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Nutritional Status of Tribal and Urban Slum Preschool Children (3-4 Years)

M.M. Shrivastava
N. V. Patel

Even after forty two years of independence, tribals remain aloof from the general prosperity of the nation in the lowest strata of society. Exploited for generations, and in the firm grip of a subsistence economy, the life of the majority and the scheduled castes and tribes has been characterised by servitude, poverty and misery. There is paucity of factual data regarding their nutritional status, developmental maturity and socio-economic conditions.

From the Smt. Jyotsnadevi Patel Pediatric Centre, Medical College, Jabalpur.

Reprint requests: Dr. Neena V. Patel, 73, Wright Town, Jabalpur (M.P.).

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Slum dwellers comprise 25% of the total population of the large metropolitan cities of India. The growth and development of slum children is jeopardized by economic poverty and social impoverishment. Malnutrition is a major health problem of the developing world, with 85% preschoolers undernourished and 15-35% showing moderate to severe malnutrition in the Indian subcontinent(1). The 3-6 years olds are particularly vulnerable in this respect(2). The present study is an attempt to evaluate the nutritional status of 3-4 year old tribal and urban slum children and compare them with their average Indian and western peers.

Material and Methods

A random sample of 400 children aged 3-4 years; 200 from a tribal area and 200 from the urban slums located within the Corporation limits of Jabalpur City were studied. They were divided into 3 age groups: 36±1 month; 42±1 month; 48±1 month. Those grossly malnourished, mentally retarded, acutely ill or having overt congential malformations were excluded. The nutritional grading was done according to the classification of the Indian Academy of Pediatrics only after the developmental maturity of the child was ascertained.

Tribals belonged to Bijadandi and Narayangunj block of the Mandla district. The 25 villages are typical of those found in this part of Madhya Pradesh–hilly terrain surrounded by forests; economy based on agriculture with only one harvest a year and no major industries nearby; and average annual per capita income of Rs 500 supplemented by felling tress and selling wood.

In the urban slums of Jabalpur (9 Mohallas were surveyed) the residents

are generally laborers and salaried class III and class IV Government employees with average annual per caipta income of Rs. 1000.

After careful assessment of age, all children between 3-4 years were included in the survey and the family's per capita income was ascertained. A detailed general physical examination including height, weight, head circumference and the mid-upper arm circumference measurements were carried out using standard techniques(3,4). Chi square test of indepedence was used for statistical analysis.

Results

Males outnumbered females in both the groups (*Table I*). The mean weights, heights, head circumference and midupper arm circumference of the urban slum children were slightly lower (not significant) than the tribal group at all ages. Over half the tribal and 70.5% of the slum children were malnourished (*Table II*), being far below the 50th Centile of Harvard Standards but almost the same as ICMR standards(6). *Table III* shows the grading and distribution of malnutrition according to the classification of the Indian Academy of Pediatrics.

Discussion

Preschoolers are transitional as regards diet and immunity, making them vulnerable to nutritional deficiencies, infections and infestations. The mean weight of boys exceeded that of girls fo all ages in both populations as shown earlier (*Table II*); both sexes were in the low average range by ICMR standards and other studies(7-9). The mean weight of tribal children was more than that of slum children in contrast to previous observations in the tribal belt of Madhya Pradesh(10).

At all ages, tribal boys and girls were taller than their urban peers in contrast to earlier findings in the tribal region. The mean height of both our groups was lower than the ICMR averages, except in tribal girls at 3½ years.

The mean head circumference in the present study were comparable with those of ICMR and Shrivastava(6,9) with boys having higher values than girls at all ages (*Table I*). Once again tribal boys and girls did better than their slum counterparts and ICMR (*Tables I & II*), in contrast to other earlier studies(11). Mean values were lower than those of the urban elite of the region.

