

Minimum Dietary Diversity and Its Determinants among Children Aged 6–60 Months in Rural Puducherry

Original Article

Volume 62, Pages 283-288, April 2025

Karthika Ganesamoorthy¹ · Ilavarasu Rangassamy² · Premnath Dhasaram³ · Amarnath Santhaseelan¹

¹Department of Community Medicine, Sri Lakshmi Narayana Institute of Medical Sciences (SLIMS), Ousudu Lake, Near Agaram Village, Puducherry 605502, India; ²Department of Pediatrics, Sri Venkateshwara Medical College Hospital, Ariyur, Puducherry 605107, India; ³Department of Community Medicine, Aarupadai Veedu Medical College & Hospital, Pondy Cuddalore Main Road, Kirumampakkam, Puducherry 607402, India.

Correspondence to: Karthika Ganesamoorthy, karthika14ganesh@gmail.com; Ilavarasu Rangassamy, princeila1591@gmail.com; Premnath Dhasaram, drpremnath@outlook.com; Amarnath Santhaseelan, amarnathsanthaseelan82@gmail.com

Received: 10 October 2024 / Accepted: 1 March 2025 / Published online: 3 April 2025

<https://doi.org/10.1007/s13312-025-00029-1>

ABSTRACT

OBJECTIVES

To assess the prevalence of minimum dietary diversity (MDD) and explore its associated determinants among children aged 6–60 months in rural Puducherry.

METHODS

143 children aged 6–60 months were selected from rural areas of Puducherry using systematic random sampling in a cross-sectional study conducted between January and February 2024. Data were collected through a semi-structured questionnaire based on World Health Organization (WHO) guidelines for Infant and Young Child Feeding (IYCF) practices. MDD was defined as the consumption of at least five of eight food groups for children aged 6–24 months and seven food groups for children aged 25–60 months. Sociodemographic factors, food group consumption, and anthropometric measurements were also recorded. Statistical analysis involved Chi-square tests and binary logistic regression to identify associations between MDD and various factors.

RESULTS

55.24% of the children achieved MDD. Children aged 25–60 months ($P < 0.001$) and those with mothers over 30 years old ($P = 0.001$) were significantly more likely to meet MDD. Underweight ($P = 0.001$) and severely underweight children ($P = 0.001$) had a lower likelihood of achieving MDD. Factors such as gender, birth order, and socioeconomic status were not significantly associated with MDD.

CONCLUSION

Despite a higher MDD rate than the national average, a substantial proportion of children in rural Puducherry do not meet dietary diversity standards, particularly younger (< 24 months) and underweight children.

Keywords: Dietary diversity · Children · Underweight

How to access full text of this article for IAP members?

The full text of articles published in the Indian Pediatrics from Jan 2025 onwards will be accessible freely only to the members of the Indian Academy of Pediatrics (IAP). Please follow the following steps to access the articles

Steps

1. Go the Indian Academy of Pediatrics (IAP) website (<https://iapindia.org/>)
2. Login as member using your registered mobile number/ email and your password (<https://iapindia.org/member-login.php>).
3. You will now be directed to <https://iapindia.org/singlelogin/index.php>
4. Scroll down to Indian Pediatrics Current Issue and click the icon. You will be directed to <https://link.springer.com/journal/13312>
5. You will be able to access the desired article
6. In case you have forgotten your password, it can be reset using an OTP sent to your registered mobile number or email address.
7. In case of any difficulty, kindly contact the central office at centraloffice@iapindia.org or Phone: (022) 27710857
8. You may also write to ip.subscription@iapindia.org or jiap@iapindia.org

