REPORT
of a
DIETARY SURVEY
IN
KILOMA DISTRICT

CONDUCTED ON: 26th May - 1st June 1965 & 26th July
to 3rd August, 1965

BY
FOOD SCIENCE UNIT

ILONGA

Tanzania Nutrition Committee Report Series ..............
Research and Training Institute Ilunga

Food Science Section

Project No. 27

Food Science and Applied Human Nutrition Research

Progress Report for 1969/70

By: C. P. Mura

At the time of the Annual Conference in October, 1969 the Dietary Survey conducted June and August 1969 had not been fully analysed. This has now been done and a summary of the findings is presented in this progress report.


Introduction: It is well known that many children in Tanzania do get mental and physical retardation, if not well fed up to the age of 5 years, the pre school age. Protein Calorie Malnutrition (PCM) among children (and sorry to say even in adults) has been as common in many areas of Tanzania as poverty and this is in the od of 40%.

A dietary survey was conducted at Ilongo from 26th May to 1st June 1969 and from 26th July to 3rd August 1969 and what follows are the results and findings.

Dietary Survey - Ilongo - Kilolo District.

1) Aim of Survey:

a) To prove whether Food Stuff produced are consumed by the people, according to an earlier completed questionnaire on Protein Production and Utilization in the Eastern part of Tanzania.

b) To deduce from the data collected the proper causes of malnutrition (PCM and ill health) so as to pay greater attention to such factors when carrying out the underfive clinics.

2) Survey arrangements and procedure: The dietary survey carried out was very limited in scope due to lack of appropriate facilities and staff. Thus the procedure adopted was very easy. The Chairman of the Ilongo Village Development Committee (V.D.C) was approached and briefed on what was to take place. He showed great interest and was willing to help the survey team in all aspects. A meeting of all the Ten Cell Leaders was held. At this meeting the survey team was introduced and the Dietary survey which was to take place was discussed. The Ten Cell Leaders submitted names of their residents and these totaled to about 130 people. 10 people were chosen from the lot at a random. Those chosen were met by the team and further discussions held clearing all doubts, till when they were convinced and willing. After which the survey started in the two villages, Mbuleni and Bondeni taking five people in each.
LOCATION OF THE VILLAGES:

1. Masalabani had about 60 houses from which only five were chosen at random, whereas Bondeni had 70 houses, where also five houses were chosen.

RURAL LIFE IN ILONGA: (Customs, Tribal Rites and Taboos).

The community around is a mixed society with such inhabitants as the Masagara, Hakanguru and Medundu. Others who have settled around are Maluguru. Most of these people are Christians (Roman Catholic or Lutheran, Anglican) and a few are moslems etc.

Housing: About 90% of all the houses are built of poles, mud and thatched with rafters and grass. The remaining are built of bricks (mud) and thatched with corrugated iron sheets.

Customs: When a visitor comes she is welcomed on the mat but if the visitor is a male he is given a stool or a chair and most of the time he is with the head of the household or male children. Guests are served with rice "Ubwabwa" with either chicken, meat or fish. During leisure time or at ceremonies, people enjoy drinking local "pombe" prepared from sorghum called "Kilima." At ceremonies (marriage feast or national anniversaries), different local drinks (ubulamani) such as the ngoma ya "Kabati" "Igubi" and "Masoli" are played with lots of "Pombe" - Kilima.

About 60% of the people in the area don't use latrines. About 90% of them use firewood as cooking fuel on the common three stones cookery "jikos," whereas the remaining 10 use either charcoal (majority) or paraffin stoves.

Many people attend either at the Dispensary situated at the Research Station or at Kilosa Government Hospital for treatment, about 7 miles away. But there are also local "Waganga" around.

Tributary roads (impassable during rainy season) and various foot paths lead into the villages from the main road.

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DAILY PROTEIN AND CALORIE INTAKE:

1. Daily Caloric Intake:

Dietary survey carried out showed that one person of this place consumed 1,631 calories per day.

Sources of calories maintained were maize, sorghum, which were consumed in form of ugali in almost all meals. This amount of calories per day is enough to some groups of people as far as body requirements are concerned. Children of 0-1 year old need 1,000 calories per day, and children of 2-5 years who need 1,200 calories were quite contented with the amount of calories consumed per day.

There is a decrease of calories consumed with reference to men and women, pregnant and lactating mothers. The difference between calories consumed and required is great to all those people, and do not actually fulfill the daily requirements.

We have already seen that the average caloric per day output in this area surveyed was 1,631. Even though there were differences in food consumed each day.

