Dietary diversity, meal frequency and associated factors among infants and young children aged 6-23 months in Dangila town, Northwest Ethiopia.

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Presentation outline

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1. Introduction

- The first two years of life are a critical period for infant and young child.
- Complementary feeding practice is a significant factor that determines the nutritional status of children.
- In Ethiopian children, 44% stunted, 10% wasted and 29% underweight.
- 10.8% and 44.7% of children aged 6 -23 months are received minimum dietary diversity and minimum meal frequency respectively in Ethiopia.
- Hence it is imperative and crucial conducting such like researchs.

2. Objectives

2.1. General objective:-

- To assess minimum dietary diversity, meal frequency practices and associated factors among infant and young children aged 6-23 months in Dangila town, Northwest Ethiopia.

2.2. Specific objectives:-

- To determine proportion of infant and young children age 6-23 months receiving minimum dietary diversity and minimum meal frequency practice score.
- To identify factors associated with dietary diversity and meal frequency practice among infant and young children aged 6–23 months.

3. Methods

3.1. Study design:-A community based cross sectional study was conducted.

3.2. Study area and period:- In Dangila town from March to April,2014.

3.3. Source population:- All infant and Young children 6-23 months who lived in Dangila town.

3.4. Study population:- Those infant and young children residing in Dangila town.

- **Inclusion criteria**:- all infant and young children 6 -23 months of age who lived in Dangila town for at least 6 months were included in the study.
- **Exclusion criteria**:- children's Mother who were seriously ill and/or difficulty to communicate.

Methods cont…

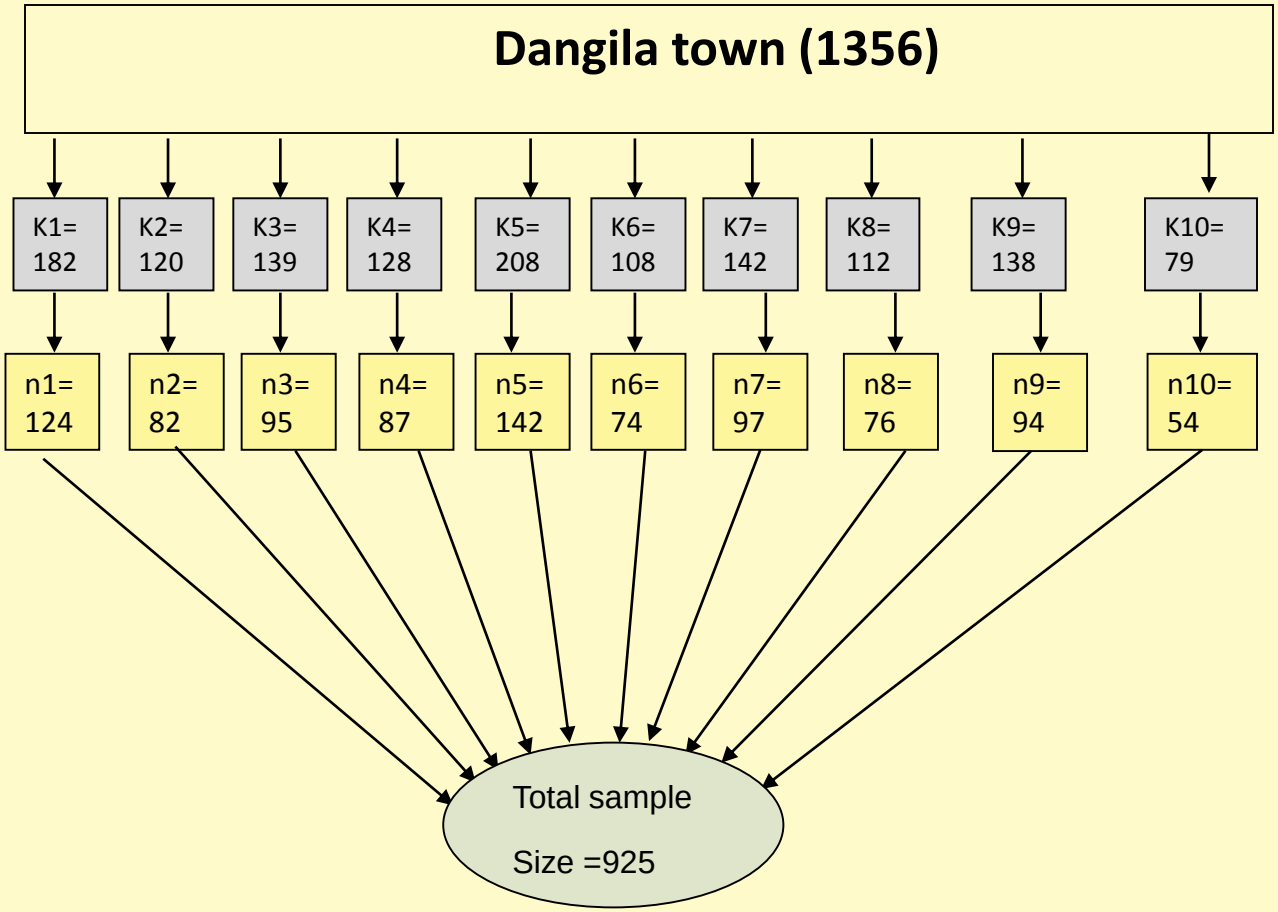
3.5. Sample size and sampling procedure:-

