Household food insecurity and its association with under five children nutritional status in Sekela District, Western Ethiopia

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Introduction

• Children undernutrition is alarming public health problem in Ethiopia
• Several and multifaceted factors affect children nutritional status in developing countries like Ethiopia.
• According to UNICEF conceptual framework, household food insecurity, inadequate child care and unhealthy household environment and lack of health services are the underlying cause of children undernutrition.
• Children in Ethiopia are exposed to multiple risks of malnutrition including, inadequate food access, insufficient care and unsanitary environment.

(Black E. et al., 2008; CSA, 2011; MOH, 3013; CSA 2014)
Introduction

• Household food security is assumed to affect food consumption including dietary variety, quantity of nutrient intake, and hence nutritional status of household members.
• The HFIAS had been applied as indicators of household food insecurity in developing countries.
• Using this tools of HFI different research had examined the association between HFI and nutritional status of children but revealed mixtures of evidence.
• Study conducted in surplus crop producing areas of western Ethiopia found high prevalence of malnutrition, suggestive of factors other than food security contribute to undernutrition (Casey & Bogle, 2001; Matheson, 2002; Beka T., et al., 2009; Osei A., et al., 2010, Saaka & Osman, 2013).
Introduction

- Under five children in Amhara Region affected by undernutrition more than other regions.
- Sekela District is one of the districts in Western Ethiopia, Amhara Region, where households have limited food access.
- Accordingly, this study has evaluated household food insecurity condition using HFIAS and examined its association with children under nutrition in Sekela District of Ethiopia.
- We hypothesized that children in food insecure households are more undernourished than their counterparts in food secure household.

Objectives

General Objective
To assess household food insecurity and its association with under-five (6-59mo) children undernutrition in Sekela District, Western Ethiopia, 5 to 27 of February 2014.

Specific objectives
• To assess household food insecurity among households
• To assess the prevalence of undernutrition among children
• To evaluate the relationship between household food insecurity and children undernutrition
• To identify other factors associated with children undernutrition
Methodology

• The study was conducted in Sekela District, is a rural highland district located about 440 kilometers NW AA.

• Staple crop production is the main livelihood for most of the inhabitants.

• Data was collected during, 5 to 27 of February 2014, the Bega/post-harvest season.

• To assess the association between HFI and under five children undernutrition, a community based cross sectional study was conducted and internal comparison was done during analysis.
Methodology

• The required sample size was determined using double population proportion formula, confidence level of 95%, margin of error of 5% and power of 80%.

• The total sample required was 576 households had children age 6-59 months.

• Two stage stratified cluster sampling procedure was used to select specific study participants.

• Biological mothers or care givers of the children age five and under were interviewed using structured questionnaire.
Methodology

• Household food insecurity was measured using household food insecurity access scale (HFIAS)

• Length/Height of children were measured to the nearest 1 millimeter using length/height measuring board

• Weight of children were measured to the nearest 10gm & 100 grams using electronic weighing scales

• Anthropometric measurements were taken to the standard technique and required accuracy & precision
Methodology

• For quality data collection; there was training, pretest, standardization of anthropometric measurements and close supervision during data collection.

• The data was checked, coded and double entered onto EpiData 3.1. and analyzed using SPSS 20.0.

• Nutrition indices were computed using WHO Anthro 3.1.0 and classified according to WHO 2006 cut-off points.

• Binary logistic regression model was used to assess the association 95% CI and (α<0.05) were used for decision making.

• The letter of clearance was obtained from Haramaya University.
Result and Discussion

• Response rate was 98.1%

• The HFIAS score in this study varies from 0 to 25, the households’ mean±SD =8.16±6.01(95% CI=7.68, 8.64)

• The general prevalence of HFI, measured by HFAIS 74.1%, in this study was higher than studies conducted in different parts of the world and in Ethiopia.

• In agreement with the current one, a study in the district in 2012 reported 73% household food insecurity. This implies food insecurity is high and persistent problem in the district

Fig 1: The occurrence of household food access insecurity conditions
Result and Discussion

• The mean age of children was $31.39 \pm 1.2$ months, and the sex ratio was one.

• As might be predicted food insecure households had low socioeconomic status than their counterparts

• food secure household had better child feeding practice and use of child and maternal health services
Result and Discussion

• The overall mean Z-scores of anthropometric index were negative showing poor nutritional status.
• The overall prevalence of stunting, underweight and wasting was 36.9%, 19.8% and 11.5% respectively.
• Children from food insecure households had lower mean Z-score for all index and higher prevalence of stunting, underweight and wasting.
• There was only a significant deference in the prevalence of underweight(p<0.01)
Result and Discussion

• the prevalence of stunting and underweight was lower than EDHS 2011 regional report and other pocket studies across the country.

• The study setting and recent improvement in health service coverage might contribute for the difference.

• Still our finding implies that under nutrition is a critical problem in the study setting that threatens children health, survival and their future development.