Graph I shows the daily calorie variation. We can read from the graph that on the:

1st day 1548 calories were consumed.
2nd day 1600 " 
3rd day 1251 " 
4th day 1304 " 
5th day 1242 " 
6th day 1672 " 
7th day 2533 " 

When conducting the survey people were busy with harvesting, and protecting their new crops in fields. Shearers were a bit far from their houses, about six miles away, and so had to leave early in the morning and come back late in the evening. In this case most of them had only one main meal every day which was in the evening. During day time they were having snacks which were mainly bananas, cassava and maize. There was a change on the 7th day which was Sunday. More than 96% of the people Roman Catholics. Sundays they go to church and are back soon after. They had plenty of food because everybody was at home, also were able to prepare several meals as they had time, and so calories also increased.

The following Table (table I) shows the daily caloric requirements of different age groups.

<table>
<thead>
<tr>
<th>AGE GROUP</th>
<th>DAILY CALS REQUIREMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children – below 1 year</td>
<td>1000 (should be consumed by mother</td>
</tr>
<tr>
<td>Children – up to 6 years</td>
<td>1500 Cal.</td>
</tr>
<tr>
<td>&quot; - 10 &quot;</td>
<td>2000 &quot;</td>
</tr>
<tr>
<td>&quot; - 14 &quot;</td>
<td>2750 &quot;</td>
</tr>
<tr>
<td>Boys – &quot; 19 &quot;</td>
<td>2500 &quot;</td>
</tr>
<tr>
<td>Girls – &quot; 19 &quot;</td>
<td>2500 &quot;</td>
</tr>
<tr>
<td>Adults –</td>
<td></td>
</tr>
<tr>
<td>Male &amp; Female</td>
<td>2300 &amp; 3200 Cal.</td>
</tr>
</tbody>
</table>
GRAPH I SHOWING DAILY CALORIE VARIATION.
DAILY PROTEIN VARIATION (CRUDE AND REFERENCE)

One person of Ilonga on the average consumed about 51 grams of protein each day. This protein was from peanuts, beans, pigeon peas and mungo were consumed in small amounts in almost every meal. This amount consumed is sufficient to some people but to most of them it is insufficient.

The following are protein requirements for different people:

Children of 0-1 year need 40 grams protein daily
Children of 2-5 years need 45 grams protein daily
Reference men 25 years need 65 grams protein daily
Reference women 25 years need 60 grams protein daily
Pregnant women need 80 grams protein daily

Comparing these figures with protein consumed, it will be found that most people in this area got insufficient protein while they need a lot especially, pregnant and lactating mothers.

Graph II shows Daily Protein variation (crude and Reference Protein). We have already seen that daily average protein per capital was 51 grams. From the graph it can be seen that there were several days when the average was below these, like the 2nd day, 4th day, 5th day, and 7th day.

The same graph shows also the comparison between Crude and Reference Protein. Crude Protein is just as you consume it, or just as it is, and Reference Protein is the perfect protein. On the other hand, it fulfills the fact that the more the protein the more perfection it has.

The NDCals % for a person in the area was 7.8% which satisfies everybody in family which means children and adults.

GRAPH II SHOWING DAILY PROTEIN VARIATION - CRUDE AND REFERENCE PROTEIN:

65
60
50
40
30
20
10

Crude Protein
Reference Protein

Protein per Day per Capital

0 1 2 3 4 5 6 7

Number of Days

7/......
DAILY VARIATION OF NUTRIENT COST:

Survey was carried for seven days in the area and food cost varied from day to day.

GRAPH III SHOWING DAILY VARIATION IN FOOD COST:

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<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Cost in Cents</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>ON GRAPH III</td>
<td>Number of Days</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1st Day</td>
<td>one person used</td>
<td>$/66</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2nd</td>
<td>&quot;    &quot;    &quot;    &quot;</td>
<td>$/76</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3rd</td>
<td>&quot;    &quot;    &quot;    &quot;</td>
<td>$/41</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4th</td>
<td>&quot;    &quot;    &quot;    &quot;</td>
<td>$/46</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5th</td>
<td>&quot;    &quot;    &quot;    &quot;</td>
<td>$/43</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6th</td>
<td>&quot;    &quot;    &quot;    &quot;</td>
<td>$/55 and</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>7th</td>
<td>&quot;    &quot;    &quot;    &quot;</td>
<td>$/91</td>
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</tr>
</tbody>
</table>
This money was used for buying things like sugar, tea leaves, meat, fish, salt and other things not available at home. Food from shop and market costed about 24/64, and food from shamba costed about 52/72. The difference between food bought and that from shamba was 28/68.

