National Nutrition Monitoring Bureau

Report on Urban Population

National Institute of Nutrition
Indian Council of Medical Research
Hyderabad - 500 007

1984

'Reference Not to Spare'

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REPORT ON DIET AND NUTRITIONAL STATUS OF SPECIFIC GROUPS OF URBAN POPULATION

(1975-79)

NATIONAL NUTRITION MONITORING BUREAU

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NATIONAL NUTRITION MONITORING BUREAU

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C O N T E N T S

INTRODUCTION

In 1972, the Indian Council of Medical Research had set up the National Nutrition Monitoring Bureau (NNMB) at the National Institute of Nutrition, with the following objectives:

1. To collect diet and nutritional information from representative segments of the population by using standard methods of survey.
2. To conduct evaluation of on-going national nutrition programmes.

In fulfilment of it's first objective, the Bureau, through its ten state units; one each in Andhra Pradesh, Gujarat, Kerala, Madhya Pradesh, Maharashtra, Orissa, Tamil Nadu, Uttar Pradesh and West Bengal has been undertaking nutritional surveys in rural and urban segments of population on continuous basis. The results of the rural surveys have been published as Annual Reports of NNMB (1974 to 1981). In this report the results of urban surveys are presented. The main objective of the urban surveys was to obtain informations on patterns of food and nutrient consumption and nutritional status of certain specific segments of population, who usually reside in big cities of the states where NNMB units are located. For operational feasibility, the surveys were restricted to NNMB headquarters and cities/townships in their neighbourhood. The specific groups selected for the purpose were White collar workers (Civil servants) of 3 distinct economic categories namely, the high, middle and low income groups; Industrial labourers and Slum dwellers.

Considering the time frame, staff available in each state, and its working pattern *, it was planned to cover a fixed sample of fifty households from each of the above five selected croups every year so that over a period of time, adequate data base will be built up in respect of each of the socio-economic group, capable of providing a fair picture of their diet and nutritional status. In other words, the objective of urban surveys in NNMB was limited to capture a cross-section of important socio-economic/occupation groups found invariably in most of the urban settings and to study their diet and nutritional profiles. Further the surveys in each state were spread over the entire period of the year and no attempts were made to adjust for seasonal variations.

*Areas surveyed

*The names of cities/towns and their location where surveys were conducted are given below (Map).

Names of cities/towns covered	State
Trivandrum and Cochin	Kerala
Madras	Tamil Nadu
Bangalore and Mysore	Karnataka
Hyderabad	Andhra Pradesh
Nagpur and Pune	Maharashtra

* In each state the team consisted of one Medical Officer , one Dietitian, one Auxiliary Nurse Midwife, one Field Assistant and a Driver. Every month the team was expected to tour rural areas for about 20-22 days to cover rural sample and in the remaining 8 to 10 days to conduct urban surveys either at headquarters or its neighbouring cities.

Names of cities/towns covered	State
Ahmedabad	Gujarat
Bhopal	Madhya Pradesh
Bhubaneswar and Cuttack	Orissa
Calcutta	West Bengal
Lucknow and Kanpur	Uttar Pradesh

The specific socio-economic groups and the occupational categories surveyed are given below.

1. High Income Group (HIG) : Top officials like , Secretaries, Deputy Secretaries, Directors, Professors etc.
2. Middle Income Group (MIG) : Office Superintendents, Section Officers, Assistant Secretaries, Assistant Professors, Lecturers etc.
3. Low Income Group (LIG) : Class IV employees like Office Peons, Drivers, Helpers etc.
4. Industrial Labourers (IL) : Labourers from any organised Industry.
5. Slums (SL) : Households from big slums of the city.

Sampling Procedure:

In each state, the team attempted to cover 250 households every year. The samples were drawn in such a way that fifty households from each of the HIG, MIG and LIG of White collar workers, Industrial labourer and Slum dwellers were included. Every year one or two localities of each of the above identified groups was selected randomly and the

fixed sample of 50 households from each of the group was drawn on random basis. The sample size was fixed on an arbitrary basis.

Investigations:

In all the selected households following investigations were carried out.

1. Food consumption surveys.
2. Assessment of Nutritional Status:
   a) Clinical b) Anthropometry

Dietary intake was assessed by weighment as well as by oral questionnaire (24. hr. recall) method of diet surveys. It was conducted for three consecutive days. The three day weighment method which was conducted on 20 households (out of 50 HH) in each of the socio-economic group, provided information on consumption at household level , while the 24 hr. recall method (carried out on the remaining 30 households) gave information on consumption at the individual level.

