Food insecurity and changing agricultural practices in North Andean communities of Ecuador

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Introduction

- Indigenous communities around the world depend heavily on traditional agriculture for a secure food supply [1].
- Changes in environmental, economic, and social conditions can force these populations to abandon their traditional foodways in favor of western crops, livestock, and farming techniques [2, 3].
- Loss of traditional agricultural practices can affect nutritional health and diet by reducing food security, reducing food diversity, and increasing consumption of processed foods [5].
- These dietary changes can affect the overall and nutritional health of indigenous people.
- The Department of Family Medicine is leading a project in four Andean communities in Ecuador to train local women as Community Health Workers (CHWs).

Objectives

- Understand the food and agriculture situation of households with children in three indigenous communities.
- Inform CHW training program of topics of concern and provide evidence to support local discussion toward solutions.
- Determine how crops are grown, what foods are consumed, and if families have enough food.

Methods

A. Discussion groups

Discussion groups conducted with male farmers helped to understand traditional and current agricultural practices and recent changes in farming. One discussion group with approximately 10 farmers was held in each of two communities. These discussions were used to validate the survey content.

B. Surveys

- Socio-demographic information
- Agricultural activities
- Latin-American Food Security Scale
- Food frequency questionnaire

Surveys were conducted by the student accompanied by a CHW. They were administered to the mother of each household with children between the ages of 6 months and 12 years.

Results

Food insecurity

- Food insecurity is associated with education and income.

Discussion groups

Community discussion groups revealed several perspectives.

Agriculture

- Loss of traditional practices
- Environmental changes
- Decreasing land size
- Use of chemicals
- Lack of irrigation

Education

- Grade 6 and above
- Grade 0-5

Income

- High
- Low

Table 1. Households using agricultural methods in communities.

<table>
<thead>
<tr>
<th>Technique</th>
<th>% Households (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traditions</td>
<td>43 (81)</td>
</tr>
<tr>
<td>Chemicals</td>
<td>4 (7)</td>
</tr>
<tr>
<td>Access to irrigation system or river</td>
<td>26 (49)</td>
</tr>
<tr>
<td>Growing traditional grains (quinoa)</td>
<td>7 (8)</td>
</tr>
</tbody>
</table>

Table 2. Average household dietary diversity score, measuring economic ability of a household to purchase foods, and Women’s Dietary Diversity Score, measuring micronutrient content. Scores are based on the food frequency questionnaire.

<table>
<thead>
<tr>
<th>Foods eaten (previous day)</th>
<th>% Households (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quinoa</td>
<td>13 (24)</td>
</tr>
<tr>
<td>Corn</td>
<td>83 (156)</td>
</tr>
<tr>
<td>Rice</td>
<td>69 (131)</td>
</tr>
<tr>
<td>Dairy products</td>
<td>36 (68)</td>
</tr>
<tr>
<td>Meat</td>
<td>46 (86)</td>
</tr>
<tr>
<td>Eggs</td>
<td>35 (66)</td>
</tr>
</tbody>
</table>

Table 3. Low nutritional value rice and corn are eaten much more than nutritional quinoa. Dairy and meat products and eggs are not eaten daily.

Conclusions

1) Food insecurity and poor food variety are serious problems for these communities.
2) Loss of traditional agricultural practices is multifactorial, related to climate change as well as other factors.
3) Households with higher income and education tend to have greater food security.

Future Directions

- Further work should be done to clarify in what quantities foods are eaten and investigate variation in diet between seasons.
- Further discussion with CHWs is required to give different recommendations focused on restoring traditional agriculture and educating families about how healthy food can be prepared easily and quickly.
- Continued training for the CHWs and integration of their services in the community healthcare system has potential to positively influence nutrition.

References


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Footnote