7.10. NUTRITIONAL STATUS OF TRIBAL POPULATION

The tribal populations are is recognised as socially and economically vulnerable. Their lifestyles and food habits are different from that of their rural neighbours. They depend on minor forest produce and manual labour for livelihood. They may not have adequate income. Their food consumption pattern is dependent on the vagaries of nature and varies from extreme deprivation (in the lean seasons) to high intakes (in the post-harvest period).

Higher prevalence of undernutrition in tribal population is due to

- poverty and consequent undernutrition
- lack of awareness about, access to and utilisation of the available nutrition supplementation programmes;
- social barriers preventing the utilisation of available nutrition supplementation programme and services.
- poor environmental sanitation and lack of safe drinking water, leading to increased morbidity from water-borne infections;
- environmental conditions that favour vector-borne diseases;
- lack of access to health care facilities resulting in increased severity and /or duration of illnesses.

NNMB surveys in integrated tribal development blocks

Several focused interventions for tribal development and improvement in health and nutritional status of tribal population have been initiated in the last three decades. In order to assess the impact of these, the National Nutrition Monitoring Bureau (NNMB) carried out a repeat diet and nutrition surveys of the tribal populations living in the Integrated Tribal Development Project (ITDP) areas in 1998-99 in Kerala, Tamil Nadu, Karnataka, Andhra Pradesh, Maharashtra, Gujarat, Orissa and West Bengal, where the NNMB had carried out an earlier survey in 1985-87.

Table 7.10.1: Inter-State Differences in Nutrient Intake

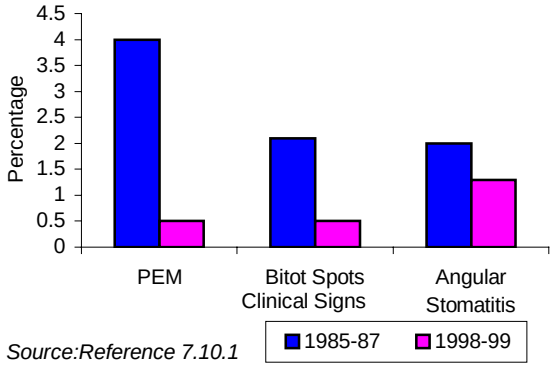
	State with	
Nutrient Intake	Lowest	Highest
1-3 age-group		
Protein	12.9g	25.5g
Energy	508 k cal	1047 k cal
Vit. A	81 μ g	629 μ g
4-6 age-group		
Protein	22.2 g	37.2 g
Energy	842 k cal	1590 k cal
Vit. A	98 μ g	915 μ g
>16 years males		
Protein	45.6 g	67.7g
Energy	1830k cal	2941k cal
Vit. A	141μ g	1075μ g

Source: Reference 7.10.1

Comparison of data of the two surveys showed that there has not been any improvement in the food and nutrient intake. There were substantial differences in the food and nutrient intake and nutritional status between tribal populations living in different states (Table 7.10.1). In some population groups, there was adequate intake of minerals and some micronutrients even though the diet was inadequate in terms of meeting energy and protein needs.

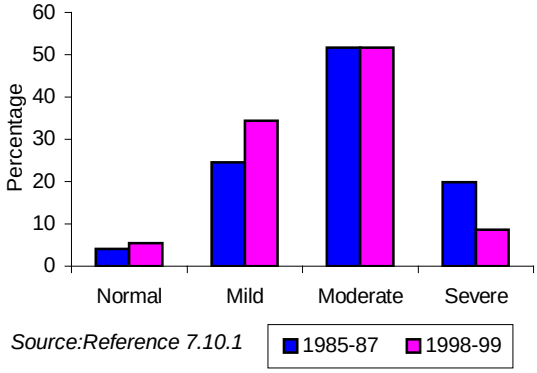
There has been some reduction in the prevalence of severe forms of under-nutrition and in nutritional deficiency signs in preschool children (Figure 7.10.1 and 7.10.2). The adult tribal population is more undernourished than their rural counterparts (Figure 7.10.3 and 7.10.4). Overnutrition is very rare among tribal population.

