

Nutritional Status of Pre-school Children in a Rural Community

MODUPE O. ONADEKO

Department of Preventive and Social Medicine, University of Ibadan, Ibadan.

Summary

Onadeko, M. O. (1980). *Nigerian Journal of Paediatrics*, 7(2), 33. **Nutritional Status of Pre-school Children in a Rural Community.** A survey of the nutritional status of pre-school children at Ilora, a rural town in Oyo State, has revealed the status to be markedly below that of the elite and significantly below that of other pre-school children with similarly low socio-economic background but residing in an urban area. The factors which appeared to be responsible for this sub-optimal nutritional status of rural pre-school children included not only low socio-economic status of the parents and poor environmental sanitation, but also ignorance of the value of the available nutritious food materials, and under-utilization of available health services. It is suggested that any programme for the control of malnutrition in rural communities should include health education input and increased food production.

MALNUTRITION has been shown to be an important and common cause of childhood mortality and morbidity in developing countries (Collis, Dema and Omololu, 1962; Jelliffe, 1963; Janes, 1974; Bailey, 1975; Burgess, Burgess and Driessen, 1975; Gopalan, 1977). Factors which have been identified as predisposing to malnutrition include faulty dietary habits, low socio-economic status and unfavourable living conditions (Gans, 1963; Jelliffe, 1963; Morley, Woodland and Martin, 1968; Oduntan, 1974; Brink *et al.*, 1976; Gupta and Nwambe, 1976; Gracey, 1976; Ogbeide, 1976); non-availability of food (Collis, Dema and Omololu, 1962); ignorance (Bailey, 1975; Morley, 1976); bacterial, viral and helminthine infections (Scrimshaw and Suskind, 1976; Mata, Urrutia, Garcia, 1977); large family size and short birth intervals (Kumar, 1976; Mudkhedkar and Shah 1976; Rawson and Valverde, 1976); social and cultural factors including various

beliefs, prejudices and taboos (Jelliffe, 1966; Morley, Bicknell and Woodland, 1968; Ogbeide, 1974; Chickermane, 1975; Shah, 1975) as well as social instability of the family (Ransome-Kuti, Gbajumo and Olaniyan, 1972).

Some studies have demonstrated that significant differences do exist in the nutritional status of children of identical social class living in different communities; this observation had been shown to be related to the utilization of health services, as well as to cultural differences including child bearing and child rearing practices (Shah, 1975; Burgess, Burgess and Driessen, 1975; Gracey, 1976).

According to the World Bank (1978), over 75 per cent of the population in Nigeria reside in the rural areas where farming is the predominant occupation and food is expected to be more readily available than in the urban areas. It is therefore expected that children in rural areas

should have an advantage with regards to their nutritional status, compared with children of the same socio-economic status who are resident in the urban areas (Gans, 1963; Jelliffe, 1966; Morley, 1968; Oduntan, 1974).

The present study was undertaken with the main objective of assessing the magnitude of the nutritional problem of pre-school children in a typical agricultural and rural Nigerian community. The community selected has been provided with primary medical care by the department of Preventive and Social Medicine, University of Ibadan, for over 10 years. It was also intended to find out whether there was any significant difference in the nutritional status of pre-school children in this rural community as compared with children of the same age groups who belong to the same socio-economic and ethnic background, but residing in an urban area. In addition, it was hoped that the study would provide an opportunity for an indirect assessment of the impact of available health services on the nutritional status of the pre-school children in this rural area.

Subjects and Methods

The study was carried out during the month of April, 1976, in Ilora, a rural town situated 52 kilometres north of Ibadan city. It has a population of about 30,000, a majority of whom are Yorubas. The adults are mainly farmers who grow yams, cassava, beans and vegetables for subsistence, and tobacco and jute as cash-crops. Pipe-borne water and electricity were recently installed in the town but these amenities are not always available. The water is not piped into individual houses but inhabitants get their water from communal taps whenever it was available in these taps.

A multi-stage sampling technique was used to select the children included in the study. The houses in the town had been numbered during a previous study carried out by the department of Preventive and Social Medicine. It was therefore

easy to select a 5 per cent sample of all the houses in the town. A 5 per cent sample of all children aged, 0-5 years, living in these houses were then registered for the study. Mothers and guardians of these children were interviewed using a questionnaire designed to elicit information about their occupation, education, annual income, pattern of marriage, family size, feeding habits, immunization status of the children and illnesses among the children during the three months prior to the study. The children were physically examined and their immunization status verified by looking for scars; for example, a scar on the left deltoid and another on the left forearm, were taken as evidence of immunization against smallpox and tuberculosis, respectively. Heights and weights were measured using the techniques described by Jelliffe (1966). These heights and weights were compared with Nigerian elite standards as well as with heights and weights of children of the same age and sex, who belong to the same socio-economic group and ethnic background, but residing in Oje area of Ibadan city (Janes, 1974). An assessment of the food available to the Ilora community was made by visiting, observing and enquiring in the houses, local shops and farms.

