

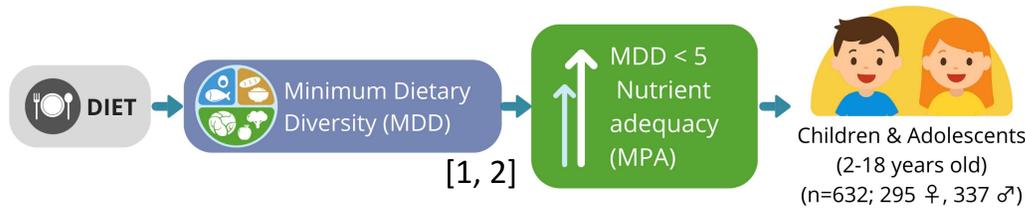
Minimum dietary diversity is associated with nutrient adequacy in German children and adolescents

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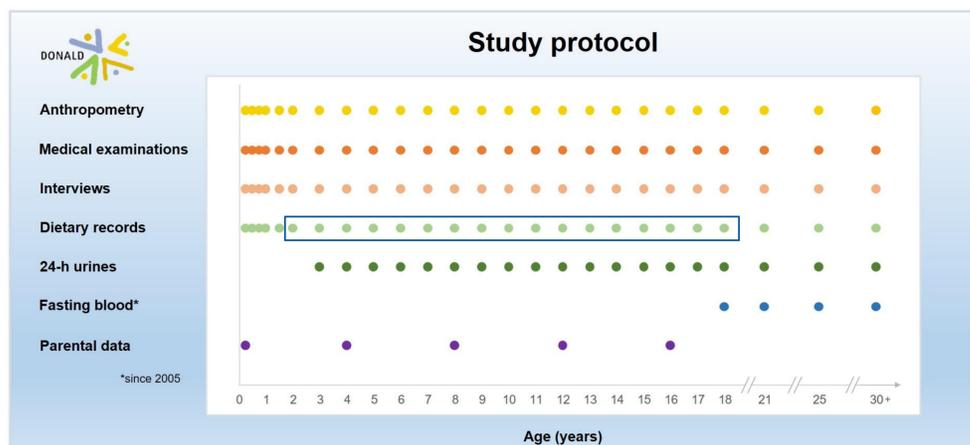
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Summary



Methods



Dortmund Nutritional and Anthropometric Longitudinally Designed (DONALD) study, 3-day dietary records from 2010–2024 [3]

MDD: 1 point for each food group consumed in the last 24h

- | | |
|--------------------------|-----------------------------------|
| 1 Cereals, roots, tubers | 1 Eggs |
| 1 Pulses | 1 Dark green leafy vegetables |
| 1 Nuts and seeds | 1 Vit-A-rich fruit and vegetables |
| 1 Milk and dairy | 1 Other vegetables |
| 1 Meat, poultry, fish | 1 Other fruits |

- Energy-adjusted usual intake (Box-Cox)
- **Probability of Adequacy (PA)**: 11 micronutrients; sex/age-specific reference values [4;5]
- **Mean Probability of Adequacy (MPA)** = mean PA
- **ROC**: MDD predicting mean MPA (adjusted energy, sex, age) [4]
- **Mixed effects models** (clustered by individual)

Results

Mean MDD ranged from 4.6–4.9 across age groups, with slightly lower values in adolescents.

Higher MDD was consistently associated with higher mean probability of adequacy in mixed-effects models accounting for repeated records.

Each additional food group was linked to a modest increase in predicted MPA, particularly among adolescents. Discriminatory ability was limited (AUC = 0.53)

