ACCURACY AND COST OF TWO ASSESSMENT METHODS FOR ESTIMATING DIET DIVERSITY OF CHILDREN 6 TO 23 MONTHS IN CAMBODIA AND ZAMBIA

Laura S. Hackl,[1,2] Lidan Du-Skabrin,[1,2] Amry Ok,[3] Chiza Kumwenda,[4] Navy Sin,[3] Lukonde Mwelwa-Zgambo,[4] Ramji Dhakal,[3] Bubala Thandie Hamaimbo,[4] Elise C. Reynolds,[5] Katherine P. Adams,[5] Charles D. Arnold,[5] Christine P. Stewart,[5] Erin M. Milner,[6] Sarah Pedersen,[7] Jennifer Yourkavitch[1,8]

1. USAID Advancing Nutrition, Virginia, USA; 2. John Snow Research and Training, Inc., Virginia, USA; 3. SBK Research and Development, Phnom Penh, Cambodia; 4. School of Agricultural Sciences, Department of Food Science and Nutrition University of Zambia, Lusaka, Zambia; 5. Institute for Global Nutrition, University of California, Davis, CA, USA; 6. USAID Bureau for Global Health, Washington, DC, USA; 7. USAID Bureau for Resilience and Food Security, Washington, DC, USA; 8. Results for Development, Washington, DC, USA

BACKGROUND/OBJECTIVE

Dietary intake data is often assessed via 24-hour dietary recalls. Large-scale surveys often use proxy recall methods: list-based (e.g., Demographic and Health Surveys) or multiple-pass (e.g., Feed the Future). However, it is unclear whether key indicators of diet quality (e.g., Minimum Dietary Diversity [MDD]) calculated from different proxy recall methods are comparable and how accurately each compares to a reference method. We compared MDD estimations from a list-based and a multiple-pass recall method against an in-home observation of dietary intake in children 6–23-months-old in Cambodia and Zambia. We also assessed the costs associated with implementing the two methods.

METHODS

SAMPLING AND PARTICIPANT SELECTION

We selected a representative sample of children 6–23 months old using two-stage probability sampling.

- **636 children in Cambodia** surveyed June–July 2022
  - Kampong Thom, Siem Reap, Battambang, and Pursat provinces
- **608 children in Zambia** surveyed March–April 2023
  - Chipata, Katete, Lundazi, Nyimba, and Petauke districts

DATA COLLECTION

- On day 1, we observed intake during an in-home visit and recorded all food and drink consumed.
- The following day, two different data collectors administered the multiple-pass and list-based recalls in random order.

STATISTICAL ANALYSIS

- We estimated the prevalence of consumption for each of the food groups and MDD.
- We compared the estimates from the two recall methods to the in-home observation prevalence using two one-sided test equivalence testing approach with a 10-percentage point equivalence margin
- Cost-accuracy was estimated by dividing total economic costs by the MDD prevalence agreement score (100 minus the percentage point deviation from the prevalence of MDD estimated by the in-home observation-"unit of accuracy"). The cost per participant was also estimated.

RESULTS

- The percentage of children attaining MDD based on the in-home observation was 29.4 percent in Cambodia and 58.2 percent in Zambia.
- In Cambodia, both the list-based and the multiple-pass recalls produced estimates of MDD within the equivalence margin of the in-home observation. Both methods estimated all food group consumption prevalence within the equivalence margin except for the multiple-pass method for breast milk.
- In Zambia, both the list-based and multiple-pass recalls over-estimated MDD. Both recall methods over-estimated the prevalence of consumption of flesh food and vitamin A-rich fruits and vegetables. The list-based method also produced an inequivalent overestimate of egg consumption.
- The multiple-pass method cost more in both settings primarily driven by person-time costs (preparing for data and survey collection).
  - $7 more per participant in Cambodia ($82 versus $75)
  - $5 more per participant in Zambia ($91 versus $86)

In both countries, the prevalence of MDD estimated by list-based recall was closer to the in-home observation estimates than the multiple-pass method estimates. That, combined with the lower cost of the list-based method, resulted in better cost-accuracy than the multiple-pass method in both countries ($79 less per unit of accuracy in Cambodia and $69 less per unit of accuracy in Zambia).

Figure 1: In **Cambodia**, both methods were equivalent to the in-home observation for estimating MDD and food group consumption, except for the multiple-pass method's estimation of breast milk consumption

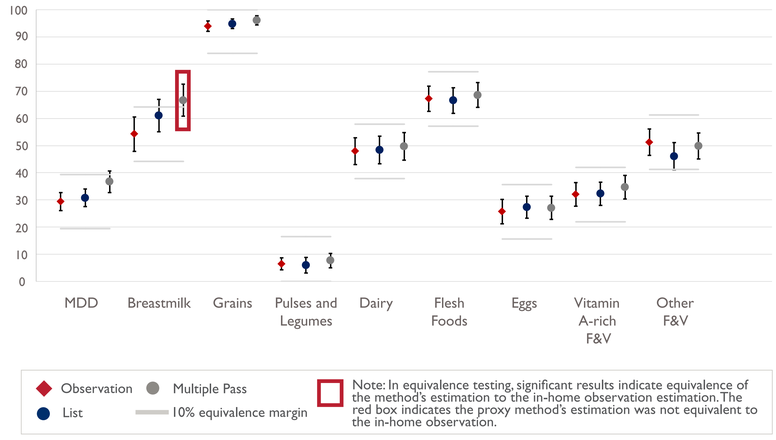
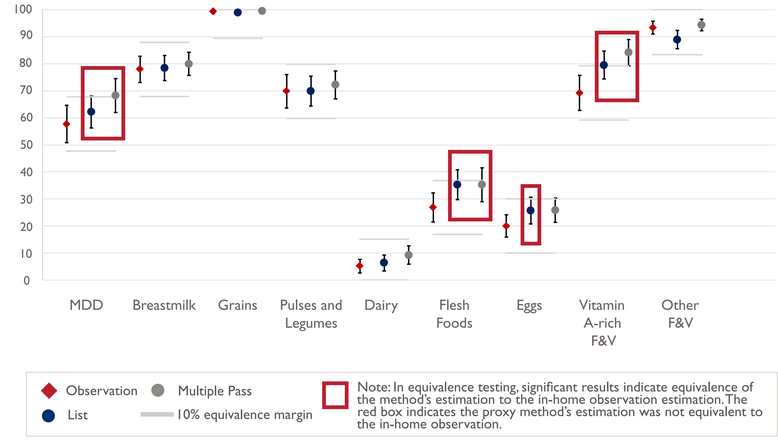


Figure 2: In **Zambia**, neither method was equivalent to the in-home observation for estimating MDD and flesh food and vitamin-A rich fruit and vegetable consumption



CONCLUSIONS/FINDINGS

The list-based estimates of MDD prevalence were closer to the in-home observation and yielded better cost-accuracy.

The performance of two commonly used recall methods to estimate MDD prevalence varied by country and by method. The list-based estimates of MDD prevalence were closer to the prevalence based on the in-home observation. The list-based recall method also yielded better cost-accuracy than the multiple-pass method in estimating population- based indicators. Selection of method should depend on the purpose of assessment.

USAID FROM THE AMERICAN PEOPLE

This poster was made possible by the generous support of the American people through the United States Agency for International Development (USAID). The contents are the responsibility of JSI Research & Training Institute, Inc. (JSI), and do not necessarily reflect the views of USAID or the United States government.

USAID ADVANCING NUTRITION
The Agency's Flagship Multi-Sectoral Nutrition Project
WWW.ADVANCINGNUTRITION.ORG