2021 Scaling Up Nutrition National Conference

27th -29th April 2021

Location: Virtual/Lusaka

Republic of Zambia

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Date: 29th April 2021

Presentation Title: Refinement of the Minimum Dietary Diversity For Women (MDD-W) data collection tool, a multi-country study

RESULTS FROM ZAMBIA

Presenter: Food Science & Nutrition Dept MDD-W team

Organization: University of Zambia

"Sustaining stunting reduction through creating an enabling environment for nutrition programmes"

Acknowledgements

- Women aged 15 – 49 years from Chongwe district
- Field supervisors and enumerators
- DAO, Chongwe District
- DHO, Chongwe District
- Traditional Leadership
- FAO and The German Federal Ministry of Food and Agriculture (BMEL)

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Background

- Women of reproductive age (WRA) group (15-49 years) have increased nutritional requirements.
- In Zambia WRA together with children are among the most vulnerable groups to malnutrition.
- To meet their nutritional requirements WRA need quality diets.
- Dietary diversity is one of the parameters of diet quality.
- WRA who consume diversified diets are likely to meet their micronutrient requirement.

Background

- Nationally, there is insufficient data on dietary diversity for WRA.
- Data on dietary diversity for WRA is vital among other things for designing interventions aimed at improving nutritional status of WRA
- There is need for valid yet simple methods for assessing micronutrient adequacy and overall diet quality.

Overall objectives

- To assess the **validity** of an **Open-ended (OB)** qualitative & a **List-based (LB)** recall against a "Reference Method" **Weighed Food Records (WFR)**

- To develop capacity for collecting data on women's dietary diversity.

- To disseminate the MDD-W results to inform nutrition target setting, advocacy and impact evaluation at national and sub-national levels.

Approaches

- Ethical considerations
  - **Ethical approval** was obtained from the University of Zambia Biomedical Research Ethics Committee (UNZABREC)
    - Approval reference Ref. No 304-2019
  - **Permission** to conduct the study was obtained from:
    - The District officials in Chongwe (DC, DAO, DHO)
    - Senior Chieftainess Nkomeshya Mukamambo II

Approaches

Capacity development

- Dietary assessment methods: WFR, OB and LB
- Correctly classify foods into food groups, especially mixed dishes
- Identify common household measures used in Zambia
- Establish how to apply the minimum quantity rule (15g)
- Use of the questionnaire on the open data kit for data collection
- Interviewing techniques and best practices

Approaches

Pretesting of the study tools was conducted

- In Kalingalinga

Piloting of the study tool and approaches was conducted

- In Linda compound of Chilanga district
- A total of 54 women were involved in the pilot study

