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Could dietary diversity be a proxy indicator for 2–5 years old children nutrients adequacy? The case of selected woredas, Sidama region, Ethiopia

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Abstract

Micronutrient deficiencies remain a critical challenge in child health, especially in rural Ethiopia, where poor dietary diversity contributes to inadequate intake of essential nutrients, leading to stunting, wasting, and poor development. As full dietary assessments are costly and time-consuming, this study aimed to investigate whether dietary diversity could serve as a simple proxy for nutrient adequacy among children aged 2–5 years in selected woredas of the Sidama Region. A community-based cross-sectional study was conducted in Hula, Dale, and Loka Abaya woredas, involving 415 children aged 2–5 years selected using multi-stage sampling. Data were collected using a 24-hour dietary recall and analysed with SPSS v25 and NutriSurvey 2007, calculating Nutrient Adequacy Ratio (NAR), Mean Adequacy Ratio (MAR), and dietary diversity scores (DDS), along with sensitivity, specificity, and predictive values to assess dietary diversity's effectiveness. Results showed that children's diets were dominated by grains, roots, and tubers (96.1 %), with minimal intake of legumes, dairy, and eggs, and no consumption of flesh foods; the mean MAR was 49.3 %, with significant deficiencies in vitamins D, B9, B12, calcium, and zinc, and a moderate positive correlation was found between dietary diversity and nutrient adequacy ($p < 0.05$), with sensitivity improving at higher intake thresholds, though specificity remained low. The findings suggest that while dietary diversity is moderately associated with nutrient adequacy, it cannot fully capture micronutrient sufficiency alone due to its low specificity, especially in contexts with monotonous diets and small portion sizes. Therefore, dietary diversity can be used as a proxy indicator for nutrient adequacy among 2–5-year-old children but should be complemented with strategies to promote the intake of nutrient-rich foods, including focused nutrition interventions and education to improve the consumption of dairy, legumes, eggs, and vitamin A-rich foods in the Sidama Region.

Keywords: Dietary diversity, mean adequacy ratio, micronutrients, nutrient adequacy

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