

NUTRITIONAL STATUS OF TRIBAL UNDERFIVE CHILDREN IN AHMADNAGAR DISTRICT, MAHARASHTRA IN RELATION TO WEANING/ FEEDING PRACTICES

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ABSTRACT

Prevalence of malnutrition and its relation with feeding practices was studied in 605 tribal underfive children. There was a significant relation of nutritional status of preschool children to feeding practices. Exclusive breast-feeding was beneficial only upto 6 months age. After this age, it lost its advantage. Children above one year age exclusively fed on breast had a high prevalence of malnutrition. No other factor, like sex of the child, parental literacy, past history of illnesses had any significant effect. Health education messages should stress on importance of timely weaning with introduction of solid foods by 6 to 9 months of age; to address the widespread problem of malnutrition in underfive children.

Key words: Nutritional status. Breast-feeding, Tribal underfive children.

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Malnutrition is a common problem seen in underfive children all over India. Varying figures of its prevalence are quoted, i.e., upto 65 to 98% in the pre-school children(1,2). It is estimated that for every severe case of Protein Energy Malnutrition there may be ten others with borderline malnutrition. Frank malnutrition is one end of the spectrum of conditions, the other end being failure to thrive and gain weight. Timely intervention at this stage could prevent much morbidity and mortality in preschool children. The study was undertaken to find out important risk factors associated with malnutrition and actual prevalence of malnutrition in the study area in the underfive children.

Material and Methods

A survey was carried out in ten tribal villages, surrounding backwater of Bhandardara Dam (formerly Wilson Dam) of Akola Taluka, District Ahmadnagar, Maharashtra, in May 1990. The total population of these ten villages (1981 Census) was 7787. Camps were organized at each of these villages for check-up of underfive children and the opportunity was taken to immunize those needing it. During these checkups, medical interns collected data (in the pretested proforma) on feeding history, anthropometry and clinical examination under expert guidance. Mothers of these underfives were interviewed as regards to their knowledge, attitude and practices of child feeding and the data recorded on schedule. Immunization and primary treatment was offered whenever indicated. The data collected was crosschecked on the spot by the expert and review of schedules was done for completeness. Birth dates wherever available were recorded or noted to the nearest week or month using local events and Indian calendar.

Results

A total of 605 children below the age of five years from 10 villages surrounding Bhandardara dam, were examined for identification of cases of P.E.M.

General Observations

The findings from various villages were very similar and 67.5% of children were of Mahadev Koli tribe. Nearly 89% of the children had illiterate mothers and 55% fathers were illiterate. The overall immunization coverage was low, *i.e.*, 45.3% BCG, 51.4% triple vaccine and 51% polio.

Table I gives the age and sex distribution of the study population. It was observed that boys were given marginal preference over girls for health checkup; more so for the infants. However, the difference was not statistically significant. Infants constituted 30% of the total under-fives brought to the health checkup camps. The proportion of children declined with increasing age.

Distribution of Malnutrition

Out of 605 children examined, 433 (71.6%) were in various grades of malnutrition, as per WHO classification, using

NCHS standards of weight for age. Table II A & B give the age and sex distribution of the malnourished children.

Children with malnutrition were almost equally distributed among all the three grades. There was no significant difference in proportion of various grades of malnutrition in the various age-groups. In spite of overall lesser proportion of girls brought for examination, their percentage in Grade I malnutrition group was higher than boys. This difference, however, was statistically not significant.

Parent's Literacy

Table III gives distribution of children according to their parent's literacy. Apparently more girls were brought for checkups when mothers were literate; but the number was too small for comparison and the difference was not statistically significant. Similarly, literacy of mother or father did not have any bearing on proportion of children in various grades of malnutrition.

Feeding

All, except 9 children, were breastfed during the neonatal period. Out of nine not receiving breast milk, five were because of

TABLE I Age and Sex Distribution of the Study Population

Age (mo)	Male		Female		Total	
	No.	%	No.	%	No.	%
≥ 11	103	31.9	79	28.0	182	30.1
12-23	76	23.5	75	26.6	151	24.9
24-35	57	17.6	51	18.1	108	17.9
36-47	48	14.9	44	15.6	92	15.2
48-60	39	12.1	33	11.7	72	11.9
Total	323	100	282	100	605	100

