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Report for the year 1976

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C O N T E N T S

	Page No.
I n t r o d u c t i o n ...	1
C o v e r a g e ...	2
Income status; Pattern of Food and Nutrient intake - Families ...	3
Average Nutrient intake of Individuals	8
Table - 1 Total coverage of population	10
Table - 2 Coverage during the year	11
Table - 3 Coverage of Districts	12
Table - 4 Distribution of H H by income	13
Table - 5 Daily Intake of foods per c.u.	14
Table - 6 Daily Intake of nutrients per c.u.	15
table - 7 Distribution of H H by Calorie Protein adequacy ...	16
Table - 8 Nutrient intake of 1-4 years children	17
Table - 9 Nutrient intake of 4-7 years children	18
Table - 10 Nutrient Intake of 7-10 years children ...	19
Tablo -11 Nutrient intake of 10-13 years children ...	20
Table -12 Nutrient intake of 13-18 years Boys	21
Table -13 Nutrient intake of 13-18 years Girls	22
Table -14 Nutrient intake of Sedentary Males	23
Table -15 Nutrient intake of Moderately active Males •••	24
Table -16 Nutrient intake of NPNL Women	25
Table -17 Nutrient intake of lactating women	26
Deficiency Signs •••	27
Anthropometry •••	28
Gomez Classification; Seoane and Latham Classification ...	30
PREVALENCE OF DEFICIENCY SIGNS	
Table -18 I n f a n t s ...	32
Table -19 Preschool Children ...	33
Table -20 5-12 Years Children ...	34
Table -21 12 - 21 Years Males ...	35
Table -22 12 - 21 Years Females ...	36
Anthropometric Measurements by Age	
Table -23 Kerala Males ...	37
Table -24 Kerala Females ...	38
Table -25 Tamil Nadu Males ...	39
Table -26 Tamil Nadu Females ...	40
Table -27 Karnataka Males ...	41
Table -28 Karnataka Females ...	42
Table -29 Andhra Pradesh Males ...	43
Table -30 Andhra Pradesh Females ...	44

Page No.

Table -31 Maharashtra Males ... 45
Table -32 Maharashtra Females ... 46
Table -33 Gujarat Males ... 47
Table -34 Gujarat Females ... 48
Table -35 Madhya Pradesh Males ... 49
Table -36 Madhya Pradesh Females ... 50
Table -37 West Bengal Males ... 51
Table -38 west Bengal Females ... 52
Table -39 Uttar Pradesh Males ... 53
Table -40 Uttar Pradesh Females ... 54
Table -41 Gomez Classification - Boys 55
Table -42 Gomez Classification - Girls 56
Table -43 Seoane and Latham Classification -Boys 57
Table -44 Seoane and Latham Classification -Girls 58
F i g u r e s 1 to 6
Distance Charts for Height and Weight according to Sex. 59 - 64

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FOOD AND NUTRIENT

CONSUMPTIONPATTERN

A National Nutrition Monitoring Bureau was set up in June 1972 by the Indian Council of Medical Research with a view to collecting information on nutritional status and dietary habits of different representative segments of the population making use of standardized procedures and techniques. The National Institute of Nutrition is the Central Reference Laboratory which is responsible not only for technical guidance and coordination of the state units, but also for analysis and interpretation of data. The aims and objectives of the Bureau have already been reported (Plan of Operation, NNMB - 1972).

Data on food consumption and nutritional status of population from the States of Andhra Pradesh, Gujarat, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Tamil Nadu, Uttar Pradesh and West Bengal, have been collected. Table-I gives the cumulative coverage of households for dietary and nutrition surveys, since inception of the Bureau, i.e. 1972. The results of the analysis of the data collected from the regional units for the previous years with respect to rural households have been already reported (NNMB - Interim Report, 1974, NNMB Reports 1975 and 1976).

This year, the report is presented in two separate sections. Section-I provides results of the analyses of the data according to States, while in Section-II district-wise information on diet and nutrition consumption pattern across different income groups has been given. This Section is mainly intended for the use of regional units and no attempt has been made to interpret the results of district data at this stage of analysis.

COVERAGE

A total of 4,904 households have been covered from January 1976 to December 1976 for diet and nutrition survey. of these 2,854 households were from the rural areas and the remaining from urban localities of nine States (Table-2). The States of Andhra Pradesh, Gujarat, Karnataka, Kerala and Tamil Nadu have successfully achieved survey targets with respect to both rural (400 households) and urban (250 households) coverage, while the States of Madhya Pradesh, Maharashtra, Uttar Pradesh and West Bengal fell short of this target. In each State four districts, one from each of the developmental categories (NNMB Plan of Operation, 1975) have been covered. These categories are denoted by the letters A, B, C and D. Category A represents well-developed district, while category D refers to the most backward district. The categories B and C represent intermediate groups. The names of the districts are given in Table-3.

INCOME STATUS

The distribution of householdes, according to daily per capita income, showed that, a third of the households surveyed had an income less than a rupee. (Table-4). About 68% had per capita daily income below Rs.2/-. only 7% of the households surveyed had daily income of Rs.5/- or more per caput. The income distribution of households surveyed during the year was similar to that observed last year, i.e. 1976.

PATTERN OF FOOD AND NUTRIENT INTAKE

FAMILY DIETS : Tables 5 and 6 give the average intake of foodstuffs and nutrients per c.u. per day based on family diet surveys (one day weighment method).

FOODSTUFFS: (Table-5)

Cereals and Millets: Highest consumption of cereals and millets was seen in the State of Karnataka (723 g.) while the lowest was observed in Kerala (328 g.). In general, the consumption levels in all the States were similar to those obtained in the previous year, i.e. 1976, except in Kerala and Uttar Pradesh. In Kerala, the intake was less by 60 g., while in Uttar Pradesh it was less by 100 g., as compared to last year. However, the reasons for these observed differences in these two States are not clear.

PULSES: The mean intake of pulses ranged from 15 g., in Kerala to 65 g., in Uttar Pradesh. Out of the 9 States

surveyed, the intake was more than SO g. per c.u. per day in Uttar Pradesh, Karnataka, Madhya Pradesh and west Bengal. However, in all the States, the pulse intake was below the suggested level of 75 g. The consumption level observed in this year, compared well with levels of intake seen in the previous year, except in west Bengal where a three-fold increase was noticed during the current year. This enormous increase could be explained by the fact that in Malda District of West Bengal, nearly a third of households (i.e. 15 out of 43) showed an excessive consumption of kesari dal and lentil. The increased consumption of pulses in those households was accompanied by reduction in cereals.

The pattern and consumption levels of other foodstuffs during the year did not show significant changes as compared to last year. In all the States, the consumption of all other food items were well below the suggested levels (ICNR. Balanced Diet).

NUTRIENTS

Based on family diet surveys, the average nutrient intakes in different States per c.u. per day were calculated. These have been presented in Table-6.

PHOTEIN

The average intake of protein per c.u. per day was found to be well above the recommended levels in all the States except in Kerala. The intake in Tamil Nadu was around the recommended level of 55 g. per c.u. per day

The pattern of intake of protein in all the States was found to be similar to that observed in earlier years except in west Bengal where the intake was more by 12 g. during the current year. The reason fox the above exception may be the higher levels of consumption of pulses like Kesari Dal and lentil in some of the households of Maida District as stated earlier.

CALORIES

The mean intake of calories per c.u. per day ranged from 2052 in Kerala to 3058 in Karnataka. The States of Karnataka, Andhra Pradesh, Madhya Pradesh and West Bengal met the calorie requirement of 2,400 per c.u. per day, while in the remaining States, varying degrees of deficits in calories were observed. The deficits ranged from 4% in Maharashtra to 15% in Kerala. The pattern of calorie consumption in all the States remained similar to that observed in the previous year except in Uttar Pradesh, where a reduction of about 200 calories and in Nest Bengal, where an increase of 200 calories was observed. These differences could be

3

explained on the basis of decreased cereal intake in Uttar Pradesh and increased intakes of cereals and pulses in west Bengal.

MINERALS

IRON

The intake of Iron ranged from 21 mg. in Kerala to 49 mg in Karnataka. Excepting Kerala all the other States showed an intake which is above the average recommended level of 25 mg per c.u. per day.

CALCIUM

In all the States, the average intake of calcium was more than 500 mg. except in west Bengal and Uttar Pradesh where the intake was around 440 mg per c.u. per day.

VITAMINS

VITAMIN A :

In all the States diets provided inadequate amounts of retinol. The lowest level of intake was observed in Kerala (156 /ug), while the highest level of 409 /ug was seen in Maharashtra.

THIAMINE & RIBOFLAVIN :

The intake levels of thiamine and riboflavin were found to be similar to those observed in the previous year. Though the diets of all the States except

Kerala and Tamil Nadu, showed adequate levels of Thiamine, the levels of riboflavin were uniformly low per c.u. per day when compared to recommended allowances for these vitamins.

PROTEIN CALORIE ADEQUACY

To determine the adequacy or otherwise of intakes of protein and calories the following procedure was adopted:

Intakes in any household wherein the values for proteins and calories fell below the mean - 2SE of the recommended allowances were considered as inadequate. All households were thus classified into different categories of protein-calorie adequacy and inadequacy.

The percentage distribution of the households according to protein-calorie adequacy is shown in Table-7.

The proportion of households having adequate intakes of both calories and protein ranged from 42% in Kerala to 83% in Karnataka. In Andhra Pradesh about 80% of the households fell under this category, while in the remaining States, households having adequate intakes of both proteins and calories varied between 46,4 to 636.

The percentage of households consuming diets having inadequate proteins and calories was highest

in Kerala (39.5%) and lowest in Madhya Pradesh (5.6%). unly 3.5% of households in Kerala-had diets which were inadequate in protein but adequate in calories while in other States such a situation was very rarely observed. In about 50% of the households calorie inadequacy was observed in the States of Kerala, Tamil Nadu, Gujarat and Uttar Pradesh while in about 40% of the households in the States of Maharashtra, Gu~~j~~a~~rr~~t and West Bengal the diets were inadequate in calories. In the States of Andhra Pradesh and Karnataka, the proportion of households with calorie inadequacy was about 20%. The problem of protein inadequacy was observed more in Kerala (45%) and Tamil Nadu (30%) as compared to other States.

AVERAGE NUTRIENT INTAKE OF INDIVIDUALS

PRESCHOOL CHILDREN (1-4 YEARS)

Protein and Calories: The average intake of protein ranged from 16.3 g. in Kerala to 30.7 g. in Madhya Pradesh. Excepting in Kerala and Andhra Pradesh where the intakes of protein were marginal, in all the other States the intakes were well above the recommended allowance of 18.3 g. for this age group* However, the calorie deficiency of varying degrees was observed in all the States. On the average, only 50% of Calorie requirements was met in Kerala, while in Madhya Pradesh the deficit was about 20%, while the other States falling in between.

Minerals & Vitamins (Table-8)

Intakes of IRON were low in all the States, the lowest being in Kerala. In respect of CALCIUM, the intakes were far below the recommended allowance of 450 mg. for this age group, in all the states excepting in Tamil Nadu and Karnataka where the intakes were 410 mg and 448 mg. respectively (Table-8).

The intakes of VITAMIN A were low in all the States excepting in Gujarat and weat Bengal where the intakes were 552 /ug and 261 /ug respectively. However, in Kerala, Tamil Nadu and Andhra Pradesh they were found to be low. The intakes of THIAMINE met the requirement level in all the States, while the intakes of RIBOFLAVIN did not meet the recommended allowance in any of the states (Table-8).

The nutrient intakes of various other age and sex groups have been given in Tables 9 to 17. It may generally be mentioned that the diets in all the age groups with a few exceptions seem to contain adequate amounts of protein while they are deficient in calories.
The protein deficiency was, however, associated with calorie indequacy and making good of calorie deficit in the diets of these groups will automatically bridge the protein gap as well. The diets were also found to be deficient particularly in vitamin A, riboflavin and calcium in most of the States. The intakes of iron and thiamine appeared to satisfy the requirement level.

Table-1
NMB - TOTAL COVERAGE OF POPULATION
(Till the end of December, 1976)

STATE	COVERAGE OF HOUSEHOLDS FOR DIET SURVEY			Individuals covered for nutritional assessment		
	Rural	Urban	Total			
Kerala	1,242	750	1,992	11,952		
Tamil Nadu	345	551	1,396	8,376		
Karnataka	1,341	682	2,023	12,138		
Andhra Pradesh	1,398	589	1,987	11,922		
Maharashtra	900	650	1,550	9,300		
Gujarat	1,608	677	2,285	13,710		
Madhya Pradesh	1,133	450	1,583	9,498		
West Bengal	1,091	400	1,491	8,946		
Uttar Pradesh	870	215	1,085	6,510		
Total	10,428 ,	4,964	15,392	92,352		

Table-2

NNMB - COVERAGE DURING THE YEAR 1976

STATE	CUVERAGE OF HOUSEHOLDS FOR DIET SURVEY			Individuals covered for nutritional assessment
	Rural	Urban	Total	
Kerala	394	250	644	3,864
Tamil Nadu	414	250	664	3,984
Karnataka	408	250	658	3,948
Andhra Pradesh	395	250	645	3,870
Maharashtra	225	250	475	2,850
Gujarat	397	250	647	3,882
Madhya Pradesh	205	200	405	2,430
West Bengal	208	250	458	2,748
Uttar Pradesh	208	100	308	1,848
Total	2,854	2,050	4,904	29,424

Table-3

NNMB - COVERAGE OF DISTRICTS DIKING THE YEAR 1976

STATE	DEVELOPMENTAL CATEGORY			
	A (July-Sept.)	B (April-June)	C (Jan-March)	D (Oct.-Dec.)
Kerala	Ernakulam	Cannanore	Quilon	Trivandrum
Tamil Nadu	Thanjavur	North Arcot	Madurai	Kanyakumari
Karnataka	Mysore	Kolar	Raichur	Hassan
Andhra Pradesh	Hyderabad	Guntur	Anantapur	Nalgonda
Maharashtra	Bhandara+	Osnanabad	Kolhapur	Buldhana+
Gujarat	Baroda.	Amreli	Sabarkantha	Panchamahal
Madhya Pradesh	Jabalpur*	Indore	Tikamgarh	Hosangabad+
West Bengal	24-Parganas*	Bhirbhum	Malda	Hooghly
Uttar Pradesh	Mainpuri	Sitapur+	Banda	Bijnaur

+ Not covered * Partially covered

Table-4

NNMB - PERCENT DISTRIBUTION OF HOUSEHOLDS ACCORDING TO DAILY PER CAPITA INCOME

Year	Income Category			
	Less than Re.1	Rs. 1 - 2	Rs. 2 - 5	Rs. 5 & more
1975	41.6	32.2	20.9	5.3
1976	33.4	34.3	25.2	7.1
Total	37.5	33.3	23.1	6.2

Table-5

NNMB - AVERAGE INTAKE OF FOODSTUFFS (GRAMS/CONSUMPTION UNIT PER DAY)