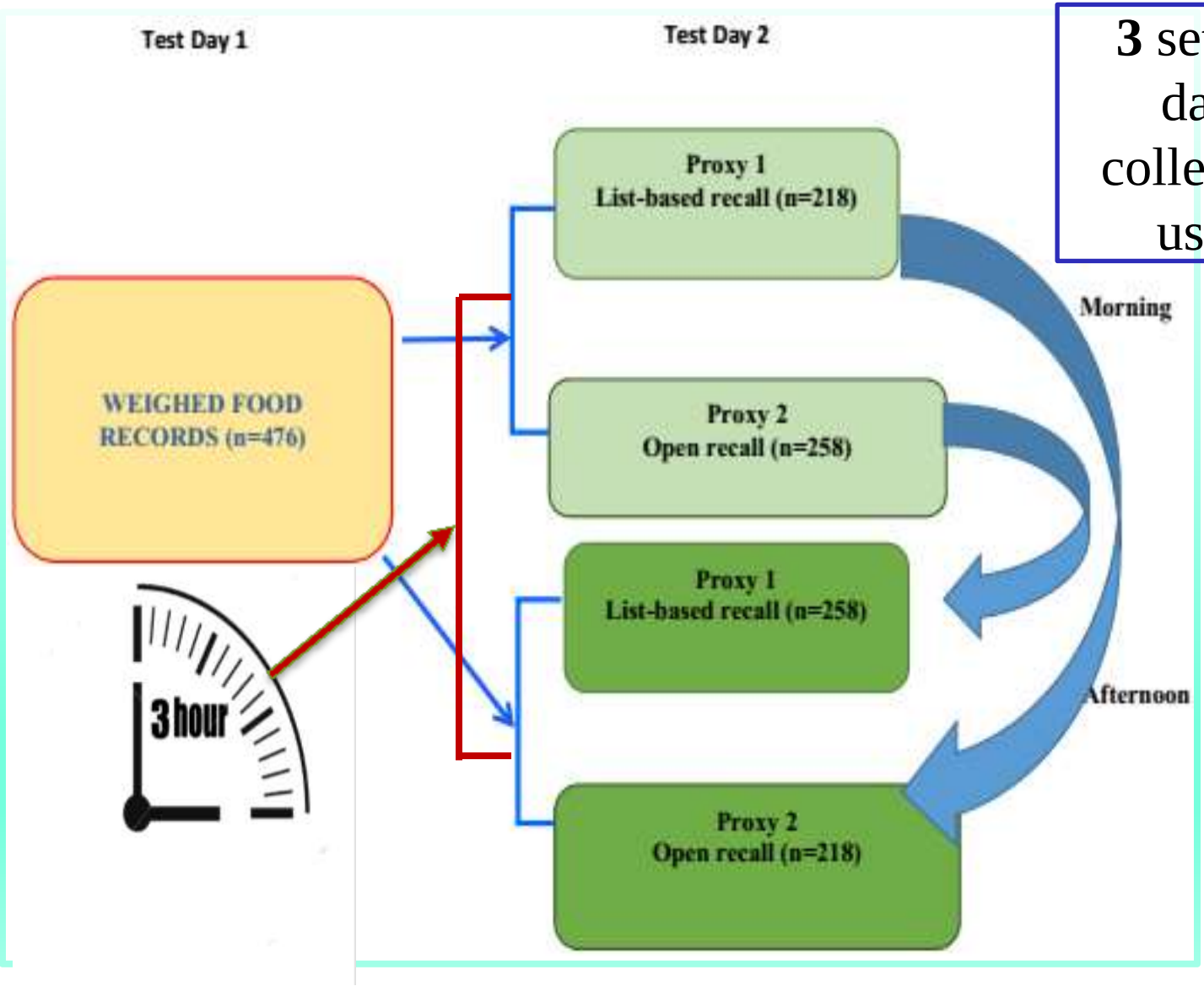
Actual study

- Was conducted between 21 October to 14 December, 2019.

Approaches

- **Main study design**
  - Design was **cross sectional**
  - Population
    - WRA (**15–49 years old**)
    - Study site: **Chongwe district**
      - **Chalimabana, Chainda & Kanakantapa wards**
  - Sample size and sampling
    - Sample size: **476 WRA**
    - **Simple random sampling** was used to sample WRA
    - Allocation sequence of proxy (OB or LB) for day 2 of data collection was randomly done.

3 sets of data collectors used



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Results: Background characteristics

Variable	Mean ± SD or %
Age (years)	28.8 ± 9.1
Household size	5 (4-7)[a]
Household head (% Female)	27.5
Marital status (% Married)	61.3
Education	
No formal education	6.7
Primary	46.9
Secondary	44.6
Tertiary	1.9
Occupation	
Trader	16.6
Housewife	34.7
Farmer	17.0
Others (Students, formal employee, etc)	31.7

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Results: Background characteristics

Variable	Mean ± SD or %
Trainings	
Maternal nutrition	81.9
Water, sanitation, and hygiene	79.1
Food preparation & cooking demonstrations	55.8
Wealth quintile	
Lowest	21.6
Second	19.3
Middle	20.8
Fourth	18.7
Highest	19.5

