NUTRITIONAL STATUS OF GHANAIAN CHILDREN IN OLD TAFO AND DONYINA IN THE ASHANTI REGION OF GHANA

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SUMMARY

This is a study of the nutritional status of two hundred and forty children of both sexes in two locations in the Ashanti Region of Ghana, one location periurban and the other a village. The children ranged in age from 0 to 3 years, of both sexes. The anthropometric measurements taken included weight and mid-upper arm circumference. No height measurements were made.

Weight for age measurement for more than half the children studied were in the range of 60 to 80 per cent of standard and less than 5 per cent were less than 60 per cent of standard. One and half times as many females as males were above 80 percent of standard.

With mid-upper arm circumference, two-fifths of all the children had arm circumference measurements greater than 13.5cm. The distribution in each of the three arm circumference categories is equal for both sexes.

The significance of this study in relation to the nutritional status of young children in the country is stressed.

Key words: Nutritional Status: Anthropometry: Weight for Age: Mid-upper arm circumference: Ashanti.

INTRODUCTION

Protein-energy malnutrition (PEM) is endemic in Ghana. This is evidenced by the fact that the name of one of the well-known clinical syndromes of PEM, Kwashiorkor, is derived from the Ga dialect in Ghana.

A number of studies have been undertaken in the country to define the extent of nutritional problems. The most extensive of these has been that by Davey1, which covered the whole country and involved all age groups. Other studies have involved smaller communities and more limited age groups2-4. There is no evidence of a published study of the nutritional status of children in Ashanti apart from the Davey study1.

It is expected that malnutrition will increase rather than diminish in the next few years, because of the rapid increase in population (12.2 million, 1984 census) due to a high rate of population increase (2.6%, 1984) in the presence of global and local economic recession.

The present study is an attempt to determine the prevalence of PEM in the Ashanti Region of Ghana by means of a cross-sectional survey.

METHODS

A cross-sectional study of children between the ages of 0 to 3 years was undertaken to determine the nutritional status of young children in two representative areas of Ashanti: Old Tafo, a periurban district of Kumasi, the regional capital, with a population of 27,531 persons (1984 census), and Donyina, a village in the Ejisu-Juaben-Bosomtwi local area of Ashanti, with a population of 2,455 people (1984 census) and located in a typical rural area.
The children were brought for examination to a central location in the community following a request to mothers to bring their children for a check to see if they were well. The study was carried out in July 1984. The children were subjected to anthropometric measurements such as weight, head and chest circumferences, mid-upper arm circumference, and skin-fold thickness. No length or height measurements were taken. No clinical examinations were done. The anthropometric measurements were based on the standard procedures set out by Jelliffe.

Weight was measured by means of UNICEF beam balance measuring up to 16 kg, in 100 g increments. All infants were weighed nude. The head, chest and mid-upper arm circumferences were measured with Zerfas insertion tapes. The triceps skinfold thickness was measured with a Harpenden skinfold caliper which has a uniform pressure of 10 g/mm². All measurements were taken according to the standard procedures of Jelliffe.

Age data was solicited from the mothers by questioning or were obtained from road-to-health charts. Where both were available, the information provided by the mother was verified from the child's card.

Data was also collected on certain demographic, sociocultural and dietary characteristics such as marital status of the mother, age at weaning of child, immunisation status of the children, supplementary feeding and knowledge and practice of family planning.

RESULTS

The material presented in this paper consists of anthropometric findings related to weight for age and mid-upper arm circumference. The data are available upon request to the author.

A total of 240 children were examined, 131 in Old Tafo and 109 in Donyina.

The age and sex distribution of the cases studied is given in Table 1. The peak age incidence was between 13 and 18 months accounting for 29.1% of the study population. 96.2% of the children were in the age range 7 to 30 months.

The weight for age distribution for both sexes is shown in Table 2. The majority of the study children (57.2%) were above 80% and 4.2% less than 60%. By sex, 15.4% of males and 23.3% of females were above 80% of standard, 30.4% of males and 26.7% of females were between 60 and 80% and equal numbers of each (2.1%) were below 60% of standard.

The findings on the mid-upper arm circumference by age are as shown in Fig 1. 40.8% of all children had a mid-upper arm circumference greater than 13.5 cm, 33.3% between 12.5 cm and 13.5 cm and 26.2% of children (25.9%) less than 12.5 cm. By sex, about equal numbers of each occurred in the three categories (Fig 1).

The growth performance of the children from the two locations was lower as compared to WHO standard (Fig 2).