TABLE II-A—Agewise Distribution of Malnutrition

Age of child in completed month	Malnourished			Total malnourished No. % of total		Total children
	I No. %	II No. %	III No. %			
<6	18 (36)	23 (46)	9 (18)	50 (100)	72.5	69
6-11	26 (29.9)	27 (31)	34 (39.1)	87 (100)	77	113
12-23	33 (34.4)	25 (26)	38 (39.6)	96 (100)	63.6	151
24-35	34 (42)	26 (32.1)	21 (25.9)	81 (100)	75	108
36-47	22 (31.9)	33 (47.8)	14 (20.3)	69 (100)	75	92
48-59	15 (30)	23 (46)	12 (24)	50 (100)	69.4	72
Total						605

TABLE II-B—Sexwise Distribution of Malnourished and Healthy Children

Nutritional status	Male		Female		Total	
	No.	%	No.	%	No.	%
Grade I	69	30.7	79	38.0	148	34.1
Grade II	86	38.2	71	34.1	157	36.3
Grade III	70	31.1	58	27.9	128	29.6
Sub-total	225	(100)	208	(100)	433	(100)
Normal	98		74		172	
Total	323		282		605	

primary lactational failure and two because of non-availability of mother. In the remaining two cases reasons could not be ascertained. The duration of breast feeding is

given in Table IV. Prolonged breast feeding was observed to be a common accepted practice as revealed by 18.8% mothers feeding their babies on breast beyond 2 years.

TABLE III—Parent's Literacy* vs Sex and Nutritional Status of the Underfives Examined.

Parent's literacy	Male					Female					Total
	Gr I	Gr II	Gr III	Normal	Total	Gr I	Gr II	Gr III	Normal	Total	
Both lit.	3	9	2	5	19	6	5	2	5	18	37
Mother lit. Father illit.	0	0	1	1	2	3	2	0	1	6	8
Mother illit. Father lit.	21	28	25	25	99	24	28	15	20	87	186
Both illit.	40	44	36	44	164	38	29	31	34	132	296
	64	81	64	75	284	71	64	48	60	242	527**
Percentage of total (M/F)	22.5	28.5	22.5	26.5	100	29.8	26.3	19.8	24.7	100	
Mother lit.	3	9	3	6	21	9	7	2	6	24	45
Others (mother illit.)	61	72	61	69	263	62	57	46	54	219	482
	64	81	64	75	284	71	64	48	60	243	527**

* Ability to read and write has been taken as the only criteria for literacy.

** Parent's literacy status could not be ascertained in 78 cases.

Reasons for stopping breast feeding could be specified by 269 cases only. Multiple reasons were given by 5 cases. The reasons quoted were various, e.g., cesation and reduction of milk secretion 4.5% (12 cases), perception of mother that child had grown up 44.6% (120 cases) and mother getting pregnant again 46% (124 cases), mother ill or not available 2.2% (6 cases) and others 4.5% (12 cases).

The type of top milk or age at starting top milk had no significant effect on nutritional status. Top milk commonly used for feeding was cow's (n=152), buffalo (n=89), goat (n=56). Powdered milk was

used in only 3 cases. Many children received two or more varieties of top milk (as per availability). Top feeding was most commonly started between 9-12 months (108 children), followed by above 12 months age group (92 cases) and 6-9 months age group (89 cases), respectively.

Solid foods other than milk, were most commonly started at 9-12 months in 157 cases and 12-15 months in 104 cases. Thirty six started between 15-18 months and 46 at or above 18 months of age. Only 88 mothers gave the history of starting weaning food between the age of 6 and 9 months.

TABLE IV—Breast Feeding Practice

Age (mo) of stopping breast feeding	No.	%	Cumulative percentage
Failure of lactation	9	5.6	5.6
<6	9	5.6	11.2
6-11	4	2.5	13.7
12	28	17.5	31.2
18	27	16.9	48.1
24	53	33.1	81.2
36	26	16.3	97.5
48+	4	2.5	100.0
	160	100.0	100.0

Exact age of stopping of breast feeding could not be specified in 121 cases.

Nutritional Status of the Underfive Children and Current Feeding Pattern

As seen from the Table V, the proportion of totally artificially fed children was very low (8.7%) in less than 6 months age group. In less than 6 months group, totally breast fed had significant advantage, with lesser proportion of Grade III PEM ($p = 0.0061$). In 6-12 months, group, the totally breast fed group lost this advantage. An increasing proportion of Grade I and II PEM was observed whereas a higher proportion of normal nutritional status was in the breast fed plus top fed group. The proportion of Grade III PEM doubled in 6-12 months age group as compared to less than 6 months old infants.

In 1-2 years age group, the totally breast fed group had very high proportion of Grade III PEM (70%) ($p=0.0214$); as compared to top fed who fared better, even more than the partially breast fed.