State	Total cereals and milleta	Pulses	Leafy Vege-tables	Other Vege-tables	Roots and Tubers	Nuts and oil seeds	Condi-ments and spices	Fruits	Fish	Other flesh foods	Milk & milk pro-duct	Fats and oils	Sugar and Jag-gary
Kerala	328	15	3	79	166	76	14	26	36	*	44	5	19
Tamil Nadu	479	35	7	62	58	12	20	14	12	7	95	10	20
Karnataka	723	64	7	22	24	5	27	6	*	*	81	6	35
Andhra Pradesh	594	34	6	40	33	3	23	23	6	4	103	13	11
Maharashtra	492	42	23	35	15	5	12	14	-	2	134	14	30
Gujarat	447	30	8	56	34	5	4	12	1	*	190	16	27
Madhya Pradesh	488	54	5	35	58	-	9	24	-	3	146	21	30
West Bengal	554	52	27	78	87	-	5	12	12	7	47	9	18
Uttar Pradesh	460	65	20	51	66	-	1	5	2	-	85	3	9

* Less than one great

NNBM - AVERAGE INTAKE OF DIFFERENT NOIRIENTS PER C.U. PER DAY

State	Protein (9)	Calories	Calciue (mg)	Iron	Vitamin A (ug) (Retinol)	Thiamin (mg)	Riboflavin (mg)	Nicotinic acid (mg)	Vitamin C (mg)
Kerala	46.9	2052	516	21.1	156	0.75	0.75	11.5	74
Tamil Nadu	54.5	2249	546	26.0	222	0.90	0.76	12.4	42
Karnataka	80.9	3058	1375	49.4	263	2.57	1.28	16.6	22
Andhra Pradesh	62.9	2569	624	30.7	284	1.15	0.85	15.4	30
Mahazashtra	65.9	2315	641	35.6	409	1.92	1.03	16.7	33
Gujarat	64.5	2146	546	24.7	284	1.92	1.08	14.8	35
Madhya Pradesh	76.0	2393	561	32.2	368	2.41	1.39	23.9	31
West Bengal	67.6	2473	442	32.9	342	1.32	0.89	18.2	57
Utter Pradesh	70.2	2064	437	30.5	308	2.12	1.17	19.7	42
Recommonded intake (ICMR 1968)	55.0	2400	400-500	20-30	750	1.20	1.30	16.0	50

Table-7

NNMB- PERCENT DISTRIBUTION OF HOUSEHOLDS ACCORDING TO PROTEIN-CALORIE INADEQUACY

State	PI CI	PI	PA CI	PA CA	PI	CI
Kerala	39.5	3.5	14.6	42.4	43.0	54.1
Tamil Nadu	29.4	0.6	19.1	50.9	30.0	48.5
Karnataka	7.7	-	9.2	83.1	7.7	16.9
Andhra Pradesh	12.4	0.6	8.3	78.7	13.0	20.6
Maharashtra	20.7	-	22.9	56.4	20.7	43.6
Gujarat	10.1	-	41.0	48.9	10.1	51.1
Madhya Pradesh	5.6	-	31.9	62.5	5.6	37.5
West Bengal	17.2	-	21.5	61.3	19.2	38.7
U.ttar Pradesh	13.4	-	40.2	46.4	13.4	53.6

PI - Protein Inadequacy
CI - Calorie Inadequacy
PA - Protein Adequacy
CA - Calorie Adequacy

Table-8

AVERAGE NUTRIENT INTAKE OF CHILDREN (1-4 YEARS) IN DIFFERENT STATES

State	No. surveyed	Protein (g)	Calories	Calcium (mg)	Iron (mg)	Vitamin A (µg)	Thiamine (mg)	Riboflavin (mg)
KERALA	60	16.3	595	274	6.0	92	0.27	0.33
TAMIL NADU	32	22.1	732	410	8.1	168	0.36	0.45
KARNATAKA	78	26.6	907	448	15.4	129	0.81	0.44
ANDHRA PRADESH	89	17.1	655	230	7.4	104	0.32	0.28
MAHARASHTRA	45	21.2	672	281	9.0	106	0.58	0.43
GUJARAT	55	26.8	934	346	10.5	552	0.72	0.52
MADHYA PRADESH	31	30.7	958	317	12.9	117	1.01	0.64
WEST BENGAL	57	25.4	828	334	12.6	261	0.57	0.48
UTTAR PRADESH	51	26.0	57	252	11.8	181	0.75	0.47
RECOMMENDED ALLOWANCES		18.3	1200	450	15.0-20.0	250	0.60	0.70

Note: Intakes excluding breast milk

47

Table-9

AVERAGE NUTRIENT INTAKE OF CHILDREN (4-7 YEARS) IN DIFFERENT STATES

State	No. surveyed	Protein (g)	Calories	Calcium (mg)	Iron (mg)	Vitamin A (µg)	Thiamine (mg)	Riboflavin (mg)
KERALA	56	24.2	976	310	10.3	73	0.43	0.42
TAMILNADU	36	23.8	959	284	12.1	110	0.49	0.37
KARNATAKA	107	42.5	1498	725	26.1	157	1.40	0.70
ANDHRA PRADESH	84	26.0	1000	286	12.2	168	0.51	0.39
MAHARASHTRA	80	34.0	1141	305	17.7	136	1.04	0.56
GUJARAT	57	32.0	1173	338	14.3	350	0.97	0.62
MADHYA PRADESH	52	39.0	1210	258	17.1	93	1.32	0.71
WEST BENGAL	56	33.5	1117	332	16.9	254	0.82	0.57
UTTAR PRADESH	68	35.8	1036	251	14.7	135	1.07	0.58
RECOMMENDED ALLOWANCES		22.0	1500	450	15.0-20.0	300	0.80	0.80

Table-10

AVERAGE NUTRIENT INTAKE OF BOYS AND GIRLS (7-10 YEARS) IN DIFFERENT STATES

State	No.surveyed	Protein (g)	Calories	Calcium	Iron (mg)	Vitamin A (µg)	Thiamine (mg)	Riboflavin (mg)
KERALA	49	28.3	1076	326	12.0	63	0.50	0.43
TAMILNADU	37	31.0	1198	360	14.6	115	0.59	0.44
KARNATAKA	96	53.1	1871	820	32.2	203	1.73	0.83
ANDHRA PRADESH	78	31.1	1137	331	14.4	162	0.63	0.45
MAHARASHTRA	87	41.1	1417	389	20.8	200	1.21	0.68
GUJARAT	62	38.2	1414	378	15.7	304	1.12	0.69
MADHYA PRADESH	52	46.6	1453	297	20.2	105	1.57	0,83
WEST BENGAL	61	34.1	1214	311	18.5	371	0.82	0.57
UTTAR PRADESH	51	45.5	1316	239	19.0	106	1.46	0.69
RECOMMENDED ALLOWANCES		33.0	1800	450	15.0-20.0	400	0.90	1.00

Table-II

AVERAGE NUTRIENT INTAKE OF BOYS AND GIRLS (10-13 YEARS) IN DIFFERENT STATES

State	No. surveyed	Protein (g)	Calories	Calcium (mg)	Iron (mg)	Vitamin A (µg)	Thiamine (mg)	Riboflavin (mg)
KERALA	48	32.4	1256	388	13.9	96	0.57	0.52
TAMIL NADU	22	42.4	1673	591	21.2	127	0.97	0.65
KARNATAKA	77	60.0	2084	948	36.9	256	2.00	0.93
ANDHRA PRADESH	48	36.2	1379	359	18.5	158	0.81	0.52
MAHARASHTRA	65	44.4	1468	349	23.9	188	1.39	0.67
GUJARAT	49	42.8	1543	373	17.0	193	1.29	0.75
MADHYA PPRADESH	33	47.8	1467	291	19.9	107	1.68	0.88
WEST BENGAL	66	40.9	1343	346	21.5	288	0.99	0.64
UTTAR PRADESH	50	49.5	1528	240	20.9	112	1.56	0.76
RECOMMENDED ALLOWANCES		41.0	2100	650	15.0-20.0	600	1.00	1.20

Table-12

AVERAGE NUTRIENT INTAKE OF BOYS (13-18 YEARS) IN DIFFERENT STATES

State	No. surveyed	Protein (g)	Calories	Calcium (mg)	Iron (mg)	Vitamin A (µg)	Thiamine (mg)	Riboflavin (mg)
KERALA	17	40.9	1698	480	17.8	138	0.72	0.68
TAMIL NADU	14	43.4	1887	567	21.1	109	0.77	0.59
KARNATAKA	36	64.2	2346	1007	39.9	250	2.16	1.02
ANDHRA PRADESH	24	45.0	1742	372	19.2	188	0.71	0.55
MAHARASHTRA	42	53.5	1717	435	30.4	245	1.65	0.79
GUJARAT	25	50.5	1750	467	20.0	182	1.61	0.93
MADHYA PRADESH	25	63.7	1923	380	26.9	126	2.14	1.12
WEST BENGAL	46	49.3	1821	359	29.4	379	1.15	0.74
UTTAR PRADESH	32	66.4	2092	354	28.8	203	2.03	1.08
RECOMMENDED ALLOWANCES		57.5	2750	600	25.0	750	1.40	1.55

21

Table-13

AVERAGE NUTRIENT INTAKE OF GIRLS (13-18 YEARS) IN DIFFERENT STATES

State	No. surveyed	Protein (g)	Calories	Calcium (mg)	Iron (mg)	Vitamin A (µg)	Thiamine (mg)	Riboflavin (mg)
KERALA	32	38.4	1572	416	18.1	169	0.77	0.66
TAMIL NADU	14	41.5	1733	745	22.1	125	1.06	0.72
KARNATAKA	36	61.0	2182	709	35.7	225	1.96	0.92
ANDHRA PRADESH	21	51.6	1860	671	24.5	168	1.03	0.74
MAHARASHTRA	27	53.9	1781	363	28.9	235	1.63	0.80
GUJARAT	23	45.8	1599	440	17.6	206	1.44	0.77
MADHYA PRADESH	30	58.4	1783	374	25.6	158	2.04	1.07
WEST BENGAL	39	36.9	1347	263	18.9	414	0.81	0.53
UTTAR PRADESH	23	55.9	1706	245	22.9	86	1.90	0.91
RECOMMENDED ALLOWANCES		50.0	2200	600	35.0	750.0	1.10	1.20

22

Table-14

AVERAGE NUTRIENT INTAKE OF ADLT KALES (SEDENTARY) IN DIFFERENT STATES

State	No.surveyed	Protein (9)	Calories	Calclin (mg)	Iron (mg)	Vitamin A (µg)	Thiamina (mg)	Riboflavin (mg)
KERALA	52	53.9	1770	515	18.9	132	0.75	0.71
TAMIL NADU	43	56.4	2227	677	26.5	189	1.07	0.82
KARNATAKA	119	75.4	2811	1895	45.4	263	2.42	1.21
ANDHRA PRADESH	93	50.3	1961	521	21.8	226	0.86	0.69
MAHARASHTRA	123	66.9	2176	506	34.6	358	1.99	1.02
GUJARAT	102	61.5	2127	619	25.6	492	1.88	1.15
MADHYA PRADESH	75	66.6	1991	430	27.7	156	2.20	1.21
WEST BENGAL	37	57.6	2012	486	30.7	477	1.31	0.88
UTTAR PRADESH	86	77.1	2241	398	32.5	191	2.37	1.21
RECOMMENDS) ALLOWANCES		55.0	2400	450	20.0	750	1.20	1.30

Table-15

AVERAGE NUTRIENT INTAKE OF ADULT MALES (MODERATE) IN DIFFERENT STATES

State	No. surveyed	Protein (g)	Calories	Calcium (mg)	Iron (mg)	Vitamin A (µg)	Thiamine (mg)	Riboflavin (mg)
KERALA	102	53.9	2037	614	23.0	230	0.95	0.84
TAMIL NADU	53	54.1	2278	765	29.6	170	1.20	0.80
KARNATAKA	113	78.9	2813	1095	48.6	262	2.67	1.20
ANDHRA PRADESH	78	49.4	1999	650	25.6	171	0.95	0.63
MAHARASHTRA	64	69.2	2270	484	39.1	291	2.20	1.00
GUJARAT	67	63.6	2164	468	26.0	201	1.97	1.01
NASHYA PRADESH	31	71.0	2087	371	33.2	144	2.59	1.26
WEST BENGAL	75	56.1	2052	395	30.7	439	1.26	0.82
UTTAR PRADESH	91	72.7	2159	380	32.3	310	2.34	1.17
RECOMMENDED ALLOWANCES		55.0	2800	490	20.0	750	1.40	1.50

Table-16

AVERAGE NUTRIENT INTAKE OF ADULT WOMEN IN DIFFERENT STATES

State	No. surveyed	Protein (g)	Calories	Calcium (mg)	Iron (mg)	Vitamin A (µg)	Thiamine (mg)	Riboflavin (mg)
KERALA	180	31.3	1365	362	14.6	93	0.59	0.54
TAMIL NADU	84	39.7	1669	689	22.0	113	0.93	0.63
KARANATAKA	172	75.6	2562	1145	46.4	322	2.54	1.17
ANDHRA PRADESH	169	47.5	1800	406	23.2	175	0.99	0.64
MAHARASHTRA	142	57.1	1912	342	33.2	229	1.86	0.81
GUJARAT	134	45.3	1607	351	18.0	200	1.22	0.71
MADHYA PRADESH	80	64.3	1875	357	27.8	122	2.26	1.30
WEST BENGAL	91	48.6	1642	429	39.3	856	1.40	0.84
UTTAR PRADESH	144	50.5	1480	395	31.9	680	1.69	0.93
RBCOMMENDED ALLOWANCES		45.0	1900	450	30.0	750	1.00	1.00

*NON-PREGNANT NON-LACTATING

Table-7

AVERAGE NUTRIENT INTAKE OF LACTATING WOMEN IN DIFFERENT STATES

State	No. surveyed	Protein (g)	Calories	Calcium (mg)	Iron (mg)	Vitamin A (µg)	Thiamine (mg)	Riboflavin (mg)
KERALA	25	40.6	1405	665	18.4	53	0.65	0.56
TAMIL NADU	19	46.8	1887	406	21.8	150	0.58	0.53
KARNATAKA	43	56.7	2039	1009	36.1	225	2.02	0.93
ANDHRA PRADESH	14	43.5	1724	429	18.3	221	0.78	0.62
MAHARASHTRA	33	50.7	1654	414	27.1	135	1.52	0.76
GUJARAT	38	54.8	1895	388	23.5	203	1.74	0.86
MADHYA PRADESH	13	77.3	2393	424	34.5	125	2.89	1.47
WEST BENGAL	36	39.2	1535	357	21.4	235	0.76	0.59
UTTAR PRADESH	8	52.2	1565	396	30.5	759	1.63	1.05
RECOMMENDED ALLOWANCES		65.0	2600	1000	30.0	1150	1.40	1.40

NUTRITIONAL STATUS

A total of 17,862 subjects were examined for the presence of nutritional deficiency signs and on whom anthropometric measurements were also taken. of these, about 3% were infants (less than one year), 13% preschool children (1-5 years), 21% school aged children (5-12 years), 20% adolescents (12-20 years) and 43% adults (above 20 years).