Results

A total of 120 children, 54 females and 66 males, aged 0-5 years, were studied. Table I shows the occupation of the parents. Thirty-one (87.3 per cent) out of sixty-three of the fathers stated that they were farmers, while one hundred and two (92.7 per cent) out of one hundred and ten of the mothers claimed to be petty traders. Table II shows that fifty-two (82.7 per cent) out of sixty-three of the fathers were illiterate while one hundred and five (95.5 per cent) out of one hundred and ten of the mothers had no formal education at all. Forty (36.4 per cent) of the mothers were from monogamous homes, while seventy (63.6 per cent) were from polygamous homes. Fifteen (13.6 per cent) of the mothers were divorced or

TABLE I
Occupation of the Parents

Occupation	Fathers		Mothers	
	No. of Patients	Per cent of Total	No. of Patients	Per cent of Total
Farming	31	49.2	5	4.6
Petty Trading	4	6.3	102	92.7
Unskilled Labourer	4	6.3	1	0.9
Skilled Labourer	16	25.4	2	1.8
Medium Profession e.g. Teacher	5	8.0	—	—
Business Man/ Woman	3	4.8	—	—
Total	63	100.0	110	100.0

TABLE II
Educational Status of the Parents

Educational Status	Fathers		Mothers	
	No. of Patients	Per cent of Total	No. of Patients	Per cent of Total
Illiterate	52	82.5	105	95.5
Primary	6	9.5	4	3.6
Secondary	3	4.8	1	0.9
Islamic Education only	2	3.2	—	—
Total	63	100.0	110	100.0

separated from their husbands. Forty-one (37.3 per cent) of the mothers had 2 children alive, while thirty-five (31.8 per cent), thirteen (11.8 per cent) and ten (0.1 per cent) had 3, 4 and 5 living children, respectively. The average birth interval was 2-3 years for the whole sample, and ninety-three (77.5 per cent) out of one hundred and twenty children were living with both parents.

Table III shows that fifteen out of twenty-three infants received only breast milk with occasional water while of the children aged, 1-5 years, only

TABLE III
Dietary Pattern of 120 Pre-school Children

Age (years)	Type of Diet	No of Children
≤ 1	Breast Milk + Occasional water	15
	Breast milk + water + Powdered milk supplement	8
1-2	Breast milk + ogi	47
3-5	Breast milk + ogi + other carbohydrate food but no protein supplement	36
	Breast milk + ogi + other carbohydrate food + protein supplement e.g. beans	14
Total		120

fourteen out of ninety-seven had any form of protein supplement in their diet. In the study, there was no case of Kwashiorkor. However, a few of the children had minor signs of protein-energy malnutrition.

With regards to environmental sanitation of the homes of the children, the nearby bush or backyard were depots for refuse disposal among one hundred (91 per cent) out of the one hundred and ten families interviewed, while ninety-eight (89 per cent) of them also utilised these depots for sewage disposal. Only ten (9 per cent) of the people interviewed had pit latrines in their respective homes. Thirty-five (32 per cent) and sixty-two (56 six per cent) of them obtained their drinking water from streams and wells respectively, while thirteen (12 per cent) utilize both sources.

Examination of the immunization status of ninety-seven children aged, 1-5 years, revealed that thirty-three (34 per cent) and thirteen (13.4 per cent) of the children had received the three courses of triple and polio vaccines, respectively. Fourteen (14.4 per cent) of the 97 children had been immunized against measles; fifty-three (54.6 per cent) had received small-pox vaccine and fifty-nine (60.8 per cent) had been immunized against tuberculosis.

Table IV shows the prevalence of illnesses among the children during the last three months preceding the survey, as recalled by their mothers or guardians. Fifty-three (44 per cent) out of a total of one hundred and twenty children had diarrhoea at least once in the last three months; of these, almost a third (16 out of 53) had at least three episodes of diarrhoea within the period. Thirty-nine (32.5 per cent) had respiratory infections, whilst eight (6.7 per cent) had febrile convulsion, presumably due to malaria.

TABLE IV

Prevalence of Illnesses Among 120 Pre-school Children at Ilora

Illness	Number of attacks					Total No of children	Per cent of Total
	1	2	3	4	5 ≥5		
Gastroenteritis	10	11	16	11	14	53	44.2
Respiratory infections	7	12	13	3	2	39	32.5
Febrile convulsions	3	2	1	1	1	8	6.7

Figure 1 compares the weight profile of Ilora children with those of elite Nigerian children and with urban Nigerian children of low socio-economic status living in the Oje area of Ibadan (Janes, 1974). The weight of the Ilora child during the first few months of life when he was fully breast-fed compared favourably with those

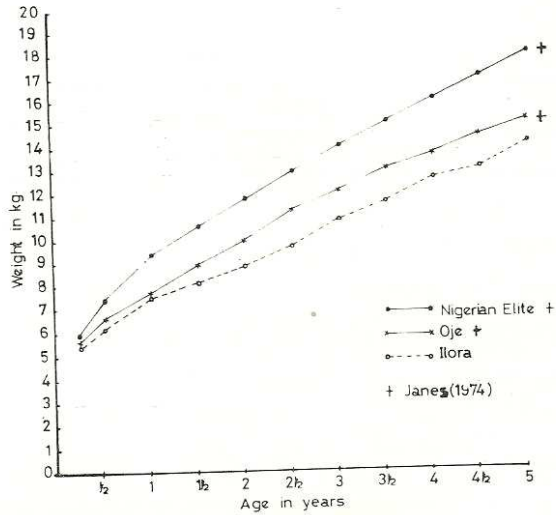


Fig. 1 Weights and ages of Nigerian children in rural and urban low socio-economic areas compared with the local elite standard.

