

## Research Paper

# House hold dietary diversity and associated factors in Mirab Abaya wereda Southern Ethiopia 2016; community based cross sectional study

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### ABSTRACT

**Background:** Dietary diversity is essential for household welfare as well as for accomplishing other development activities. Households with insufficient access to food often face other challenges related to food insecurity including poor health and a decline in productivity which makes vicious cycle between under nutrition and decreased productivity.

**Objective:** To assess house hold Dietary Diversity and associated factors in Mirab Abaya Wereda Southern Ethiopia, 2016.

**Methods:** A community based cross-sectional study was conducted from February to June, 2016. Out of 24 kebeles; nine kebeles were selected using simple random sampling method. The study house hold was selected using simple random sampling method by applying proportional to population size (PPS) for each selected kebele. Data was collected using pre-tested structured questionnaire adapted from FANTA and other related studies. Data was entered in to Epi info version 7 and exported to SPSS version 20.0 for analysis. Multivariate logistic

regression model was fitted and odds ratios with 95% CI were calculated to identify factors associated with food insecurity.

**Result:** A total of 453 households were interviewed and all were participated in the study making the response rate 100%. The overall mean age of head of the house hold was 41.9 years  $\pm$  14 (SD). Nearly Sixty percent of heads of the households were male. From 453 respondents nearly one third (34.3%) of the house holds had high dietary diversity while the rest had low dietary diversity. Sex of head of the house hold, marital status, monthly expenditure and presence of old age dependency were factors associated with dietary diversity. Being male sex for the house hold (AOR, 95% CI=3.55 (2.27, 5.58)) increases dietary diversity by nearly four times.

**Conclusion:** In this study dietary diversity was 34.3%. Sex of head of the house hold, marital status, monthly expenditure and presence of old age dependency in the house hold were factors associated with dietary diversity.

**Keywords:** Dietary diversity; Mirab Abya; Household

### Introduction

Dietary diversity refers to an increase in the variety of foods across and within food groups [1] capable of ensuring adequate intake of essential nutrients that can promote good health [2].

Since no single food can contain all nutrients [3] noted that the more food groups included in daily diet the greater the likelihood of meeting nutrient requirements. With that background, Kennedy et al. argued that, a diet which is sufficiently diverse may reflect nutrient adequacy. Thus far, dietary diversity can be viewed as a proxy measure of food security [4].

Understanding household dietary diversity may therefore be an alternative easy pathway to estimate household food security.

Lack of dietary diversity is a challenge for rural communities in developing countries. Their diets are by default defined on starchy staples with inadequate animal products, fresh fruits and vegetables [2]. Several authors therefore argue that, quality of diets is directly correlated to dietary diversity and inversely related to malnutrition [5,6].

Food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences

for an active and healthy life. At the household level, food security is understood as access by all members at all times to enough food for an active, healthy life [7-9]. The definition of household level food security has also been extended to include related concepts of accessibility, sufficiency, security and sustainability [10-12]. Household food security is internationally defined as the availability of food in one's home in terms of sufficient quality and quantity of food to meet all household members' nutritional requirements for productive lives A household is considered to be food-secure when its members do not live in hunger or fear of starvations [13].

### Methods

#### Study area and Period

The study was conducted in Mirab Abaya wereda, Gamo Goffa Zone, which is 225 km south of Hawassa. It has a total area of 1405 km<sup>2</sup>; from which 17,437 hectares (ranging from 0.0 to more than 10 hectares) is used for farming. It has an elevation of 1100 to 2900 ms above sea level & average annual rainfall and temperature between 800-1600ml and 24-30°C, respectively [14-20]. There were also 4 health centers, 27 health posts, 24 primary & 3 high schools & agri-development stations at each rural kebeles. There were eight local NGOs working

on different area of development in the district. The study was conducted from February to June, 2016.

### Study design

A community based cross-sectional study was conducted.

### Population

The source populations were the house holds in Mirab Abaya wereda.

### Study population

All households in the selected Kebeles of Mirab Abaya wereda.

### Inclusion and exclusion criteria

The inclusion criteria will be all households who live for at least 6 months.