3.5.1. Sample size:-

- 95% confidence level, practice of 10.8% for minimum dietary diversity and 44.7% for minimum meal frequency, Marginal error of 2% for MDD and 5% for MMF.
- Using single proportion formula; $n=z^2a/2\ P(1-P)/\ d^2$
- $n_1= (1.96)^2*(0.108)*(1-0.108)/\ (0.02)^2 = 925$ (n1=MDD)
- $n_2= (1.96)^2*(0.447)*(1-0.447)/\ (0.05)^2 = 380$ (n2=MMF)
- Thus the final sample size was n= 925

Methods cont…

3.5.2. Sampling procedure:-



Methods cont…

3.6. Variables of the study:-

3.6.1. Dependent variables:-

- Minimum dietary diversity
- Minimum meal frequency

3.6.2. Independent variables:-

- Attributes of parents characteristics
- Attributes of infants and young child characteristics
- Attributes of health care characteristics
- Attributes of community and house hold characteristics

Methods cont…

3.7. Operational definitions:-

1. **Minimum Dietary Diversity:-** proportion of children with 6–23 months of age who received foods from four or more food groups of the seven food groups.

1. Grains, roots and tubers
2. Legumes and nuts
3. Dairy products
4. Flesh food
5. Eggs
6. Vitamin A rich fruits and vegetables
7. Other fruits and vegetables

❖ Consumption of any amount and quality of food from each food group was sufficient to ‘count’ (WHO,2008)

Methods cont…

2. Minimum Meal Frequency:- Proportion of breastfed and none breastfed children aged 6–23 months who received solid, semisolid, or soft foods (but also including milk feeds for non-breastfed children) the Minimum was defined as:

- twice for breastfed infants 6–8 months,
- three times for breastfed children 9–23 months and
- four times for non-breastfed children 6–23 months. (WHO, 2008).

3. Satisfactory Exposure to Media:-Women aged 15–49 years at least once a week read a newspaper or magazine or listen to radio, or watched television.

Methods cont…

3.8. Data collection procedures and quality:-

- Interviewer administered structured questionnaire were applied.

Data quality were insured by :-

- Translating the questionnaire from English to Amharic then back to English.
- Pre-testing done.
- Training of data collectors and supervisors.
- Checking of data by supervisors and principal investigator daily.

Methods cont…

- **3.9. Data processing and analysis**
- Data were entered using EPi-info version 3.5.3. and transferred to SPSS version 20.0, for further cleaning and analysis.
- Frequencies and cross tabulation were used to summarize descriptive statistics of the data.
- Bivariate and multivariate logistic regression models were used for analysis.
- Variables having p- value of less than 0.05 were considered as significantly associated with the dependent variables.

Methods cont…

3.10. Ethical considerations:-

- Were obtained from the ethical review board of institute of public health , UOG.
- Dangila town health office were informed with a letter of support from UOG.
- Then Letter of permission were obtained from dangila Town Health office and all kebeles.
- finally Verbal consent were obtained from mothers after informing them.

4. Results and discussion

- A total of 920 infant and young children aged 6 to 23 months were participated in the study, with a response rate of 99.5%.
- From 920 children.
  - 338 (36.7%):- 6–11 months
  - 287 (31.2%):- 12–17months
  - 297 (32.1%) :- 18–23 months
- The mean age of children were14.21 ± 5.27(SD) months.
- Around 90% of children were breast fed at a time of data collection.