DEFICIENCY SIGNS

MOST commonly observed nutritional disorders were Calorie-Protein Malnutrition, Vitamin A and B-complex deficiency and deficiency of essential fatty acids (Tables 18 to 22). The signs of Calorie-Protein Malnutrition were observed more frequently in infants and preschool children, while those of vitamin deficiencies in children of school age and adolescents. Varying degrees, of dental caries were seen in the age group beyond 5 years.

Protein Calorie Malnutrition

Clinical cases of kwashiorkor and marasmus/ emaciation were seen in almost all the States, except in Madhya Pradesh in the present survey. Prevalence of marasmic type of PCM was common in infants, while in preschool children both the types of PCM, i.e. kwashiorkor

and marasmus were seen. The per cent prevalence of frank cases of oedema and clinical marasmus was highest in Uttar Pradesh as compared to other States. The point prevalence of 2 or more clinical signs of PCM ranged from 0.5% in Maharashtra to 19.0% in Uttar Pradesh in the age group of 1.5 years.

Vitamin deficiencies

Signs of vitamin A and B-complex deficiencies were relatively more in preschool children as compared to other age groups. The infants were found to be free from Obvious manifestations of vitamin A and vitamin B-complex deficiency signs. However, in Madhya Pradesh the prevalence of 2.4% vitamin" A deficiency and in Karnataka and Andhra Pradesh about 1.0% of B-complex deficiency was seen in infants.

The prevalence of vitamin A deficiency signs ranged from 0.7% in Kerala to 8,7% in Madhya Pradesh in pre-school age group, while in school age group the prevalence ranged from 0.8% in Maharashtra to 27.0% in Madhya Pradesh. The prevalence of B-complex deficiency signs was highest in Karnataka, while it was lowest in Maharashtra in both preschool and school age groups.(Tables 19 & 22). It may be mentioned here that in general, the prevalence of B-complex deficiency signs indicated direct relationship with the consumption of calories. In older age groups, i.e. beyond 12 years, varying degrees of vitamin deficiency signs were seen. However, the prevalence rates tended to be more in males than in females.

ANTHROPOMETRY

Nutritional anthropometry is extensively used in community nutritional surveys to assess the nutritional status of population groups.On all the individuals examined, measurements such as standing height, body weight, mid arm circumference and fat fold atriceps were obtained.

Means and standard deviations of an thropometric measurements by age and sex for each State are presented in Tables 23 to 40. The distance charts for heights and weights are presented in figures. The growth curves for the States of Kerala, Gujarat, Maharashtra, west Bengal and Tamil Nadu fell below the 50th per centile of Indian Council of Medical Research values, while those of Andhra Pradesh, Karnataka and Uttar Pradesh were comparable to the 50th percentile of Indian Council of Medical Research data. However, the differences in growth pattern were minimal during the preschool age in all the States. This is, in fact, confirmed when the body weights were classified according to Gomez's classification (Table 41 & 42).The inter-state differences in growth pattern increased with advancing age.

PREVALENCE OF UNDERNUTRITION IN PRESCHOOL CHILDREN USING ANTHROPOMETRY

Weight for age:

Underweight fox age has been considered as one of the early objective signs of calorie-protein Malnutrition. As such the weight of all the children surveyed in different States were expressed as per-centage of standard weights (Indian well-to-do) and grouped into various grades of malnutrition (Gomez's classification) Table 41 and 42.

About 10% of the children had normal body weights. The proportion of children suffering from mild and moderate degrees of malnutrition was found to be similar (about 40% in each category). Severe degree of malnutrition (weight below 60% of the standard) was observed in 8.5% of the preschool children. The degree of undernutrition was similar in boys and girls. On the whole, the extent of undernutrition was of the same order in different states. The extant of undernutrition noticed during this year is quite low as compared to last year figures (NNMB - 1976), this difference is due to the fact that the American Standard of reference was used in the previous year.

Distribution of children according to the classification suggested by Seoane and Latham which

also indicates the type of malnutrition, whether it is long term chronic or short term, etc., suggested that nearly 25% of the boys surveyed were normal (i.e. weight for age, height for age and weight for height were normal). Another 28% suffered from current long duration malnutrition, while about 3% suffered from short term malnutrition. The remaining 43% were suffering from past chronic malnutrition and could be considered as nutritional dwarfs, i.e. their heights and weights were low for their age while the weight for height values were normal.(Table-43). The girls appeared to be slightly better off than the boys (Table-44) when the above classification was used to grade malnutrition.

32

Table-18

NNMB - PERCENTAGE PREVALENCE OF DEFICIENCY SIGNS - INFANTS

State	Kerala	Tamil Nadu	Karnataka	Andhra Pradesh	Maharashtra	Gujarat	Madhya Pradesh	West Bengal	Uttar Pradesh
Number	6	86	107	75	63	84	41	37	36
NAD	100.0	93.0	90.6	82.7	96.4	95.2	97.6	91.9	69.4
Oedema	-	-	-	2.7	-	-	-	-	2.8
Emaciation	-	-	3.7	-	1.6	-	-	8.1	5.6
Marasmus	-	-	2.8	2.7	-	3.6	-	-	11.1
Two or more signs of PCM	-	-	3.7	2.7	-	1.2	-	-	19.4
Conj. Xerosis	-	-	-	-	-	-	2.4	-	-
Bitot's Spots	-	-	-	-	-	-	-	-	-
Total vitamin A Deficiency	-	-	-	-	-	-	2.4	-	-
Angular stomatitis	-	-	0.9	1.3	-	-	-	-	-
Other B-complex deficiency	-	-	-	-	-	-	-	-	-
Total B-complex Deficiency	-	-	0.9	1.3	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-

Table 17

NNMB - PERCENTAGE PREVALENCE OF DEFICIENCY SIGNS - PRESCHOOL. CHILDREN

STATE	Kerala	Tamil Nadu	Kar-nataka	Andhra Pradesh	Maha-rashtra	Gujarat	Madhya Pradesh	west Bengal	Uttar Pradesh
Number	137	332	393	364	191	348	172	200	165
NAD	89.1	76.8	57.5	78.6	88-5	85.6	92.4	90.0	73.9
Oedema	-	-	1.5	0.8	-	0.6	—	0.5	0.6
Emaciation	0.7	-	4.3	—	0.5	_		3.0	0.6
Marasmus	-	1.3	0.8	1.6	1.0	1.4	-	0.5	0.6
Two or more signsof PCM	-	1.8	4.6	1.9	0.5	0.9	-	2.0	1.3
Conj.Xerosis	0.7	1.2	0.8	0.3	-	-	3.1	0.5	3.0
Bitot's Spots	-	5.1	2.3	4.1	-	1.4	0.6	0.5	3.0
Total vitamin Deficiency	0.7	6.3	3.6	4.4	_	1.4	3.7	1.0	6.0
Angular Stomatitis	1.5	11.4	22.1	14.0	0.5	2.0	-	3.5	3.6
Other B-complex Deficiency	0.7	0.3	-	0.3	-	-	-	-	0.6
Total B-complex Deficiency	2.2	11.7	22.1	14.3	0.5	2.0	-	3.5	4.2
Caries	2.9	-	1.5	0.3	1.6	2.3	-	1.0	1.2

Table-20

NNMB - PERCENTAGE PREVALENCE OF DEFICIENCY SIGNS - 5 - 12 YEARS

STATE	Kerala	Tamil Nadu	Kar-nataka	Andhra Pradesh	Maha-rashtra	Gujarat	Madhya Pradesh	west Bengal	Uttar Pradesh
Number	269	424	382	472	364	388	211	283	198
NAD 5-12	65.0	64.6	82.5	87.1	73.3	67.8	95.3	82.7	81.8
Oedema	-	0.2	-	-	-	-	-	-	-
Emaciation	0.6	-	0.2	-	-	0.2	-	0.6	-
Marasmus	-	0.2	-	-	-	-	-	-	-
Two or more signs of PCM	-	0.4	-	-	-	-	-	-	-
Conj. Xerosis	5.3	2.9	1.6	0.5	-	0.4	23.4	1.5	5.3
Bitot's Spots	-	5.7	6.1	6.0	0.8	3.6	4.1	3.0	6.9
Total Vitamin A Deficiency	5.3	8.6	7.7	6.5	0.8	4.0	27.1	4.5	12.2
Angular Stomatitis	9.6	13.8	32.7	20.3	0.5	9.2	1.7	6.4	5.7
Other B-complex Deficiency	0.9	0.6	0.2	0.5	-	-	-	0.9	1.2
Total B-complex Deficiency	10.5	14.4	32.9	20.8	0.5	9.2	1.7	7.3	6.9
Caries	27.6	8.6	9.9	4.3	25.2	23.4	4.4	18.9	1.6

Table-21

NNMB - PERCENTAGE PREVALENCE OF DEF ICIENCY SIGNS - 12 - 21 YEARS MALES

STATE	Kerala	Tamil Nadu	Kar-nataka	Andhra Pradesh	Maha-rashtra	Gujarat	Madhya Pradesh	West bengal	Uttar Pradesh
Number	132	370	371	373	203	337	158	163	229
NND 12-21M	63.7	64.3	64.4	65.7	86.2	57.9	81.0	89.9	84.7
Conj.Xerosis	5.5	3.2	1.3	0.3	1.0	0.6	15.2	-	1.7
Bitot's Spots	0.5	5.4	5.9	5.6	0.5	5.6	1.3		0.9
Total Vitamin A | Deficiency |	6.0	8.6	7.2	5.9	1.5	6.2	16.5	-	2.6
Angular Stomatitis	a.2	9.5	19.8	15.3	0.5	10.1	-	4.3	3.5
Other B-complex Deficiency	1.2	1.1	-	O.3	-	-	-	1.2	2.6
Total B-complex Deficiency |	9.4	10.6	19.8	15.6	0.5	10.1	-	5.5	6.1
Caries	16.5	4.9	4.9	1.3	7.9	11.6	1.9	7.4	0.9

Table-22

NNMB - PERCENTAGE PREVALENCE OF DEFICIENCY SIGNS - 12 - 21 YEARS FEMALES

STATE	Kerala	Tamil Nadu	Kar-nataka	Andhra Pradesh	Maha-rashtra	Gujarat	Madhya Pradesh	West Bengal	Uttar Pradesh
Number	136	259	255	239	143	251	132	145	74
NAD 12-21F.	68.4	69.5	65.9	79.5	83.2	71.3	89.4	82.4	81.1
Conj. Xerosis	2.9	1.9	0.4	0.8	-	-	6.1	-	-
Bitot's Spots	-	4.6	3.9	1.7	0.7	4.0	-	-	1.4
Total Vitamin A Deficiency	2.9	6.5	4.3	2.5	0.7	4.0	6.1	-	1.4
Angular Stomatitis	6.6	6.2	14.5	7.5	-	2.4	-	8.3	1.4
Other B-complex Deficiency	-	1.2	0.8	1.3	-	-	0.8	-	-
Total B-complex Deficiency	6.6	7.4	15.3	8.8	-	2.4	0.8	8.3	1.4
Caries	17.6	6.6	1.2	0.4	11.9	11.2	3.0	9.7	-

Table-23

NNMB - MEAN ANTHROPOMETRIC MEASUREMENTS BY AGE - KERALA

- M A L E S -

Age	N	Height (cm)		Weight (kg)		Arm circumference (cm)		Skinfold at Triceps (mm)	
		$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.
01 +	15	72.6	8.76	8.0	0.97	11.8	1.48	5.7	1.50
02 +	17	80.9	5.31	9.3	1.25	12.5	1.28	6.1	2.26
03 +	14	91.5	8.28	11.3	1.10	13.7	1.07	5.6	1.74
04 +	26	91.7	6.28	12.3	1.74	13.7	1.28	6.3	1.41
05 +	29	99.2	9.27	14.1	2.08	13.9	1.09	5.7	1.67
06 +	23	103.8	7.18	14.3	2.07	13.9	1.41	5.3	1.26
07 +	15	110.0	11.54	15.7	1.71	14.6	0.71	5.3	1.05
08 +	33	113.0	6.57	17.0	2.13	14.7	1.39	4.8	1.27
09 +	17	119.8	7.49	19.9	3.02	16.1	3.04	5.1	1.54
10 +	35	122.9	8.14	20.5	3.56	15.4	1.80	4.6	1.04
11 +	22	127.2	11.10	22.6	4.36	15.6	1.33	5.3	1.20
12 +	40	130.0	9.31	23.7	4.86	15.8	1.51	4.7	1.03
13 +	36	134.9	13.83	26.4	5.67	16.6	2.11	4.8	0.98
14 +	29	139.2	10.32	29.2	5.36	17.4	2.38	5.4	1.09
15 +	21	148.4	11.49	34.7	7.59	20.1	3.08	5.6	1.21
16 +	13	151.8	11.83	36.1	9.00	19.5	3.09	5.4	1.56
17 +	13	156.8	10.78	40.4	7.53	20.6	2.79	4.5	0.78
18 +	10	157.6	7.51	42.0	6.30	21.3	2.28	6.0	1.70
19 +	8	155.4	7.74	43.1	3.27	22.8	1.76	5.1	1.36
20-25	42	162.1	7.64	47.2	6.26	23.1	2.67	4.7	1.40
25-30	39	160.6	6.74	48.6	6.69	24.6	2.22	5.3	2.72
30-35	22	161.6	6.64	49.0	5.42	24.9	1.83	5.1	1.77
35-40	29	160.1	8.04	47.5	6.85	24.6	1.84	4.8	1.30
40-45	28	160.4	4.91	48.9	6.82	24.8	2.13	5.6	2.25
45-50	19	157.9	7.88	46.2	8.60	24.6	2.76	5.7	1.49
50-55	12	160.4	7.33	46.2	5.44	23.6	2.42	5.1	2.06
55-60	11	155.3	5.10	42.8	5.36	23.3	2.28	4.7	0.90
⩾60	9	158.3	6.73	42.6	3.83	22.5	2.06	5.2	1.20