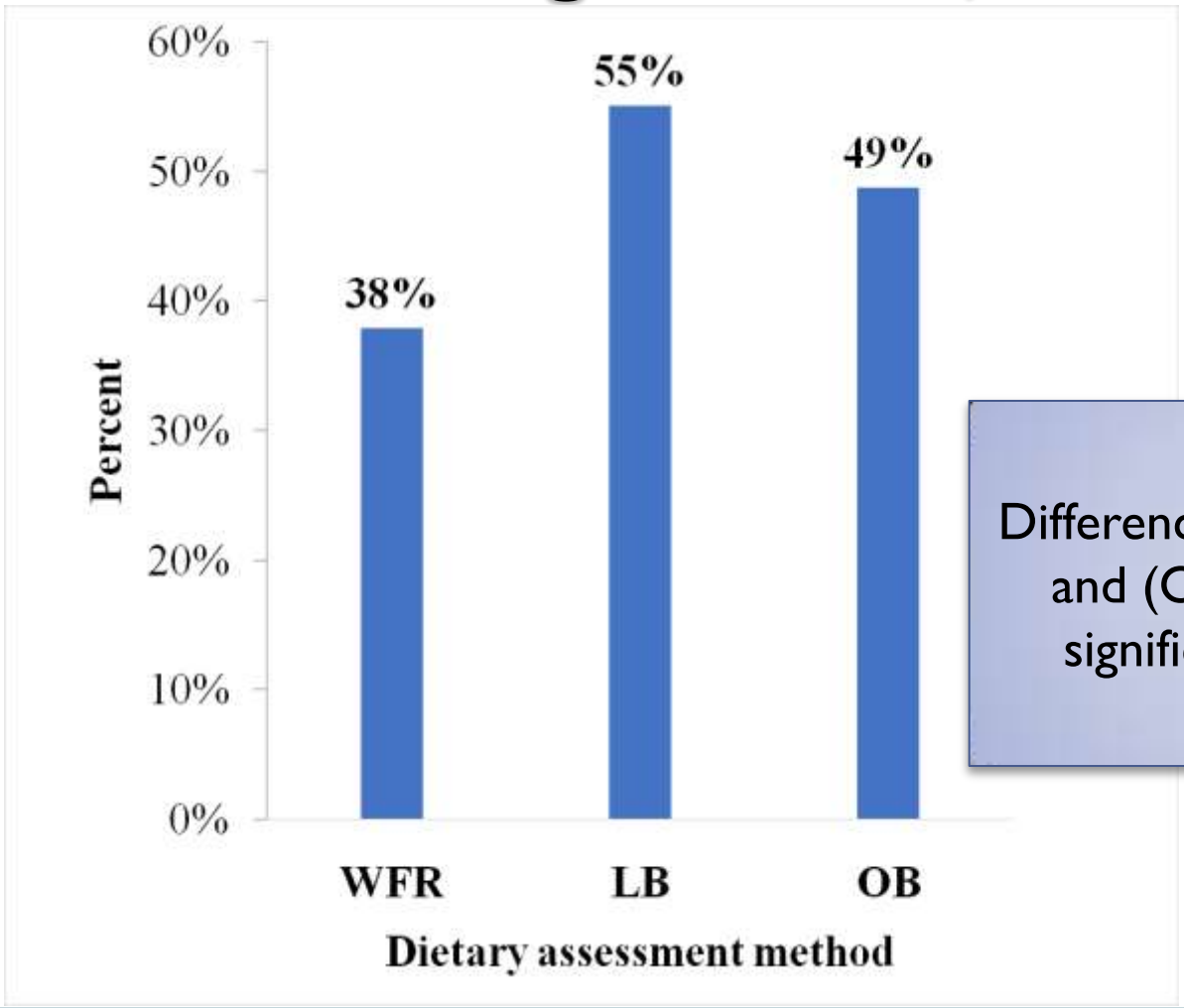
Results: MDD-W food groups

- Grains, white roots and tubers and plantains
- Pulses (beans, peas and lentils)
- Nuts and seeds
- Dairy products
- Flesh foods (Meat, poultry and fish)
- Eggs
- Dark green leafy vegetables
- Other vitamin A rich fruits and vegetables
- Other vegetables
- Other Fruits

Results: Additional food groups

- Condiments and seasonings
- Other beverages and foods
- Insects and other small protein foods
- Other oils and fats

Percentage (%) of Women Achieving MDD-W using the WFR, LB and OB



Differences between WFR and (OB or LB) were significant ($p<0.001$)

	%	P-value
Grains, white roots and tubers, and plantains		
WFR	**100**	
List-based recall	99.58	-
OB	100	-
Pulses (beans, peas and lentils)		
WFR	**34.03**	
List-based recall	34.45	0.77
OB	34.87	0.53
Nuts and seeds		
WFR	**8.61**	
List-based recall	9.66	0.37
OB	10.50	0.06
Dairy		
WFR	**3.78**	
List-based recall	7.77	< 0.001
OB	6.72	0.001
Meat, poultry and fish		
WFR	**39.08**	
List-based recall	51.89	< 0.001
OB	47.48	< 0.001

