Daily dietary intake of zinc is positively associated with Height-for-Age Z-score (HAZ) among Ethiopian children 6-35 months of age

NNP related research finding dissemination workshop

By: Girmay Ayana

Ethiopian Public Health Institute

23 October 2014

Adama, Ethiopia

Presentation Out line

- Introduction
- Objective
- Method
- Result
- Conclusion
- Recommendation

Introduction

- “The gaining of insufficient height relative to age” during childhood is a major public-health problem in Ethiopia

- In the absence of more direct measures, stunting has been accepted as a population-level marker of zinc deficiency

- Zinc deficiency is a common nutritional problem in children of developing countries where diets have less available zinc

…cont'd

- The main cause of human zinc deficiency is a diet that is low in highly bio-available zinc
- but it also may be caused by illnesses that impair food intake, or increase zinc excretion
- zinc deficiency is associated with diets based on plant foods, especially those diets rich in phytate, a potent inhibitor of zinc absorption

…cont'd

- Children in low-income settings have an increased risk of zinc deficiency owing to:
    - High requirements for growth
    - Increased losses during infection/diarrhea
    - Inadequate intake/ bioavailability from diets

- Daily dietary zinc requirement for 12-35 months ranges from 2.4 to 8.3 mg/24 hr

Objective:

- This study aimed at:
  - Determining the association between daily dietary zinc intake (DDZI) and children's height-for-age Z-score (HAZ) and
  - Identifying determinants of DDZI among children 6-35 months of age in Ethiopia

Methods

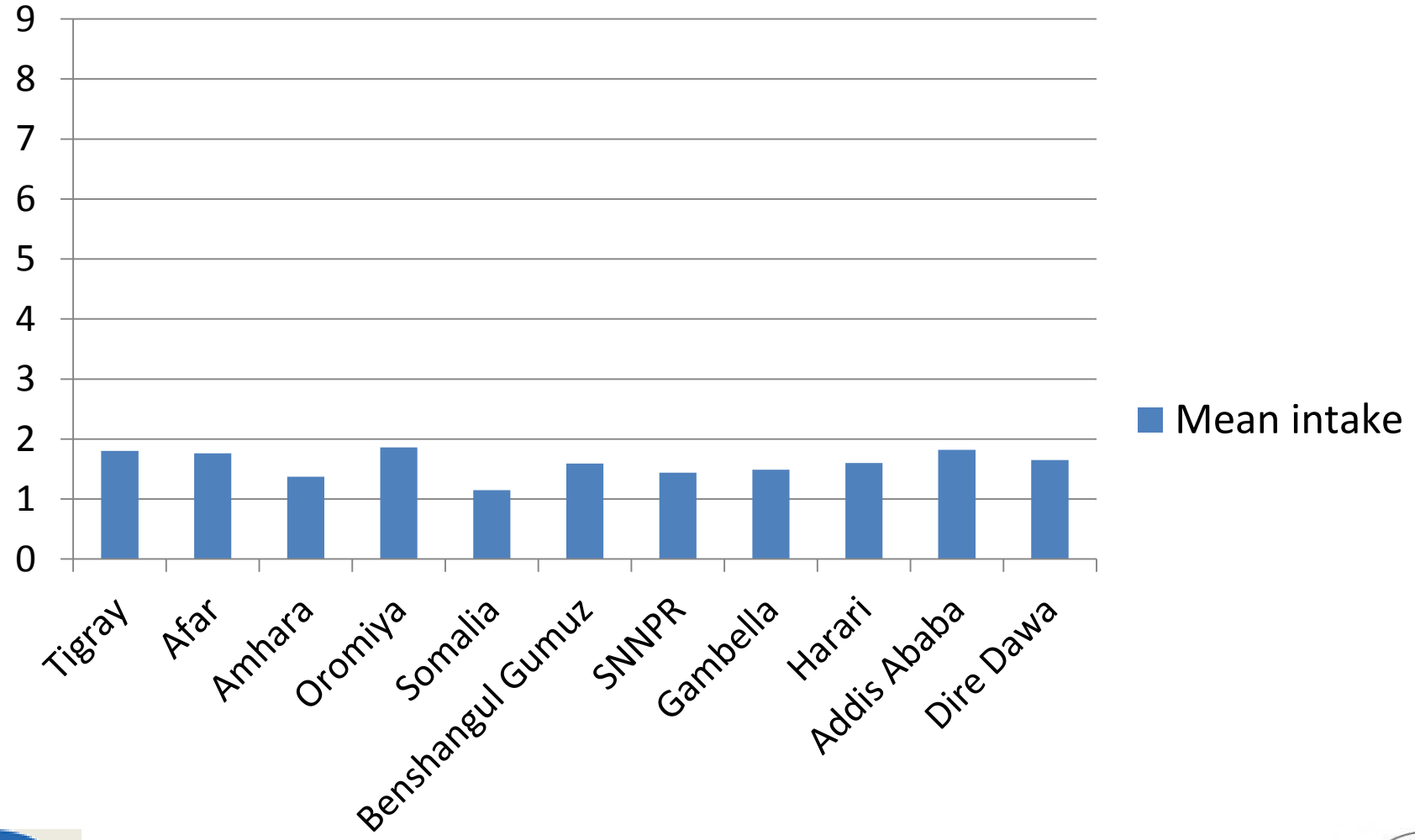
- Data source:
  - Ethiopian National Food Consumption Survey (NFCS)
- Population:
  - Nationally and regionally representative sample of 6702 young children (6-35 months of age)
- Data:
  - Individual level 24 hours recall, anthropometry and socio-economic information
- Analyses:

