The nutritional status of 1-5 year old children in Mhala

by

Eric Buch, Helen Nyathi & Ennika Ntleno
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Gazankulu is one of South Africa's so-called "black states". The Khala district is an isolated island midway between Nelspruit and Ianwene. It is typical bushveld with limited water and poor agricultural potential. 152,000 people live in Khala's 57 villages which vary in size and infrastructure. Health services are underdeveloped and comprise one 260-bed hospital (Tintswalo), one health centre, ten clinics and a mobile clinic.

Why did Wits Medical School become involved here? It was by both design and fate. At Wits we had people interested in rural health and a benefactor (Anglo American Chairman's Fund) prepared to sponsor rural health work. The government has encouraged the various medical schools to become involved in rural health care and has designated schools to particular "homelands".

So we became involved in Gazankulu and the Health Services Development Unit (HSOU), a project of the Wits Department of Community Health, was established. The objectives of the Unit are the training of appropriate health service staff, the expansion and development of clinic services and the creation of a health service which is community supportive and responsive to local needs. To succeed we need the goodwill, support and respect of the community and the wholehearted backing of the existing health service.

This paper and the others of the HSOU are reflections, analyses, recommendations and ideas and are the product of our first two years' experience. Opinions expressed are based on the critical analysis of hard data on the one hand and on personal impressions on the other. Whatever the opinion, it has been acquired by first hand and sustained personal experience.

The papers cover three aspects of our experience:

1. The State of Health and Health Care in Khala
   b. The Nutritional Status of Children 1 - 5 years.

2. A Critique of Some Health Service Interventions in Khala
   a. Community Health Workers in Khala: Perversion of a Progressive Concept?
   b. How well do our Rural Clinics Function?
   c. Reviewing the Health Centre Policy.
   d. Mobile Clinics: What can and do they Achieve?

3. Health Service Interventions by the Wits HSOU
   a. Do Primary Health Care Nurses in Gazankulu provide Second Class Cheap Care to the Poor?
   b. Can good Tuberculosis Services be provided in the Face of Poverty?
   c. School Health Services: Problems and Prospects.
   d. Mass Immunisation Campaigns - The Tintswalo Experience.

The message is that:

Health care in Khala is inadequate.
- This care can be improved without preceding changes in the present economic and political systems.
- Such improvement is limited by social, economic and political constraints which are the root cause of such illness.
- It is worth working in "homeland" health services because of what can be achieved.

In acknowledging all who have worked in or with HSOU it must be remembered that health service development is a team effort. Many of the people of Khala, the hospital staff, primarily Dave Stephenson as superintendent and the community health nurses, Dr Erica Sutter and the superintendents and staff of Gazankulu's other hospitals, the health department led by Dr Roos and, more recently, Dr Robert, and the Chief Minister of Gazankulu have all contributed to the establishment and development of the Unit. The Chairman's Fund of Anglo American and the University of the Witwatersrand have provided the infrastructure.

The action has come from Anita and Bob Backentose, Eric Buch, Rob Collins, Cedric de Beer, Clive Evian, Vic Gerdé, Wendy Hammond, Thoko Maluleka, Shirley Maswanganyi, Sanilosile Mntwala, Dipuo Moscow, Robert Waugh and Merrick Zwarenstein.

JOHN GEAR
DIRECTOR - HSOU
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THE NUTRITIONAL STATUS OF 1-5 YEAR OLD CHILDREN IN MHALA

Eric Buch, Helen Nyathi and Ennika Ntlemo

INTRODUCTION

Tintswalo hospital, its 10 clinics and one health centre officially serve the people of the Mhala district of Gazankulu. The people live in 57 villages spread over an area of 1204 sq.km. Village populations range from a few hundred to about 12 000. (1)

Mhala is a fairly typical homeland area with widespread poverty. Farming is well below subsistence level and migrant labour extensive. Transport is poor and water supply limited. It appears that some areas are worse off than others. (1)

The rate of malnutrition in 1-5 year old children is an indicator of the level of poverty in a community. Until recently we did not know the extent of malnutrition in Mhala and whether some villages were worse off.

The opportunity to collect data on malnutrition came during the third mass immunisation campaign. We had immunised more than the official 1-5 year old population in the first two campaigns and realised that if we measured children coming for immunisation we could get representative data. In May 1983 we did just this. We had two questions in mind:

a. What is the extent of malnutrition in children 1-5 years old?
b. Are some villages worse off than others?

METHODS

The study population was all the villages of Mhala. The mid-upper arm circumference of all the 1-5 year olds who came for immunisation was measured.
Mid-upper arm circumference is an acceptable index of nutritional status. (2) We chose it because it is a simple measure. Childrens' arm circumferences, (i.e. the fatness of their arms) increases rapidly in the first year of life, but then changes very little before the fifth birthday. The average increase in circumference (between the ages of 1 and 5) is only 1cm.