of the elite and the Oje children. From about the age of six months however, the weight curves of both Oje and Ilora children begin to deviate significantly when compared with that of the elite child. By the age of 1½ years, the weight curve of the Ilora child was appreciably below that of the elite and significantly below that of the Oje child ($P < 0.01$); this trend was maintained until the age of five years. The height (Fig. 2) of the Ilora child was below that of the

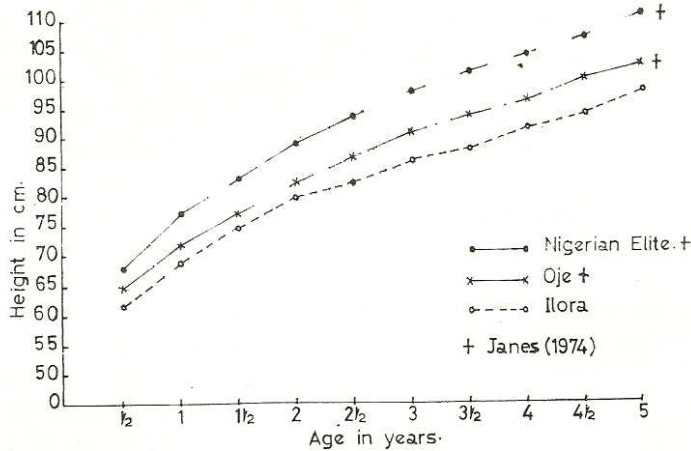


Fig. 2. Heights and ages of rural and urban low socio-economic Nigerian children compared with the local elite standard.

elite child but compared fairly well with that of the Oje child until about the age of two years when it started to fall significantly below that of the Oje child ($P < 0.01$). This trend was maintained until the age of five years.

Discussion

The nutritional status of the Ilora pre-school children was generally below the optimal level as indicated by their anthropometric measurements. The parents were mostly illiterate and engaged in subsistence farming with very little annual income. This is reflected not only in their poor housing and the poor standard of environmental sanitation, but also in the sub-optimal nutritional status of the children. The socio-economic status of the Ilora parents is therefore an important determinant of the nutritional status of the children. This observation is in agreement with those of other workers (Gans, 1963; Gracey, 1976; Oduntan, Ayeni and Kale, 1976). During the interview of the parents and guardians, it was gathered that most of the food crops grown is usually sold to urban consumers for cash to supplement the meagre proceeds from the cash crops, with the result that there is very little or nothing left of the nutritious food crops for the children to eat.

Mudkhedkar and Shah (1976) have reported association between birth intervals of less than one year and malnutrition. This association did not appear to play any major role in the present study since the birth intervals being practised ranged from 2-3 years, well above the identified one year danger period.

The important role which the integrity of the family plays in the aetiology of malnutrition has been highlighted by Ransome-Kuti, Gbajumo and Olaniyan (1972). However, the families in this rural community appear to be more stable than those of urban areas; only 13.6 per cent of the mothers were divorced or separated from their husbands, as compared with 22.5 per cent for Lagos, (Ransome-Kuti, Gbajumo and Olaniyan,

1972). Similarly in this study, 77.5 per cent of the pre-school children were living with both parents.

In the present study, as in most Nigerian communities, the immunization services available to the community has not been well utilized. For example, only 34 per cent of children aged, 1-5 years had received the full course of triple vaccine, whilst only 14.4 per cent had measles immunization. The under-utilization of immunization services is however not peculiar to Nigeria; workers in other developing countries have observed a similar pattern (Rao, 1975). Many factors could have been responsible for this; the parents of the Ilora pre-school children being predominantly farmers did not have enough time to bring their children to the clinic, except when the children fell ill. This problem was also evident during the home visits; the parents were available mostly in the evenings. They were also found to be ignorant as to causation of communicable diseases and the importance of immunization.

The high incidence of diarrhoea and respiratory infections among the pre-school children in this study as recorded by their parents or guardians is not surprising considering the poor environmental sanitation, lack of, or inadequate supply of potable water, and under-utilization of the available health services. These will also contribute to the poor nutritional status of the pre-school children.

Although food is readily available in this rural community, the practice whereby more importance is placed on selling the food-stuffs for cash rather than consuming them has resulted in the sub-optimal nutritional status of the pre-school children.

However, malnutrition among pre-school children in the rural community is multifactoral, complex and inter-acting; it is related not only to the low socio-economic status of the parents and guardians, but also to the existing poor environmental sanitation, under-utilization of available health services and ignorance.

Any programme designed for the control of malnutrition among rural communities must therefore include among other things, a strong health education input coupled with increased agricultural production.

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