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Nutritional Status Survey in Western Province of Zambia

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INTRODUCTION

The main purpose of the survey was to determine the magnitude, causes and distribution of malnutrition in the area of survey, with the hope that the attention of policy-makers and administrators who are ultimately responsible for the development of practical nutrition programmes may be focussed.

FIELD WORK

The team consisted of a Medical Officer, a laboratory technician, a nurse, a medical assistant, some laboratory assistants, an anthropometrist, a registrar, some drivers and a cook. The period of the survey was from early November, 1971 during the season of early rains when the people were not yet engaged in intensive farm work. It was completed before the middle of December, 1971 when the people would be engaged in intensive farm work.

The survey was done at collecting points. Four villages and two primary schools were surveyed; one village from Senanga East, one village and one primary school from Senanga West, one village and one primary school from Mongu District, and one village from Kaoma District.

There were six stations of activity in the following sequence:—

1. Identification
2. Anthropometry;
3. Laboratory specimens—stool and urine;
4. Laboratory specimen—haematology;
5. Clinical assessment;
6. Drug dispensing.

1. *Identification Station:* The subjects were issued with survey cards. The identity column of the card was completed; the survey date and serial number, the subjects' name, sex, age, tribe and village being filled in.

2. *Anthropometry Station:* The "Under Fives" were weighed to the nearest 0,1 kg with a Beam Balance Scale supplied by the UNICEF. The wooden-length board was used to determine their recumbent lengths to the nearest 0,1 cm. With the help of a tape, their head circumference, chest circumference and mid-upper arm circumference were measured to the nearest 0,1 cm. The subcutaneous fat was measured by measuring the triceps skin-fold with the Harpenden skin-fold calipers to the nearest 0,1 mm.

There were few differences between the steps taken in the measurement of adults and school children from those of the "Under Fives". The head and chest circumferences were measured only in the cases of the "Under Fives". For the weights of school children and adults, the "Saure" platform Beam Balance was used, while the vertical measuring rod was used for height determination.

3. *Station for Laboratory Specimens—Stool and Urine:* The subjects were given two containers each for stool and urine specimens. The stool was examined for different types of parasites while part of the urine was examined for bilharzia, and part prepared and sent to Lusaka University Laboratory for biochemical tests for creatinine, urea and riboflavin.

4. *Station for Laboratory Specimen—Haematology:* Blood samples were taken. Determination of haemoglobin and packed cell volume was done at the camp. Malaria smear, thick and thin; serum, (or electrophoresis in the case of infants), were prepared and sent to the University Laboratory. Specimens for Lusaka University Laboratory were deep frozen while awaiting first available aeroplane.

5. *Station for Clinical Assessment:* The subjects were examined by the medical officer for changes believed to be related to inadequate nutrition. Attention was paid to superficial epithelial tissues such as the skin, eyes, hair and to organs near the surface of the body such as the parotids, thyroid glands, livers and spleens.

6. *Drug dispensing Station:* At this station, subjects requiring treatment, were supplied with drugs. Finally, the survey cards were collected from all subjects for analysis.

RESULTS

In judging malnutrition in this report, undernutrition is considered. The clinical and anthropometric findings are made use of. A subject is considered malnourished if he manifests

any combination of three of the following signs of malnutrition:—

1. Clinical P.C.M.;
2. Arm circumference below standard;
3. Skin-fold measurement below standard;
4. Weight for height measurement below standard.

The standards used for judgement are as recommended by Jelliffe, D.B.(4).

- (a) Total number of subjects examined and analysed = 632
 Total number of subjects malnourished = 446
 Percentage malnourished = 71%
- (b) Total number of "Under Fives" examined and analysed = 99
 Total number of "Under Fives" malnourished = 45
 Percentage malnourished = 45%
- (c) Total number of subjects with one or more clinical signs for avitaminosis = 225
 Percentage with avitaminosis = 36%

Table I
MALNUTRITION IN DIFFERENT AGE-GROUPS

Age-groups in years	No. of subjects examined and analysed	No. of subjects Malnourished	Percentage malnourished
(0-2)	59	20	34%
(3-5)	40	25	63%
(6-10)	204	168	82%
(11-20)	194	120	62%
(21-30)	32	24	75%
(31-40)	27	21	78%
(41-50)	36	33	92%
(over 50)	40	35	88%

Table II
MALNUTRITION IN DIFFERENT PRIMARY SCHOOL GRADES

Grades	No. examined and analysed	No. mal-nourished	Percentage malnourished
1	64	58	91%
2	58	49	84%
3	83	67	81%
4	42	26	62%
5	31	17	55%
6	40	18	45%

N.B. Grade seven pupils were not examined as they were having their annual examinations in one school and were already on holidays in the second school.

Table III
AVITAMINOSIS IN DIFFERENT AGE-GROUPS

Age-groups in years	No. of subjects examined and analysed	No. of subjects WITH one or more clinical signs of avitaminosis	Percentage of subjects WITH avitaminosis
(0-2)	59	7	12%
(3-5)	40	9	23%
(6-10)	204	76	37%
(11-20)	194	57	29%
(21-30)	32	14	44%
(31-40)	27	15	56%
(41-50)	36	25	69%
(over 50)	40	34	85%

CONCLUSION

The survey reveals a very high prevalence of malnutrition in this rural area — 71 per cent. of the total population, and 45 per cent. of the "Under Fives" malnourished. It contrasts sharply with the result obtained in the surveys carried out in the townships of Lusaka among the "Under Fives" by Davidson and Noak (2) who found 17 per cent. of 359 "Under Fives" examined malnourished, using weight for age as indicator of nutritional state.

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