Assessment of clinical nutritional status and anthropometry (consisting of body weight, height, arm circumference and fat fold at triceps measurements) of all the available individuals from the sampled households was carried out in accordance with the standard protocc developed for NNMB Surveys (Appendix I).

RESULTS

Coverage

The coverage of different income groups by period in different cities is indicated in Table . 1 . During the period a total of 8207 households were covered under diet surveys and about 32 , 500 individuals were examined for their nutritional status.

Table 2 presents the distribution of households surveyed according to the five socio-economic groups, namely the HIG, MIG and LIG of white collar workers, Industrial labourers and Slum dwellers. According to the sampling protocol described (under sampling procedure) the coverage of households in each economic/occupational group should have been uniform but it was not so. The reasons for this was both administrative and operational. Administrative difficulties like, the staff, particularly the medical officers not being in position due to high turnover rate, and non-availability of transport etc., have been the main causes. Further, persistent difficulties faced by the teams in obtaining the desired cooperation from HIG households, particularly for diet surveys, necessitated the decision (Minutes of NNMB Annual Review Meeting, 1978) to discontinue the coverage of BIG households from the year 1979.

Functioning of the regional unit of NNMB in Orissa state was started only from the year 1978. As such the coverage in the cities of Orissa had been particularly low, compared

to other areas.

Food and Nutrient consumption:

Using the method of weighment of raw food for 3 days, the average consumption of different foodstuffs for 3 days in each of the five socio-economic groups were assessed and expressed as gm/cu/day.

The appropriate calorie coefficients suggested by the ICMR Expert Committee on Nutrition for different age, sex, activity and physiological status groups were used for this analysis (Appendix.) It may be mentioned here that these coefficients are considered valid only for energy. However, in the absence of such information the same weightages have been used for the other nutrients.

It may be reiterated that the main objective of the urban survey was to study the pattern of food and nutrient consumption, Prevalence of nutritional deficiency signs and growth status in different socioeconomic and occupational groups, rather than to study the area differences. Neither was it intended to find out the differences in diet and nutritional profiles of these population groups between the periods. As such the data obtained over the period from different areas were pooled for each income category and comparisons between the income groups alone were attempted In keeping with this objective, the main focus of the report has been on the socio-economic differentials seen in the nutritional parameters. However, the area differences within

the socio-economic groups wherever observed were also highlighted.

FOOD & NUTRIENT CONSUMPTION

Food Intake

The foodstuffs have been categorized into conventional food groups and their average intake values per cu per day are provided for each income group separately for different areas in Tables (3-7) while Table -8 gives the consumption levels by different socio-economic groups pooled for all the areas studied.

Cereals & Millets

The LIG, IL and Slum households consumed relatively higher mean amounts of cereals/millets (around 421 g.) as compared to MIG and HIG whose intakes were 361 and 316 g. respectively. Major cereals were wheat and rice, while jowar, ragi and bajra formed important millets.

Pulses

Maximum consumption of pulses was seen in the HIG (57 g) followed by MIG (49 g). The intake levels in LIG and IL households were moderate but similar (around 40 g). Minimum intake of 33 g. was observed in the group of Slum families as against the suggested intake of 50 g.

Vegetables

Varying amounts of vegetables were consumed by

different groups. The mean intakes ranged from as high as 134 g. in HIG to 51 g. in the slum populations. By and large, the consumption of green leafy vegetables was very low and its contribution to the total vegetables ranged from 22% in LIG and MIG to 16% in HIG.

Consumption of Roots and Tubers was about 70 g. in LIG, IL and Slum groups while in HIG and MIG, it was about 80 g.

Fruits

Even after considering ripe tomato as a fruit, the highest consumption level of 124 g. was seen in HIG and lowest level of 26 g. in Slums. LIG and IL groups consumed about 35 g. while in MIG the figure was around 65 g.

Flesh foods including Fish

Average consumption figures ranged from 31 grams in HIG to 19 grams in LIG and slums. The intake of 22 grams was seen in the remaining two income groups of MIG and IL. The consumption levels of flesh foods were found to be relatively high in all income groups in the cities of Kerala and West Bengal due to fish consumption.

Milk

The consumption levels of milk on the average were maximum in the HIG(9424 ml.) followed by MIG 250 ml, IL 98 ml. and LIG 95 ml, while the lowest average level of consumption (42 ml.) was seen in the slum populations.

