

# Measuring and managing Protein Energy Malnutrition in Rural Communities

## 2 Contributing Factors

by Martin Bac, Arts, Gelukspan Community Hospital

In this section an effort will be made to point out factors which may play a role in the development of PEM in children under six years. The order in which the factors are discussed has no implication regarding their respective importance.

### Breastfeeding and weaning period

In Paediatric Priorities in the Developing World (1977) David Morley points out that breast feeding is essential in the rural homes of developing countries.<sup>41</sup>

ARTIFICIAL FEEDING does not provide the child with the anti-bodies which are present in the mother's milk and which reduce the risk of infections during the period of breastfeeding (passive immunity).

BREASTMILK is ideally composed for a human infant. It has the right amount of body-building protein needed by the young child to grow. It also has plenty of energy-giving carbohydrates and fat, as well as the vitamins, minerals and water that a young child needs. Breastmilk is always ready and is never too hot or too cold<sup>28</sup>.

ARTIFICIAL MILK is expensive. Among the poor much of the already stretched family food budget may be spent on the purchase of an expensive artificial milk<sup>41</sup>. To make it last longer, the mixture is usually made with too much water resulting in a starving child<sup>23</sup>. Besides, no breastfeeding or breastfeeding for a short period only is disadvantageous for a developing country; it means a loss of costly food, that is especially fit for a baby. It has to be replaced by milkformulae most often produced in another country. The result is a loss of foreign currency<sup>32</sup>.

Fresh milk may be unobtainable and is likely to be contaminated. It is impossible

to keep artificial foods clean under village conditions, especially in a crowded house with dust and flies. Feeding bottles and teats are particularly difficult to clean and sterilise properly<sup>23</sup>.



Breastfeeding has a contraceptive effect, which gradually wears off. The result is children born at intervals which permit the mothers to look after them as well as possible spacing effect<sup>23</sup>.

Breastfeeding has a psychological advantage of promoting a good mother child relationship from birth.

These factors explain the remark of M. Behar and F.E. Viteri (1978), that kwashiorkor is often a disease of artificially fed or weaned children. As a rule, kwashiorkor occurs some weeks or months after weaning<sup>2</sup>.

Jellife (1975) mentions failure of breastfeeding as one of the causes of

marasmus<sup>23</sup> and in a survey on breastfeeding (1978) it is stated that marasmic infants were weaned from the breast earlier than nutritionally normal infants.<sup>70</sup>

G. Margo c.s. (1976) also stresses the importance of breastfeeding for a longer period in preventing P.E.M.<sup>37</sup>.

The age at which breastfeeding is stopped depends on the mother's social background and local custom. Whether she stops at nine months, one year or three years, it is important that she should start mixed feeding at four to six months<sup>23</sup>. It is better to start giving the infant mixed feeding when it is about four months. At the age of six months the infant is so big that breastmilk is not enough by itself. Therefore the infant should be well used to mixed feeding by the time he needs it<sup>28</sup>.

Prolonged breastfeeding without other foods (longer than six months) is recognized as one of the causes of marasmus<sup>23</sup>.

Too early an introduction of weaning food, however, may cause food allergies, infection and weanling diarrhoea<sup>59</sup>. In contradiction to the foregoing, no evidence was found in a survey on breastfeeding (1978) that bottlefeeding or early cessation of breastfeeding were causes of malnutrition in depressed urban areas of greater Manila, Philippines<sup>70</sup>.

### Food intake

The food intake may be deficient in protein or energy. This may be caused by lack of money, ignorance of the mother or guardian, customs and prejudices in matters of child feeding and rearing. Malnutrition is not just caused by lack of food.

Non-food factors play a definite role in the occurrence of malnutrition,<sup>38</sup> and in the occurrence of clinical stigmata of malnutrition, (marasmus, kwashiorkor) in some of the children. B.D. Richardson (1973) did not find obvious difference in

type of food eaten or pattern of diet of children with kwashiorkor compared with those without<sup>48</sup>. G. Margo (1976) even found a lack of association of food expenditure and the nutritional status as assessed by anthropometric measurements<sup>37</sup>.

### Agricultural resources and cattle

The possession of a vegetable garden or a field or of cattle may provide the family with essential foodstuffs and increase the family income. According to G.M. Westcott and R.A.P. Stott (1977) mothers who have eggs, milk or vegetables available at home, are likely to have children above the Boston Third Percentile (BTP). However, the discriminating effect of a vegetable garden was not great and the possession of a field (cash income being much more important) appeared to have a significant effect of its own on malnutrition<sup>65</sup>.