Table-24

NNMB - MEAN ANTHROPOMETRIC MEASUREMENTS BY AGE - KERALA

- F E M A L E S -

Age	N	Height (cm)		Weight (kg)		Arm circumference (cm)		Skinfold at Triceps (mm)	
		$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.
01 +	11	72.3	3.42	7.6	0.78	12.3	1.22	5.9	1.70
02 +	13	80.5	7.22	9.5	1.22	12.7	1.59	5.8	1.77
03 +	25	87.8	7.24	10.9	1.48	13.3	1.37	6.1	1.41
04 +	16	89.2	8.03	11.5	1.77	13.7	1.37	6.8	1.49
05 +	16	100.3	10.00	14.1	2.42	14.2	1.66	5.9	1.45
06 +	15	102.3	7.51	14.2	2.04	14.2	1.08	5.6	1.24
07 +	19	110.9	5.96	17.2	2.91	14.0	0.99	5.1	0.87
08 +	34	113.2	9.96	17.8	3.96	14.8	1.16	5.3	1.06
09 +	22	116.8	6.35	18.3	2.40	14.7	1.29	5.4	1.29
10 +	28	123.4	10.77	22.0	5.10	15.8	1.58	5.8	1.47
11 +	14	126.8	7.89	23.9	4.88	16.1	1.77	5.9	1.38
12 +	32	128.5	12.30	24.4	5.72	16.1	2.05	5.8	1.87
13 +	22	131.3	12.27	26.0	5.73	17.2	1.51	5.5	1.26
14 +	15	142.9	8.23	29.9	6.79	18.7	1.69	7.0	2.48
15 +	15	144.2	14.22	32.7	9.12	19.4	2.75	6.0	1.69
16 +	10	147.2	7.97	39.8	6.30	22.0	2.44	8.5	2.63
17 +	8	150.8	4.63	40.9	6.64	22.6	1.73	8.7	3.10
18 +	9	152.0	6.28	41.7	5.41	22.6	1.85	7.6	2.00
19 +	8	150.1	3.33	44.1	4.72	22.3	1.90	8.3	2.25
20-25	85	151.7	5.28	44.0	5.17	23.1	2.88	7.1	2.59
25-30	103	151.0	5.17	43.6	6.21	22.8	2.16	7.0	2.24
30-35	68	150.8	5.73	44.1	5.68	23.2	2.46	6.7	2.09
35-40	54	150.3	5.58	42.3	5.72	23.0	2.43	6.8	2.38
40-45	31	149.6	6.95	41.0	6.96	22.6	3.22	7.0	2.70
45-50	28	147.6	4.86	40.1	7.17	21.8	2.56	6.2	2.28
50-55	17	147.4	5.09	39.5	6.48	21.4	2.44	6.1	2.20
55-60	7	146.3	5.54	39.5	6.25	22.1	2.73	6.9	2.19
⩾60	26	145.3	4.71	36.2	5.33	20.8	2.30	5.1	1.35

Table-25

NNMB - MEAN ANTHROPOMETRIC MEASUREMENTS BY AGE - TAMIL NADU

Males

Age	N	Height (cm)		Weight (kg)		Arm circumference (cm)		Skin fold at triceps (mm)	
		Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
01 +	41	75.7	4.53	8.6	1.28	12.4	1.05	8.5	1.75
02 +	34	81.0	6.55	9.9	1.78	12.5	1.51	8.3	1.70
03 +	37	86.9	5.03	11.1	1.50	13.2	1.06	9.3	1.84
04 +	50	94.7	4.49	12.5	1.75	13.3	1.09	8.6	1.88
05 +	30	100.2	4.71	14.0	1.53	13.5	0.87	8.1	1.64
06 +	37	105.7	8.34	15.2	1.77	13.7	1.01	7.6	1.75
07 +	39	110.2	6.06	16.4	1.99	13.9	0.85	7.2	1.51
08 +	29	116.3	5.31	18.2	2.04	14.2	1.06	7.0	1.75
09 +	41	120.5	5.63	19.7	2.42	14.6	1.05	6.4	1.58
10 +	42	124.2	6.24	21.1	2.54	15.0	1.05	6.7	1.40
11 +	28	129.1	6.44	23.7	4.40	15.7	1.96	6.8	2.58
12 +	53	133.6	5.61	25.0	3.18	16.1	1.41	7.1	2.36
13 +	53	137.7	6.98	27.0	3.67	16.6	1.26	7.1	1.86
14 +	37	143.3	8.40	30.6	5.07	17.4	1.80	7.3	2.23
15 +	38	146.5	8.26	32.4	5.59	17.8	1.65	7.1	2.50
16 +	37	152.0	7.47	36.0	5.10	18.5	1.63	7.1	1.78
17 +	39	157.6	6.92	40.6	5.92	19.6	1.45	7.5	2.26
18 +	32	159.7	7.14	42.5	5.78	20.4	1.72	8.0	2.56
19 +	29	160.9	6.30	45.3	4.60	21.4	1.76	8.0	1.70
20 - 25	112	161.8	8.39	46.9	5.95	22.0	1.74	7.4	2.39
25 - 30	83	163.7	7.21	50.8	7.53	23.0	1.91	8.4	4.08
30 - 35	83	163.4	5.66	49.9	7.30	22.6	2.27	7.8	3.73
35 - 40	104	162.4	6.35	49.1	7.13	22.5	2.21	7.9	3.30
40 - 45	57	163.7	6.25	51.5	10.87	23.6	2.79	9.2	4.92
45 - 50	74	163.3	6.45	51.6	9.88	23.3	2.77	8.3	4.13
50 - 55	26	163.6	5.98	53.9	11.95	23.7	2.82	8.4	4.41
55 - 60	27	161.6	6.49	50.8	10.72	22.6	2.75	7.9	5.03
⩾ 60	62	162.0	5.62	49.6	10.01	22.0	3.11	8.4	3.85

Table-26

NNMB - MEAN ANTHROPOMETRIC MEASUREMENTS BY AGE - TAMIL NADU

Females

Age	N	Height (cm)		Weight (kg)		Arm circumference (cm)		Skin fold at triceps (mm)	
		$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.
01 +	42	73.1	3.74	7.9	0.97	11.9	1.07	8.5	1.91
02 +	35	78.9	4.80	9.1	1.39	12.3	1.10	8.9	2.17
03 +	45	86.7	4.76	10.6	1.33	12.9	0.88	9.3	1.68
04 +	48	93.3	5.69	12.0	1.75	13.3	0.90	9.2	2.30
05 +	25	99.2	3.66	13.5	1.74	13.6	0.82	8.4	1.71
06 +	34	105.3	4.19	14.7	1.48	13.5	0.85	7.6	1.65
07 +	38	109.4	6.38	16.1	2.08	14.1	0.91	8.1	1.88
08 +	43	115.1	6.09	17.7	2.12	14.4	0.96	7.5	1.91
09 +	27	117.0	4.69	18.1	2.32	14.3	1.26	7.6	2.32
10 +	46	125.3	8.48	22.0	3.73	15.6	1.43	8.0	2.06
11 +	28	128.3	8.47	23.2	3.79	15.8	1.29	8.2	1.91
12 +	48	133.1	8.07	25.6	4.36	16.5	1.62	8.8	2.48
13 +	30	138.3	9.16	28.8	5.34	17.4	1.58	8.8	2.28
14 +	30	144.4	10.16	34.9	6.01	19.1	1.83	10.8	3.58
15 +	8	148.6	6.21	38.3	3.14	19.9	0.96	10.4	1.30
16 +	36	148.4	6.13	41.0	6.53	21.2	2.39	13.9	4.26
17 +	23	152.3	5.43	40.7	4.45	20.7	2.00	12.2	3.42
18 +	30	150.7	5.31	41.6	5.47	21.1	2.15	12.3	4.48
19 +	19	150.9	6.34	43.2	5.15	21.2	3.14	13.4	4.31
20 - 25	102	151.5	5.27	42.3	5.63	20.9	2.06	11.5	3.96
25 - 30	121	150.3	5.26	42.2	6.23	21.2	3.66	11.4	4.79
30 - 35	79	150.1	5.20	43.1	8.10	21.7	2.52	11.9	5.62
35 - 40	91	149.7	5.32	43.5	8.42	21.8	2.69	12.1	5.37
40 - 45	41	150.7	6.24	43.7	7.23	21.8	2.53	11.8	5.20
45 - 50	44	149.0	5.94	45.2	9.97	22.1	2.61	12.7	4.81
50 - 55	35	147.7	4.95	41.4	8.56	20.8	2.90	10.6	3.51
55 - 60	33	149.2	5.87	44.3	9.78	21.3	3.15	11.6	5.73
⩾ 60	59	148.0	6.14	40.6	8.21	20.5	3.03	9.7	5.35

Table-27

NNMB - MEAN ANTHROPOMETRIC MEASUREMENTS BY AGE - KARNATAKA

- M A L E S -

Age	N	Height (cm)		Weight (kg)		Arm circumference (cm)		Skin fold at triceps (mm)	
		$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.
01 +	42	73.4	4.02	8.1	1.35	13.7	1.30	7.4	1.67
02 +	37	80.9	5.97	9.5	1.57	13.9	1.42	7.8	2.15
03 +	62	88.1	4.39	11.1	1.27	14.3	1.05	8.4	1.71
04 +	57	94.3	4.87	12.4	1.50	14.5	1.20	7.8	1.64
05 +	39	102.3	6.38	14.4	2.03	14.8	1.36	6.8	1.61
06 +	62	107.0	6.28	15.5	2.15	14.8	1.06	6.5	1.66
07 +	50	113.7	6.62	17.1	2.37	14.9	1.26	5.4	1.17
08 +	51	119.4	7.30	19.2	2.69	15.5	1.05	5.5	1.43
09 +	42	123.1	7.08	20.5	2.79	16.0	1.11	5.4	1.53
10 +	46	127.3	7.00	22.4	3.54	16.3	1.30	5.3	1.25
11 +	35	133.1	8.73	24.9	3.96	17.3	1.29	5.8	1.33
12 +	66	137.0	9.19	27.1	4.73	17.6	1.42	5.8	1.28
13 +	46	142.7	7.88	29.8	4.98	18.3	1.60	5.0	1.16
14 +	36	148.7	10.01	33.9	7.22	19.3	1.98	5.0	1.31
15 +	23	152.3	10.67	36.0	7.15	19.8	2.08	5.2	1.24
16 +	39	157.9	6.67	40.1	6.06	21.2	2.03	5.0	1.15
17 +	32	162.3	6.33	43.8	5.53	21.7	1.67	5.0	1.22
18 +	59	163.1	5.30	46.6	5.35	23.1	1.87	5.1	1.16
19 +	22	163.5	7.40	48.5	6.64	24.0	1.88	4.9	0.94
20-25	95	164.6	7.43	48.5	6.05	23.8	1.79	5.2	2.10
25-30	71	165.7	5.94	49.9	5.57	24.4	1.65	5.0	1.47
30-35	58	164.7	6.80	47.9	5.93	24.1	1.82	4.7	1.95
35-40	105	164.4	6.63	50.1	6.48	24.5	1.99	5.2	1.91
40-45	89	164.5	5.79	49.9	7.01	24.6	2.01	6.0	3.34
45-50	52	164.1	5.58	50.6	8.58	24.5	2.52	6.4	3.67
50-55	50	164.1	6.16	49.6	10.10	23.8	2.63	5.7	2.16
55-60	27	165.5	5.02	47.1	5.21	23.3	1.77	4.9	1.28
>60	69	162.2	5.49	45.8	7.66	22.7	2.77	5.9	2.73

Table-28

NNMB - MEAN ANTHROPOMETRIC MEASUREMENTS BY AGE - KARNATAKA

- F E M A L E S -

Age	N	Height (cm)		Weight (kg)		Arm circumference (cm)		Skin fold at triceps (mm)	
		$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.
01 +	43	70.5	5.24	7.3	1.33	12.8	1.39	7.5	2.02
02 +	45	79.3	5.22	8.9	1.74	13.7	1.15	8.4	1.96
03 +	52	86.1	6.17	10.5	1.44	14.2	1.01	8.7	1.86
04 +	55	93.6	6.13	12.0	1.77	14.5	1.11	8.4	1.95
05 +	48	99.8	6.19	13.6	1.77	14.9	0.91	8.2	1.88
06 +	48	103.2	7.41	14.4	1.95	15.0	1.19	7.9	2.11
07 +	50	112.3	6.73	16.5	2.17	14.9	1.66	6.5	1.72
08 +	51	119.6	6.46	19.2	2.66	16.0	1.26	6.4	1.51
09 +	38	123.3	6.69	21.0	2.93	16.7	1.20	6.9	1.68
10 +	44	126.9	7.13	22.2	4.34	16.7	1.71	6.1	1.64
11 +	40	135.2	7.46	25.4	4.65	17.4	2.01	6.6	1.97
12 +	43	137.3	9.47	27.7	5.35	18.5	1.62	7.0	2.71
13 +	34	145.6	8.96	33.1	5.88	20.0	1.86	7.6	1.63
14 +	25	148.5	6.23	36.0	6.86	20.8	2.48	8.6	2.58
15 +	28	148.9	5.52	38.7	5.33	22.0	2.06	9.4	3.71
16 +	29	152.5	5.57	42.3	5.77	23.0	2.36	10.1	3.51
17 +	21	152.6	4.10	42.7	4.42	23.5	1.62	11.1	5.14
18 +	39	153.3	4.53	42.7	4.66	22.9	1.60	9.5	3.82
19 +	7	152.8	5.94	42.1	7.94	22.7	1.69	8.4	4.04
20-25	75	151.4	5.71	42.2	5.78	22.9	2.15	8.3	2.72
25-30	117	151.5	5.03	43.4	6.59	23.7	2.65	9.0	4.75
30-35	113	152.6	5.08	43.5	7.19	23.6	2.65	8.5	4.27
35-40	88	151.3	5.69	42.2	6.07	23.2	2.15	8.3	3.82
40-45	58	152.9	6.33	41.6	7.50	22.7	2.79	8.0	3.64
45-50	41	152.0	5.08	41.6	6.73	23.1	2.48	8.2	3.47
50-55	33	149.3	5.28	42.0	8.11	23.4	3.23	9.1	4.67
55-60	28	150.4	6.18	40.5	8.44	23.0	3.18	9.4	5.66
>60	50	149.5	6.42	38.9	7.52	22.2	2.66	7.0	3.10

Table-29

NNMB - MEAN ANTHROPOMETRIC MEASUREMENTS BY AGE - ANDHRA PRADESH

Males

Age	N	Height (cm)		Weight (kg)		Arm circumference (cm)		Skin fold at triceps (mm)	
		$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.
01 +	30	73.1	5.71	7.5	1.67	12.7	2.84	6.1	1.71
02 +	42	79.7	5.38	9.3	1.58	13.2	1.28	7.0	1.52
03 +	54	87.0	5.15	11.0	1.35	13.9	1.71	6.9	1.20
04 +	64	94.0	6.10	12.5	1.66	13.8	1.15	6.5	1.54
05 +	32	102.1	4.90	14.3	1.89	14.2	1.21	6.0	1.13
06 +	40	107.0	6.44	15.5	2.07	14.2	1.91	5.6	1.28
07 +	49	112.4	7.04	17.0	2.61	14.6	1.13	5.5	2.10
08 +	51	118.6	7.04	19.1	2.51	15.0	1.04	5.0	1.28
09 +	59	124.7	6.19	20.1	2.11	15.3	0.99	5.0	1.83
10 +	44	127.1	6.05	23.0	3.19	16.6	1.99	5.2	1.39
11 +	35	130.1	7.04	23.2	2.91	16.1	1.58	4.9	1.20
12 +	55	137.4	7.64	27.2	4.23	17.2	1.65	5.2	1.46
13 +	45	141.6	5.35	29.3	2.92	17.9	1.32	5.6	1.47
14 +	47	145.3	7.56	31.7	4.66	18.2	1.72	4.9	1.26
15 +	35	151.8	6.73	35.5	5.90	19.5	1.67	5.3	1.21
16 +	42	156.8	8.08	41.1	5.04	20.9	1.45	4.9	1.19
17 +	34	161.2	5.53	43.3	4.30	21.6	1.73	5.1	1.28
18 +	45	162.0	8.62	46.0	5.73	22.6	2.09	5.4	1.25
19 +	26	162.3	6.27	47.3	5.47	23.0	2.84	5.4	1.50
20 + 25	108	163.6	7.02	48.0	5.84	23.2	1.72	5.2	1.43
25 - 30	83	164.6	..87	50.3	6.74	24.0	2.57	5.6	2.15
30 - 35	85	163.6	5.94	49.7	6.67	23.7	2.26	5.3	2.24
35 - 40	92	163.0	7.57	51.5	9.25	24.2	2.55	6.0	2.77
40 - 45	76	163.0	6.16	51.5	9.11	23.8	2.75	6.2	3.04
45 - 50	61	164.3	4.95	51.2	6.83	23.7	1.99	5.7	2.26
50 - 55	44	164.0	5.77	51.4	9.99	23.5	2.89	6.4	3.00
55 - 60	37	161.8	6.24	49.2	9.53	22.8	2.33	5.8	2.42
>60	48	164.5	7.03	48.6	9.20	22.2	2.16	5.6	1.88