Fats & Oils

Maximum consumption of 46 g. was seen in HIG, followed by MIG (35 g.) with LIG and IL groups consuming around 20 g. Minimum intake level of 13 grams visible fat was found in slum families.

Sugar and Jaggery

Average consumption of sugar and jaggery varied within a narrow range of 20 grams in slums to 34 grams in HIG with the other three groups consuming around 30 grams.

Nuts and Oil seeds; Condiments and Spices

Consumption of nuts and oil seeds ranged from 9 grams in slums to 21 grams in HIG and tended to show income elasticity which was not discernible in the case of condiments and spices whose amounts ranged from 12 to 16g.

These results indicate that the food consumption seen in the five socio-economic groups in general, followed the expected pattern i.e. households from higher economic groups consumed relatively less amounts of cereals and other coarse grains like millets; and more of income elastic protein rich and protective foods like , pulses , milk, vegetables , fruits
and flesh foods. Also, they consumed larger amounts of foodstuffs which are the sources of empty calories like, fats and oils and sugars as compared to those from lower economic brackets.

In this context two points need emphasis (i) the mean levels of consumption of milk and visible fat in shape of oil/ghee were highest in the city of Ahmedabad (Gujarat). (ii) only in the cities of Kerala, the consumption levels of cereals and millets were higher in HIG and MIG households than in other lower socio-economic groups of LIG, IL and Slums. This observation is in contrast to the findings in other cities. The explanation seems to be that the Roots and Tubers which in Kerala, hold the status of staple and are relatively low priced are preferred obviously by poorer segments in this state.

Further, the data suggested that among the five economic groups studied, the LIG and IL groups of households tended to behave as one group and their consumption pattern seemed to lean more towards those of slum dwellers, while the pattern seen in MIG households tended more towards HIG than the other three groups.

Nutrient Intake

Tables (9-13) give the average intake of nutrients per cu per day of different socio-economic groups separately by cities covered, while Table -14 provides intake levels by economic groups, pooled for all the areas surveyed.

Protein (g)

The overall mean consumption of protein was highest in HIG (73.1) followed by MIG (63.2), IL (59.4), LIG (57.8)

arid Slums (53.4). However, the ratio of protein calories to total calories in all the income groups was almost similar, ranging from 10.8 to 11.2.

In all the areas, the mean consumption levels of protein in HIG, MIG and IL groups were above the recommended level of 55 grams. However, in the LIG households in the cities of Madras (Tamil Nadu), Hyderabad (Andhra Pradesh) and Calcutta (West Bengal), the intake levels were around 51 grams and marginally below the RDA levels. In the slum population, the levels were low, particularly in the cities of Trivandrum and Cochin of Kerala (30.8), Madras in Tamil Nadu (43.9) and Hyderabad in Andhra Pradesh (45.7). The lower levels of protein intake were associated with lower energy intake levels.

Energy (Kcal)

The highest intake of energy observed in the households of HIG (2603) followed by MIG (2364), IL (2243), LIG.(2231) and Slums (1963). Although the consumption of trends of energy by socio-economic category were similar to protein, it being highest in HIG, followed by MIG, IL, LIG and Slum in descending order, certain area differences seen within economic groups are highlighted.

Lucknow and Kanpur in Uttar Pradesh and of Nagpur and Pune in Maharashtra were the only cities in HIG group where the mean intakes of energy were observed to be below the RDA level of 2400 Kcal.

For MIG group in the cities of Kerala (Trivandrum and Cochin), Karnataka (Bangalore and Mysore), Maharashtra (Nagpur and Pune) and Orissa (Bhubaneswar and Cuttack) the consumption
levels of calories were observed to be above the RDA, while in all other cities the intakes were below the RDA level of 2400. The lowest intake of 1761 was seen in the MIG house-holds of Calcutta city (West Bengal).

Similarly in Industrial Labour group excepting in the cities of Maharashtra and Uttar Pradesh (where the average intakes were marginally adequate), in all the other places surveyed, the consumption levels were below the recommended intakes. The lowest level of energy consumption was seen in the industrial labourers of Bhopal in Madhya Pradesh (about 1900 Kcal).

In slums, the mean consumption of energy ranged from 1759 in Bhopal (Madhya Pradesh) to 2287 in Bangalore and Mysore of Karnataka which was below the RDA. The average gap in calorie consumption observed in these households was of the order of 540 Kcals.