### Table 1

<table>
<thead>
<tr>
<th>AGE (MONTHS)</th>
<th>MALES</th>
<th>FEMALES</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>0 - 6</td>
<td>1</td>
<td>0.8</td>
<td>3</td>
</tr>
<tr>
<td>7 - 12</td>
<td>8</td>
<td>6.1</td>
<td>7</td>
</tr>
<tr>
<td>13 - 18</td>
<td>16</td>
<td>12.2</td>
<td>16</td>
</tr>
<tr>
<td>19 - 24</td>
<td>18</td>
<td>13.7</td>
<td>20</td>
</tr>
<tr>
<td>25 - 30</td>
<td>17</td>
<td>13.0</td>
<td>20</td>
</tr>
<tr>
<td>31 - 36</td>
<td>2</td>
<td>1.5</td>
<td>5</td>
</tr>
<tr>
<td>TOTAL</td>
<td>62</td>
<td>47.3</td>
<td>69</td>
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</tbody>
</table>
TABLE II

WEIGHT FOR AGE DISTRIBUTION OF SUBJECTS

<table>
<thead>
<tr>
<th>AGE (norms)</th>
<th>OLD TAFO</th>
<th>DONYINA</th>
<th>COMBINED</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt;60 %</td>
<td>60 — 80</td>
<td>&gt;80 %</td>
</tr>
<tr>
<td></td>
<td>No. %</td>
<td>No. %</td>
<td>No. %</td>
</tr>
<tr>
<td>0 — 6</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>1 — 12</td>
<td>2.1</td>
<td>6.4</td>
<td>7.5</td>
</tr>
<tr>
<td>13 — 18</td>
<td>1.8</td>
<td>16.2</td>
<td>12.1</td>
</tr>
<tr>
<td>19 — 24</td>
<td>3.1</td>
<td>26.6</td>
<td>19.8</td>
</tr>
<tr>
<td>25 — 30</td>
<td>1.0</td>
<td>31.8</td>
<td>23.7</td>
</tr>
<tr>
<td>31 — 36</td>
<td>0.0</td>
<td>4.3</td>
<td>3.1</td>
</tr>
<tr>
<td>TOTAL</td>
<td>6.2</td>
<td>86.4</td>
<td>37.3</td>
</tr>
</tbody>
</table>

DISCUSSION

A weight-for-age of over 80% of standard is taken as indicative of normal growth performance (Welcome Classification 6). On this basis, only 28.2% of the children at Old Tafo can be stated to have a normal nutritional status compared with more than half (51.4%) of the children at Donyina.

The differences in the number of children with normal nutrition in the two locations may be fortuitous or may be due to the fact that the majority of the mothers in peri-urban areas do go out to work, leaving their children at home to be tended by older siblings or relations. The nature of their work, such as trading, teaching, or office work, also necessitates earlier cessation of breast-feeding. Rural mothers, on the other hand, breast-feed their children for a longer period, taking the children to the farm with them when they resume work. In addition, fewer children (1.8%) at Donyina were severely malnourished (less than 60% of standard weight-for-age) than those at Old Tafo (6.2%). In both locations, more females than males had a normal nutritional status. The significance of this is uncertain, since there is no known sex preference in the feeding of infants and young children in Ghana as occurs in other parts of the world7,8.

The mid-upper arm circumference has been found to increase only by 1.5cm in normal children from the age of one to six years9 and to be a useful tool in the assessment of the nutritional status of young children, even in the absence of knowledge of precise age8. It shows little variation between ethnic groups and can also be easily used by primary health workers in field conditions.

The 13.5cm level is considered an acceptable level of good nutritional status10. A measurement value of less than 12.5cm is taken to indicate clinical malnutrition. While one quarter of the children at Old Tafo had values over 13.5cm, three-fifths of those at Donyina had similar values. On the other hand, one-third of the children at Old Tafo and one-seventh of those at Donyina were malnourished by arm circumference measurements.

The differences between the two locations are possible due to the differences in feeding practices mentioned earlier, although the number of children in this study is not enough for the drawing of definite conclusions. The sex similarity is in agreement with the findings of Anderson12.

The growth performance of the children paralleled the weight gain of the WHO standard11 but at a lower level, until about 12 months of age when it plateaued (Fig. 2). Sai12 (1969) noted that in Ghana the rate of weight gain slowed down from 6 months onwards and that by 12 to 15 months it might be down to nil. Davey1 also noted that about 50 to 70 per cent of the children showed a pathological weight deficit during the age of 1 to 4, and that this
MID-UPPER ARM CIRCUMFERENCE OF
SUBJECTS BY SEX

Fig. 1
Growth performance of children compared to W.H.O. standard

Old Tafo & Donyina (both sexes)

Age in months

Weight in kgs

--- W.H.O. standard
--- Donyina
--- Old Tafo

Fig. 2
began to improve as soon as they were old enough to cope with the adult type diet.

The number of cases studied in the two locations may be too small to allow definite conclusions to be drawn about the nutritional status of young children in the Ashanti Region of Ghana. There is a need, therefore, for a larger, more detailed study to determine the prevalence, types and severity of malnutrition in a representative area of the country.

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REFERENCES