  linear regression medel using SPSS version16

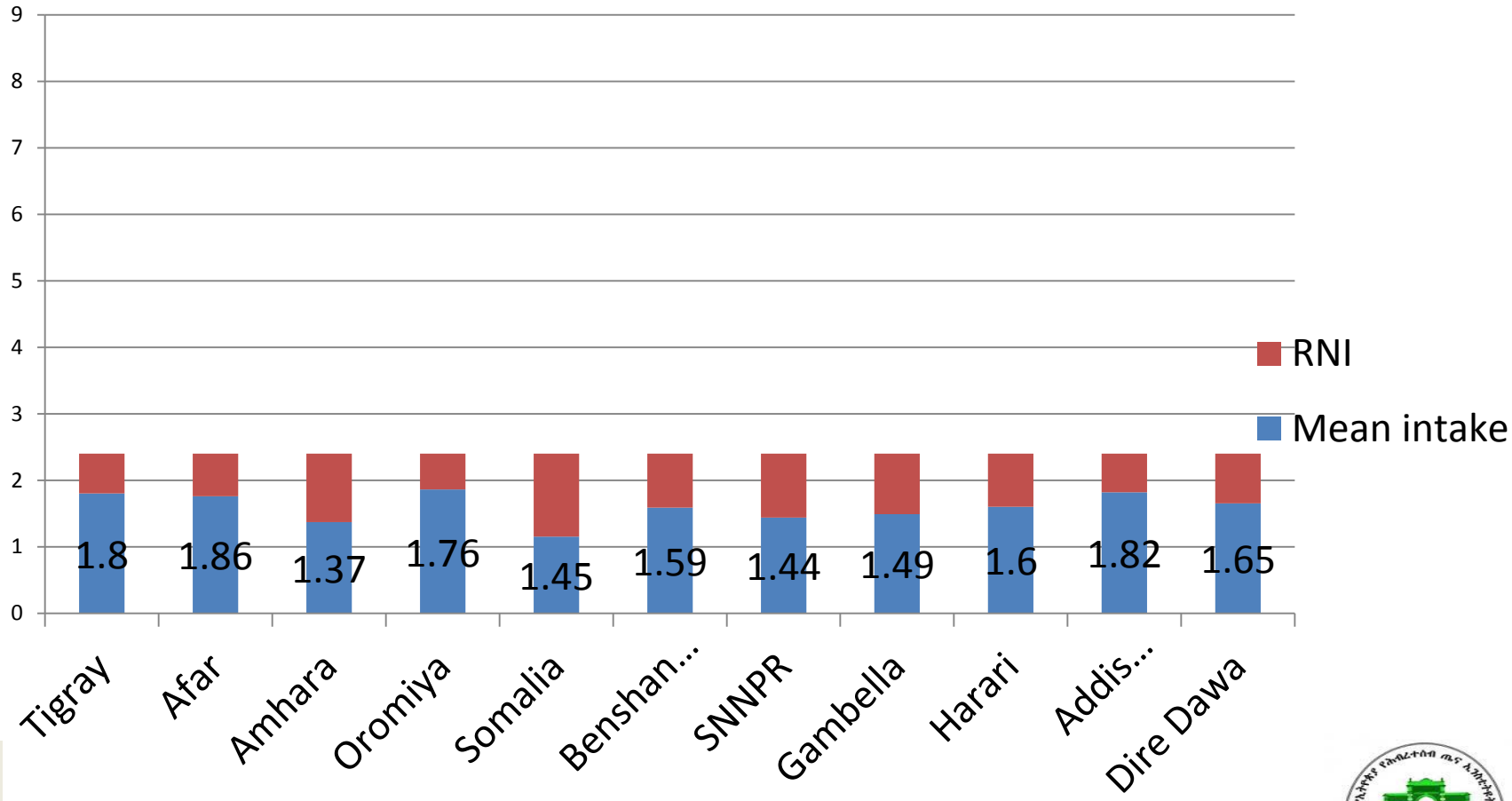
Result

- Dietary zinc intake is significantly and positively associated with children's HAZ (p value0.0001).
- Mean consumption of daily dietary zinc intake (DDZI) found to be highest in Afar and lowest in Somali , Amhara and SNNPR region