TABLE I– *Sex Distribution of Tribal and Urban Slum Children*

Age (mo)	Tribal				Urban Slum			
	Male	%	Female	%	Male	%	Female	%
36 ± 1	28	53.9	24	46.1	31	48.4	33	51.6
42 ± 1	43	58.9	30	41.1	35	55.6	28	44.4
48 ± 1	50	66.7	25	33.3	37	50.7	26	49.3
Total	121	60.5	79	39.5	103	51.5	97	48.5

Tribal M : F = 2.53 : 1; Urban slum M : F : = 1.06 : 1

TABLE II—*Mean Values for Various Anthropometric Parameters of the Tribal and Urban Slum Children*

Parameters	Sex		36 ± 1 mo		42 ± 1 mo		48 ± mo	
			T (53)	US (64)	T (72)	US (63)	T (75)	US (73)
Weight (kg)	Male	M	11.28	10.68	12.52	11.64	13.60	12.78
		SE	0.18	0.06	0.28	0.21	0.17	1.01
	Female	M	10.68	10.42	12.02	11.11	12.80	12.60
		SE	0.23	0.27	0.07	0.25	0.29	0.27
Height (m)	Male	M	85.15	84.09	91.21	86.77	95.90	90.97
		SE	0.67	0.57	0.33	0.49	0.71	0.79
	Female	M	86.49	83.40	91.72	84.60	93.15	90.20
		SE	0.97	0.89	0.89	1.09	0.86	0.89
Head circumference (cm)	Male	M	46.67	46.44	47.50	46.70	47.75	47.67
		SE	0.31	0.19	0.27	0.97	0.76	0.23
	Female	M	46.10	46.03	46.63	46.61	47.72	47.06
		SE	0.37	0.27	0.91	0.99	0.29	0.37
Mid arm circumference (cm)	Male	M	13.80	13.09	13.06	12.86	13.39	13.25
		SE	0.28	0.17	0.15	0.29	0.17	0.20
	Female	M	13.30	12.40	13.05	13.10	13.14	12.87
		SE	0.17	0.21	0.19	0.08	0.19	0.23

T—Tribals, US—Urban slums,
m—Mean, SE—Standard error.

Using weight for age, malnutrition was more common in the urban slums than in the tribal groups in sharp contrast to the findings of Chopdar and Sant from Orissa(12). Thus somatic growth of the 3-4 years old tribal and the urban slum children studied followed the ICMR averages but fell short of the Harvard Standards (50th Centile). Nutritionally, the tribal children seem to do better inspite of monetary and other privations; the cultural practices of the 'Gonds' seem to have proved successful in preserving the nutrition of their children. The higher incidence of malnutrition in the urban slums (*Table III*) reflects the rampant chaos, general ill health, child abuse and neglect, affecting 25% of the metropolitan city population.

While in general, nutritional anthropometry is very sensitive to protein energy malnutrition, growth and body composition are also affected by other environmental factors such as altitude, disease, and activity. Thus many children identified as malnourished may in fact be affected by some other environmental stress(13,14). Moreover, assessment of nutritional status on the basis of measurements taken only once has obvious limitations(4). In the absence of local growth curves interpretation is further jeopardized(13).

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Glomerulonephritis in Congenital Syphilis

A.K. Sarkar
S.K. Bag
S. Sarkar
S. Ganguly
R. Yonzan
A.K. Halder

Renal involvement is an uncommon complication of congenital syphilis. Two clinical forms of renal disease have been described: these are the nephrotic syndrome and a rare form of acute nephritis(1-3). The mechanism involved in pathogenesis of the renal lesion appears to be secondary to deposition of immune complexes. We report a case of glomerulonephritis, without other stigma of congenital syphilis, in a two-week old newborn infant.

Case Report

A 2-week-old boy was admitted in the SSKM Hospital, Calcutta with a history of swelling of legs, dorsum of hands, genitalia, puffiness of face and reddish colored scanty urine since the tenth day of birth. There was no history of vomiting, feeding difficulties, refusal to suck or failure to thrive. The mother had six living children, while the seventh child died immediately after birth. This child was delivered normally vaginally; the antenatal period was uneventful.

On examination the infant appeared well, with a weight of 3 kg, length of 50 cm and head circumference of 34 cm. He had edema of feet, dorsum of hands, facial puffiness and mild pallor. There was no history of jaundice, bullae, petechial lesions, significant lymphadenopathy or limitation of movements of one or more limbs. The rest of the systemic examination was normal.

Investigations revealed a hemoglobin of 10.9 g/dl, and the total leucocyte count was 7000/cu mm with normal differential leu-

From the Department of Pediatrics and Pathology, Institute of Post Graduate Medical Education and Research and SSKM Hospital, Calcutta.
Reprint requests: Dr. A.K. Sarkar, Flat A-1/7, Kalindi Housing Estate, Calcutta 700 089.
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