### Exclusion criteria

Those House hold members who are unable to communicate will be excluded for interview.

### Study variables

#### Dependent variable

- Household Dietary Diversity

#### Independent variables

Sex of the House hold head, marital status, educational level of the HH head, presence of dependency members in HHs, occupational status of the HH, Monthly expenditure

### Sample size determination

Sample size is calculated using the single population formula,  $n = [Z^2 (1-\alpha/2) * p (1-p) / d^2]$ ,

where, n is the minimum sample size required, p is an the prevalence of household food dietary diversity, d is the margin of error to be tolerated (5%),  $z_{1-\alpha/2}$  is the standard normal variable at (1- $\alpha$ )%, i.e., [1.96], CI with 95%.

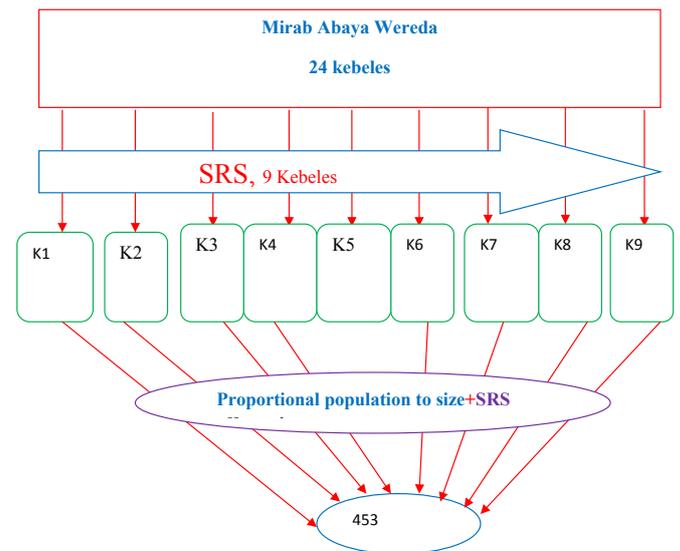
The final sample size after adding 10% non-response rate was 453.

### Sampling procedures

First, out of 24 kebeles, nine kebeles will be selected using Simple Random Sampling Method. Secondly, proportional to population size allocation (PPS) will be used to allocate the calculated sample size to each Kebele. Thirdly, simple random sampling method will be employed to reach the house hold to be interviewed (Figure 1).

### Data collection procedures and quality control

Data was collected using pretested structured questionnaire. First, the questionnaire was prepared in English and changed into Amharic and again an independent translator to cross check its consistency with the original one. Second, out of 588



**Figure 1:** Shows diagrammatic presentation of sampling procedure.

households 5% of the sample was pretested outside the study area. The person who was responsible for preparing food in the previous day was interviewed each of the questions with a recall period of one day (24 h) on behalf of household members. Vacant or closed houses during the day of visit were revisited for two times to maintain the required sample size.

Nine Diploma Nurses were assigned to administer the interview from February to June 2016. Before data collection training was carried out for data collectors by investigators on how to conduct the interview prior to the actual survey for two days. Data supervision & evaluation run on daily basis by investigators. Before departing, the actual filled daily questionnaire was checked for its completeness & consistency.

### Operational definition

HHDS- If the respondent answers less than 3 questions with Yes from 12 diversity related questions, it is considered to have Low Dietary Diversity and if between 4 and 6 as Medium Dietary Diversity and if more than 7 as High Dietary Diversity. For Analysis medium dietary diversity and low dietary diversity are categorized as low low dietary diversity category [21,22].

Old age dependency- individuals whose age is more than 64 years old are called old age dependents.

### Data management and analysis procedures

First, the data was checked for its completeness and consistency before entry. Then data entry and cleaning was done using EPI-INFO version 7 statistical software and exported to SPSS software package version 20 for analysis.

Cross-checking and data cleaning was carried out for accuracy and consistencies carried out by running frequencies of each variable. Logistic regression model was used to identify factors associated with food insecurity among house holds.

### Ethical consideration

Ethical clearance was obtained from Ethical Review

Committee of College of Medicine and Health Sciences, Arba Minch University and permission letter was obtained from Mirab Abaya wereda health office.

