A Nutritional Survey in Moshaneng, Ngwaketse, Botswana: Preliminary Findings and Observations*

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Abstract: This paper is a preliminary overview of research carried out in Botswana in 1979--80. Selective data are analysed and the interpretation of results and commentary are therefore only tentative. The methodology and findings of a small investigation into the visible evidence of malnutrition in a rural community indicate some of the factors likely to contribute to its prevalence. These include aspects of child care, dietary intake and health as well as economic, cultural and social dimensions of relevance in the ecology of malnutrition.

Introduction

Malnutrition limits the population suffering from it and affects others indirectly. Individuals suffering from malnutrition, even mild, sub-clinical forms, may not reach their physical or mental potential, especially if they experience malnutrition at the crucial formative stage of mental and physical development. If, as it tends to be, malnutrition is associated with economic and social problems, it may become a self perpetuating phenomenon. At the community level, malnutrition, if widespread, severely limits the potential of that community through increasing morbidity and mortality, apathy and inability to use resources available. It also tends to be an indicator of a host of underlying problems associated with maldistribution of resources, poverty and lack of economic opportunity.

Malnutrition should be seen not only in physiological terms of the individual level, but in its total context, examined in relation to economic, social, cultural and physical environmental factors. To search for one causal factor in its aetiology is to misunderstand its complex nature.

The main aims of the study were to determine and examine the extent of malnutrition in a rural community in Botswana, to arrive at a measure of the nutritional status of the population and to investigate causes of malnutrition, especially in relation to contributory social and economic factors.

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The nutritional status of pre-school children is regarded as a sensitive indicator of the nutritional status of the whole community (Kreysler, J., 1979). Young children also constitute the majority of people believed to be most at risk, along with the unborn foetus, pregnant women and lactating women. Nutritional assessment was therefore directed at young children rather than to the full population.

As field work was carried out in the 1979--80 drought period, after harvest failure in 1979, any findings must be seen in relation to this period of stress. However, drought alone cannot be seen as an adequate explanation for the high rates of malnutrition and related problems, although it may have reinforced and aggravated an already existing set of circumstances.

The indices for malnutrition used are based upon commonly used 'standards' derived from large samples of people from well nourished populations. The sample population was compared with the Boston-Harvard standards for physical development. Children defined as 'underweight' are those whose weights are 80 % or below the median value on a weight-for-age index. 'Wasted' or acutely malnourished children weigh 80 % or below the median value on a weight-for-height (and therefore age independent) index. 'Stunted' or chronically malnourished children have lengths 90 % or below the median value on a height-for-age index.

From a single cross-sectional survey carried out at the start of the study period it was observed that:

i) the rate of children found to be nutritionally “at
“at risk” (underweight) in the study area (54%) was higher than the average for the same period at the national (31.9%) and regional (31%) levels (Nutrition surveillance, 1979). It was also higher than the rate of children “at risk” established by the local health post (a primary health care facility) which was 33%;

ii) the rate of children “at risk” was lower than some reported from individual health facilities, but was among some of the highest in Botswana.

Comparison with other nutritional studies in Botswana is limited by the use of differing criteria and indices of malnutrition. Burgess in Kweneng assessed the rate of Protein-Energy-Malnutrition (PEM) as 17% of those surveyed, using clinical and anthropometric criteria (Burgess, H. J. L., 1971). A study in Ghanzi found only a 2% rate of PEM using the criterion of three clinical signs (Shapira, A. et al., 1974). Kreysler analysing anthropometric data collected in the Kgalagadi district and peri-urban Gaborone found, during the pre-drought period, 1.3% of children sampled to be stunted and wasted (hereafter stunted-wasted), 19.3% stunted and 5.6% wasted, generally lower rates than in the study area (Kreysler, 1978). The most recent study carried out by a team from the German Development Institute in two rural settlements in Central District, arrived at figures for anthropometric assessment broadly similar to those of the reported sample (Olzen, U. et al., 1979).

Study Area

This was chosen after consultation with the Nutrition Unit, Ministry of Health and local health workers in the district, and in accordance with the following criteria:

i) that it should be located on the “hard veld” where arable agriculture could be expected to take place under normal conditions;

ii) that there should be a health facility in the area;

iii) that it was possible to have a good working relationship with the health worker responsible for local healthcare.

Fieldwork was carried out in the village of Moshaneng and the arable agricultural and cattle grazing areas (lands and cattle posts) in the immediate vicinity. The village is 15 km NW of Kanye, the tribal capital of the baNgwaketse and the administrative centre for Southern District. The population of the village is approximately 700 (Government of Botswana, 1972).

The Moshaneng area has been a centre of settlement and population concentration for over a hundred years. First, it was the place of refuge for a portion of the baRolog during the invasions of baTswana territory in the 1820s and 30s, some of the descendants of whom still remain in the village. More recently, it has been the settling place for groups of baKgalagadi from the surrounding area and further west, who traditionally worked for the baNgwaketse as livestock, field and household labour. Recently it was a focus for immigration as employment opportunities were temporarily created during the 1950s.

Economic fluctuations in the fortunes of Moshaneng have been caused by the existence of mineral extraction and construction work of a temporary nature, in the vicinity. Asbestos was exploited from 1951 to 1966. Talc stone was mined from 1977 – 79. A road construction camp for the Kanye-Jwaneng road was established near Moshaneng during 1979 and dismantled in April 1980. The Jwaneng mining town 65 km north-west of the village serves as a focus for job aspirations. The secondary economic and social effects of these developments have often had a profound impact on the local community.

Methodology

During field work, August 1979 to May 1980, three major surveys were undertaken based on broad questionnaires, each covering a number of related topics and several small-scale surveys were designed to shed light on specific problems. The first survey comprised three sections.

i) The anthropometric measurements of individual children to establish their nutritional status. Four measurements were taken for each child:
   a) the child was weighed by means of a sling and spring-scale which was hand-held;
   b) the child was measured against a horizontal measuring board or a vertical measuring rod;
   c) the circumference of the child's left mid-upper arm was measured with a flexible tape measure;
   d) a triceps skinfold measurement was taken with spring calipers.

ii) If the child was registered at a health facility his health card was examined to establish a retrospective profile in terms of immunizations, recent illnesses treated by the health facility and past weight-record.

iii) The mother or guardian of the child was asked to provide information on maternal characteristics and perception. child feeding, child care and a profile of the child's health in the preceding year.

The target group for this first survey were all pre-school children in the village and within an area representing the idealised catchment zone for the health facility.

“Blanket” coverage within the village was virtually achieved, after frequent re-visits to target household, to give a sample of almost 200 children. For a variety of reasons, mostly due to the difficulty of locating permanent lands dwellings in a sparsely populated area, the sample from the agricultural areas was smaller than hoped for.

The second survey was directed at gathering information at the household level. Questions were asked on household composition, food consumption, involvement in agri-