### Income

Poverty may limit the range of foods, especially protein-rich foods, available for the children. Thus animal protein food, which is relatively expensive may be seldom used. On the other hand, high income does not imply buying more and better food.

G.M. Westcott and R.A.P. Stott (1977) found a significant difference between the proportion of children who were below BTP in those families with an income of more, and those with an income of less than R30.00 per month<sup>65</sup>. As one would expect, a comparison between income per head and the incidence of malnutrition (below BTP) shows a more regular relationship than does income per family, according to the same survey<sup>65</sup>.

### Unemployment associated with lack of income and its consequences

No regular system of unemployment-benefits exists in most developing countries. At the same time unemployment may reinforce feelings of incompetence, inadequacy and inferiority and as such reflect itself in the behaviour of the parents towards their children.

### Disturbed community patterns of living

A social breakdown may be at the root of the development of malnutrition in children. Several circumstances may bring about this social breakdown. It may be that migratory labour is a contributing factor<sup>16, 58</sup>.

Migratory labour is very common in the Republic of Bophuthatswana for men as well as for women, especially in the resettlements, where the men usually still work outside the country in South Africa. The consequence is that he or she can visit the family only a few times a year. This disturbs the traditional family pattern of living. This breakdown of stable family life may contribute heavily to the development of malnutrition<sup>56</sup>. Forcing people, who come from different places and different communities to live together in one and the same community may be another factor related to malnutrition.

### Mother working

If a mother is a daily wage earner, the income is increased. Some negative effects exist, however. Mothers may stop breastfeeding very early in order to leave for work. The young children are looked after by mother-substitutes, often grandmother or older children, who may have little knowledge of feeding and rearing young children. Separation from the mother, her attention and stimulation may effect the child's condition negatively too (social/ emotional deprivation).

### Rearing

As mentioned above, children may be reared by someone other than the mother. The child may be left to the care of the grandmother because the mother wants to go to work. This may be prescribed by local custom. G.M. Westcott and R.A.P. Stott (1977) however, found no statistically significant difference in percentage of children below the BTP among those reared by someone other than the mother compared to those reared by the mother<sup>65</sup>.

### Marital status of the mother

Children of unmarried mothers or of families abandoned by the father or children whose fathers are dead, seem to be at greater risk<sup>2</sup>. No stable family life may be established, there may be a lack of income and the mother may have to go to work. All these factors may increase the risk of developing malnutrition in children.

Indeed G.M. Westcott and R.A.P. Stott (1977) found that a considerably higher proportion of children in families, not supported by the child's father, were below the BTP<sup>65</sup>.

### Maternal age, guardian's ages

The age of the mother or the guardian may be a risk factor. In the case of the mother or guardian being very young or rather old the problem may be a lack of

health education or a lack of skill in rearing and feeding the small children properly. However, G. Margo c.s. (1976) showed in his survey, a lack of association between maternal age and any of the assessed the nutritional status of the children<sup>37</sup>.

### Spacing of children and birth order

G.M. Westcott and R.A.P. Stott (1977) noticed that a birth order over seven was found significantly to increase the chances of malnutrition<sup>65</sup>. A partial explanation may be that the mother's ability to secrete milk decreases after such a long period of child bearing<sup>41</sup>. The more children in a family, the less money is available per head for food and the less attention is paid to each child by the mother.

David Morley shows in his book *Paediatric Priorities in the Developing World* (1977) that the mortality rate is higher after a short birth interval than after a longer birth interval, especially in the developing areas of the world. Good health in the small child depends heavily on a sustained period of breastfeeding, which is not possible with a short birth interval.

In the field of malnutrition it is well known that kwashiorkor (meaning: the disease of the disposed baby when the next one is born) is particularly likely to develop at the time or shortly after a new baby is born. The mother's care seems to be largely concentrated on the younger baby in developing countries. This "mothering time" is longer if the birth interval is longer.

If there is a short birth interval breastfeeding is usually brief. In these circumstances malnutrition occurs early. The malnutrition occurring in the first year of life is likely to be more serious than occurring at a later age, because of its adverse effect on physical growth and intellectual development of the infant<sup>41</sup>.

### Family size

Family size influences the per capita income and the attention of the mother or guardian paid to each child. Both the amount of food available and the stimulation of the mother or guardian may influence the food intake of each child. G. Margo c.s. (1976) however, found no association between family size and the nutritional status as measured by anthropometric variables.

## Twinning

Twinning may be a hazard in that the children have to share their mother's breastmilk and other available food. Furthermore, twinning seems to be more frequent in older mothers of high parity, who are likely to have less breastmilk<sup>41</sup>. D.B. Jellife (1975) mentions twinning as one of the possible causes of kwashiorkor<sup>23</sup>.