Table-30

NNMB - MEAN ANTHROPOMETRIC MEASUREMENTS BY AGE - ANDHRA PRADESH

FEMALES

Age	N	Height (cm)		Weight (kg)		Arm Circumference (cm)		Skinfold at triceps (mm)	
		$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.
01 +	40	73.3	3.30	7.4	1.18	12.3	1.77	6.4	2.00
02 +	35	80.2	4.68	9.1	1.28	13.2	1.15	6.8	1.28
03 +	52	85.7	6.32	10.6	2.01	13.6	1.23	7.0	1.60
04 +	45	95.1	5.10	12.9	1.43	14.4	1.36	6.8	1.38
05 +	43	100.9	5.89	14.2	1.50	14.3	1.11	7.0	2.01
06 +	43	105.4	6.12	15.6	5.73	14.4	0.92	6.2	1.36
07 +	53	111.3	6.14	16.6	2.01	14.4	0.94	5.7	1.09
08 +	55	117.1	7.97	18.5	2.96	15.1	1.16	5.4	1.42
09 +	49	123.7	6.18	20.6	2.61	16.1	1.38	5.9	1.22
10 +	68	127.8	6.99	22.7	3.36	16.4	1.52	6.1	1.58
11 +	28	134.5	8.85	25.7	5.42	17.2	2.26	6.6	2.08
12 +	43	137.5	7.18	27.8	5.19	18.2	2.04	6.6	2.26
13 +	37	143.9	7.35	32.5	5.72	19.1	1.94	7.3	2.48
14 +	30	147.1	5.21	36.0	6.81	20.2	2.93	7.5	3.21
15 +	23	152.4	6.20	40.6	5.79	21.8	2.11	8.3	2.80
16 +	28	149.7	5.62	39.3	5.67	21.3	2.01	8.6	3.11
17 +	11	152.8	4.33	43.8	5.56	22.6	2.92	9.8	3.05
18 +	35	152.6	6.11	42.7	4.54	22.5	1.88	9.2	2.58
19 +	14	151.2	5.63	41.6	5.41	22.1	1.48	8.6	3.69
20-25	87	152.3	6.36	43.3	6.00	22.4	2.20	7.9	2.66
25-30	113	151.8	6.55	42.8	5.94	22.3	2.21	7.5	2.91
30-35	75	151.4	6.06	42.9	6.83	22.4	2.37	7.6	3.66
35-40	95	151.3	5.92	44.0	8.84	23.0	2.95	8.6	4.33
40-45	81	151.3	5.28	43.3	7.70	22.6	2.65	7.9	3.53
45-50	55	151.1	6.01	43.2	7.26	22.7	2.46	7.9	2.77
50-55	28	152.0	3.34	43.3	9.57	21.8	4.53	8.1	3.92
55-60	35	152.0	5.36	44.8	10.25	22.9	3.92	8.7	3.42
>60	31	149.1	6.74	42.7	10.07	22.2	3.66	7.3	3.98

Table-31

NNMB - MEAN ANTHROPOMETRIC MEASUREMENTS BY AGE - MAHARASHTRA

- M A L E S -

Age	N	Height (cm)		Weight (kg)		Arm circumference (cm)		Skin fold at triceps (mm)	
		$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.
01 +	10	72.1	2.48	8.5	1.27	13.8	1.01	8.1	1.79
02 +	26	78.3	4.52	9.0	1.51	13.9	1.18	8.7	2.26
03 +	26	84.4	7.96	10.5	2.16	13.9	1.03	9.3	1.88
04 +	37	91.2	6.33	11.9	1.83	14.3	0.99	8.5	2.06
05 +	33	99.3	4.98	13.7	1.87	14.4	1.33	8.7	1.91
06 +	20	102.4	6.38	14.3	1.90	14.3	0.75	7.5	1.82
07 +	30	109.3	5.99	16.3	1.86	14.7	0.86	7.1	2.44
08 +	33	115.5	5.88	18.8	3.76	15.0	0.87	6.5	1.66
09 +	21	120.2	5.74	21.1	7.57	15.9	1.59	6.8	2.15
10 +	38	125.8	6.95	21.7	2.88	15.7	0.99	6.3	1.81
11 +	19	131.9	7.42	24.5	3.33	17.1	2.72	7.4	2.98
12 +	32	133.8	9.32	25.4	4.95	16.8	1.62	5.8	1.50
13 +	23	141.1	9.86	29.6	4.93	17.7	1.26	5.8	1.70
14 +	16	147.5	12.31	34.6	9.38	19.6	2.87	5.9	1.81
15 +	14	155.8	5.99	38.7	3.23	20.1	1.29	6.9	2.91
16 +	19	159.2	7.88	42.0	5.92	21.5	1.29	6.6	3.53
17 +	29	159.8	7.25	41.9	5.77	20.9	1.85	5.8	1.99
18 +	32	159.7	7.49	45.3	5.22	22.4	1.86	5.3	1.37
19 +	20	162.2	5.83	46.1	3.71	22.7	1.63	6.5	3.00
20-25	50	162.9	6.36	49.1	6.32	23.9	2.18	7.1	3.02
25-30	32	163.3	6.17	51.7	7.25	24.9	2.23	7.6	4.72
30-35	39	165.4	6.06	51.9	6.62	24.2	2.64	8.1	4.19
35-40	64	162.3	8.10	52.9	8.69	24.9	2.95	8.8	4.74
40-45	32	163.5	7.18	51.7	9.81	25.0	2.63	9.1	5.66
45-50	31	162.1	7.18	46.6	7.57	23.4	1.94	7.0	2.75
50-55	20	162.5	4.80	48.0	4.67	23.7	1.66	6.9	2.54
55-60	15	163.7	5.16	53.3	10.11	25.1	2.72	8.6	4.95
≥60	34	162.3	6.27	48.4	7.86	22.9	3.12	7.7	3.60

Table-32

NNMB - MEAN ANTHROPOMETRIC MEASUREMENTS BY AGE - MAHARASHTRA

- F E M A L E S -

Age	N	Height (cm)		Weight (kg)		Arm circumference (cm)		Skin fold at triceps (mm)	
		$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.
01 +	14	71.4	4.02	7.5	1.39	12.9	1.55	8.1	1.57
02 +	18	77.8	5.52	9.0	1.43	13.6	1.36	9.7	2.61
03 +	25	82.2	7.17	9.9	1.71	14.0	1.23	9.3	2.32
04 +	35	89.2	6.62	11.5	2.16	14.0	0.81	8.9	1.96
05 +	25	98.2	4.54	13.3	1.68	15.0	1.47	9.2	2.00
06 +	29	102.5	7.66	14.4	2.32	14.7	0.71	8.5	1.67
07 +	39	109.1	10.30	16.3	3.51	15.3	1.94	8.4	2.02
08 +	19	114.7	8.76	18.4	3.53	15.9	2.36	8.0	2.52
09 +	18	120.1	5.63	19.3	2.19	16.2	2.78	7.5	1.78
10 +	34	126.2	11.14	22.1	4.38	16.8	2.61	8.1	2.63
11 +	11	136.6	8.83	25.9	4.57	18.3	2.56	7.4	2.33
12 +	25	136.9	9.80	28.0	5.85	18.2	1.74	8.0	2.53
13 +	19	141.3	8.37	31.9	6.20	19.0	1.57	8.9	2.24
14 +	24	145.9	7.71	35.4	6.19	19.9	2.91	9.0	3.33
15 +	8	147.8	4.22	38.4	4.25	21.8	1.87	10.6	2.56
16 +	9	147.1	6.02	36.9	3.49	21.8	2.43	8.3	2.50
17 +	13	150.7	7.29	39.9	5.49	22.3	1.99	11.3	4.64
18 +	15	150.1	4.77	42.7	7.08	23.3	3.90	12.5	3.91
19 +	14	150.4	4.41	43.4	5.90	22.3	2.56	12.7	3.61
20-25	49	150.4	5.62	42.7	5.84	22.8	2.67	11.3	3.46
25-30	61	151.5	5.64	42.5	4.98	22.4	2.57	10.6	3.28
30-35	67	150.7	6.83	41.8	6.12	22.4	2.92	11.0	4.58
35-40	35	150.5	6.23	41.9	5.35	22.8	1.83	12.0	3.56
40-45	33	150.8	6.15	41.1	4.80	23.2	2.45	11.2	4.72
45-50	33	149.5	4.20	42.2	7.52	23.4	2.86	11.9	3.20
50-55	17	147.1	6.60	39.7	6.69	22.9	2.90	11.8	4.93
55-60	14	149.2	7.83	43.7	8.29	24.6	4.10	14.7	6.06
≥60	34	148.4	5.20	40.9	8.09	23.3	3.57	11.4	6.89

Table-33

NNMB - MEAN ANTHROPOMETRIC MEASUREMENTS BY AGE - GUJARAT

- M A L E S -

Age	N	Height (cm)		Weight (kg)		Arm circumference (cm)		Skin fold at triceps (mm)	
		X	S.D.	X	S.D.	X	S.D.	X	S.D.
01 +	39	72.4	4.12	8.2	1.51	13.2	1.36	8.1	2.14
02 +	45	79.8	3.56	9.7	1.33	13.7	1.21	8.3	1.74
03 +	40	85.6	5.24	10.9	1.52	13.7	1.29	8.0	2.14
04 +	55	93.5	5.83	12.5	1.73	14.2	1.07	7.9	1.95
05 +	25	100.2	4.87	13.8	1.59	14.4	0.88	7.5	2.17
06 +	28	105.7	5.03	15.0	1.69	14.2	0.83	6.0	1.28
07 +	45	110.1	4.86	16.0	1.46	14.3	0.79	5.7	1.34
08 +	35	113.8	4.83	17.2	1.88	14.5	0.91	5.7	1.64
09 +	26	119.4	6.87	18.5	2.38	14.7	0.98	5.3	1.10
10 +	45	122.1	5.61	20.2	2.50	15.4	1.26	5.4	1.59
11 +	23	125.4	5.52	21.3	2.59	15.5	1.07	5.5	1.42
12 +	44	133.0	5.95	24.6	3.01	16.1	1.36	5.8	1.58
13 +	52	136.6	5.65	26.0	3.52	16.8	1.14	5.9	1.64
14 +	43	141.7	7.23	30.3	9.34	17.6	1.43	5.9	1.45
15 +	31	149.3	6.70	33.3	5.04	18.7	1.52	5.2	1.06
16 +	38	156.6	4.47	38.4	3.95	19.8	1.42	5.9	1.94
17 +	27	159.4	5.48	42.8	8.08	21.5	1.73	5.6	1.42
18 +	31	152.0	5.19	44.1	4.23	21.8	1.38	5.8	1.89
19 +	30	163.5	5.03	45.4	5.43	22.1	1.76	5.9	1.78
20-25	72	163.7	5.16	47.1	5.31	23.2	1.58	5.8	1.91
25-30	68	163.5	5.76	47.4	6.20	23.6	2.28	5.3	1.68
30-35	63	163.2	7.63	47.9	8.32	23.5	2.38	5.8	2.89
35-40	72	164.0	5.84	49.6	9.45	23.8	2.46	6.7	4.05
40-45	64	162.8	6.34	47.2	6.88	23.3	1.86	6.0	2.31
45-50	64	162.2	6.51	47.3	8.26	23.3	2.51	6.8	6.14
50-55	52	163.0	6.08	47.9	5.98	23.5	2.01	6.9	3.11
55-60	23	162.5	5.63	48.0	8.45	23.5	2.93	6.6	3.22
>60	63	161.8	6.03	47.1	10.74	22.6	2.72	7.3	3.36

Table-34

NNMB - MEAN ANTHROPOMETRIC MEASUREMENTS BY AGE - GUJARAT

- F E M A L E S -

Age	N	Height (cm)		Weight (kg)		Arm circumference (cm)		Skin fold at triceps (mm)	
		X	S.D.	X	S.D.	X	S.D.	X	S.D.
01 +	31	70.5	3.36	7.1	0.96	12.7	1.15	7.9	1.77
02 +	42	77.7	5.09	8.8	1.50	13.4	1.17	8.9	2.31
03 +	46	85.5	5.44	10.4	1.39	13.7	0.98	8.6	2.15
04 +	50	93.4	5.35	12.1	1.76	14.3	1.04	8.1	2.26
05 +	35	98.0	4.79	12.9	1.66	14.1	1.15	7.8	2.18
06 +	39	104.6	5.31	14.3	1.96	14.3	1.04	7.2	1.85
07 +	31	109.3	5.50	16.0	2.32	14.8	1.01	7.1	2.41
08 +	44	114.0	5.76	17.4	2.13	14.9	0.97	6.4	1.77
09 +	19	119.6	5.55	18.7	2.24	15.0	1.20	5.9	1.88
10 +	30	121.7	5.30	19.9	2.56	15.6	1.24	6.6	1.42
11 +	23	125.0	5.78	21.4	2.41	16.1	1.29	6.2	1.23
12 +	27	131.0	6.29	23.7	2.78	16.7	0.98	6.9	2.00
13 +	30	136.3	6.57	26.8	3.56	17.5	1.14	6.9	2.16
14 +	31	144.5	6.27	32.9	5.95	19.2	2.01	8.4	3.42
15 +	27	147.7	5.48	36.6	4.55	20.1	1.74	8.6	2.92
16 +	29	15..2	4.22	37.7	3.60	20.8	1.65	9.6	2.92
17 +	18	149.6	3.81	38.9	4.27	21.5	1.87	10.0	2.92
18 +	34	150.1	4.69	41.5	4.49	22.4	1.58	11.5	3.71
19 +	15	150.8	8.00	41.4	5.94	22.0	1.85	11.3	3.87
20-25	97	151.6	6.10	43.4	5.07	22.8	1.86	11.1	4.07
25-30	77	151.0	5.60	42.7	6.26	22.7	2.28	10.8	12.91
30-35	78	150.3	5.73	42.5	5.93	22.8	2.27	10.1	4.48
35-40	64	150.1	5.30	41.6	5.69	22.4	2.10	9.0	3.64
40-45	71	149.7	5.29	42.0	6.92	23.0	2.69	11.2	5.25
45-50	46	151.2	5.59	41.8	7.07	22.7	2.86	10.1	6.54
50-55	17	149.5	5.29	46.0	7.89	24.7	2.63	11.8	4.75
55-60	20	151.2	5.53	42.8	3.94	23.0	3.38	10.9	4.47
>60	65	148.4	5.71	40.0	7.81	22.0	2.81	9.8	5.38

