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ISLAMABAD, 25-27 September 1989

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NUTRITION SURVEY
OF
NORTHERN AREAS OF PAKISTAN

A REPORT

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SUMMARY

The main objective of the Nutrition Survey of the Northern Areas was to identify the nutritional problems of this neglected part of Pakistan. A triphasic approach consisting of dietary, biochemical and clinical assessment of nutritional status was planned. However, due to difficulty of transportation of samples, biochemical part of the survey was only limited to haemoglobin determination. A total number of 26 randomly selected villages consisting of 218 households were appraised.

Dietary intake:

The bulk of the diet of the surveyed population consists of cereals, mainly wheat, followed by barley, millet and maize. The whole cereal flour is made into 'bread' baked on a heated circular iron (tawa), and eaten with meat or vegetables curry. A number of special dishes based on cereal flour and apricot flour are also eaten (Appendix I). Intake of oils and fats is low and contribute 8.4% of the total calories in the diet. However, the diet is adequate in essential fatty acids to meet the dietary requirements. Similarly intake of protein-rich foods, pulses, milk and meats are very low, the average protein intake being 56.8 g out of which only 4.4 g are derived from animal sources.

The main feature of the diet of the Northern Area people is their high consumption of leafy vegetables and fruits. On the average 174 and 186 g leafy greens and fruits respectively are consumed per day.

Protein - Calorie Deficiency:

The average caloric intake of the people of Northern Areas is 1755, which is 84% of the average intake of the rest of Pakistan. This is also confirmed by lack of subcutaneous fat as indicated by skinfold thickness and arm circumference. Although total protein intake was found to be adequate but in view of caloric shortage the intake of protein may be further reduced as energy needs have preference over protein requirement and some of the calories are utilized to meet the energy needs of the body. As a result of sub-optimal protein-caloric intake there is a high child mortality; 19.5% of the infants died within first year of life and 13% between 1-4 years. Although not many cases of protein calorie deficiency - marasmus or kwashiorkor were detected, but signs of sub-clinical protein malnutrition, as evidenced by low height and weight of children, were generally noticed in the surveyed population. Both height and weight are sub-normal and are below 3rd percentile of the Iowa standards. It shows that continued food deprivation over ages has forced the people of this area to live on a lower plane of nutrition.

Vitamin Deficiency:

Intakes of vitamin A, B_1, B_2, Niacin and C seem to be adequate both from dietary and clinical survey. However, some clinical states of riboflavin deficiency, angular stomatitis, cheilosis and glossitis, particularly in children of Skardu area, show that either vitamin is lost during preparation and cooking of food or is not equally distributed among various family members. Still riboflavin intake of the people of the Northern Areas is higher than those of the rest of Pakistan.

Anaemia:

Anaemia is wide-spread in all sections of the population. The worst sufferers are children between the ages of 5-9 years with an incidence of 91.5%, followed by pregnant women, adult females, older children and adult males with an incidence of 89.7%, 84.7%, 71.0% and 66.7% respectively. An inadequate dietary intake of iron, phytates, tea, and wide-spread parasitic infestation, may be the causative factors in high incidence of anaemia.

Goitre:

Goitre is the main nutritional deficiency disease of the area. More than half the population was found to suffer from some degree of goitre. Since it does not give any physical infirmity to the sufferers except in wearing of the clothes, people do not seem to take it very seriously.

RECOMMENDATIONS

1. More area should be brought under cultivation to increase food production of cereals and legumes and better storage techniques should be introduced to minimise food losses.

2. Small food preservation units should be installed in various locations to increase the availability of foods all the year round.

3. Efficient methods of extraction of oil from apricot stones and walnuts should be introduced to get the maximum yield of oil from the above sources. This will increase the calorie intake of the people.

4. Since there is plenty of fruits available in the Northern areas, it is recommended that methods for domestic food preservation such as pickling, jams and jelly making should be taught to the people through well organized food and nutrition education programme.

5. Fortification of wheat flour or common salt with iron and iodin should be done at commercial scale to eradicate anaemia and goitre. In areas e.g. Skardu, where vitamins B-complex deficiency was noticed, fortification of wheat flour with thiamine, riboflavin and niacine should also be carried out.

6. Since tea has inhibitory effect on iron absorption and its excessive use may exert a negative effect on protein digestibility, it is recommended that drinking of tea should be discouraged. A significant positive correlation between cancer mortality of specific types and national per capita consumption of tea has been reported.

7. Steps should be taken to increase meat and milk of the local breeds of cattle and sheep, by introducing artificial insemination technique, by improving reproductive

efficiency, reducing dry period, ensuring early maturity and other better animal husbandry practices.

8. There are good prospects for poultry and bee-keeping which should be developed to provide more animal proteins and calories as well as to eradicate poverty in the area.

9. Fish ponds should be provided by utilizing water from natural streams to increase fish production.

10. Applied nutrition programmes should be introduced to educate the people about the nutritive value of foods, supplementary feeding of mothers and children. Mothers should be taught to prepare home-made weaning foods (Appendix V). These should be given to infants after 4 months of age.

11. Steps should be taken to improve the socio-economic conditions of the people such as introducing cottage industries, opening of more schools and health centres, harnessing local sources of energy from running water of streams.

12. Since the survey was carried out during summer months, it is recommended that another nutrition survey may also be conducted during winter so that a complete picture of the dietary intake is obtained.

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MAP OF NORTHERN AREA OF PAKISTAN

Sampled Areas surveyed ——— +