## Education

M. Zeitlin c.s. (1978) found in the depressed urban areas of greater Manila Philippines, that the mother's education was significantly correlated to the nutritional status of infants<sup>70</sup>. However, G.M. Westcott and R.A.P. Stott (1977) found no relationship of education to malnutrition<sup>65</sup>. G. Margo c.s. (1976) also noticed a lack of association of the education attainment of the parents and any of the anthropometric variables assessing the nutritional status<sup>37</sup>.

L. Mata (1977) remarks that maternal education in the sense of endowment of skills and technology are more important than scholastic ability. Skills are required to feed an infant properly and protect is from environmental hazards, particularly infection<sup>38</sup>.

## Health Education

G.M. Westcott and R.A.P. Stott found no significant relationship between limited attendance at a baby clinic and malnutrition. They suggest that mere subjection to health education does not discernibly improve the mother's or guardian's tendency to feed the children adequately, but good evidence showed that once the knowledge has been absorbed, the incidence of malnutrition was much reduced. The influence of attendance could be discerned both on the diet the mothers said they gave their children and on their health knowledge. However, there was no significantly direct relationship between attendance and whether the child was underweight. They also noticed that poor mothers are less likely to acquire a good knowledge of health. They find it much harder to afford the bus fare to the clinic. They usually walk and are thus less likely to attend regularly<sup>65</sup>.

## Infectious diseases

Gastro intestinal, respiratory (including tuberculosis) or cutaneous infections, which result from poor hygiene, use of dirty water, contaminated water, poor latrines, overcrowding is often of extreme importance in the development of malnutrition.

The child's appetite may be reduced by the frequently occurring infections (anorexia) even if they are mild and not recognized as diseases. Where children

A workshop on Balint principles was held recently in Cape Town under the guidance of Enid Balint of the United Kingdom.

For three days, workshop participants discussed patients and examined group processes arising out of these case presentations Saville Furman, regional representative for *Family Practice* in the Western Cape and newly elected President of the SA Balint Society reports back.

The first case presented concerning a dying patient, exemplified the inadequacies felt by the doctor in such a situation. The difficulties of accepting the imminent death of a favoured patient were stressed. The case presenter found it very difficult to reassure his patient finding her demanding and despondent. Enid Balint pointed out that dying patients may want to talk about things other than death, for instance, life and that the doctor should attempt to really listen to what the patient was saying.

The second case presented concerned a female patient who expressed anger towards her doctor as she felt that he treated her as a psychological case. He in turn was very angry as he felt that he had



Dr Michael Balint

are consuming a diet that seems to be sufficient to satisfy their nutritional requirements if they eat enough, the effect of these infections seems to be the main factor responsible for maintaining them in a state of chronic deficiency and for precipitating the appearance of severe clinical malnutrition in some of them<sup>3</sup>.

There is also no doubt that underweight children cannot fight diseases adequately. They fall ill and die more easily. When

treated her organically by first excluding any serious organic defects before attempting to deal with her psyche. The interesting point illustrated by this case was that it was actually the doctor's and not the patient's need which had to be met before the doctor was satisfied.

The third case involved a young inexperienced doctor who felt overwhelmed by a seductive patient who regularly requested gynaecological examinations. This case evoked much empathy which helped the young doctor clarify his feelings.

On the second day of the workshop the first case presented concerned a strong, dependant, controlling mother with a child suffering from a chronic cough at creche. The presenter's problem centre around his feelings that the child's family thought that he had not done enough to help the child, whereas he knew that this child who had been from doctor to doctor did not appear to have an organic illness. He also did not wish to become involved in a power struggle with the parents. This case, similar to the second one presented on the first day of the workshop, highlighted the anxiety experienced by doctors when they fear they have overlooked a possible organic cause of the problem.

The second case presented proved to be the most controversial. It involved a 50 year old man who was unable to have sex with his wife, who maintained that he battered her. The doctor was caught in a dilemma as he was forbidden by the patient to use this information. The discussion became very complicated and we, like the doctor felt confused. Enid Balint felt that the group was not "working" optimally on this case.

The workshop terminated on the third day with a feedback session and review of the workshop. This was followed by the Annual General Meeting of the SA Balint Society where new office bearers were elected. A vote of thanks was proposed to Enid Balint for her visit to South Africa and her guidance at the workshop. Feedback received since the workshop indicates that participants felt it had been most beneficial.

underweight children are affected by a disease such as measles, they are more likely to get it more severely than well-nourished children. A good saying to remember is that a community is malnourished as long as its children die from measles<sup>28</sup>.

A good vaccination status is a positive contribution in the prevention of the occurrence of some serious infectious diseases. □