Table-35

NNMB - MEAN ANTHROPOMETRIC MEASUREMENTS BY AGE - MADHYA PRADESH

- M A L E S -

Age	N	Height (cm)		Weight (kg)		Arm circumference (cm)		Skin fold at triceps (mm)	
		X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.
01 +	20	71.8	5.19	8.3	1.33	12.3	0.81	9.1	1.36
02 +	16	76.7	6.00	9.6	1.47	12.4	1.00	8.3	1.77
03 +	26	80.0	7.10	12.3	1.98	12.5	1.05	7.6	1.79
04 +	37	91.1	6.36	12.1	1.76	12.9	1.15	7.7	2.08
05 +	17	98.9	4.50	14.2	1.43	13.2	0.83	7.2	1.51
06 +	15	101.3	7.35	15.6	2.94	13.5	0.97	7.1	1.71
07 +	30	109.5	8.05	16.9	2.51	13.5	1.06	5.1	1.25
08 +	23	117.0	6.42	19.3	2.49	14.6	1.29	5.5	1.65
09 +	25	122.9	7.71	20.6	2.50	14.2	0.97	4.5	1.19
10 +	23	124.5	6.95	22.1	3.30	15.1	1.37	5.1	1.60
11 +	22	130.6	11.55	23.2	4.33	15.0	1.51	4.9	0.94
12 +	24	136.0	8.64	27.4	5.52	16.4	1.54	5.5	1.28
13 +	17	142.6	9.99	31.2	7.53	16.8	1.66	4.7	1.05
14 +	24	150.0	8.40	36.8	6.78	18.8	1.52	5.2	1.09
15 +	13	157.9	6.96	42.5	7.08	19.9	2.32	5.2	1.09
16 +	18	161.6	5.45	44.7	3.64	20.3	1.16	5.2	1.17
17 +	16	159.6	5.22	47.0	4.87	22.9	3.35	6.4	2.80
18 +	14	162.9	8.17	49.1	6.67	22.3	1.70	5.7	1.20
19 +	15	163.1	3.86	49.5	5.56	22.5	1.95	5.8	1.57
20-25	58	165.9	6.72	51.3	8.63	22.4	2.09	5.4	1.42
25-30	27	165.7	8.27	52.3	7.34	23.0	1.82	4.9	1.37
30-35	36	164.6	6.05	50.8	5.40	22.7	1.37	5.1	1.36
35-40	43	163.9	5.71	50.4	6.45	22.7	1.70	5.7	2.06
40-45	29	163.4	5.78	52.5	9.28	23.2	2.56	6.3	2.34
45-50	30	167.2	5.50	56.1	10.31	24.3	3.81	6.7	2.56
50-55	34	161.1	10.88	48.8	8.18	21.9	2.50	5.6	2.18
55-60	6	161.3	4.06	51.6	6.86	23.6	8.72	6.3	2.50
≥60	25	162.6	7.37	50.4	11.76	21.9	3.86	5.9	2.28

Table-36

NNMB - MEAN ANTHROPOMETRIC MEASUREMENTS BY AGE - MADHYA PRADESH

- F E M A L E S -

Age	N	Height (cm)		Weight (kg)		Arm circumference (cm)		Skin fold at triceps (mm)	
		X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.
01 +	16	73.2	4.50	8.5	1.91	11.8	1.12	7.9	2.02
02 +	18	73.3	5.16	8.1	1.27	11.8	1.07	8.3	1.37
03 +	16	82.9	8.12	10.3	1.84	12.7	1.27	7.8	1.65
04 +	23	88.8	6.78	11.7	1.36	12.8	0.96	8.3	2.30
05 +	10	98.0	9.09	13.5	2.28	13.0	0.91	7.1	1.66
06 +	34	102.9	8.10	15.1	2.40	13.7	0.95	6.8	1.53
07 +	16	109.9	10.92	16.6	4.04	13.9	1.21	6.0	1.51
08 +	23	113.6	6.53	18.1	2.37	14.4	0.84	5.7	1.19
09 +	23	121.3	6.75	20.4	2.93	14.8	1.03	5.8	1.53
10 +	21	125.5	9.81	21.7	4.29	15.6	1.66	5.9	1.41
11 +	14	130.4	11.22	24.3	5.20	15.7	1.39	5.6	1.60
12 +	21	134.1	11.11	27.1	5.73	16.6	1.88	5.8	1.33
13 +	18	139.9	13.32	30.8	8.31	17.6	2.35	6.3	1.53
14 +	7	142.8	11.28	35.9	9.11	19.2	2.31	7.4	1.72
15 +	17	149.6	7.09	38.7	6.01	20.4	1.69	7.8	2.02
16 +	11	151.1	6.91	44.6	7.77	21.8	2.06	8.8	2.44
17 +	7	151.8	4.99	44.4	4.34	21.4	1.32	8.6	3.26
18 +	18	152.7	4.36	45.7	5.33	21.8	1.88	9.2	2.34
19 +	10	153.4	3.75	45.7	5.08	21.9	2.31	8.4	3.63
20-25	51	151.2	6.34	44.6	6.24	21.7	2.23	8.3	2.87
25-30	42	150.3	5.98	44.7	5.06	21.3	4.18	7.6	2.53
30-35	43	151.1	3.97	43.5	5.78	21.4	2.25	8.2	2.34
35-40	37	151.9	5.81	44.9	8.10	21.7	2.28	7.7	2.79
40-45	28	150.6	4.44	45.6	7.18	22.8	3.15	8.6	4.71
45-50	27	147.9	7.86	45.5	9.38	22.1	2.46	8.2	3.78
50-55	13	158.1	5.43	43.6	11.66	21.9	2.51	8.5	4.05
55-60	8	149.5	3.77	42.6	9.51	20.7	3.44	7.3	3.69
≥60	33	147.7	7.50	40.4	6.75	20.7	2.98	7.4	2.60

Table-37

NNMB - MEAN ANTHROPOMETRIC MEASUREMENTS BY AGE - WEST BENGAL

- M A L E S -

Age	N	Height (cm) $\bar{X}$	Height (cm) S.D.	Weight (kg) $\bar{X}$	Weight (kg) S.D.	Arm circumference (cm) $\bar{X}$	Arm circumference (cm) S.D.	Skin fold at triceps (mm) $\bar{X}$	Skin fold at triceps (mm) S.D.
01 +	21	72.8	3.88	7.6	1.02	12.5	0.76	5.8	1.10
02 +	41	82.4	5.36	9.7	1.49	13.2	1.18	6.0	1.60
03 +	16	87.3	5.22	11.5	1.68	14.1	1.23	6.5	1.61
04 +	35	93.6	4.14	12.3	1.24	13.8	0.92	6.4	1.83
05 +	28	100.2	2.69	14.0	1.27	14.2	0.85	5.2	0.88
06 +	24	105.1	6.38	14.6	1.73	14.1	0.67	5.0	0.90
07 +	28	110.6	4.91	16.6	1.77	14.8	0.88	4.7	0.76
08 +	23	116.2	4.99	18.2	1.99	15.2	1.43	4.9	0.74
09 +	24	117.9	5.34	19.0	1.82	15.3	0.86	4.6	0.85
10 +	27	124.0	5.09	20.9	2.07	15.7	0.99	4.2	0.68
11 +	20	127.4	8.69	22.2	3.82	16.0	1.26	4.5	0.67
12 +	28	133.8	7.98	25.1	5.80	16.7	1.64	4.4	0.68
13 +	17	137.4	8.10	27.8	4.56	17.9	1.39	4.8	1.02
14 +	16	142.7	6.07	30.7	3.76	18.5	1.33	4.9	0.97
15 +	20	147.8	10.22	33.8	5.99	19.3	1.68	4.7	0.76
16 +	19	155.6	9.90	39.0	7.49	20.4	2.12	4.8	0.95
17 +	16	157.3	7.69	40.5	5.57	21.1	1.84	4.5	0.74
18 +	9	164.0	4.01	45.2	4.39	22.4	1.42	5.0	0.50
19 +	18	161.7	7.07	46.0	6.00	22.9	2.05	5.0	0.78
20-25	57	161.1	6.59	46.4	5.37	23.4	1.81	5.0	1.20
25-30	26	162.2	7.80	48.1	5.39	23.4	1.88	4.9	1.07
30-35	32	163.5	4.68	47.9	5.25	23.7	1.75	4.8	1.44
35-40	50	163.5	7.09	47.4	6.34	23.4	2.07	4.8	2.49
40-45	57	163.0	5.62	46.0	4.97	23.0	1.80	4.7	1.03
45-50	33	160.4	6.23	44.6	5.66	22.7	1.98	5.1	1.36
50-55	22	162.9	5.77	48.1	8.25	23.2	1.83	5.2	1.72
55-60	11	162.1	7.10	47.4	8.00	23.0	2.26	5.5	2.40
⩾60	12	161.1	5.88	45.7	7.88	22.5	2.45	5.6	2.60

Table-38

NNMB - MEAN ANTHROPOMETRIC MEASUREMENTS BY AGE - WEST BENGAL

- F E M A L E S -

Age	N	Height (cm) $\bar{X}$	Height (cm) S.D.	Weight (kg) $\bar{X}$	Weight (kg) S.D.	Arm circumference (cm) $\bar{X}$	Arm circumference (cm) S.D.	Skin fold at triceps (mm) $\bar{X}$	Skin fold at triceps (mm) S.D.
01 +	15	70.8	5.97	7.4	1.42	12.6	1.29	6.7	1.81
02 +	18	77.8	4.16	8.4	1.03	12.6	0.95	6.3	1.02
03 +	26	86.4	3.42	10.5	1.12	13.5	0.77	6.3	1.39
04 +	28	93.3	4.93	12.0	1.64	13.8	1.40	6.1	1.29
05 +	16	101.7	6.46	13.9	2.26	14.5	1.03	5.6	1.02
06 +	15	103.5	4.84	14.2	1.23	14.3	0.94	5.2	0.88
07 +	26	109.1	5.75	15.7	1.92	14.4	0.98	4.8	0.78
08 +	20	116.9	6.15	18.0	2.19	15.3	1.66	4.9	0.95
09 +	38	117.8	6.66	18.6	2.73	15.4	1.36	5.0	0.89
10 +	21	124.9	3.61	21.4	2.13	16.1	1.16	5.1	1.07
11 +	18	129.1	5.35	22.5	2.53	16.4	1.21	5.0	0.99
12 +	33	134.0	6.56	25.5	3.75	17.3	1.31	5.3	1.16
13 +	19	137.5	10.05	27.6	4.38	17.7	1.32	5.6	1.51
14 +	15	143.9	8.67	33.3	7.21	18.9	1.97	6.5	2.26
15 +	20	143.8	8.61	34.1	5.63	20.1	1.88	6.8	1.70
16 +	11	147.3	4.93	38.0	4.27	21.6	1.43	8.2	1.27
17 +	11	149.7	6.25	41.4	6.01	22.3	2.18	9.3	2.91
18 +	12	151.2	10.00	40.9	6.91	21.8	2.19	8.8	3.91
19 +	8	149.1	4.23	38.8	3.05	20.7	1.97	7.9	2.11
20-25	50	149.0	5.34	40.9	4.64	21.8	1.96	7.6	2.59
25-30	54	149.5	4.52	39.9	5.67	21.6	1.86	7.0	2.13
30-35	46	148.6	5.35	39.9	5.62	21.7	1.88	7.2	2.74
35-40	48	147.0	5.48	38.1	5.34	21.4	2.25	7.1	3.86
40-45	26	148.0	5.40	38.1	6.15	21.4	2.73	6.5	3.28
45-50	18	145.7	4.18	36.8	5.88	21.4	2.54	6.6	3.07
50-55	12	145.1	3.79	36.2	6.65	21.4	2.39	6.9	2.69
55-60	12	144.6	5.15	36.5	5.26	21.7	2.79	7.2	3.31
⩾60	12	149.1	6.11	39.9	8.80	21.9	2.89	7.5	3.09

Table-39

NNMB - MEAN ANTHROPOMETRIC MEASUREMENTS BY AGE - UTTAR PRADESH

- M A L E S -

Age	N	Height (cm)		Weight (kg)		Arm circumference (cm)		Skin fold at triceps (mm)	
		$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.
01 +	17	71.3	3.35	7.9	1.14	11.8	1.37	7.1	2.21
02 +	17	80.0	4.55	10.1	1.13	13.1	0.69	7.5	1.62
03 +	22	86.7	3.59	11.3	1.31	13.2	0.72	7.6	1.89
04 +	30	95.6	3.75	13.2	1.40	13.9	0.71	7.2	1.53
05 +	15	100.6	3.61	14.1	0.89	14.0	0.70	7.0	1.46
06 +	32	107.6	4.00	16.4	1.83	14.4	1.01	6.3	1.08
07 +	18	112.2	3.91	17.2	1.14	14.6	1.04	5.8	0.86
08 +	24	118.8	5.25	19.6	3.11	15.1	1.08	5.5	1.14
09 +	23	122.8	4.48	21.1	2.54	15.4	1.20	5.3	0.69
10 +	27	128.1	4.02	23.1	1.66	16.0	0.84	5.3	0.92
11 +	20	132.6	3.73	25.1	2.19	16.3	0.84	5.6	0.94
12 +	27	137.6	3.53	27.7	2.15	16.8	0.73	5.4	0.57
13 +	24	144.1	7.46	31.2	3.94	17.9	1.39	5.2	0.87
14 +	31	156.1	5.77	34.8	3.72	18.2	1.24	5.3	1.00
15 +	23	153.8	5.52	38.8	3.12	18.9	1.55	5.2	0.67
16 +	28	157.0	5.45	41.7	2.48	19.7	1.35	4.9	0.50
17 +	21	160.0	6.38	44.0	5.21	20.5	1.68	5.3	0.48
18 +	22	162.5	5.10	46.7	4.29	21.5	1.57	5.3	0.55
19 +	27	162.8	4.97	47.3	3.76	21.8	1.32	5.0	0.55
20-25	47	165.5	3.86	49.7	4.43	22.9	1.74	4.6	0.61
25-30	34	165.6	5.74	51.0	5.52	23.4	1.53	4.9	0.98
30-35	27	165.8	4.39	51.9	4.57	23.4	1.52	4.4	0.85
35-40	37	165.0	6.85	51.3	6.97	23.4	2.27	5.2	2.58
40-45	42	166.4	5.12	50.6	5.58	22.8	1.49	4.5	1.13
45-50	33	166.3	5.28	51.8	6.22	23.4	2.23	4.8	1.51
50-55	17	166.2	6.81	49.8	5.83	22.1	2.09	4.5	1.12
55-60	13	165.5	6.44	50.8	7.87	23.4	2.31	4.8	2.34
⩾60	32	162.5	7.18	45.9	9.10	21.1	2.41	4.3	1.63