INTAKE OF MINERALS AND VITAMINS

Iron (mg)

Average intake of iron in all the socio-economic groups, pooled for all the areas were above the RDA of 24 mg. and tended to be fairly uniform. Wherever the intakes were below the RDA, the deficit was marginal except in slum

households of Kerala and Tamil Nadu where the deficit was around 17%.

Calcium (mg)

The mean intake levels of calcium in all the socio-economic groups studied in all the areas were above the RDA of 400-500 mg. A definite sociio-economic gradient in the calcium intake was seen; with highest consumption of 1121 mg in HIG and lowest level of 492 mg in slum households.

Vitamin-A (/ug)

A definite socio-economic gradient was seen in the consumption levels of vitamin A. The highest average intake of 881 /ug was seen in HIG followed by 555 /Ug in-MIG, 352 /ug in Industrial Labour, 332/ug in LIG and 248 /ug in slum households. The average intakes were above the RDA (750 /ug) in the HIG households (except in Calcutta) as well as in MIG households (except in Trivandrum and Cochin in Kerala). In Nagpur and Pune (Maharashtra) the levels were marginally deficient (732 /ug). In all the areas of LIG, IL and slum households, the consumption levels were below the RDA.

Thiamine, Riboflavin and Niacin

The intake of Thiamine in all the socio-economic groups were above the RDA of 1.20 mg. The mean Riboflavin intake was observed to be above the RDA (1.4 mg) only in the households of higher income group. In the other groups,

it ranged from 0.81 mg in slums to 1.17 mg in MIG with LIG and IL consuming about 0.93 mg each. The higher intakes of this vitamins are due to higher consumption of milk.

The average consumption level of Niacin varied within a narrow range of 14.6 mg to 15.9 mg in all the socio-economic groups compared to RDA of 16.0 mg.

Vitamin C

Highest intake of 93 mg of vitamin C was observed in HIG followed by 70 mg in MIG and about 50 mg in LIG and IL households. The lowest intake of 40 mg was seen in slum households. Compared to the RDA (40 mg), the intake of this vitamin in all categories of households was adequate.

NUTRITIONAL STATUS

Of the total 32,332 subjects examined for nutritional status, 876 were infants (below one year)/ 4393 preschool children (1-5 years), 6578 school age children (5-12 years), 7160 adolescents (12-21 years) and the rest 12/925 were adult (above 21 years). Table 15 provides the age-wise coverage by socio-economic status.

Deficiency Signs

The prevalence figures of different nutritional deficiency signs in different age groups as well as by the socio-economic groups are given in tables 16 to 23 while city wise figures are provided in tables 45 to 78

under the Appendix. Comments are based only on pooled data (Tables 16-23). It may be noted that wherever the coverage was less than 25 (in cities) the prevalence figures were not calculated and the corresponding figures were not considered for pooling the results.

Protein Energy Malnutrition(PEM)

In general, the clinical manifestations of PEM such as Oedema (kwashiorkor), marasmus and emaciation were seen only in young children (under 5 yrs) who belonged to lower income categories. The cases of oedema (0.9%) were seen only in preschool age children of slums while nutritional marasmus and emaciation was seen both in infants and pre-school children.

The overall prevalence of Marasmus (2.0%) and Emaciation (1.2%) was highest in slum children compared to other income categories such as IL (1.1%, 0.6%)/ LIG (0.1%, 0.1%), and MIG (0.2%, 0.1%) respectively (table 16 and 17).

In school age children only emaciation was observed in industrial labour and slum groups (table 18 and 19).

Vitamin A deficiency (Table 16 to 23)

Common occular manifestations of conjunctival xerosis and Bitot spots were considered for this purpose. In general, these manifestations were not seen in infants. However, in children of preschool and school age, the prevalence increased with age. The highest prevalence was seen in school age children (all income groups).

Income trend was descernible in their prevalence; the highest prevalence being in slum children (7.8%) followed by Industrial Labour (6.8%), Lower Income Groups (4.1%) and Middle Income Group (4.7%) children.

The prevalence of this problem in adolescents and adults was of the order of 6.0% and 2.1% respectively in slums, 5.8% and 1.6% in Industrial Labour group, 3.7% and 0.6% in LIG group. In MIG, 0.9% of adolescents and 0.6% of adults had signs of vitamin deficiency. In HIG the same prevalence for adolescents and adults was 1.2% and 0.3% respectively.

