

Measuring and Managing protein energy malnutrition in rural communities

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6 The follow-up

**A follow-up report and full list of references will be published in the April issue.*

KEYWORDS: Nutrition; Infants; Developing Countries; Health Education; Malnutrition

FOLLOW UP OF 998 CHILDREN WITH PEM TREATED AT HOME

INTRODUCTION

In July, August and September 1980, the mobile under five clinic ('feeding team') screened 11 411 children under the age of six years in the Gelukspan district (88% of pre-school children). Of the screened children under six years of age, 998 (8,9%) were put on food supplements because they were malnourished. A child was malnourished when the weight for age was less than 80% of the Harvard reference weight for age for children 0 - 11 months old. Children of 12 months and older were only given supplements when their mid-upper arm circumference was less than 13,5 cm²⁸.

THE FOLLOWING SUPPLEMENTS WERE GIVEN:

- full cream milk 1-1,5 kg/month for babies 0-11 months
- skimmed milk 1,5 kg/month for children 12-35 months
- peafLOUR 4 kg/month for children older than 36 months.

Of these 998 children, 17% lived in resettlements, 9% in the trust villages and 74% in the traditional villages. A random sample of 200 children was taken and followed up.

Methods

Measurements were mainly done during the period March - June 1982. Among others - age, sex, height, weight and catch-up growth during and after supplements were assessed. The age was obtained from the Road to Health card or the vaccination card. The weight of the children was measured with a Salter Scale (25 kg) in kilogrammes to the nearest 0,1 kg. The height was measured with a steel metric tape fixed on a frame. In this way the measurement was done with an accuracy of 0,5 cm. The catch-up growth was assessed with the method described by King²⁸. A child has catch-up

growth (A) when it is growing faster than expected for its weight, which is considered to be the best catch-up growth, or a child has catch-up growth (B), when it is growing slower than expected for its weight but faster than expected for its age. A child is in category C (no catch-up growth) when it is growing slower than expected for its age.

RESULTS

Of the sample of 200 children the sex distribution was 55% girls and 45% boys. Of the children, 180 (90%) were traced and 20 (10% were unknown at the time of the follow-up study. Of those who were traced, 17 children had moved and 12 had died; 151 children were found and could be measured.

TABLE VI.1: The weight and age distribution in 1980 - 1982.

Age	Mean Weight (1980)	Mean Weight (1982)
0 - 11 months	6,7 kg	- kg
12 - 23 months	8,4 kg	8,6 kg (n = 1)
24 - 35 months	9,1 kg	10,6 kg
36 - 47 months	10,5 kg	11,9 kg
48 - 59 months	11,8 kg	12,7 kg
60 - 71 months	12,2 kg	14,2 kg
72 months	14,5 kg	16,1 kg

The mean weight of all groups from 24 - 71 months is significantly higher in 1982 (p 0,001).

CATCH-UP GROWTH

The catch-up growth was measured at the first, second and last month during supplements and at the time of the survey (1982).

TABLE VI.2

	Catch-up growth		
	A	B	C
One Month on supplements	42,4%	27,1%	30,5%
Two Months on supplements	42,4%	28,8%	28,8%
When supplements were stopped	32,5%	36,2%	31,3%
At the time of survey (1982)	17,4%	35,9%	46,8%

If one considers catch-up growth A and B as a good response (growing faster than expected for weight or age) then nearly 70% of the children responded well. Even after the supplements had been stopped for more than one year, more than half of the children grew faster than expected for their age.

TABLE VI.3

Mean number of months on supplements	10,5
Mean number of supplements issued	4,6
Mean number of months after supplements were stopped	12,6
Average attendance during supplements	5,3 times/12 months.

There was no significant relationship between the category of catch-up growth and the type, duration and number of supplements issued.

Probably other factors like vaccinations, treatment of minor ailments, health education and advice about the diet of the child were as important or more important than the food supplements themselves.

The only significant difference that we found was that in category C (no catch-up growth) there were more defaulters (0,001 p 0,01) than in categories A and B.

Type of supplement and taste

Of the 151 children, 104 received one type, 43 received two types and four received three types of supplements. Full cream milk was best accepted and there were no complaints about it. All the children took the skimmed milk powder although 5% of the children did not like it as much. Ninety percent of the children ate their pea soup and 10% took it very reluctantly or not at all.

The people were also asked if they had received advice from the feeding team and if they had changed anything in their living conditions thereafter. Of the mothers or guardians, 83,7% could remember the advice given to them. Most of the advice was concerning the diet of the child (more than 90%) and the rest was about selfhelp, family planning etc. Most of the mothers said that they had tried to implement the advice given.

Number of siblings on supplements in families where there is already one child on supplements:

No. of families	75	48	17	6	1	1	1
No. of additional children on supplements	0	1	2	3	4	5	6

In 50% of these families there was more than one malnourished child. There were several families (usually old grannies with many grandchildren) where we found all children to be malnourished! One family where six children

received food supplements! Many of these families had serious social problems and were referred to the social worker.

Mortality

Only 12 of the 200 children had died in this two year period. Twenty children could not be traced but it is unknown if they had died or moved away. It is also possible that some of them were visiting the area when they were put on to supplements. The minimum mortality rate is 3%, and if we accept that all 20 children died, the maximum mortality rate is 8% (per year). This is within the range we found for the child mortality in the whole district (1980 — 1981) and it is very low compared with other studies. Thomas in East-London found mortality rate of 51% in a group of malnourished children who were treated as outpatients⁵⁸. When we analysed the cause of deaths for the twelve children who died we found the following:

Cause of death	No.
Diarrhoea	5
Kwashiorkor (swelling of body)	2
Chest Infection	1
Measles	1
Abdominal pains	2
Unknown	1

The children died between two and 18 months after they were last seen in the clinic or by the feeding team and can all be regarded as defaulters. Of the seven children where we could inspect their Road to Health Card we found them all in category C. This means that children who do not show a catch-up growth on food supplements belong to a high risk group and should be screened for underlying infections.

CONCLUSION

With simple screening methods it is possible to identify the pre-school children with PEM in the community. With a comprehensive approach: food supplements, immunisations, treating minor ailments, health education to the caretakers and regular follow-up, it is possible to treat most of them safely at home.

Our figures indicate that the majority of the children respond with catch-up growth and that the mortality rate among the malnourished children treated at home compared very well with the mortality rate in the district as a whole. Unsatisfactory weight gain and death are significantly correlated with defaulting from the under five clinic.

REFERENCES

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 58 Thomas, Trudy. — The effectiveness of alternative methods of managing malnutrition. *Hunger, work and health*. Edited by Francis Wilson and Gill Westcott.