Figure 7.10.1: Prevalence of Nutritional Deficiency signs in Preschool Children



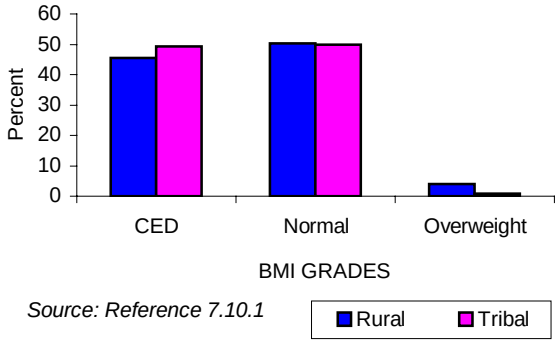
Source:Reference 7.10.1

Figure 7.10.2: Prevalence of (%) under nutrition (1-5 yrs) Gomez classification



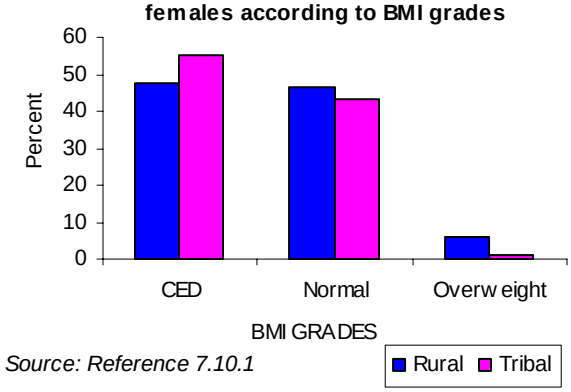
Source:Reference 7.10.1

Figure 7.10.3: Nutritional status of adult male according to BMI grades



Source: Reference 7.10.1

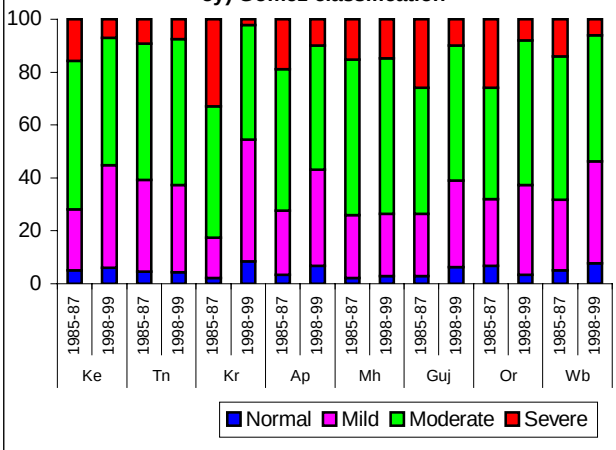
Figure 7.10.4: Nutritional status of adult females according to BMI grades



Source: Reference 7.10.1

Time trends in prevalence of undernutrition in tribal population in eight states is available from NNMB repeated survey 2000 (Figure 7.10.5). Data indicated that Karnataka has shown the steepest decline in undernutrition especially severe undernutrition. Substantial decline in severe undernutrition is reported from Kerala, Andhra Pradesh, Gujarat, Orissa and West Bengal. However, it is a matter of concern that there has not been any decline in undernutrition rate in Tamil Nadu and Maharashtra.

Figure 7.10.5: Time trends of % undernutrition (1-5y) Gomez classification



Source: Reference 7.10.1

NFHS surveys

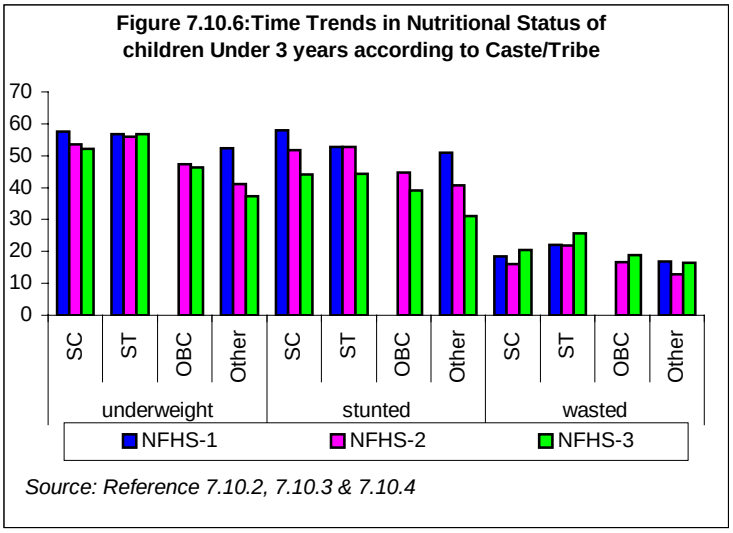


Figure 7.10.6:Time Trends in Nutritional Status of children Under 3 years according to Caste/Tribe