- There is a significant difference in mean zinc intake across regions in 6-35 months age children in Ethiopia

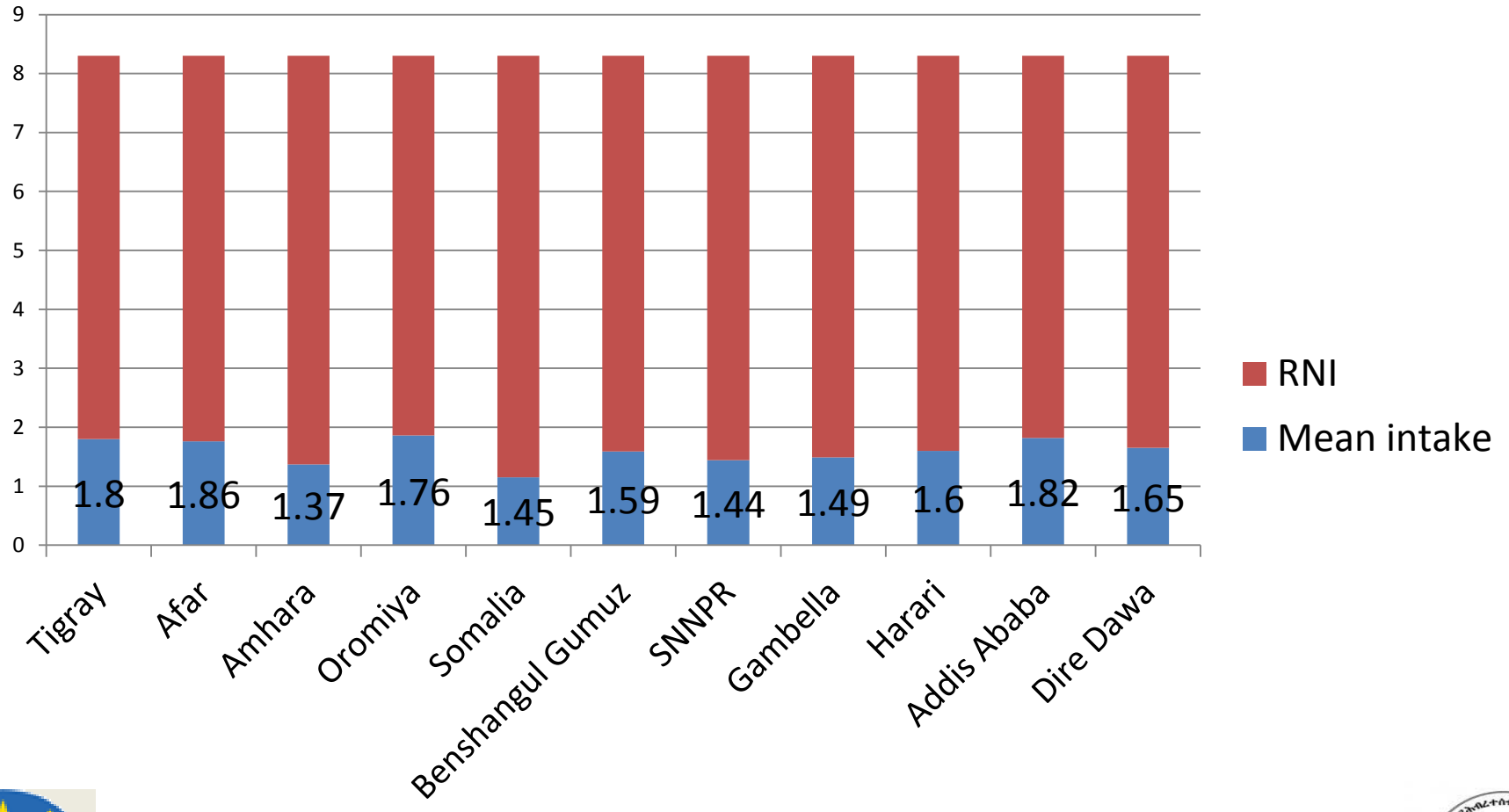
Graph2. Regional mean daily dietary zinc intake among children age 6-35 months age,2011,Ethiopia