Daily calorie and protein in Relation to Food cost:

On the first day one person consumed about 1,548 calories, 45 grams protein and food cost was 46. There was an increase of both calories and protein on the 7th day. The amount of calories consumed by one person were 2,531 protein was 63gms, and cost used was 91. Some of foods were bought and these were a bit expensive because of its quality. Most of foods consumed were from their shambas. On this day people ate different from the other days, they bought fish, tea leaves, and sugar which cost differently from丛 shamba or consume flour. On the other hand we have already seen that on this day there was a high consumption of both calories and protein. In this case quality and quantity were the main things which increased the cost.

On the third day calories consumed were 1,251 which was the smallest, and protein was 30 grams and cost was also small 41 cents. People ate only once which could not give them enough calories, and ate side dishes like lights, and other green leaves which of course are poor sources of protein. All these decreased the cost for the day.

Different Nutrients can be obtained from the foods we eat everyday, which are very essential, but their deficiency results into Malnutrition. These Nutrients are mainly calories, Protein, Iron, Calcium and Vitamins A, B, and C.

In average of five people in a house is big as found in the area as far as their income is concerned.

<table>
<thead>
<tr>
<th>No. of people in family</th>
<th>Calorie</th>
<th>Protein</th>
<th>Calcium</th>
<th>Iron</th>
<th>Thiamin</th>
<th>Riboflavin</th>
<th>Nicotin A</th>
<th>Vit. C</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>447.9</td>
<td>101</td>
<td>63</td>
<td>49</td>
<td>129</td>
<td>130</td>
<td>172</td>
<td>470</td>
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<tr>
<td>3</td>
<td>3320</td>
<td>109</td>
<td>50</td>
<td>28</td>
<td>190</td>
<td>150</td>
<td>166</td>
<td>189</td>
</tr>
<tr>
<td>4</td>
<td>1150</td>
<td>39</td>
<td>45</td>
<td>12</td>
<td>40</td>
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<td>2030</td>
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<td>140</td>
<td>120</td>
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<td>108</td>
</tr>
<tr>
<td>9</td>
<td>2120</td>
<td>27</td>
<td>51</td>
<td>14</td>
<td>20</td>
<td>120</td>
<td>34</td>
<td>191</td>
</tr>
</tbody>
</table>

Table I shows calories and nutrient intakes in Relation to Family size and economic status. The more the people in family the less the consumption of nutrients. This can be seen on the table. Nutrients consumed by a person from smaller family is almost twice or more than that of one from large family.
These differences could be brought about in many ways:

1. **Income**: Almost 90% of people surveyed depended on agriculture. One could gain a lot from his produce than the neighbour and therefore could be satisfied in most cases. He can buy certain foods not available in his house or village, and this alone can give differences to his neighbour who misses them or buys them but due to large family size, nutrients decreases.

2. **Education**: Ignorance and indolence is one of the major causes even though people know how to read and write but they don't know the importance in quality of foods. They eat anything they find that day to satisfy their hunger. This means they are not aware of foods which can supply them with different nutrients essential for their daily body requirements.

3. **Meal Pattern**: The number of meals within a day also matters. One person who takes three meals a day will differ from one who takes his meal only once a day. People in the area surveyed used to have one meal per day due to field work which occupied most of their time.

In graph (i-ix) you can see the differences of Nutrients consumed in relation to family size and economic status. People were different in many aspects (income levels etc) and so were the consumption of nutrients.
Conclusion: From the Data and Results of this survey there is a
need to make a follow up. Also more emphasis in Nutrition Education
should be carried out using all media available (This is being done
monthly in our underfive nutrition clinics and Chakula Born Adult
Education classes held weekly).

There is a need to carry out within the same areas (Pilot
Project area).

1) Trial feeding programme - Protein supplementation to
the diet of children to determine the response.

2) Nutritional status survey (Detailed).

3) An appraisal of this programme - Sociologist Economist

ACKNOWLEDGMENTS

Miss Barbara Fields - Student Fellowship New Haven
Connecticut - U.S.A. She conducted the survey in Protein
Production and utilization in the Eastern part of
Tanzania, and this one.

Dr. T.S. Maletnoma, Nutrition Specialist;
Dr. M. Mzigi - Mo. Nutrition - Tanzania
Human Nutrition Unit DSM - (Principles of Dietary Survey and
Data Analysis) & FOOD SCIENCE STAFF 1969

REFERENCES:
Maluguru na Desturi Zao
By R.L. Hadumbaulim.


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