The proportion of subjects with malnutrition is higher in children above the age of 2 years, than in the younger age groups.

However, the major contribution to this increase appears to be due to high proportion of Grade I malnutrition. Grade II malnutrition revealed a declining trend with increasing age. The highest proportion of Grade III malnutrition was observed in 6 months to 1 year age group, showing a declining trend thereafter.

A history of infectious diseases like diarrhea, ARI, worm, infestations, measles, whooping cough, jaundice, etc., as well as the number of episodes or number of days of illness during the last month did not reveal any influence on nutritional status.

Discussion

The results show 71.6% prevalence of undernutrition in the preschool children from tribal areas near Bhandardara dam. This is in accordance with the other studies from tribal areas in Maharashtra(1) and in South Asia(2). There was no discrimination against female child noted in this study, as opposed to studies carried out in Bombay, Delhi, Madras and Calcutta(3).

TABLE V—Feeding Pattern vs. Nutritional Status

Age group	Normal	Gr. I	Gr. II	Gr. III	Total
Age < 6 mo					
TBF	12 (27.3)	13 (29.5)	14 (31.8)	5 (11.4)	44 (63.8) (100.0)
PBF	5 (26.3)	3 (15.8)	8 (42.1)	3 (15.8)	19 (27.5) (100.0)
TF	2 (33.3)	2 (33.3)	1 (16.7)	1 (16.7)	6 (8.7) (100.0)
Subtotal	19 (27.5)	18 (26.1)	23 (33.3)	9 (13.0)	69 (100) (100)
Age 6 – 11 mo					
TBF	4 (14.3)	7 (25.0)	9 (32.1)	8 (28.6)	28 (24.8)
PBF	20 (26.7)	17 (22.7)	15 (20.0)	23 (30.7)	75 (66.4)
TF	2 (20)	2 (20)	3 (30)	3 (30)	10 (8.9)
Subtotal	26 (23)	26 (23)	27 (23.9)	34 (30.1)	113
Age 11–23 mo					
TBF	1 (10)	1 (10)	1 (10)	7 (70)	10 (6.6) (100.0)
PBF	28 (32.9)	20 (23.5)	14 (16.5)	23 (27.1)	85 (56.3) (100.00)
TF	26 (46.4)	12 (21.4)	10 (17.9)	8 (14.3)	56 (37.1) (100.00)
Sub total	55 (36.4)	33 (21.9)	25 (16.6)	38 (25.2)	151 (100) (100)

* TBF = Totally Breast fed; PBF = Partially Breast Fed; TF = Top Fed.

The finding of negative effect of exclusive breast feeding beyond the age of one year in this study is similar to other studies(4,5). A late age of weaning seems to contribute to the problem of malnutrition as observed by many other workers also(6,7). No particular disease was found to have significant relationship with prevalence of PEM refuting the observations made in earlier studies(8-10).

No definite association could be detected between education of mother and nutritional status which is expected when other studies both in rural, illiterate mothers(11) as well as in elite, educated mothers also show high prevalence of ignorance about child feeding practices(12,13).

Thus, the following aspects, therefore, merit consideration for improving child nutrition:

Efforts for education of mothers;

Socially accepted custom of 'Ushtavan' should be promoted; and

Health education drive by health worker male and female at the time of IIIrd dose of DPT and polio and to ascertain that proper weaning is introduced at the time of measles vaccination.

It is obvious that a high prevalence of malnutrition/undernutrition in the pre-school children from remote rural areas is a cause for concern. Eventhough this is no striking observation, on the background of overall high rates of malnutrition; the significant influence of feeding pattern needs special attention. Exclusive breast feeding does not protect but infact may contribute to malnutrition after the age of one year, by limiting the nutritional intake of the child. Messages to this effect should form an important component in the rural nutrition/health education activities.

No disease in particular was significantly associated with severe malnutrition

but the combined effect of two or more infectious diseases on nutritional status was obvious. This indicates the need for multiple simultaneous interventions with stress on EPI, Nutrition and drinking water and sanitation.

Indeed as suggested in the World Food Conference 1988, there is a need for multisectoral approach to address the problem of malnutrition which includes not only overall improvement in Primary Health Care and Family Planning but also food production, marketing and distribution, alongwith health education and information.

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NOTES AND NEWS

CME AND WORKSHOP IN NEONATOLOGY POSTPONED

The CME on Common Neonatal Problems and Workshop on Neonatal Resuscitation scheduled for 30th and 31st January, 1993 at IMS, BHU, Varanasi will now be held on 3rd and 4th April, 1993.

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