICDS), improvements in nutritional outcomes remain uneven.<sup>1</sup>

The burden of undernutrition is influenced not only by food availability but also by feeding practices, dietary diversity, and intra-household food distribution. In many low-resource settings, cultural norms and behavioural factors play a critical role in shaping nutritional outcomes.<sup>2</sup>

Take-home ration (THR), a key component of ICDS, is designed to provide supplementary nutrition to pregnant women, lactating mothers, and children aged 6-36

months.<sup>3</sup> It aims to bridge the gap between recommended dietary intake and actual consumption. However, the effectiveness of THR depends on its appropriate utilization at the household level.

Existing evidence suggests that supplementary nutrition programs often face challenges related to awareness, acceptability, and intra-household allocation of food.<sup>4</sup> In many contexts, food provided to targeted beneficiaries is shared among family members, thereby reducing its intended nutritional impact.

Complementary feeding practices further influence child nutrition outcomes. The World Health Organization recommends timely introduction of age-appropriate, diverse, and nutrient-rich foods for infants and young children.<sup>5</sup> However, in many rural and tribal settings, feeding practices are influenced by resource constraints, lack of knowledge, and prevailing food habits.

The Kolhan division of Jharkhand represents a unique setting characterized by a high tribal population and a rich natural food environment. Despite the availability of diverse indigenous foods, the region continues to report poor nutritional outcomes.<sup>6</sup> This paradox highlights the importance of understanding not just food availability but also food utilization practices.

In recent years, dietary transitions have also been observed in rural communities, with increasing consumption of packaged and processed foods.<sup>7</sup> These changes may further influence nutritional outcomes, particularly among young children.

Given this context, there is a need to examine how THR is utilized at the household level and how complementary feeding practices are shaped in tribal communities. This study aimed to assess the utilization of THR and explore feeding practices among women and caregivers in the Kolhan division of Jharkhand.

## METHODS

A cross-sectional mixed-methods study was conducted between January and February 2024 in the Kolhan division of Jharkhand, comprising East Singhbhum, West Singhbhum, and Saraikela-Kharsawan districts.

The study included pregnant women, lactating mothers, and Anganwadi Workers (AWWs) from selected communities. Participants were selected using a convenience sampling approach during field visits to villages and Anganwadi centres. Individuals representing households were included to capture household-level practices related to diet and THR utilization.

A total of 146 respondents participated in the study, including 27 pregnant women, 39 lactating mothers, and 80 Anganwadi Workers. The distribution of respondents across districts is presented in Table 1.

Quantitative data were collected using structured questionnaires that captured information on dietary practices, awareness, and utilization of THR. Respondents were asked about food consumption patterns, feeding practices for children, and use of supplementary nutrition.

Qualitative data were collected through 12 focus group discussions (FGDs), with each group comprising 8-12 participants. FGDs included community members, frontline workers, and local stakeholders. Discussions focused on food practices, perceptions of THR, and barriers to its utilization.

Seasonal variation in food consumption was assessed based on participant recall, as data collection was conducted over a limited time period.

Quantitative data were analysed using Microsoft Excel and summarized using descriptive statistics, including frequencies and proportions. Qualitative data were analysed using thematic analysis to identify recurring patterns and key themes.

Verbal informed consent was obtained from all participants prior to data collection. Participation was voluntary, and confidentiality of responses was maintained.

## RESULTS

### *Participant characteristics*

A total of 146 respondents participated in the study across three districts (Table 1).

**Table 1: Distribution of participants.**

| District             | Pregnant women | Lactating mothers | Anganwadi workers | Total      |
|----------------------|----------------|-------------------|-------------------|------------|
| East Singhbhum       | 19             | 32                | 60                | 111        |
| West Singhbhum       | 2              | 4                 | 9                 | 15         |
| Satraikela-Kharsawan | 6              | 3                 | 11                | 20         |
| <b>Total</b>         | <b>27</b>      | <b>39</b>         | <b>80</b>         | <b>146</b> |

### THR distribution and awareness

THR distribution through Anganwadi centres was reported to be regular across study areas. However, awareness regarding recommended quantity and appropriate preparation of THR was found to be limited among beneficiaries.

Participants frequently reported uncertainty regarding: how much THR should be consumed, how it should be prepared for optimal nutritional benefit.

### Utilization of THR

Despite regular distribution, utilization of THR was suboptimal. As shown in Table 3, THR was commonly shared among household members rather than being consumed exclusively by intended beneficiaries.

This practice reflects prevailing household norms where food is shared collectively, regardless of its intended purpose. As a result, the nutritional benefits intended for pregnant women, lactating mothers, and young children may be diluted.

### Complementary feeding practices

Complementary feeding practices were found to be inadequate. Most children were not provided with separate, age-appropriate semi-solid foods and were instead fed from the family pot.

This practice suggests limited awareness and capacity among caregivers to prepare child-specific diets. It also reflects time constraints and reliance on existing household food preparation.

### Dietary patterns

Dietary patterns in the study population were dominated by rice consumption, with limited intake of milk, fruits, and pulses (Table 2). Consumption of millets was minimal, indicating low dietary diversity.

**Table 2: Dietary pattern of households.**

| Food group             | Consumption pattern       |
|------------------------|---------------------------|
| Rice                   | High (daily consumption)  |
| Pulses                 | Moderate (few times/week) |
| Milk                   | Low (Limited use)         |
| Fruits                 | Low                       |
| Green leafy vegetables | Moderate to high          |
| Millets                | Very low                  |

Although green leafy vegetables were commonly consumed, overall dietary patterns lacked diversity in protein-rich and micronutrient-rich foods.