Graph 3. Mean daily dietary zinc intake comparing to recommended dietary zinc intake in high zinc bio-available foods among children age 6-35 months



Graph 4. Mean daily dietary zinc intake comparing to recommended dietary zinc intake in low zinc bio-available foods among children age 6-35 months



Dietary zinc intake(mg/day) based on bio availability among children 6-35 months age,2011,Ethiopia

- 17.80 % children consumed high bio available
- 31.26 % has taken moderate bio available
- 50.94 % low bio available zinc from diet

Table1. Results in relation to usual dietary zinc consumption and factors affecting DDZI among children 6-35 month, in Ethiopia

Independent variable	P-value
Child age	**<0.0001**
Number of children < 5 yrs	**0.001**
Female relationship to child	<0.0001
Child sex	0.141
Child sickness in previous 2 weeks	**<0.0001**
Place of residence (urban/rural)	0.126
SES quintile	**<0.0001**
Mother's age	<0.0001
Mothers education status	**<0.0001**
Head of household education status	0.117
Region	<0.0001

Conclusion

- Dietary zinc intake is inadequate among children 6-35 moths age in Ethiopian. Correcting this situation will have impact on growth as well as the morbidity of young children.

- The determining factors of HAZ among children 6-35 month age in Ethiopia were found ranging from distal socio economic status markers to the proximal recent illness.

-

…Conclusion

- Based on findings of extremely low intakes of bio available zinc, and high rates of stunting and of diarrhea, programs to address zinc deficiency are likely to contribute substantially to governmental goals to reduce stunting

- Additional interventions with potential for impacting zinc intakes and stunting include promoting educational opportunities among women and girls, …

Recommendation

- The country's nutrition strategy should emphasis on introducing low-cost technologies and initiatives to diversify household income sources

- Concerted efforts need to introduce nutrition sensitive initiatives i.e. facilitating the production of consumption-oriented nutritious foods

….recommendation

- Diversification and technologies to reduce phytate in the diet should be promoted at household level and community level

- Decentralized strategies in increasing utilization of zinc rich foods for young children is a welcome step.

- THANK YOU VERY MUCH FOR LISTENING