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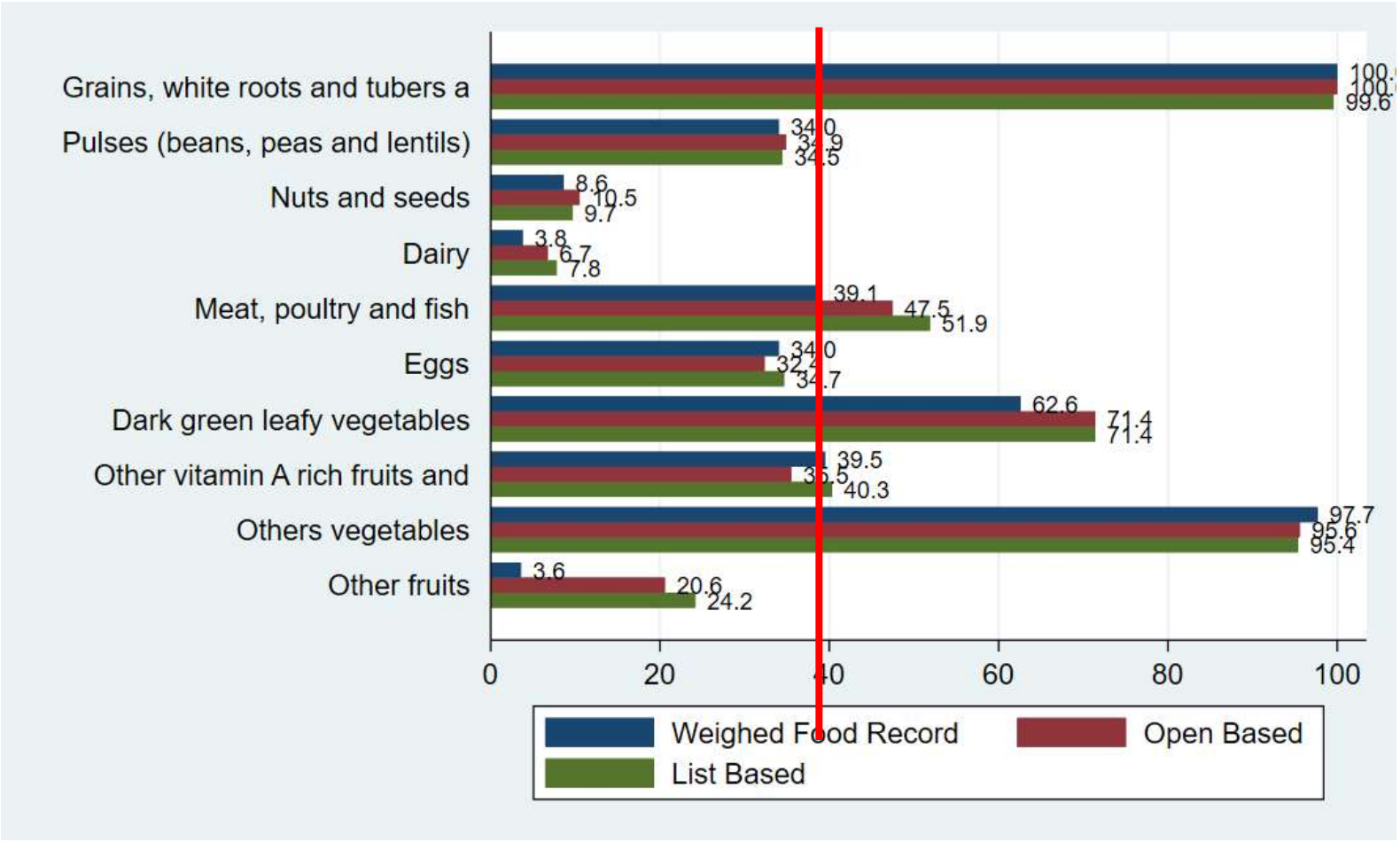
Eggs		
WFR	**34.03**	
List-based recall	34.66	0.55
OB	32.35	0.10
Dark green leafy vegetables		
WFR	**62.61**	
List-based recall	71.43	< 0.001
OB	71.43	0.0000
Other vitamin A-rich fruits and vegetables		
WFR	**39.50**	
List-based recall	40.34	0.70
OB	35.50	0.60
Other vegetables		
WFR	**97.69**	
List-based recall	95.38	0.03
OB	95.59	0.03
Other fruits		
WFR	**3.57**	
List-based recall	24.16	< 0.001
OB	20.59	< 0.001