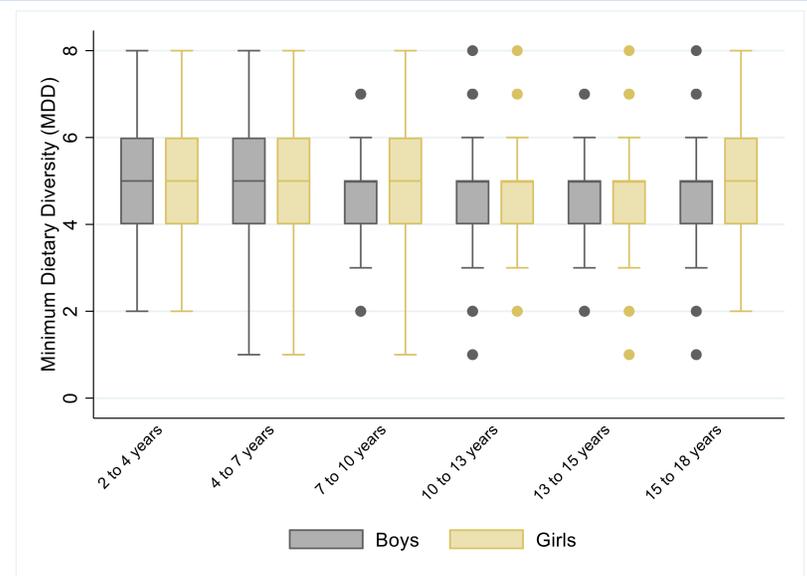


Figure 1. MDD shows minor variation across age groups

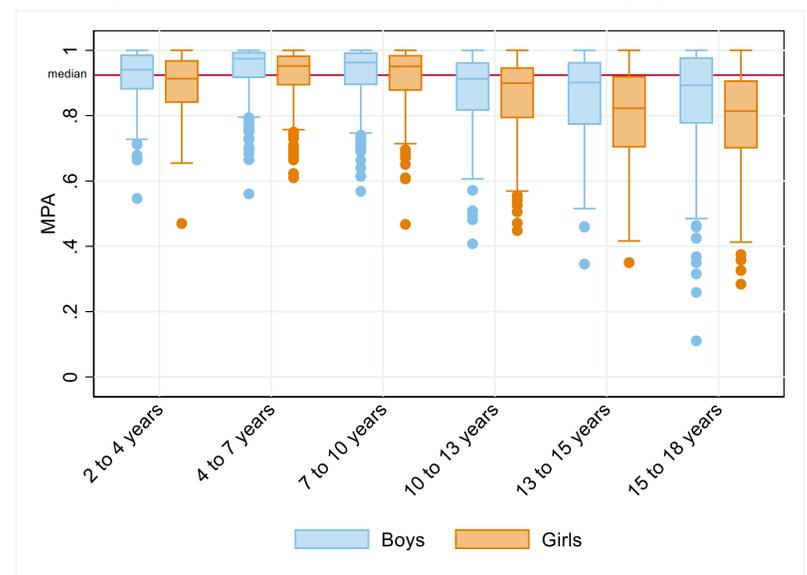


Figure 2. Mean Probability of Adequacy decreases in adolescence

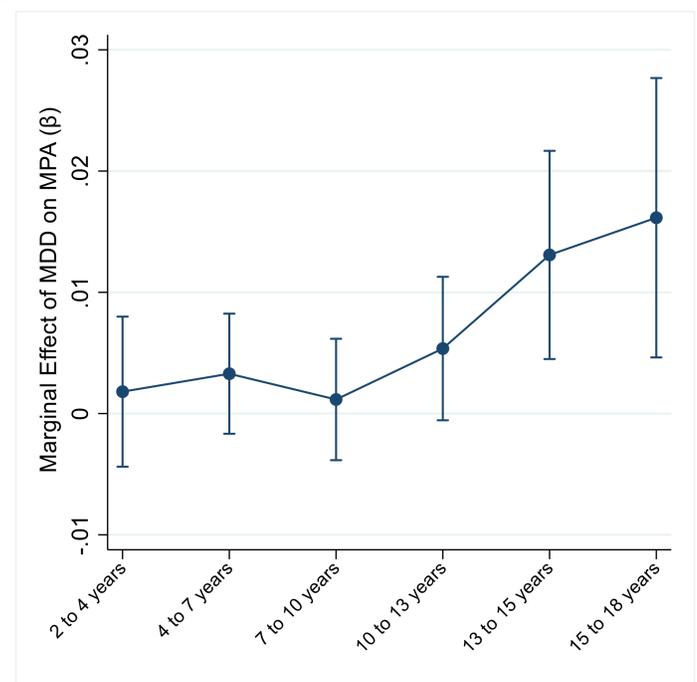


Figure 3. Marginal effect of MDD on predicted MPA by age group (mixed model) Each additional food group was associated with higher predicted MPA, with stronger effects in adolescents

Conclusion

MDD was consistently associated with micronutrient adequacy across age groups, supporting its use as a population-level indicator in children and adolescents

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Publication/References

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