B-complex deficiancy (Table 16 to 23)

Oral lesions of angular stomatitis, red raw tongue, cheilosis etc., indicative of vitamin B-complex deficiency were absent in infants. Definite age trends in their prevalence was noticed with highest prevalence being in school age group. Although no clearcut income trends in their prevalence, as seen in case of vitamin A deficiency signs were observed, maximum prevalence was seen in school children in slums (15.3%) with IL, LIG and MIG having 7.1%, 7.9%, 6.5% respectively. In HIG, the prevalence was about 1.2%. While about 13.2% of adolescents and 5.4% of adults, from slums had these signs, the prevalence figures for these two groups viz., adolescents and adults belonging to IL, LIG, MIG and HIG are as follows:

	Adolescents	Adults
IL	5.4%	2.7%
LIG	5.9%	2.7%'
MIG	2.5%	1.1%
HIG	2.5%	0.7%

In general, adolescent group had higher prevalence of B-complex deficiency signs as compared to adult counterparts.

Sex differentials in PEM and vitamin deficiency

In general, clinical PEM, which was frequently seen
in young children of under five years, tended to be more in boys than girls.

In. respect of vitamin deficiencies it could be stated that more preschool boys seemed to suffer than girls. Similar sex differentials were observed in other age groups also.

Dental Caries

Dental Caries, though cannot be considered strictly a nutritional deficiency sign, its relationshop to the quality of habitually consumed diet of the population is well known. Its prevalence was seen in all the age groups of all the socio-economic classes and tended to be directly related to socio-economic status of population i.e. prevalences were higher in economically better segments than the poorer groups. The peak prevalence was observed in the school age groups. The prevalence in the school age was found

to be lowest. In general, the males seems to suffer more than the females.

ANTHROPOMETRY

The figures in the tables 24 to 33 provide mean, standard deviation (SD) and the coefficient of variation(CV) of each of the four body measurements, namely, height, weight, arm circumference, and fat fold at triceps by age, sex and socio-groups.

The moan values of the measurements, in general, were consistantly higher in individuals of HIG than others and those of slums were lowest as compared to the other groups. The MIG, LIG, and IL groups held intermediate position. The measurements of LIG and IL groups were comparable.

Growth status of preschool children

Growth status in terms of weight-for-age deficient of preschool (1-5 yrs) children is considered to reflect the general nutritional status of the community to which they belong. As such, the weight-for-age profile of children from the five socio-economic groups were examined and the results are presented.

Percentage distribution of boys and girls according to nutritional grades of Gomez, have been provided in tables 34 to 45. The standard values of weight-for-sge of Indian well-to-do children used for categorization of the children into the different grades are provided in the Appendix.

It may be noted that wherever in cities, the sample covered was less than 25, Gomez classification of children for that sample was not attempted.

The results showed that in general, girls had better body weight profile than the boys in all the socio-economic groups.

In most of the cities the number of children from HIG group was less than 25 as such Gomez distribution for this income group is not provided.

The percent of children having 'normal' body weight status was highest in MIG (38.9) LIG (20.2) and IL (19.4). The slum population had the lowest percent (12.7) of children with 'normal' body weights.

Children suffering from 'mild' to 'moderate' degrees of malnutrition ranged from 60.6% in MIG to 79.3% in slums with about 77% in each of the LIG and IL groups. With the exception of boys from the slum families in all the other groups, the proportion of children with 'mild' malnutrition was greater than those with "moderate' malnutrition.

Highest proportion of 'severely' malnourished children (8.0%) was seen in slums, while in the LIG and the IL groups, it was about 3.5%. In MIG, it was less than one percent.

It may be mentioned here that only one child (out of 191) from HIG and four children (cut of 815) from MIG were found to suffer from 'severe' grade of malnutrition (having body weight for. age deficit of more than 40% of the standard

On the whole, the growth status of children from MIG was the best, while that of the slums was worst. The other two groups, namely, the IL and LIG were having more or less similar profiles and holding an intermediate position between Middle Income Groups and slums.