Proportion of WRA Consuming from each of the Ten MDD-W Food Groups



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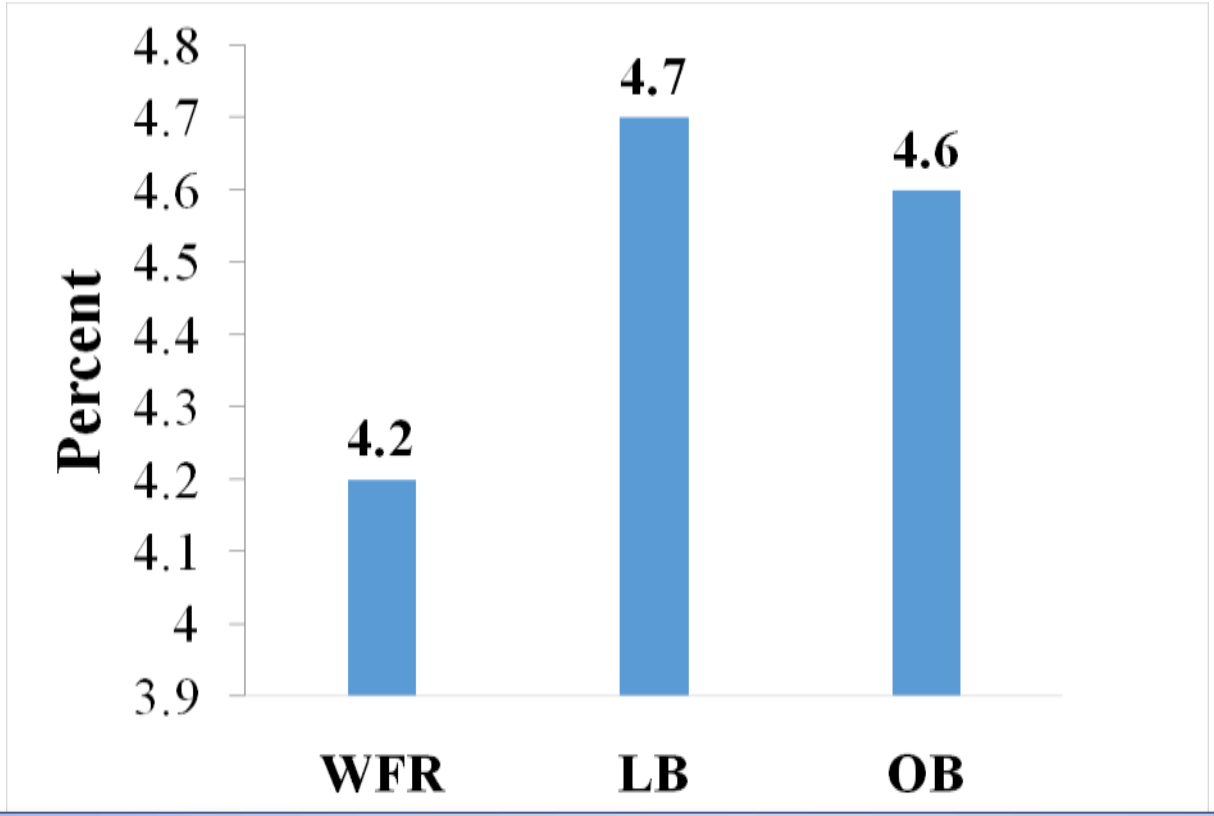
Mean Dietary Diversity Score by Assessment Method



Differences between WFR and (OB or LB) were statistically significant ($p<0.001$)

