



Overview of the Ethiopian National Food Consumption survey (NFCS): implications for fortification programs

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Abstract

The Ethiopian National Food Consumption Survey (FCS) was conducted in response to a request by the Federal Ministry of Health to provide evidence for the National Food Fortification Program. The survey was conducted in 2011 by the then Ethiopian Health and Nutrition Research Institute now EPHI, and collected nationally and regionally representative cross-sectional FCS among 8424 households (HH) across 9 regions and 2 city administrations. In most HH, one child 6-35 months and one woman 15-45 years were interviewed for selected socio-demographic characteristics, recent morbidity, anthropometry and single 24 hour dietary recall, including recipes, food sources and methods of preparation. Potential upper levels of intake were also estimated among men 20-45 years from 1/3 of urban HH. Findings on wheat and oil consumption are presented. The extensive dietary data now available through this survey will continue to inform and guide nutrition policy, strategy, educational messages and program development, well beyond the national fortification program.

Background

- Consumption patterns are affected by various factors
- FCS is one of the first nationally representative surveys to be conducted using individual-level 24-hour dietary recall data
- Second country in Africa conducting a national FCS on a specific population group.
- Evidence base for fortification should include factors that influence fortification programs such as
 - Nutrient intakes in key populations
 - Regional, economic, demographic, distribution, seasonal, and socio-economic factors that influence dietary habits including commonly consumed foods

Objective

- The objective was to collect individual level food consumption data at the national and regional level in order to:
- Identify commonly consumed foods in different geographical settings, thus potential food vehicles for fortification.
 - Determine the level of fortification possible, given current intakes of fortifiable foods, and potential impact on improving intakes of key micronutrients (iron, vitamin A, zinc), particularly in children and women of child bearing age

Methods

- Data collection included 24-hour dietary recall, anthropometry and household characteristics.
- The target population was children (6-35 months), their closest female caregiver (15-49 years) and (in 30% of urban HH) their closest male caregiver (19-45 years of age) from 324 enumeration areas.

- All data were double entered using CSPRO software after manual editing.
- The EPHI/EHNRI nutrient database was used as primary source of food composition data.
- When EPHI data was missing for a given food or nutrient other databases were used.
- Gram food values were converted into nutrients using the updated food composition nutrient database and the analysis was done using SPSS .
- The total reported intake of each subject for each nutrient over the 24hr period was calculated.
- National averages were calculated using sampling weights provided by the Central Statistics Agency.



Challenges faced

- Financial delays during data collection
- Logistics
- Extreme weather conditions
 - Rainy season - high rainfall
 - Extremely hot, up to 47°C in Afar
- Difficulties with cleaning, checking and coding of dietary data
- Enlarging the existing Ethiopian food composition table to include key nutrients for more than 2000 items.



Results

Table1: Total number of surveyed population by region

Region	Place of Residence						Total		
	Urban			Rural			Child	Women	Men
	Child	Women	Men	Child	Women	Men*			
Tigray	143	143	30	668	668	-	811	811	30
Afar	82	81	13	536	528	-	618	609	13
Amhara	133	133	33	941	937	-	1074	1070	33
Oromiya	134	131	28	958	930	-	1092	1061	28
Somali	106	105	21	580	530	-	686	635	21
Benshangul Gumuz	80	80	22	551	550	-	631	630	22
SNNPR	111	111	29	944	935	-	1055	1046	29
Gambella	108	108	13	403	404	-	511	512	13
Harari	196	224	49	264	260	-	460	484	49
Addis Ababa*	652	788	81	-	-	-	652	788	81
Dire Dawa	328	328	61	161	159	-	489	487	61
Group Total	2073	2232	380	6006	5901	-	8079	8133	380

* Rural men were not targeted with this survey; Addis Ababa had no rural areas; totals reflect actual sample size

Table 2. Percent of study population reporting consumption of foods containing purchased wheat flour*

	Urban			Rural			Total		
	Childr en	Wome n	Men†	Childr en	Wome n	Men†	Childr en	Wome n	Men †
Tigray	67.7	38.8	35.4	17.4	5.9	-	32.0	15.2	35.4
Afar	77.2	58.0	54.3	32.5	36.7	-	42.9	41.7	54.3
Amhara	73.7	44.3	32.5	10.8	4.7	-	21.7	11.0	32.5
Oromiya	67.6	58.6	57.7	16.4	14.4	-	31.1	26.6	57.7
Somali	63.7	66.2	70.9	30.9	41.8	-	40.7	49.2	70.9
BenshangulGumuz	55.9	35.2	65.4	16.0	7.7	-	23.4	12.7	65.4
SNNPR	46.9	37.2	41.0	10.8	4.9	-	16.1	9.5	41.0
Gambella	42.7	53.1	46.1	15.5	7.7	-	25.1	22.9	46.1
Harari	79.9	70.2	47.9	26.7	34.3	-	55.0	54.6	47.9
Addis Ababa	71.1	55.1	50.6	-	-	-	71.1	55.1	50.6
Dire Dawa	78.4	75.2	72.5	27.1	27.2	-	64.3	62.2	72.5
Group Total††	66.9	52.1	47.4	14.1	9.5	-	27.8	20.2	47.4

- The proportion of children, women and men who reported consuming a food that contained any purchased wheat flour (thus, potentially fortifiable) in the previous 24 hrs are 28% of children and 20% of women nationally, and 67% of children, 52% of women, 47% of men living in urban areas.
- The consumption of oil was much higher, with 45% and 50% of children and women nationally respectively, and 69%, 72% and 77% of children, women and men living in urban areas.

Conclusion

- Evidence-based justification is required in order to identify appropriate food vehicle and fortify any products for the general population .
- Data are being used to develop the NFS and number of other diet-related strategies and programs.
- Hence, it provides an extensive resource to inform and guide nutrition policy, strategy, educational messages and program development for many coming years.

Lessons learned

- A protocol with complete road map of the survey is essential before launch of the survey
- National surveys need to be given high priority , commitment and support for every stage of the project
- Proper planning is essential, including seeking input and experiences from other countries similar surveys (e.g. teleconference)

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