### Packaged food consumption

An increasing trend of feeding packaged and processed foods to children was observed. Caregivers reported convenience and child preference as key reasons for this practice.

### Qualitative findings

FGDs provided deeper insights into the observed practices. Key themes identified include: Limited awareness: participants lacked clarity on nutritional requirements and THR usage; household norms: food sharing practices reduced targeted consumption; time constraints: caregivers preferred easily available food options; changing food habits: increased exposure to packaged foods influenced feeding practices.

**Table 3: Utilization of take-home ration (THR).**

| Indicators                           | Observation |
|--------------------------------------|-------------|
| Distribution of THR                  | Regular     |
| Awareness of recommended quantity    | Low         |
| Awareness of preparation methods     | Low         |
| Exclusive consumption by beneficiary | Limited     |
| Household sharing of THR             | High        |

## DISCUSSION

This study highlights critical gaps between the provision and utilization of take-home ration in tribal communities of Jharkhand.

Although THR distribution appears to be functioning effectively, its intended benefits are limited by household-level practices. The widespread sharing of THR among family members (Table 3) reduces its targeted impact on nutritionally vulnerable groups. Similar patterns have been reported in other community-based nutrition programs.<sup>3</sup>

A key finding of this study is the limited awareness among beneficiaries regarding appropriate use and preparation of THR. This suggests that program delivery alone is insufficient without effective behaviour change communication.

Complementary feeding practices observed in this study are also of concern. Feeding children from the family pot without age-appropriate modifications (Figure 1) may result in inadequate nutrient intake during critical growth periods. These findings align with existing evidence highlighting gaps in infant and young child feeding practices in low-resource settings.<sup>5</sup>

The increasing consumption of packaged foods among children reflects broader dietary transitions influenced by market availability and lifestyle changes.<sup>7</sup> This trend may have long-term implications for nutritional outcomes.

Importantly, the findings of this study highlight the role of socio-cultural and behavioural factors in shaping nutritional practices. Addressing these factors requires a comprehensive approach that goes beyond program delivery to include community engagement and capacity building.

This study has certain limitations that should be considered while interpreting the findings. The use of a convenience sampling approach limits the generalizability of results beyond the study population. The sample size was modest and may not fully capture the diversity of practices across all communities in the Kolhan region. Data on dietary practices and THR utilization were self-reported and therefore subject to recall and social desirability bias. Seasonal variations in food consumption were assessed based on participant recall rather than longitudinal observation, which may affect accuracy. In addition, the study primarily relied on descriptive analysis and did not include inferential statistical testing, limiting the ability to establish associations. Despite these limitations, the mixed-methods design provided valuable insights into behavioural and contextual factors influencing THR utilization and feeding practices.

## CONCLUSION

This study highlights that while take-home ration is regularly distributed under ICDS, its optimal utilization at the household level remains limited in tribal communities of Kolhan. Gaps in awareness, intra-household sharing practices, and suboptimal complementary feeding behaviours reduce the intended nutritional benefits among pregnant women, lactating mothers, and young children. The increasing reliance on packaged foods further reflects changing dietary patterns that may adversely affect child nutrition. Addressing these challenges requires strengthening behaviour change communication, improving caregiver awareness on THR preparation and consumption, and promoting age-appropriate feeding practices through frontline workers to enhance the effectiveness of existing nutrition programs.

## ACKNOWLEDGEMENTS

The authors acknowledge the support of community members, Anganwadi workers, and program teams involved in the study.

*Funding: No funding sources*

*Conflict of interest: None declared*

*Ethical approval: The study was approved by the Institutional Ethics Committee*

## REFERENCES

1. Black RE, Allen LH, Bhutta ZA, Caulfield LE, de Onis M, Ezzati M, et al. Maternal and child undernutrition: global and regional exposures and health consequences. *Lancet*. 2008;371(9608):243-60.
2. Government of India. Integrated Child Development Services (ICDS) scheme guidelines. New Delhi: Ministry of Women and Child Development; 2018.
3. Keats EC, Das JK, Salam RA, Lassi ZS, Imdad A, Black RE, et al. Effective interventions to address maternal and child malnutrition: an update of the evidence. *Lancet Child Adolesc Health*. 2021;5(5):367-84.
4. Grantham-McGregor S, Cheung YB, Cueto S, Glewwe P, Richter L, Strupp B, et al. Developmental potential in the first 5 years for children in developing countries. *Lancet*. 2007;369(9555):60-70.
5. International Institute for Population Sciences (IIPS), ICF. National family health survey (NFHS-5), 2019-21: India. Mumbai: IIPS; 2021.
6. World Health Organization. Infant and young child feeding: model chapter for textbooks for medical students and allied health professionals. Geneva: WHO; 2009.
7. Popkin BM. Nutrition transition and the global diabetes epidemic. *Curr Diab Rep*. 2015;15(9):64.
8. Bhutta ZA, Das JK, Rizvi A, Gaffey MF, Walker N, Horton S, et al. Evidence-based interventions for improvement of maternal and child nutrition: what can be done and at what cost? *Lancet*. 2013;382(9890):452-77.
9. NITI Aayog. Nourishing India: national nutrition strategy. New Delhi: Government of India; 2017.
10. Ministry of Women and Child Development. POSHAN Abhiyaan: guidelines. New Delhi: Government of India; 2018.

**Cite this article as:** Chandra V, Satpathy A, Kerketta RS. Utilization of take-home ration and complementary feeding practices among women and young children in tribal Jharkhand: a mixed-methods study. *Int J Community Med Public Health* 2026;13:3599-602.