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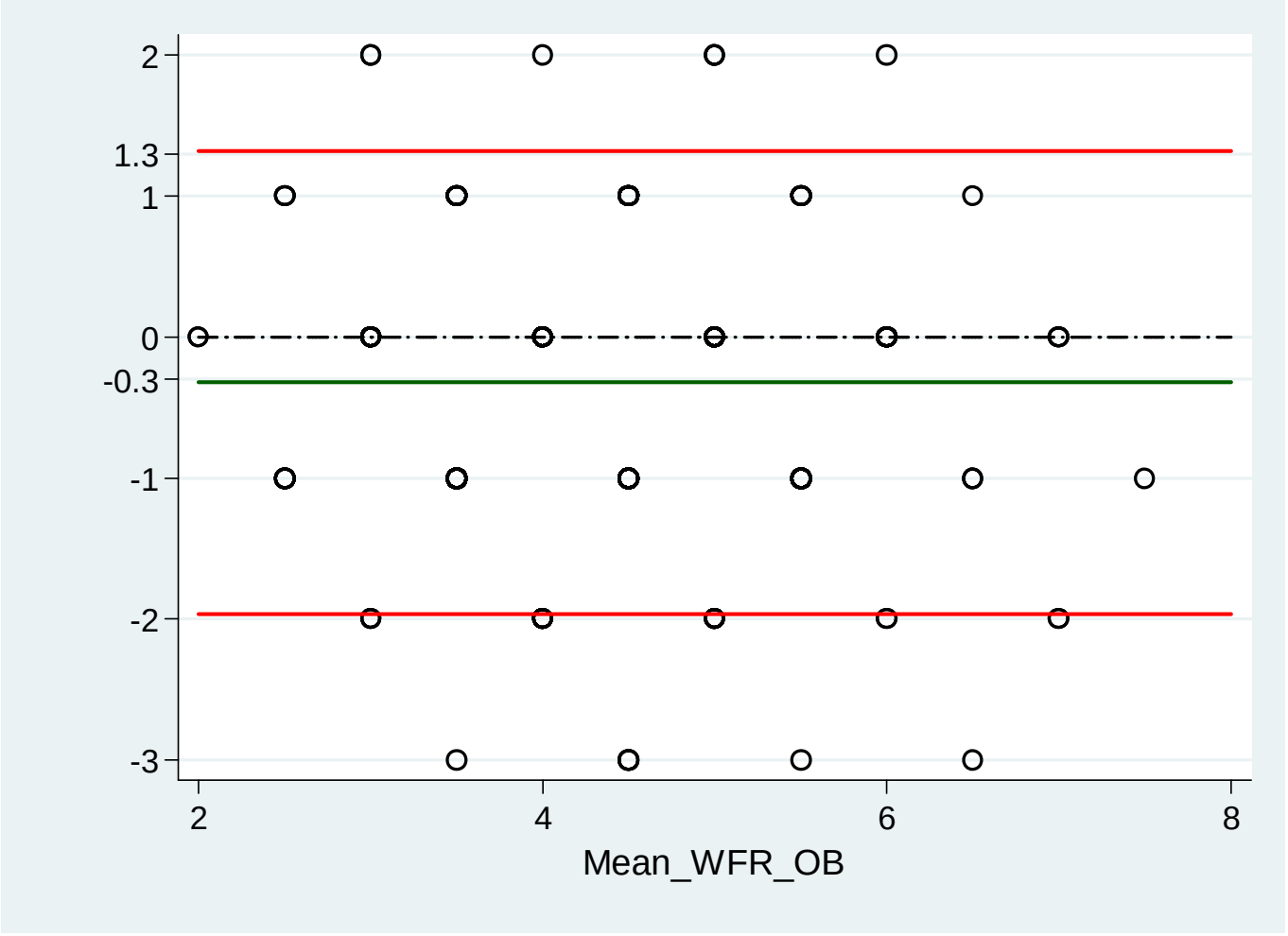
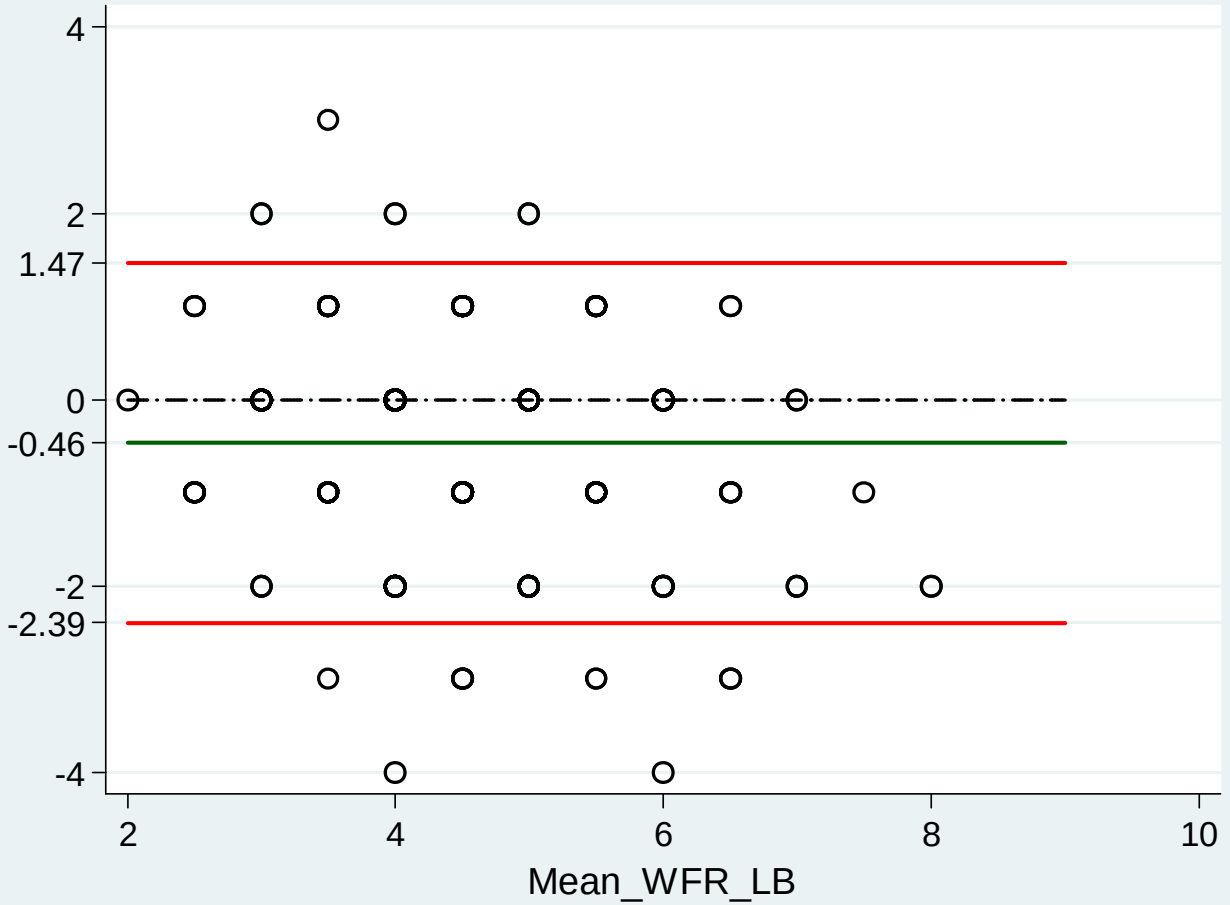
Measurement of Agreement Between WFR & OB-Bland-Altman plots