Table -1

Table showing coverage by years of different Income Groups in different cities

Name of the city	HIG	MIG	LIG	IL	SLUM
Trivandrum/Cochin	1975 to 76	1975,76,80	1975,76,77,79	1975 to 80	1975 to 80
Madras	1976	1976 to 78	1975 to 78	1976 to 78	1976 to 79
Bangalore/Mysore	1976	1975 to 80	1975 to 80	1975 to 80	1975 to 80
Hyderabad	1975 to 78	1976 to 80	1976 to 80	1975 to 80	1976 to 80
Nagpur/Pune	1976	1975,76,79,80	1976,77,80	1975 to 78 & 80	1975 to 77 79,80
Ahmedabad	1975 to 76	1975 to 80	1975 to 80	1975 to 80	1975 to 80
Bhopal	1976	1976,79	1977	1976,79	1976,79
Bhubaneswar/Cuttack	N.C.	1979 to 80	1979 to 80	N.C.	1980
Calcutta	1976	1976,79,80	1976	1976,80	1976,79,80
Lucknow/Kanpur	1977	1976,79,80	N.C.	1980	1976,77,80

N.C. - Not covered

Table-2

NNMB-COVERAGE DURING THE PERIOD 1975-80

City/Town	High Income Group		Middle Income Group		Low Income Group		Industrial Labour		Slum				
	Weighment	Oral	Weighment	Oral	Weighment	Oral	Weighment	Oral	Weighment	Oral	Weighment	Oral	W+O
Trivandrum	40	60	73	43	80	120	120	180	100	178	383	611	994
Madras	20	30	80	120	100	150	80	120	100	150	380	570	950
Bangalore	20	30	120	180	118	180	120	180	120	180	498	750	1248
Hyderabad	80	120	100	150	100	150	120	180	120	180	520	780	1300
Nagpur	20	30	60	90	60	90	100	150	100	150	340	510	850
Ahmedabad	40	60	120	180	120	180	120	180	120	180	520	780	1300
Bhopal	20	30	40	60	20	30	40	60	40	60	160	240	400
Bhubaneswar/Cuttack/Puri	NC	NC	40	60	20	30	20	30	20	30	100	150	250
Calcutta	20	30	60	90	20	30	40	60	60	90	200	300	500
Lucknow/Kanpur	20	30	60	105	NC	NC	20	30	60	90	160	255	415
Total	280	420	753	1078	638	960	780	1170	840	1288	3261	4946	8207

Table-3

NNMB- AVERAGE INTAKE OF FOODSTUFFS (g/cu/day) IN URBAN HICH INCOME GROUP

City/Town	Cereals and Millets	Pulses	Leafy vege-tables	Other vege-tables	Roots and Tubers	Nuts and oil seeds	Condi-ments and spices	Fruits	Fish	Other flesh foods	Milk	Fats & oils	Sugar & Jag-gery
Trivandrum	418	55	30	112	81	83	22	100	36	30	427	25	42
Madras	326	62	38	98	69	26	20	72	4	15	532	40	38
Bangalore	477	70	40	73	83	29	26	45	11	18	288	31	40
Hyderabad	327	56	23	104	84	12	17	107	2	17	440	50	27
Nagpur	340	62	6	87	59	5	15	109	1	15	156	35	34
Ahmedabad	194	53	19	126	88	5	3	176	4	19	558	72	38
Bhopal	244	60	11	161	58	3	4	276	0	2	490	60	46
Bhubaneswar/ Cuttack/Puri	Not covered												
Calcutta	274	40	8	121	107	2	10	143	68	38	323	53	35
Lucknow/Kanpur	242	63	5	145	109	3	*	98	4	18	386	29	16
Pooled	316	57	21	113	82	21	13	124	12	19	424	46	34

* Less than one gram

Table-4

NNMB-AVERAGE INTAKE OF FOODSTUFFS (g/cu/day) IN URBAN MIDDLE INCOME GROUP

City/Town	Cereals and Millets	Pulses	Leafy vege-tables	Other vege-tables	Roots and Tubers	Nuts and oil seeds	Condi-ments and spices	Fruits	Fish	Other flesh foods	Milk	Fats & oils	Sugar and Jaggery
Trivandrum	417	30	11	92	62	90	19	14	47	3	102	11	31
Madras	394	43	25	64	63	15	22	37	14	13	173	25	27
Bangalore	437	58	22	69	68	35	17	71	3	11	306	32	37
Hyderabad	389	43	32	66	66	5	17	83	2	16	217	36	24
Nagpur	312	55	33	99	80	6	15	115	12	13	317	45	36
Ahmedabad	233	51	18	88	65	7	4	113	1	5	407	60	41
Bhopal	293	51	12	78	58	0	5	29	3	*	169	32	41
Bhubaneswar/ Cuttack/Puri	454	57	11	166	140	*	28	34	30	14	79	37	16
Calcutta	387	38	22	129	141	2	3	22	40	8	122	28	26
Lucknow/Kanpur	359	57	5	107	85	2	5	42	6	9	308	17	15
Pooled	361	49	21	89	78	15	13	66	12	10	250	35	31