Source: Reference 7.10.2, 7.10.3 & 7.10.4

NFHS surveys provide information on nutritional status of women and children in relation to the caste / tribe. Data on nutritional status of children from SC, ST, OBC and others from NFHS 1, 2 & 3 is given in Figure 7.10.6. Undernutrition rates are higher in ST and SC as compared to OBC and others in all these three surveys. There are substantial interstate differences in stunting; underweight and wasting rates in preschool children; however in all states undernutrition rates are high in SC/ ST children (Annexure 7.10.1). There is a small but sustained reduction in undernutrition as estimated by prevalence of underweight and stunting over these 15 years. However it is a matter of concern that there is small increase in wasting rates between NFHS 2 and NFHS 3 in all the four categories.

India has a large and diverse tribal population. There are wide variations among the groups in nutritional status and access to and utilization of nutrition and health services. The tribal populations in the northeastern states have high literacy levels; they access available facilities, and hence nutritional and health status of women and children in these states is better than the national averages (Table 7.10.2). On the other hand, primitive tribes such as the Onges in the Andaman have very little awareness or access to either nutrition or health care. Differential area-specific need assessment, strategies and programmes to improve access and utilisation of nutrition services have to be developed for each of the tribal areas.

DLHS survey

Data on interstate difference in nutritional status as assessed by weight for age indices from District Level Household Survey (DLHS 2002-04) is given in Annexure 7.10.2. In all states, prevalence of undernutrition is higher in SC and ST as compared to OBC and

Table 7.10.2: Nutritional Status in North Eastern States

State	% Tribal population as per 1991 Census	Weight-for-age (% below–3SD) in children <3yrs	% Ever married women with		
			Height below 145 cm	BMI< 18.5 kg/m^2	BMI >25 kg/m^2
Arunachal Pradesh	63.7	7.8	11.9	10.7	5.1
Meghalaya	85.5	11.3	10.3	18.8	10.8
Mizoram	94.8	5.0	21.1	25.8	5.8
Nagaland	87.7	7.4	10.7	22.6	5.3
All-India	8.1	18.0	13.2	20.3	10.6

Source: Reference 7.10.3

others. Over all undernutrition rates are high in Orissa, Bihar, Uttar Pradesh, Madhya Pradesh and Rajasthan. These states with high tribal population and high undernutrition rates should receive priority attention in improving access to nutrition and health care.

These data clearly indicates the need for continuous monitoring nutritional status of the tribal population. Monitoring of the ICDS reporting can provide early warning of any deterioration in the nutritional status in pre-school children so that appropriate intervention can be initiated. Research studies on dietary habits that contribute to good nutritional status as well as those that make the tribal population vulnerable to nutritional deficiencies should receive attention. Based on these data, specific intervention programmes can be taken up to improve nutritional status.

References

7.10.1 National Nutrition Monitoring Bureau (NNMB). 1985-2000. *NNMB Reports:* National Institute Of Nutrition, Hyderabad