Measurement of Agreement Between WFR & LB-Bland-Altman plots



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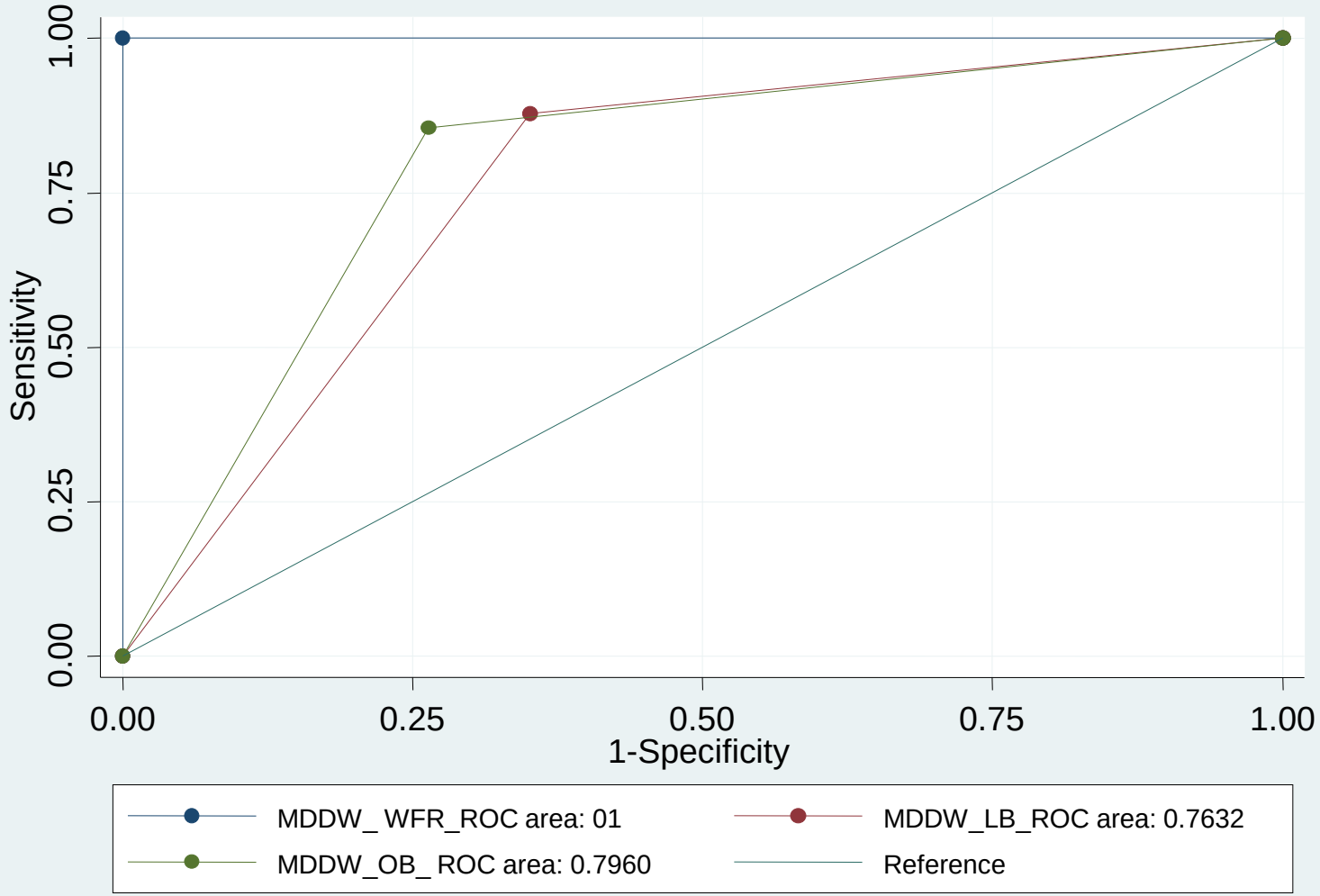
ROC curves for MDD-W (≥ 5 Food Groups) for WFR (Ref) and OB and LB