Table 3: Types of food groups practiced among 6–23 months children in Dangila town, Northwest Ethiopia, 2014.

food groups	frequency(n)	*Percentage (%)
1. Grains, roots and tubers	738	80.2
2. Legumes and nuts	544	59.1
3. Dairy products	452	49.1
4. Flesh food	22	2.4
5. Eggs	108	11.7
6. Vitamin A rich fruits and vegetables	131	14.2
7. Other fruits and vegetables	68	7.4

Practices of Dietary Diversity and Meal Frequency

- Among children aged 06–23 months, **12.6%** and **50.4%** of children met the requirements for minimum dietary diversity and minimum meal frequency respectively based on WHO indicator.

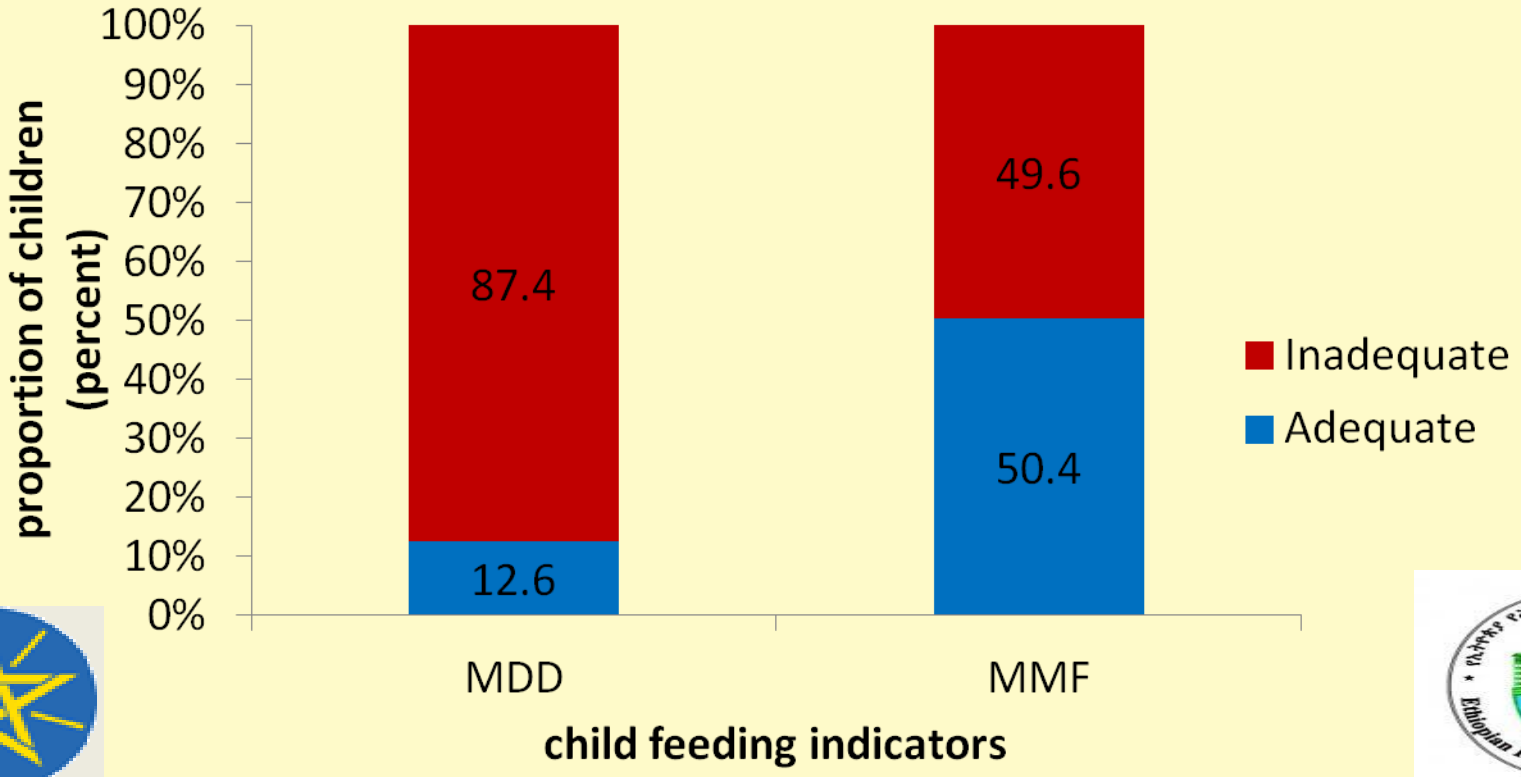


Table 4: A bivariate and multivariate logistic regression output showing factors associated with minimum dietary diversity practice among 06 to 23 months children, Dangila town, Northwest Ethiopia, 2014