7.10.2 National Family Health Survey (NFHS-1): http://www.nfhsindia.org/india1.html; last accessed on 24/09/07

7.10.3 National Family Health Survey (NFHS-2): http://www.nfhsindia.org/india2.html; last accessed on 24/09/07

7.10.4 National Family Health Survey (NFHS-3): http://mohfw.nic.in/nfhsfactsheet.htm; last accessed on 24/09/07

7.10.5 District Level Household Survey (DLHS) http://www.rchindia.org/dlhs_india.htm; last accessed on 24/09/07

Annexure 7.10.1

Interstate differences in nutritional Status of Children															
State		NFHS-1 (1992-93)						NFHS-2 (1998-99)							
		SC		ST		Others		SC		ST		OBC		Others	
		-3SD	-2SD	-3SD	-2SD	-3SD	-3SD	-3SD	-2SD	-3SD	-2SD	-3SD	-3SD	-3SD	-3SD
Delhi	W/A	22.2	52.2			11.2	40.8	13.1	41.3			20.7	44.7	5.3	28.8
	H/A	25.6	53.3			18.8	42.4	23.7	47.7			22.4	46.3	14.7	30.1
	W/H	1.1	15.6			2.7	11.6	1.6	11.5			8.1	20.7	3.4	9.4
Andhra Pradesh	W/A	15.6	50.6	18.4	54.4	15.4	48.3	14.2	43.4	7.5	45.9	12.5	39.1	4.8	29.7
	H/A							18.4	42.7	12.9	44.2	15.1	39.8	10.1	32.3
	W/H							1.1	9.5	0	7.5	2.7	10.4	8.7	7.1
Assam	W/A	17.1	54.5	14.2	38	19.7	53	5.1	32.4	7.7	18.8	11.4	20.6	15.8	43.8
	H/A	27.2	49.7	22.5	45.6	27.1	53.7	29.7	45.1	27.2	42.6	24	31.7	37.6	55.6
	W/H		8.5	1.2	7.7	1.9	11.6	2	8.4	1.8	8.2	2.9	15.1	4	15.1
Chhatisgarh	W/A							36.5	68	32.4	68.7	21	58.7		
	H/A							45.4	61.2	40	64.8	30.3	55.5		
	W/H							2.4	18.2	30.3	55.5	3.4	14.3		
Gujarat	W/A	23.2	59.4	25	54.2	12.3	41	17.7	45.4	24.1	56.6	18.8	49	9.7	36.3
	H/A	26.1	60.9	25	47.5	20.6	41.7	29	48.9	29.2	46.9	26.4	46.5	15.9	37.8
	W/H	4.3	17.4	5.9	28	2.9	17.1	3.1	12.3	3.4	21.7	2.5	18.8	1.5	13.4
Himachal Pradesh	W/A	17.6	53.4	29.6	56.4	9.8	43.9	17.4	52.2	16.9	59.2	8.5	34.7		
	H/A							23.7	54.9	14.5	42.4	17.5	35.7		
	W/H							3.8	18.2	5.1	25.8	2.5	13.5		
Haryana	W/A	11.3	45.5			8	34.7	12.8	40.3			11.5	42.8	8.2	28
	H/A	22.9	57.1			17.7	42.2	29.6	56.3			28.3	55.3	19.9	44.6
	W/H	0.7	7.3			0.6	5.3	0.5	3.9			0.4	5.8	1.1	5.7
J&K	W/A	17.4	52.9			12.2	40.3	4	21.1	0	38.8	9.2	49.3	8	28
	H/A	21.6	46.4			17.3	37.8	7.8	23.8	13.9	39.7	22.9	50.6	16.7	36.8
	W/H	5.3	18.2			2.6	13.2	0.9	9.5	0	18.3	3.6	12.4	0.6	9.4
Karnataka	W/A	22.6	60.1	26.4	66.7	18.6	52.8	23	52.8	28.7	55.7	12.2	40	15.6	41.3
	H/A	24.5	54.8	26.4	56.9	22.3	46.1	17.9	43.7	22.1	41.2	12.7	34.4	17	35
	W/H	1.9	15.4	6.9	26.4	2.5	17.2	6.8	27.9	1.6	21	2.5	15.1	4.2	20.5
Kerala	W/A	12	32	28	60	5.6	27.9	12.4	43			5.2	30.6	2.3	20.1
	H/A	4	32	32	60	8.7	26.7	17.8	38.2			9	23.4	4.4	17.7
	W/H		16		28	1.3	11.2	0	12.3			0.7	12.5	0.4	9.2
Maharashtra	W/A	25.8	56.7	28.3	63	18.7	50.9	15.1	51.4	35.4	65.2	13.9	48.4	15.7	46.3
	H/A	26.8	53.6	28.9	54.3	20.6	44.3	15.5	43.7	19	57.1	11	40.3	14	35
	W/H	6.2	28.9	2.3	26	4.2	18.7	0.8	15.6	8.1	31	2.8	20.9	1	20.7
Madhya Pradesh	W/A	22	56.6	25.4	61.5	21	55.7	30	57.5	31.4	64.5	22.4	55.4	14.5	40.5
	H/A							32.2	52.7	33.6	59.9	28.1	51.5	18.5	37.2
	W/H							4.7	19.9	4.9	24.7	4.2	18.7	3.2	16.3
Orrissa	W/A	24.1	60.7	29.8	60.5	20.4	50	24.2	59.4	26.5	59	20.7	56.3	12.2	43
	H/A	26.9	50.6	27	52.4	24.4	46.6	22.8	50.7	19.9	49.4	18.3	44.2	9.8	32.4
	W/H	2.3	21.4	5.1	25.2	3.3	20.2	3	22.8	22.8	5	4.5	24.6	2.3	19.7
Punjab	W/A	21.7	55.3			11.4	42.4	11.5	38.8			11.4	35	5.4	17.9
	H/A	23	46.3			13	37.6	25.4	49.6			17.9	43.1	10.1	28.7