The nature of the study was fully explained to the study participants to obtain written consent prior to participation in the study and any information kept confidential.

Based on their informed consent participants had full right to refuse or discontinue in the study without any compromise in the services they get from each facility. For that purpose, a one-page consent paper attached as a cover page to each

questionnaire. Any personal identifiers are not included in the questionnaire.

## Result and Discussion

### Socio demographic characteristics

A total of 453 households were interviewed and all were participated in the study making the response rate 100%. The overall mean age of head of the house hold was 41.9 years  $\pm$  14 (SD). Nearly Sixty percent of heads of the households were male (Table 1).

### Magnitude of dietary diversity and factors associated with dietary diversity

From 453 respondents nearly one third (34.3%) of the house holds had high dietary diversity while the rest had low dietary diversity. Sex of head of the house hold, marital status, monthly expenditure and presence of old age dependency were factors associated with dietary diversity. Being male sex for the house hold (AOR, 95% CI=3.55 (2.27, 5.58)) increases dietary diversity by nearly four times. Being married increased dietary diversity by nearly three times which is congruent with other studies (Table 2).

### Discussion

House hold dietary diversity is higher as compared with other studies conducted in different areas. This may be due to the study area residents are mainly harvest cash crops and can get enough money to buy variety of food staffs.

Being male sex as head of house hold increased dietary diversity which is similar with other studies conducted in different areas.

### Conclusion

In this study dietary diversity was 34.3%. Sex of head of the house hold, marital status, monthly expenditure and presence of

**Table 1:** Socio demographic characteristics of respondents on Dietary diversity in Mirab abaya wereda 2016.

S. No.	Variable	Frequency	Percent
1	Sex of head of house hold	Male	269 59.4
		Female	184 40.6
2	Marital status	Married	401 88.5
		Not married	52 11.5
3	Presence of school age children	Yes	404 89.2
		No	49 10.8
4	Monthly expenditure in birr	<500	164 36.2
		500-1000	202 44.6
		1001-1500	50 11
		>1500	37 8.2
5	Presence of old age dependent	Yes	382 84.3
		No	71 15.7
6	Occupation	government employee	14 3.1
		Farmer	295 65.1
		house wife	114 25.2
		Student	2 0.4
		NGO	7 1.6
	Other	21 4.6	

**Table 2:** Factors associated with house hold dietary diversity in Mirab Abaya wereda, 2016.

S. No.	Variable	Dietary Diversity		COR (95%CI)	AOR (95%CI)	P value
		Low	High			
1	Sex of head of house hold	Male	200 69	2.60 (1.75, 3.87)	3.55 (2.27, 5.58)	0.001*
		Female	97 87	1		
2	Marital status	Married	255 146	2.41 (1.172, 4.94)	2.62 (1.120, 5.74)	0.016*
		Not married	42 10	1	1	
3	Presence of school age children	Yes	263 141	1.22 (0.64, 2.31)	1.30 (0.60, 2.83)	0.504
		No	34 15	1	1	
4	Monthly expenditure in birr	<500	136 28	1	1	
		500-1000	120 82	3.32 (2.03, 5.44)	3.34 (1.98, 5.63)	0.001*
		1001-1500	22 28	6.18 (3.10, 12.34)	5.65 (2.70, 11.81)	0.001*
		>1500	19 18	4.60 (2.15, 9.86)	6.03 (2.69, 13.49)	0.001*
5	Presence of old age dependent	Yes	260 122	1.96 (1.17, 3.27)	2.09 (1.17, 3.75)	0.013*
		No	37 34	1	1	

\* Statistically significant at P value=0.05

old age dependency in the house hold were factors associated with dietary diversity.

### Recommendations

Concern should be given to female headed households and those with old age dependents

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### Authors' Contribution

DM: Initiated the research, wrote the research proposal, conducted the research, did data entry and analysis and wrote the manuscript.

BM: Involved in data collection, write up of the manuscript.

GA: contributed in the designing of methods, write up and analysis.

### Conflict of Interest

The authors declared that they have no conflict of interest.

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