Characteristics	Minimum dietary diversity		COR (95% CI)	AOR (95% CI)
	Inadequate	Adequate		
Mother's education				
Cannot read and write	359 (91.60)	33 (8.40)	1.00	1.00
Primary education(1-8)	199 (89.20)	24 (10.80)	1.312 (0.754,2.282)	1.539 (0.831,2.852)
secondary education(9-12)	182 (83.10)	37 (16.90)	2.212 (1.339,3.654)	**2.516 (1.284,4.929)**
Higher education	64 (74.40)	22 (25.60)	3.740 (2.049,6.824)	**4.230 (1.918,9.332)**
Mother's work				
Currently not working	616 (88.60)	79 (11.40)	1.00	1.00
Currently working	188 (83.60)	37 (16.40)	1.535 (1.005,2.343)	1.028 (0.618,1.712)
Age of a child(months)				
06-11	315 (93.20	23 (6.80)	1.00	1.00
12-17	248 (86.40)	39 (13.60)	2.154 (1.253,3.701)	**2.047 (1.172,3.575)**
18-23	241 (81.70)	54 (18.30)	3.069 (1.832,5.141)	**2.889 (1.693,4.931)**
Birth order of index child				
First	233 (90.00)	26 (10.00)	1.00	1.00
Second to fourth	479 (86.6)	74(13.4)	1.384 (0.862,2.223)	**2.077 (1.235,3.494)**
Above fourth	92 (85.20)	16 (14.80)	1.559 (0.799,3.039)	**2.758(1.258,6.046)**

Table4: continued…

Characteristics	Minimum dietary diversity		COR (95%CI)	AOR(95%CI)
	Inadequate	adequate		
ARI status				
No	706 (86.3)	108 (13.7)	1.00	1.00
Yes	98 (92.5)	8 (7.5)	0.534 (0.252,1.128)	0.571 (0.264,1.235)
Residence				
Rural	448 (86.20)	72 (13.80)	1.00	1.00
Urban	356 (89.00)	44 (21.00)	0.769 (0.515,1.147)	**2.094 (1.117,3.926)**
Home gardening				
No	728 (88.20)	97 (11.80)	1.00	1.00
Yes	76 (80.00)	19 (20.00)	1.876 (1.087,3.238)	**2.031 (1.093,3.775)**
Decision making at household				
Mothers not involved	190 (92.20)	16 (7.80)	1.00	1.00
Mothers involved	614 (86.00)	100(14.00)	1.934 (1.113,3.360)	0.913 (0.482,1.731)
Media exposure				
Unsatisfactory	521 (91.90)	46 (8.10)	1.00	1.00
Satisfactory	283 (80.20)	70 (19.80)	2.802 (1.879,4.176)	**2.738 (1.517,4.943)**

Table 5: factors associated with minimum meal frequency practice in 06 to 23 months children, Dangila town, Northwest Ethiopia, 2014

Characteristics	Minimum meal frequency		COR (95% CI)	AOR (95% CI)
	Inadequate	Adequate		
Mother's education				
Cannot write and read	214 (54.60)	178 (45.40)	1.00	1.00
Primary education (1-8)	123 (55.20)	100 (44.80)	0.977 (0.702,1.36)	0.912 (0.612,1.359)
Secondary education(9 12)	85 (38.80)	134 (61.20)	1.895 (1.353,2.654)	1.347 (0.832,2.181)
Higher education	34 (39.50)	52 (60.50)	1.839 (1.143,2.959)	1.022 (0.531,1.966)
Mother's work				
Currently not work	358 (51.50)	337 (48.50)	1.00	1.00
Currently working	98 (43.6%)	127 (56.40)	1.377 (1.017,1.863)	1.180 (0.837,1.664)
Age of a child(months)				
06-11	237 (70.10)	101(29.90)	1.00	1.00
12-17	125 (43.60)	162 (56.40)	3.041 (2.187,4.229)	**3.025 (2.141,4.274)**
18-23	94(31.90)	201 (68.10)	5.018 (3.579,7.035)	**5.028 (3.524,7.175)**
Birth Order of index child				
First	135 (52.10)	124 (47.90)	1.00	1.00
Second to fourth	270 (48.80)	283 (51.20)	1.141 (0.849,1.533)	**1.580 (1.133,2.205)**
Above fourth	51(47.20)	57 (52.80)	1.217 (0.776,1.908)	**1.778 (1.068,2.958)**
Breast feeding status				
No	41 (41.00)	59 (59.00)	1.00	1.00
Yes	415 (50.60)	405 (49.40)	0.671(0.445,1034)	0.895 (0.550,1.454)