REFERENCES

1. Office of the Registrar General & Census Commissioner, India. Population Census 2011. New Delhi: Ministry of Home Affairs, Government of India; 2011. Available from: <https://censusindia.gov.in/census.website/data/census-tables>
2. Sangra S, Kumar D, Dewan D, Sangra A. Reporting of core and optional indicators of infant and young child feeding practices using standardized the WHO formats from a rural population of Jammu region. *Int J Med Sci Public Health*. 2017;6:1–7.
3. Tiwari S, Bharadva K, Yadav B, et al. Infant and young child feeding guidelines, 2016. *Indian Pediatr*. 2016;53:703–13.
4. Ministry of Health and Family Welfare, Government of India. National Family Health Survey (NFHS-5), 2019–21: India Report. New Delhi: Ministry of Health and Family Welfare; 2021. Available from: <https://www.nfhsiips.in/nfhsu ser/publication.php>
5. Balarajan Y, Selvaraj S, Subramanian SV. Health care and equity in India. *Lancet*. 2011;377:505–15.
6. Kehoe SH, Krishnaveni GV, Veena SR, et al. Diet patterns are associated with demographic factors and nutritional status in South Indian children. *Matern Child Nutr*. 2014;10:145–58.
7. Aurino E. Do boys eat better than girls in India? Longitudinal evidence on dietary diversity and food consumption disparities among children and adolescents. *Econ Hum Biol*. 2017;25:99–111.
8. Pingali P. Agriculture renaissance: making “agriculture for development” work in the 21st century. *Handb Agric Econ*. 2010;4:3867–94.
9. Grebmer VK, Bernstein J, Hossain N, et al. Global Hunger Index: The inequalities of hunger. Washington (DC), Bonn, and Dublin: International Food Policy Research Institute, Welthungerhilfe, and Concern Worldwide; 2017. Available from: <https://www.globalhungerindex.org/pdf/en/2017.pdf>
10. Charmarbagwala R, Ranger M, Waddington H, White H. The determinants of child health and nutrition: a meta-analysis. Washington (DC): World Bank; 2004. Available from: <http://documents.worldbank.org/curated/en/505081468327413982/The-determinants-of-child-health-and-nutrition-a-meta-analysis>
11. Khan RE, Raza MA. Nutritional status of children in Bangladesh: measuring composite index of anthropometric failure (CIAF) and its determinants. *Pak J Commer Soc Sci*. 2014;8:11–23.
12. McDonald CM, McLean J, Kroeun H, et al. Household food insecurity and dietary diversity as correlates of maternal and child under nutrition in rural Cambodia. *Eur J Clin Nutr*. 2015;69:242–6.
13. Corsi DJ, Mejía-Guevara I, Subramanian SV. Improving household- level nutrition-specific and nutrition-sensitive conditions key to reducing child undernutrition in India. *Soc Sci Med*. 2016;157:189.
14. Hauque SE, Sakisaka K, Rahman M. Examining the relationship between socioeconomic status and the double burden of maternal over and child under-nutrition in Bangladesh. *Eur J Clin Nutr*. 2019;73:531–40.
15. Jose S, Gulati A, Khurana K. Achieving nutritional security in India: Vision 2030. New Delhi: Indian Council for Research on International Economic Relations; 2020. Available from: <https://icrier.org/publications/shyma-jose-ashok-gulati-and-kriti-khurana/>
16. Sawadogo PS, Martin-Prevel Y, Savy M, et al. An infant and child feeding index is associated with the nutritional status of 6-to 23-month-old children in rural Burkina Faso. *J Nutr*. 2006;136:656–63.
17. Steyn N, Nel J, Nantel G, Kennedy G, Labadarios D. Food variety and dietary diversity scores in children: are they good indicators of dietary adequacy? *Public Health Nutr*. 2006;9:644–50.
18. Kennedy GL, Pedro MR, Seghieri C, Nantel G, Brouwer I. Dietary diversity score is a useful indicator of micronutrient intake in nonbreast-feeding Filipino children. *J Nutr*. 2007;137:472–7.
19. Temesgen H, Negesse A, Woyraw W, Mekonnen N. Dietary diversity feeding practice and its associated factors among children age 6–23 months in Ethiopia from 2011 up to 2018: a systematic review and meta-analysis. *Ital J Pediatr*. 2018;44:109.
20. Kathuria N, Bandyopadhyay P, Srivastava S, Garg PR, Devi KS, Kurian K, Rathi SK, Mehra S. Association of minimum dietary diversity with anaemia among 6–59 months’ children from rural India: An evidence from a cross-sectional study. *J Family Med Prim Care*. 2023;12(2):313–9.
21. World Health Organization. Indicators for assessing infant and young child feeding practices: definitions and measurement methods. Geneva: World Health Organization; 2021. Available from: <https://www.who.int/publications/i/item/9789240018389>
22. Radjasegarane A, Rajagopal A, Mathiyalagen P, Vasudevan K. A cross sectional study on optimal infant and young child feeding practices with reference to WHO indicators in a rural area of Puducherry. *Int J Commun Med Public Health*. 2019;6:1684.
23. Beckerman-Hsu JP, Kim R, Sharma S, Subramanian SV. Dietary variation among children meeting and not meeting minimum dietary diversity: an empirical investigation of food group consumption patterns among 73,036 children in India. *J Nutr*. 2020;150:2818–24.
24. Rai RK, Kumar SS, Kumar C. Factors associated with minimum dietary diversity failure among Indian children. *J Nutr Sci*. 2022;11: e4.
25. Saha J, Chouhan P, Malik NI, Ghosh T, Das P, Shahid M, et al. Effects of dietary diversity on growth outcomes of children aged 6 to 23 months in India: evidence from national family and health survey. *Nutrients*. 2022;15:159.