(CSA, 2012; Jemal Haidar et al., 2005; Awake K. et al., 2012)
Table 1: The Z-score and prevalence of under nutrition children stratified by household food insecurity

<table>
<thead>
<tr>
<th>Indicator</th>
<th>All</th>
<th>Secure</th>
<th>Insecure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean+ SD HAZ- score</td>
<td>-1.51±1.52</td>
<td>-1.31±1.43</td>
<td>-1.58±1.54</td>
</tr>
<tr>
<td>Stunted</td>
<td>36.9</td>
<td>31.3</td>
<td>38.9</td>
</tr>
<tr>
<td>moderate</td>
<td>27.4</td>
<td>25.7</td>
<td>28.0</td>
</tr>
<tr>
<td>Severe</td>
<td>9.5</td>
<td>5.6</td>
<td>10.9</td>
</tr>
<tr>
<td>Mean+ SD WAZ- score</td>
<td>-1.12±1.23</td>
<td>-0.88±1.10</td>
<td>-1.21±1.26</td>
</tr>
<tr>
<td>Underweight(%yes)</td>
<td>19.8</td>
<td>11.8</td>
<td>22.6**</td>
</tr>
<tr>
<td>Moderate</td>
<td>14.1</td>
<td>7.6</td>
<td>16.3</td>
</tr>
<tr>
<td>Severe</td>
<td>5.8</td>
<td>4.2</td>
<td>6.3</td>
</tr>
<tr>
<td>Mean+ SD WHZ- score</td>
<td>-0.4±1.50</td>
<td>-0.22±1.30</td>
<td>-0.45±1.56</td>
</tr>
<tr>
<td>Wasting(%yes)</td>
<td>11.5</td>
<td>7.6</td>
<td>12.9</td>
</tr>
<tr>
<td>Moderate</td>
<td>8.1</td>
<td>6.3</td>
<td>8.8</td>
</tr>
<tr>
<td>Severe</td>
<td>3.4</td>
<td>1.3</td>
<td>4.1</td>
</tr>
</tbody>
</table>
Result and Discussion

- Our key finding was household food insecurity was associated with only underweight (AOR=2.25; 95% CI=1.29, 3.94)

- Even though, other studies across various countries revealed similar finding with ours (Osei, A., et al., 2010; Saaka, M. and Osman, S.), the absence of association between food insecurity and stunting was unexpected.

- Contrary to our finding, a study in Ethiopia and other developing countries found positive relationship between stunting and household food insecurity (Saha Kuntal K. et al., 2009; Ali, D., et al., 2013).

- HFI can affect the nutritional status of family members but food security is not a sufficient to ensure good nutritional status (Black, E., et al., 2008).
Result and Discussion

- HFIAS assesses only the 30 days food insecurity status, which probably had minimal effect on stature.
- Mediating factors like maternal knowledge of nutrition, presence of other infections, intrahousehold food allocation, etc. might influence association.
- The odds of stunting was lower for female children than their male counterparts (AOR=0.64; 95% CI=0.44, 0.92).
- Similarly, EDHS 2011 and a study in West Gojjam reported higher prevalence of stunting among males.
- Is there a sex preference child feeding and caring practice in the area? Or genetic differences?

(Christ, J., et al., 2007; Beka T., et al., 2009; CSA, 2012)
Result and Discussion

• maternal education had negative relationship with stunting (AOR=0.59; 95%CI=0.37, 0.95)
• Studies in developing countries identified maternal education as an important enabling factor for under five children nutritional status.
• Maternal education can improve child nutrition by increasing income and control of resources in the house.
• Educated mothers are likely to have better knowledge on child feeding &care and increase access to health & sanitary environment.

(Jemal H., 2005; Balk E., et al., 2008; Abuya, A., et al., 2012)
Result and Discussion

• Suboptimal breastfeeding practices like colostrum deprivation (44.4%) and prelacteal feeding (35.4%) are common in the area.

• Colostrum feeding (AOR=0.50; 95% CI=0.35, 0.73) and feeding a child (AOR= 0.63; 95% CI=0.43, 0.93) more than twice within a day were negatively associated with stunting.

• Similar finding was reported from neighborhood districts.

• Here again is an evocative finding for the local government and operating partners to do effective nutrition education on optimal child feeding

(Beka T., et al., 2009)
Conclusion and Recommendation

• Under five malnutrition is a serious public health problem in the study setting that needs urgent action.
• Even though, the study was conducted during the post-harvest season, the prevalence of household food access insecurity was very high in the district.
• Higher magnitude and intensity of food insecurity could be found in the lean seasons.
• Household food insecurity was associated with only underweight.
Conclusion and Recommendation

• Food insecurity, inadequate child caring practice and unhealthy environment exerted their effect on dietary intake and health of children to increases their likelihood of undernourishment in the locality.

• Thus, there should be multi sectorial community based nutrition interventions and innovative small business generating actions to curb under nutrition and household food insecurity in the district
Acknowledgement

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