There is some controversy as to what circumference should be used as the index of malnutrition. A child with an arm circumference of less than 12.5cm is definitely malnourished, most probably severely. (2) A child with an arm circumference below 14.5cm is probably malnourished. (2) We decided on 12.5cm as an indicator of probable severe malnutrition and 14cm as an indicator of probable malnutrition. Ijsselmu den using village based data from another area of Gazankulu has recommended that the cut off point for community based survey should be 14.8cm (3) This is the point at which the number of false positives and false negatives equals out. Therefore, by using a standard below 14.8cm we have probably systematically underestimated the extent of malnutrition in our area.

Ages were determined by asking mothers. Milestones were used as confirmation for the less than one year olds, but there is no easy way to identify those over 5 years old, as mothers may not recall the exact birth date. Mothers may also have thought that we would refuse to immunise their children if they said they were six years old. This means that we may have measured some six year olds which would also lead to an underestimation of the extent of malnutrition.

Arm circumferences were measured by trained staff using Shakir strips. (2) X-ray plates were cut into thin strips, and coloured red in the area below 12.5cm, white from 12.5 -14cm, and green above that. Measurements were recorded as red, white, or green.

RESULTS

19 021 (74.2%) of an estimated 25 624 one to five year old children were measured in 43 of the 57 villages in Mhala. On the basis of our previous immunisation campaigns, we estimate that we missed 2 282 children in the 14 villages where measurements were not taken.
50% (26.3%) of the children had mid-upper arm circumferences below 14 cm. 4.12% (22.1%) of these were between 12.5 and 14 cm, and 0.3% less than 12.5 cm. Table I indicates that the percentage of malnutrition in different villages in 9 villages more than 30% of the children were malnourished. Table II indicates that in 20 villages more than 3% of the children were severely malnourished.

### TABLE II

<table>
<thead>
<tr>
<th>% of severely malnourished children</th>
<th>0-10</th>
<th>10-20</th>
<th>20-30</th>
<th>30-40</th>
<th>40-50</th>
<th>50-60</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of villages</td>
<td>120</td>
<td>120</td>
<td>120</td>
<td>120</td>
<td>120</td>
<td>120</td>
</tr>
</tbody>
</table>

This table shows the distribution of malnutrition in different villages. Table III compares the proportion of severe malnutrition to malnutrition in each village. In 16 villages more than 20% of the total malnutrition figure was from severe malnutrition.

### TABLE III

<table>
<thead>
<tr>
<th>Proportion of severe malnutrition to malnutrition</th>
<th>0-10</th>
<th>10-20</th>
<th>20-30</th>
<th>30-40</th>
<th>40-50</th>
<th>50-60</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of villages</td>
<td>13</td>
<td>14</td>
<td>8</td>
<td>6</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>
Malnutrition is not evenly distributed within Mhala. The district comprises groups of villages in the south, east, and middle of the district, and a group near the hospital. The middle had 19.0% malnutrition, the south 27.1%, the east 33.4% (incomplete data), and those villages near the hospital 35.3%. Pockets of more severe malnutrition occurred within each district.

DISCUSSION

We believe that our data indicates the extent of poverty in Mhala. We found that one in four children was malnourished but the truth is that there is more malnutrition because:

a. The measurement we used systematically underestimates malnutrition.

b. The data only indicates the prevalence of malnutrition. The incidence is higher.

c. The data misses children who have died. Under 5 children who die are more malnourished.

We are very concerned about the finding that more than 3% of children were severely malnourished in 20 of our villages, as the usual prevalence figure is around 1%.

The existence of pockets of more severe malnutrition within the district shows that adjacent villages do not necessarily have the same level of poverty.

In most villages the proportion of severe malnutrition to malnutrition correlated well. However, in 7 villages we would have underestimated the problem if we had only looked at total malnutrition. We therefore recommend that in deciding priorities one should look at total malnutrition, total severe malnutrition, and the proportion of severe malnutrition to malnutrition. This will help those villages who don't have a large overall rate of malnutrition, but do have significant numbers of severely malnourished children.
CONCLUSION

We advise others who have the opportunity to gather similar data to do so. The task is easy if large numbers of people come to a central point, such as in a mass immunisation campaign. Such data helps in the setting of priorities and directs attention to the areas of greatest need. It also helps to document the extent of poverty in any area.

REFERENCES:


These papers constitute the preliminary findings of the Second Carnegie Inquiry into Poverty and Development in Southern Africa, and were prepared for presentation at a Conference at the University of Cape Town from 13-19 April, 1984.

The Second Carnegie Inquiry into Poverty and Development in Southern Africa was launched in April 1982, and is scheduled to run until June 1985.

Quoting (in context) from these preliminary papers with due acknowledgement is of course allowed, but for permission to reprint any material, or for further information about the Inquiry, please write to:

SALDRU
School of Economics
Robert Leslie Building
University of Cape Town
Rondebosch 7700