Table-40

NNMB - MEAN ANTHROPOMETRIC MEASUREMENTS BY AGE - UTTAR PRADESH

- F E M A L E S -

Age	N	Height (cm)		Weight (kg)		Arm circumference (cm)		Skin fold at triceps (mm)	
		$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.
01 +	7	71.8	3.77	7.7	1.08	12.5	1.04	7.3	1.98
02 +	26	81.5	4.19	9.7	0.92	12.9	0.42	7.5	1.79
03 +	24	87.3	3.79	11.7	1.26	13.3	0.68	8.0	1.72
04 +	22	94.0	4.11	12.9	1.67	13.8	0.70	7.0	1.79
05 +	11	101.1	2.35	14.6	0.82	14.5	1.52	6.7	1.27
06 +	20	107.1	3.88	15.7	1.47	14.6	0.84	6.0	1.28
07 +	14	112.2	2.31	17.0	1.76	14.9	0.91	5.6	0.84
08 +	12	117.8	3.74	19.2	2.05	15.3	0.87	6.2	1.11
09 +	12	124.1	7.66	21.4	2.45	15.7	0.89	5.6	0.79
10 +	12	127.0	2.94	23.1	2.34	15.9	1.26	5.7	1.07
11 +	5	132.4	2.93	24.1	2.49	16.4	0.99	5.6	1.14
12 +	11	135.3	2.75	27.5	1.80	16.8	0.87	6.2	0.40
13 +	10	142.5	3.91	31.7	3.41	17.5	1.80	6.3	0.48
14 +	9	145.2	2.22	34.0	3.47	18.5	1.52	5.7	0.87
15 +	9	145.6	3.32	36.1	1.78	19.8	1.23	7.4	1.33
16 +	8	150.2	3.23	38.5	2.13	19.3	1.04	5.9	0.99
17 +	4	146.1	3.88	40.6	2.61	22.7	2.76	8.7	2.50
18 +	9	146.1	4.08	39.9	3.52	20.9	0.83	6.4	1.42
19 +	5	147.0	2.14	40.3	3.20	20.6	1.17	6.2	0.84
20-25	29	149.9	4.61	42.3	4.42	22.4	1.74	6.5	1.72
25-30	46	150.2	5.06	42.8	3.59	21.8	1.35	6.9	1.64
30-35	40	148.1	5.12	40.5	3.79	21.3	1.54	6.0	1.24
35-40	44	147.5	4.45	40.8	4.58	21.5	1.57	6.7	1.92
40-45	23	148.3	8.44	40.8	5.18	21.2	1.34	5.9	1.06
45-50	21	148.1	4.31	40.6	5.56	21.5	2.24	6.2	2.40
50-55	12	146.1	3.16	39.6	5.26	21.3	2.09	6.3	2.96
55-60	8	146.5	3.65	37.0	4.06	19.2	1.90	4.2	0.71
⩾60	29	144.4	4.45	35.8	5.94	20.0	2.31	5.0	1.91

Table-41

NNMB - PERCENT DISTRIBUTION OF PRE-SCHOOL CHILDREN (1-5 YEARS) ACCORDING TO GUMEZ CLASSIFICATION IN DIFFERENT STATES - BOYS

State	No. of Children	Weight as percent of Standard			
		>90 Normal	75 - 90 Mild	60 - 75 Moderate	<60 Severe
KERALA	236	11.0	44.5	39.4	5.1
TAMIL NADU	302	14.9	45.7	30.8	8.6
KARNATAKA	462	9.7	41.6	42.6	6.1
ANDHRA PRADESH	496	9.3	40.1	39.5	11.1
MAHARASHTRA	335	7.5	38.2	43.9	10.4
GUJARAT	624	8.5	40.1	42.7	8.7
MADHYA PRADESH	357	8.1	39.2	43.7	9.0
WEST BENGAL	419	7.2	40.1	45.1	7.6
UTTAR PRADESH	310	16.8	40.0	34.2	9.0
TOTAL	3541	10.3	41.1	40.2	8.4

Table-42

NNMB - PERCENT DISTRIBUTION OF PRESCHOOL CHILDREN (1-5 YEARS) ACCORDING TO GUMEZ CLASSIFICATION IN DIFFERENT STATES - GIRLS

State	No. of Children	Percent of Standard			
		>90 Normal	75 - 90 Mild	60 - 75 Moderate	<60 Severe
KERALA	234	14.1	43.6	36.7	5.6
TAMIL NADU	315	12.7	45.7	36.2	5.4
KARNATAKA	426	10.3	40.9	40.4	8.4
ANDHRA PRADESH	445	10.6	41.6	38.4	9.4
MAHARASHTRA	297	7.7	37.7	42.8	11.8
GUJARAT	551	8.0	35.0	46.6	10.4
MADHYA PRADESH	314	13.1	39.2	40.1	7.6
WEST BENGAL	400	8.5	42.7	39.5	9.3
UTTAR PRADESH	252	12.7	43.7	34.1	9.5
TOTAL	3234	10.9	41.1	39.4	8.6

Table-43

NNMB - PERCENT DISIRIBUTION OF PRE-SCHOOL CHILDREN (1-5 YEARS) ACCORDING TO SEOANE AND LATHAM CLASSIFICATION - BOYS

State	No. of Children	Normal (NNN)	Current Short Term Malnutrition (N L L)	Past Chronic Malnutrition (Nutritional Drawfs) (L L N)	Current long duration Malnutrition (L L L)
Kerala	236	27.5	6.8	36.9	28.8
Tamil Nadu	302	32.8	5.3	33.1	28.8
Karnataka	462	26.0	2.2	42.8	29.0
Andhra Pradesh	496	22.4	4.2	44.4	29.0
Maharashtra	335	17.6	2.1	51.6	28.7
Gujarat	624	23.6	2.7	42.3	31.4
Madhya Pradesh	357	22.1	1.1	59.7	17.1
West Bengal	419	21.7	5.0	31.3	42.0
Uttar Pradesh	310	29.3	1.3	48.1	21.3
Total	3541	24.8	3.4	43.4	28.4

Note:	Height for age	Weight for age	Weight for height	
	Normal	Normal	Normal	NNN
	Normal	Low	Low	N L L
	Low	Low	Normal	LLN
	Low	Low	Low	L L L

57

Table-44

58

NNMB - PERCENT DISTRIBUTION OF PRE-SCHOOL CHILDREN (1-5 YEARS) ACCORDING TO SEOANE AND LATHAM CLASSIFICATION - GIRLS

State	No. of Children	Normal (NNN)	Current Short Term Malnutrition (N L L)	Past Chronic Malnutrition (Nutritional Drawfs) (L L N)	Current long duration Malnutrition (L L L)
Kerala	234	39.7	9.0	31.6	19.7
Tamil Nadu	315	40.3	7.3	30.8	21.6
Karnataka	426	35.0	4.9	36.9	23.2
Andhra Pradesh	445	35.1	7.9	33.0	24.0
Maharashtra	297	30.6	4.0	43.2	22.2
Gujarat	551	28.9	5.1	40.1	25.9
Madhya Pradesh	314	38.5	4.1	48.2	9.2
West Bengal	400	33.3	5.7	30.2	30.8
Uttar Pradesh	252	43.7	2.4	36.1	17.8
Total	3234	36.1	5.6	36.7	21.6

Figure 1

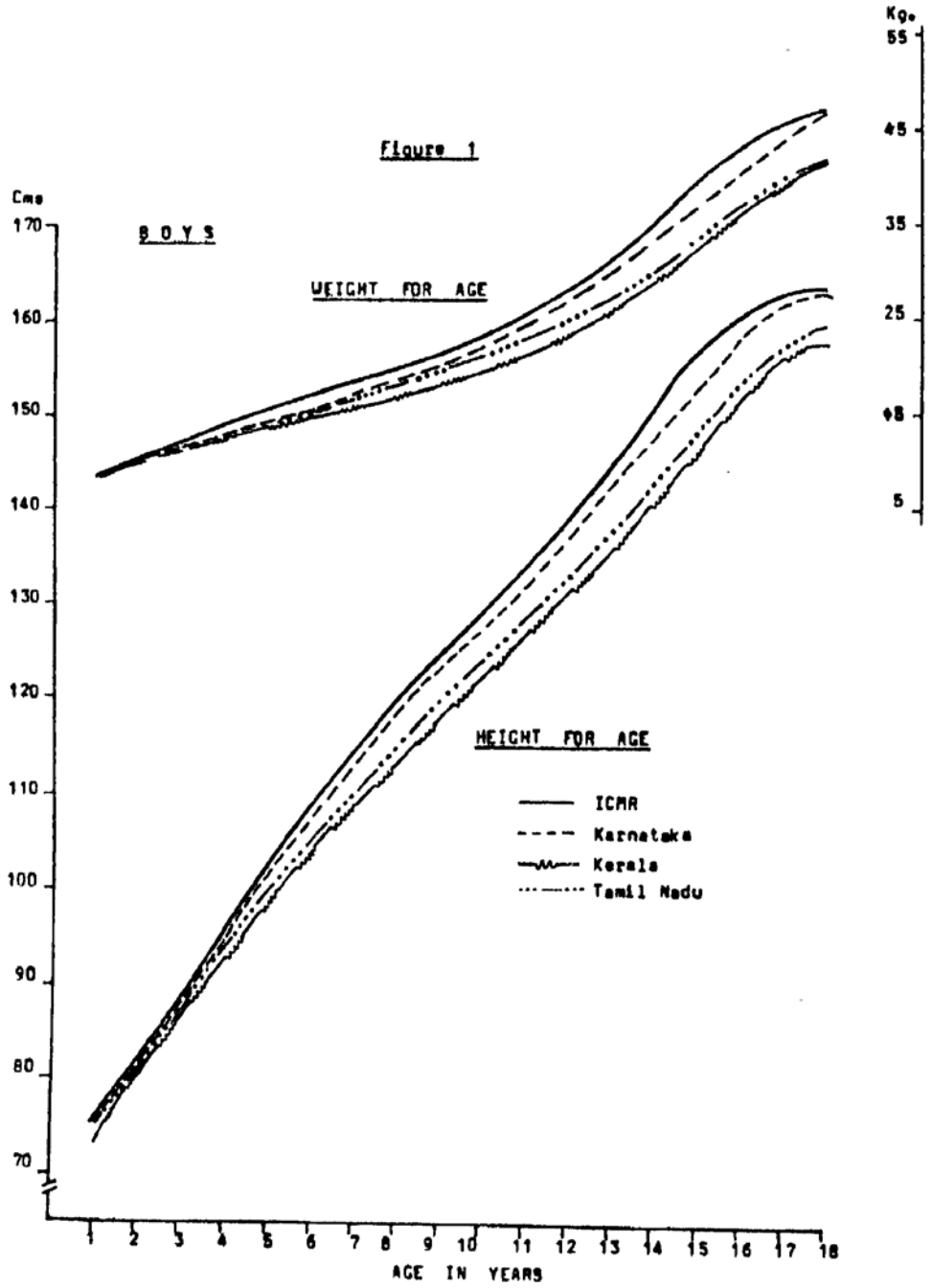


Figure 2

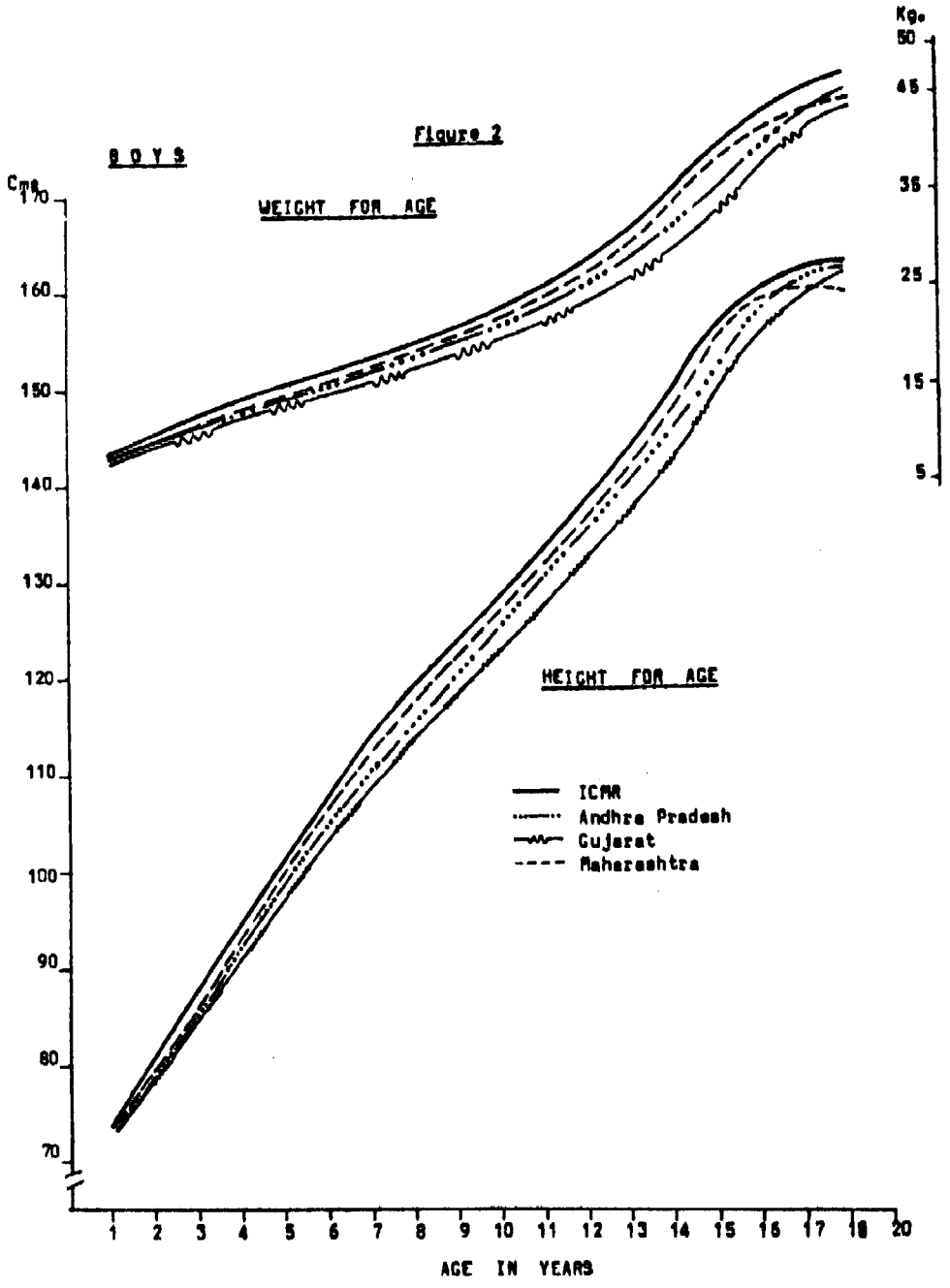
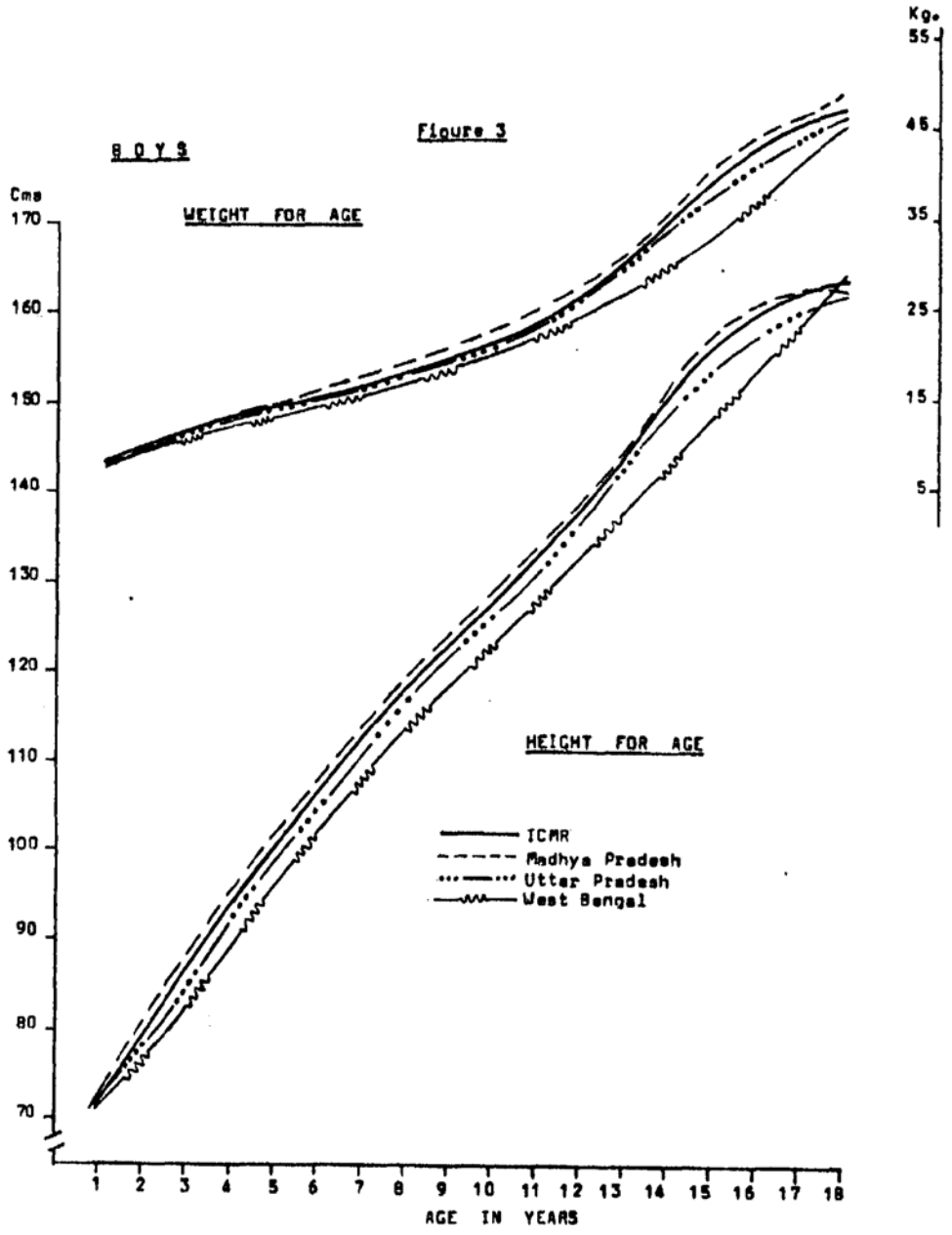