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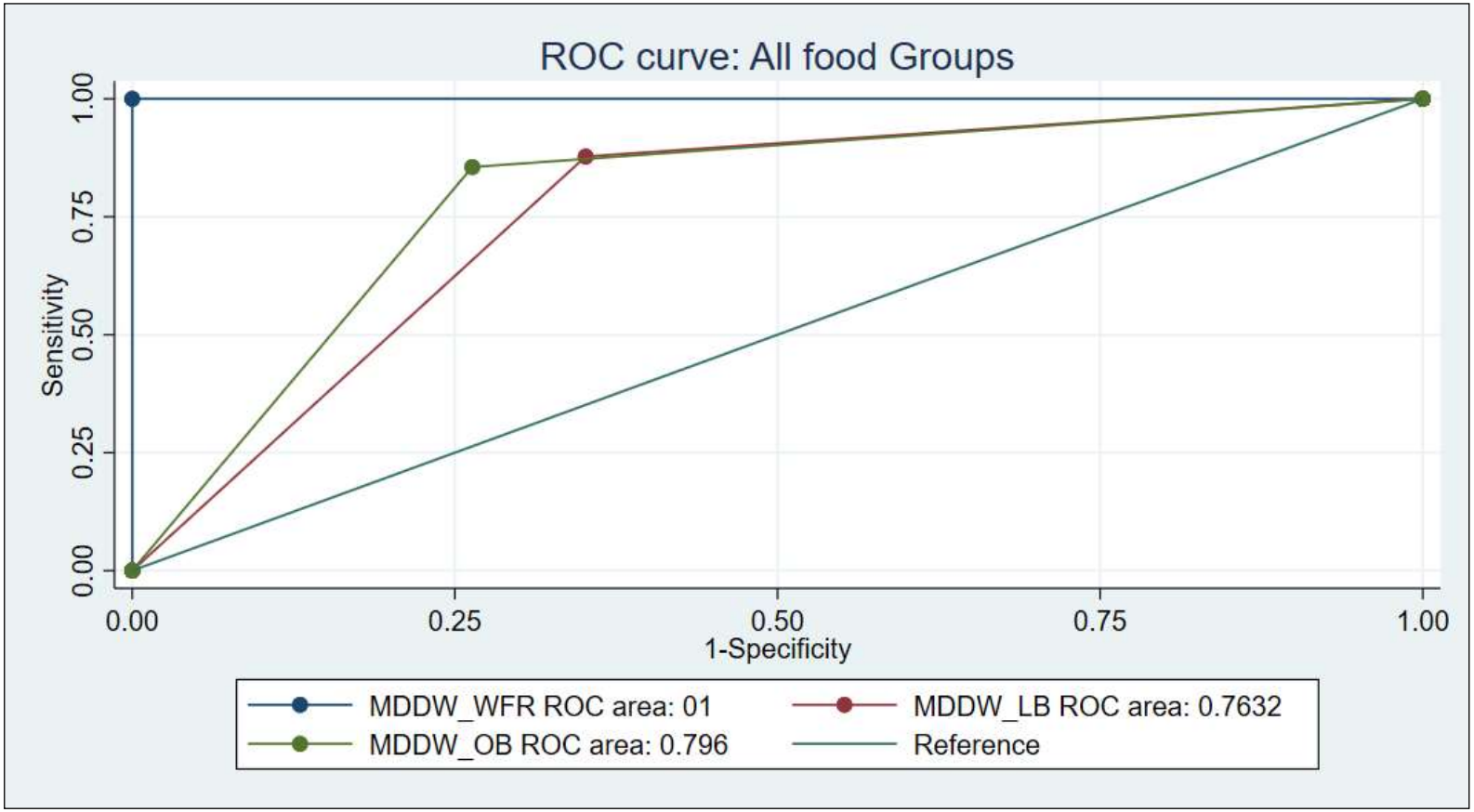
ROC curves for MDD-W (Ordinal Food Groups) for WFR (Ref) and OB and LB



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Cohen's Kappa Statistics: Agreement for Dichotomous MDD-W

	WFR		Agreement statistics	
LB	<5 food groups n (%)	≥5 food groups n (%)	% Agreement	Cohen's Kappa
<5 food groups	192 (89.7)	22 (10.3)	73.5	0.48
≥5 food groups	104 (39.7)	158 (60.3)		
OB				
<5 food groups	218 (89.3)	26 (10.7)	78.2	0.56
≥5 food groups	78 (33.6)	154 (66.4)		

Kappa scores of:
0.21–0.40, fair
0.41–0.60, moderate
0.61–0.80, substantial
0.81–1.00, almost perfect

Conclusion

- Both OB & LB significantly **over reported** the proportion of WRA who achieved the MDD-W and the ordinal MDD-W

- Both OB & LB had **satisfactory predictive performance** (had AUC≥0.70)
- The **OB had relatively better diagnostic ability** than LB

- OB took relatively **longer time** compared to LB to administer

- **Adequate training** for the data collection team and data processing are critical to **minimize measurement errors** due to omission and inclusion.

Recommendations

- When planning data collection to assess MDD-W adequately trained research team should be used.
- The data management team should be included from the planning stages of the data collection exercise to ensure collection of quality and valid data.
- Supervision of the data collection exercise should be well coordinated to ensure data quality.
- To ensure smooth operation in the communities, strategic collaboration with stakeholders at community level should be established at planning level of the data collection exercise.

Policy implications

- Inclusion of MDD-W in the MCDP II
  - dialogue on which of the proxy methods to use;
  - considerations: cost, training needs, feasibility and time available, when selecting the method to use
- Accelerate and intensify programmes geared towards promotion of dietary diversity among WRA

Thank you

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