Table 5: continued….

Characteristics	Minimum meal frequency			
	Inadequate	Adequate	COR (95%CI)	AOR (95%CI)
Decision making at household				
Mothers not involved	127 (61.70)	79 (38.30)	1.00	1.00
Mothers involved	329 (46.10)	385 (53.90)	1.881 (1.370,2.583)	**1.512 (1.053,2.170)**
Media exposure				
Unsatisfactory	335 (59.10)	232 (40.90)	1.00	1.00
Satisfactory	121 (34.30)	232 (65.70)	2.769 (2.100,3.65)	**2.620 (1.901,3.611)**
Residence				
Rural	240 (46.20)	280 (53.80)	1.00	1.00
Urban	216(54.00)	184 (46.00)	1.37 (1.054,1.779)	1.243 (0.849,1.821)
Home gardening				
No	418 (50.70)	407 (49.30)	1.00	1.00
Yes	38 (40.00)	57 (60.00)	0.050(1.000,2.374)	1.412 (0.878,2.273)
Place of birth				
Home	240 (46.20)	280 (53.80)	1.00	1.00
Institution	216 (54.00)	184 (46.00)	1.277 (0.946,1.723)	1.045 (0.689,1.583)
Time of post natal care visit				
Missing	158 (53.60)	137 (46.40)	1.00	1.00
Within 1-2 days	22 (27.20)	59 (72.80)	3.093(1.802, 5.310)	**2.295(1.269, 4.150)**
Within 3-6 days	78 (48.40)	83 (51.60)	1.227 (0.835,1.803)	0.860 (0.553,1.337)
After 7 days	198 (51.70)	185 (48.30)	1.078 (0.795,1.461)	0.848 (0.598,1.189)

5. Limitation of the study

- Recall bias.
- Since it considers only 24-h (twenty four hour) feed, it may not accurately reflect their past feeding experience.
- It does not take account of the quality and amount of food provided.

6. Conclusion

- Infant and young children aged between 06-23 months receiving minimum dietary diversity score is low compared with other countries.
- Young children aged between 06-23 months receiving minimum meal frequency score is low.
- Children under 24 months were vulnerable, and this inadequacy of dietary diversity and meal frequency is likely to negatively impact their subsequent health, growth and development.

6. Conclusion cont…

- Age of a child, birth order of index child and media exposure of a mother consistently associated both minimum dietary diversity and meal frequency practices.
- In addition, education level of a mother, residence and home gardening has significant association with minimum dietary diversity while mother's involvement in household decision making and postnatal visit have significant association with minimum meal frequency.

7.Recommendation

- **To policy makers and programmers**
  - Programmers should give special attention to mothers with 6–11 months old children in designing education programs.
  - Programmers should Increase mass media coverage.
- **To Dangila town administration health office**
  - Health extension workers and other primary health care workers should be regularly trained and capacitated about IYCF practice.
  - BCC/IEC need to be conduct to reach community especially rural area at large to create awareness about diversified and frequent feeding practice.

Recommendation cont…

- **To Dangila town agricultural office**
  - Should encourage availability of home gardening in all households through agree cultural extension workers.
- **To Dangila town women, youth and child affair office**
  - Should create awareness and empowering women in involvement of decision making.
- **To Health professionals at health facility**
  - Should transfer key diversified and frequent feeding messages to mother.
  - Counsel mothers who attend ANC and PNC to practice recommended dietary diversity and meal frequency practice especially mothers give birth for first time.

Acknowledgment

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Thank you !!