Figure 3

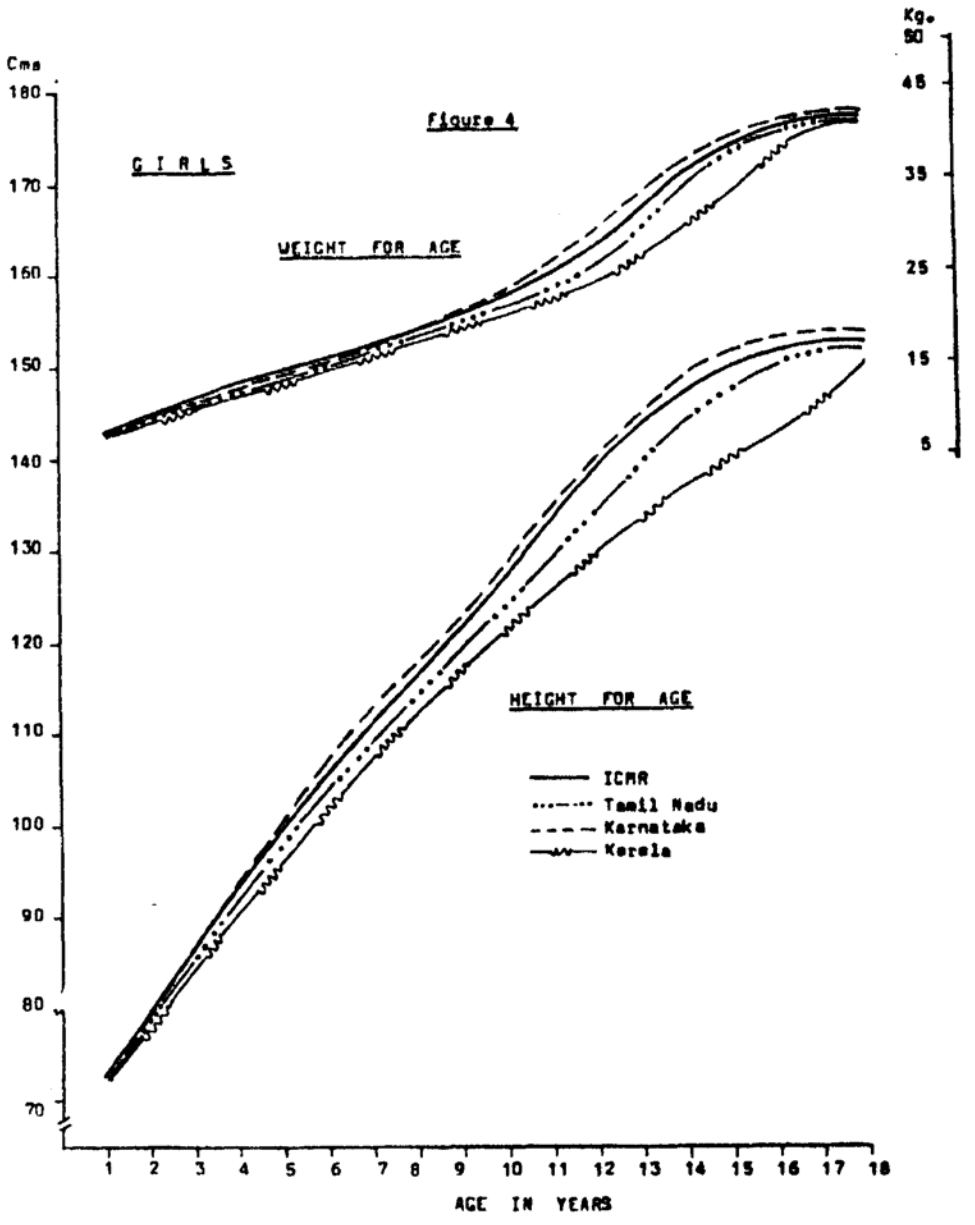
BOYS



61

Figure 4

GIRLS



62

Figure 5

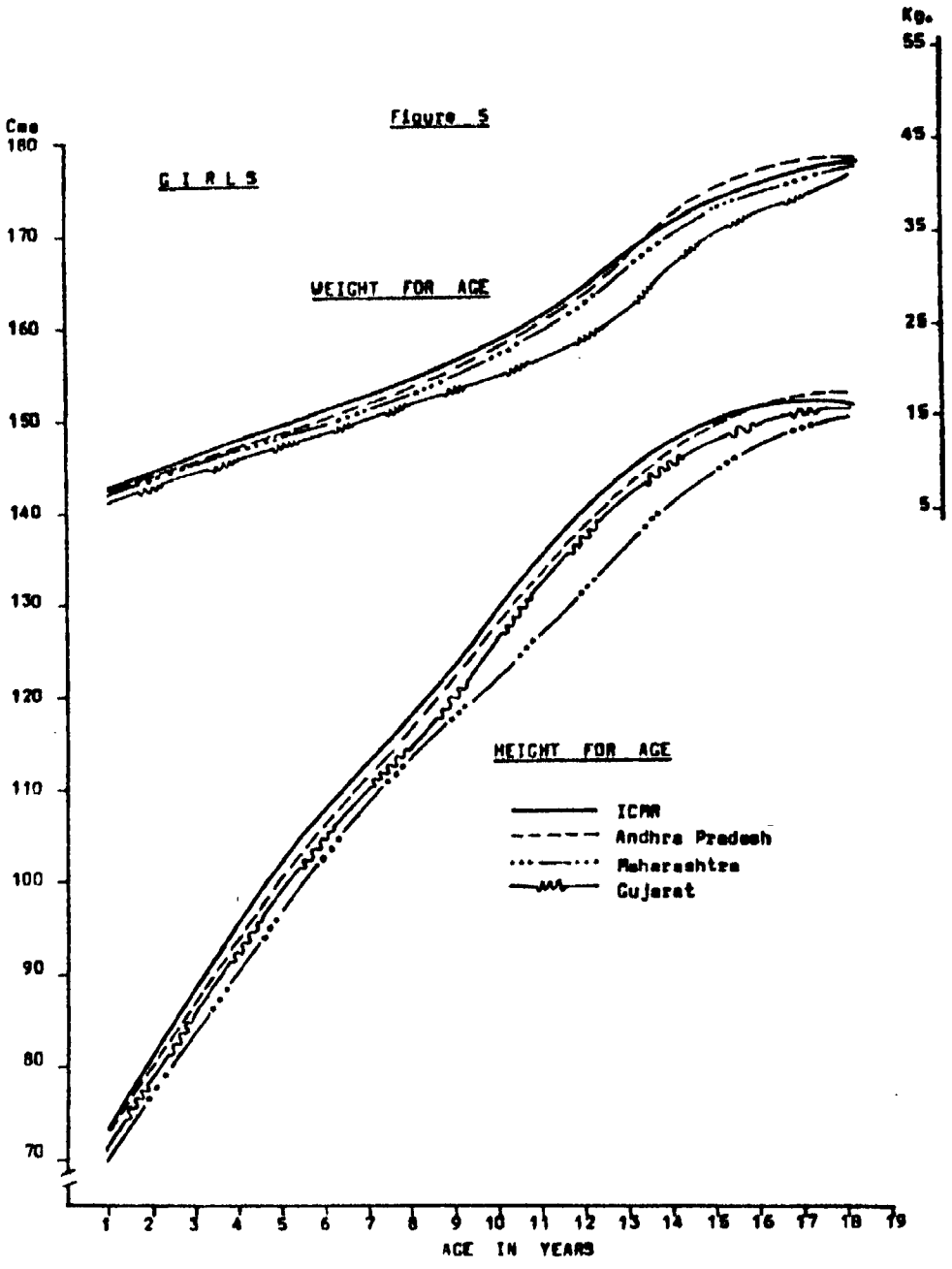
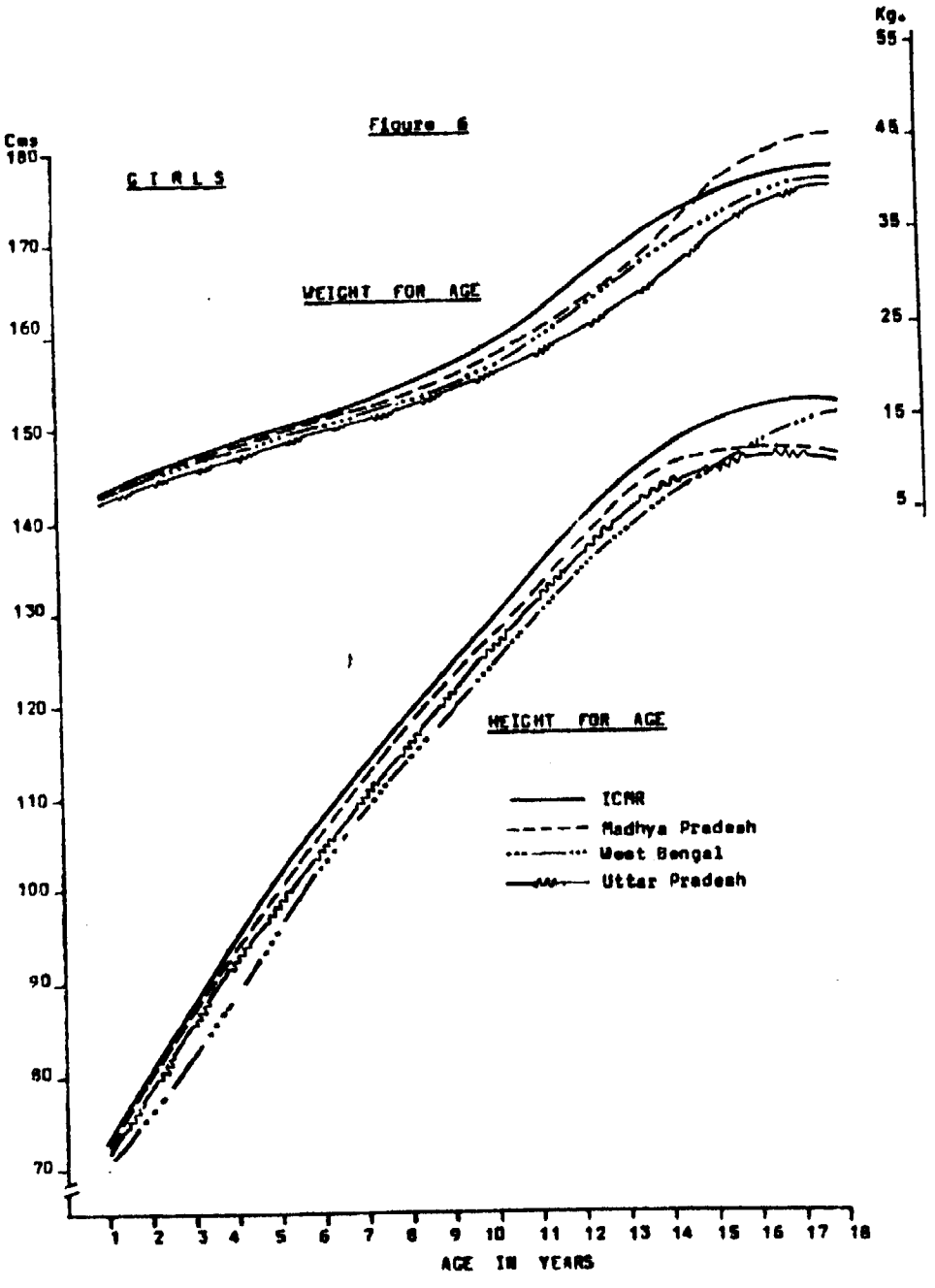



Figure 6