	W/H	2.9	22			2.7	19.1	1.4	9.9			1.5	6.7	0	49
	W/A	18.7	45.5	25.8	45.1	17.5	39.1	26.1	56.3	27.6	59.3	19.2	51.1	17	45
Rajasthan	H/A	29.6	47	25.5	41.8	25.8	42.1	35.5	55	38.4	60.4	27.1	51.4	24.1	48.3
	W/H	6.2	19.7	6.5	23.9	4.5	18.2	1.7	11	4.8	17.6	1.1	12.7	1.3	9.6
	W/A	18.3	53			11.4	45.1	14.9	48.1			9.1	32.8		
Tamil Nadu	H/A							16.8	41.2			10.1	25.1		
	W/H							3.2	21.6			4	19.3		
	W/A							12.3	61.6					15.3	38
Uttaranchal	H/A							18.5	66.3					24	40.8
	W/H							0	5.3					1.5	9.4
	W/A	22	52	17.6	39.6	18.7	49.5	24.1	60.3	33.5	59.4	25.6	52.3	17.6	75.9
Uttar Pradesh	H/A	26.3	50.6	25.6	47	27.9	48.9	36.3	63.1	40.4	69.3	32.9	2.7	26.6	50.3
	W/H	3.3	17.7	2.3	16	2.4	15.9	2.8	11.5	3.2	13.7	5.7	13.6	1.4	9.3
	W/A	26.9	60.7	19.5	65.3	17.3	55.8	20.5	56.7	22.7	57.4	17.6	36.1	14	45.8
West Bengal	H/A							21	45.6	22.4	46.6	10	27	18.6	40.1
	W/H							2.5	18.1	1.7	17.7	0	13.7	2.3	11.5
	W/A							2.2	29.1	3.2	15.1	3.3	16.9	6.3	25.4
Sikkim	H/A							12.9	38.4	7.5	31.2	9.7	26.9	10.3	34.6
	W/H							0	5	1.2	4.6	0.8	2.6	0.8	6.9
	W/A	37.2	66.1	32	61.8	30.3	62.3	28.3	58.5	36.1	59.7	25.5	55.8	18.5	43.1
Bihar	H/A	50.6	66.9	35.3	63	38.6	60	36.2	57.6	36.4	56.4	34.9	54.7	25.6	45.1
	W/H	3	23.7	4	24.4	4.2	21.3	5.5	23.1	7.7	33.5	5.3	19.7	5	18.3
	W/A	12.5	37.5	21.9	46.9	8.3	34.3	14.1	25.2					4.1	28.1
Goa	H/A	18.8	40.6	25	56.3	10.2	30.3	3.7	17.2					5.4	17.9
	W/H		18.8	6.3	18.8	2.3	15.1	0	21.4					0.8	12.5

Annexure 7.10.2

District Level Household Survey (2002-04)										
Percentage of children (age 0-71 months) classified as undernourished by weight for age according to Caste/ tribe# 2002-04										
States	**SC**		**ST**		**OBC**		**Others**		**Total**	
	< – 3 SD	**< – 2 SD**	**< – 3 SD**	**< – 2 SD**	**< – 3 SD**	**< – 2 SD**	**< – 3 SD**	**< – 2 SD**	**< – 3 SD**	**< – 2 SD**
Arunachal Pradesh	2	20.5	3.5	20.8	2.5	20.6	1.7	17.7	2.9	20.3
Andhra Pradesh	20.1	45.5	27.3	48.6	16.6	43.4	14	36.5	17.3	42.3
Assam	9.1	28.1	11.3	21.5	12.7	27.4	18.6	38.1	33.2	26.4
Gujarat	19.2	51.7	23.7	58.6	16.1	47.3	8.5	35.5	15.4	46
Haryana	14.4	36.8	16	43.9	14.7	38.1	11.5	32.6	13.3	35.6
Himachal Pradesh	12.2	35.9	14.7	35.4	19.6	53.7	10.9	33.1	12.4	36.4
Jammu & Kashmir	(7.3)	(19.5)	0	6.3	7.1	18.6	7.6	24.7	7	22.3
Jharkhand	22	56.8	23.4	55.1	21.2	52.8	12.9	40.5	20.7	52.2
Karnataka	15	45.9	18.5	47.2	13.1	42.8	15.7	46.7	14.6	44.8
Kerala	15.8	43.9	14.1	44.4	8.6	35.4	7.6	31.7	9.3	35.8
Madhya Pradesh	26.1	58.3	29.4	60.6	23.1	54.8	17.8	47.2	24.1	55.4
Maharashtra	17	50.8	23.7	59	14	48.3	10.8	40.9	15	47.7
Bihar	28.4	60.6	26.2	60	23.9	55.9	17.1	44.1	23.5	54.6
Chattisgarh	16.9	44.6	21.6	48.3	20.2	50	11.7	38.1	19.2	47.4
Delhi	12.9	42.4	(4.7)	(23.3)	10.6	35.3	10	32	10.8	35.3
Goa	0	0	0	0	3.1	22	6.6	28.3	6.5	30
Manipur	2.2	4.4	3.7	16	0.1	5.9	0.5	13.1	2.3	12.6
Meghalaya	0	0	11.6	34.9	0	0	0	0	11.6	34.9
Mizoram	1.9	16.4	0.7	14.6	0	0	0	0	0.8	15.2
Nagaland	0	0	7.9	19.6	0	0	0	0	8.2	21.4
Orissa	17	45.5	19.9	50.3	13.8	40.6	9.8	34.3	15.2	42.8
Punjab	17.6	44.6	13.6	33.1	13.4	43.1	10.4	34.2	13.9	40
Rajasthan	31	61.7	27.5	58	28.4	57.9	26.7	55.3	28.4	58.1
Sikkim	(2)	(23.5)	1.4	14.9	0.3	9.6	0.9	6.3	0.8	9.7
Tamil Nadu	18.2	41.5	17.7	41.5	15.9	36.9	16	38.2	16.6	38.3
Tripura	2.7	23.9	6.6	41.4	7.6	29.1	6.9	27.9	5.9	30.2
Uttar Pradesh	26	59	27.6	61.1	23.2	56.1	19.6	49.7	23.1	55.3
Uttaranchal	26.7	53.2	21.8	47.8	27.3	53.2	25.1	52.5	25.8	52.6
West Bengal	14.9	47.4	16.1	50.3	8.2	43.1	12.2	43.2	13.1	44.9
Andaman & Nicobar Island	12	31.1	4.8	26.9	6.4	40.1	5.7	31.3	5.8	29.7
Chandigarh	(7.1)	(38.1)	0	0	0	0	12.3	35.2	10.3	35.4
Daman & Diu	19.3	55.1	17.5	63.6	13.1	42.7	10.7	35.1	13.2	43.8
Dadar & Nagar Haveli	(24)	(40)	21.2	55.6	(2.3)	(37.2)	5.3	37.3	16.1	49.1
Lakshadweep	0	0	14	42.6	0	0	0	0	13.8	42.2
Pondicherry	7.7	29.5	0	0	7.9	25.6	0	0	8.2	26.8
India	21.6	52.4	23.2	53.5	20	50.3	15.4	43.2	19.4	49.2

Source: DLHS 20003-04 # Total of this group does not add up to total sample size due to don't know and missing case; () Based on less than 50 unweighed cases