* Less than one gram

Table- 5

NNMB-AVERAGE INTAKE OF FOODSTUFFS (g/cu/day) IN URBAN LOW INCOME GROUP

City/Town	Cereals and Millets	Pulses	Leafy vege-tables	Other vege-tables	Roots and Tubers	Nuts and oil seeds	Condi-ments and spices	Fruits	Fish	Other flesh foods	Milk	Fats & oils	Sugar & Jagge-ry
Trivandrum	378	28	11	73	123	68	19	16	41	4	77	6	22
Madras	404	35	13	40	48	7	24	23	24	11	63	16	20
Bangalore	557	51	18	51	53	14	18	42	0	8	112	17	37
Hyderabad	438	27	19	29	44	2	16	62	2	18	94	23	20
Nagpur	460	64	20	61	62	3	16	51	*	10	66	30	33
Ahmedabad	321	45	15	60	65	1	4	33	*	7	163	42	37
Bhopal	421	51	20	55	39	0	7	*	0	5	55	16	26
Bhubaneswar/ Cuttack/Puri	535	59	19	177	148	0	36	15	14	*	28	24	11
Calcutta	388	34	21	46	86	0	1	*	13	4	5	9	22
Lucknow/Kanpur	Not covered												
Pooled	428	42	16	55	66	13	16	35	10	9	95	22	28

* Less than one gram

Table-6

NNMB-AVERAGE INTAKE OF FOODSTUFFS? (g/cu/day) IN URBAN INDUSTRIAL LABOUR

City/Town	Cereals and Millets	Pulses	Leafy vege-tables	Other vege-tables	Roots and Tubers	Nuts and oil seeds	Condi-ments and spices	Fruits	Fish	Other flesh foods	Milk	Fats & oils	Sugar & Jagge-ry
Trivandrum	382	26	10	65	95	64	19	19	43	5	80	8	25
Madras	404	46	16	42	66	11	26	37	22	10	86	24	27
Bangalore	406	48	22	59	62	21	17	43	4	7	172	25	32
Hyderabad	482	28	16	29	34	2	16	64	5	16	56	17	15
Nagpur	467	63	18	67	60	1	16	36	3	12	57	32	36
Ahmedabad	358	40	6	52	56	1	4	39	1	8	162	40	45
Bhopal	392	33	*	65	43	*	8	5	0	*	60	22	32
Bhubaneswar/ Cuttack/Puri	484	45	14	91	114	0	7	17	9	*	50	11	23
Calcutta	449	43	8	84	121	*	2	4	28	17	24	15	20
Lucknow/Kanpur	475	64	15	49	135	0	6	26	11	13	174	11	25
Pooled	420	41	13	56	67	14	14	35	13	9	98	23	29

* Less than one gram

Table-7

NNMB - AVERAGE INTAKE OF FOODSTUFFS (g/cu/day) IN URBAN SLUM

City/Town	Cereals and Millets	Pulses	Leafy vege-tables	Other vege-tables	Roots and Tubers	Nuts and oil seeds	Condi-ments and spices	Fruits	Fish	Other flesh foods	Milk	Fats oils	Suger Jagge-ry
Trivandrum	286	7	3	41	264	61	14	6	41	0	10	1	13
Madras	387	22	12	36	36	6	19	37	17	8	46	12	15
Bangalore	519	45	15	44	44	8	23	35	2	5	42	10	21
Hyderabad	468	16	14	13	24	1	14	52	2	18	30	10	11
Nagpur	449	45	10	48	42	1	11	26	1	7	31	17	23
Ahmedabad	404	45	8	42	56	1	3	27	7	15	104	29	37
Bhopal	382	32	3	30	31	0	9	5	2	10	26	15	26
Bhubaneswar/ Cuttack/Puri	510	26	31	38	25	1	9	9	28	3	0	6	4
Calcutta	394	23	21	70	102	1	1	3	20	3	36	10	20
Lucknovz/Kanpur	409	58	9	17	73	0	3	12	5	17	55	7	16
Pooled	416	33	11	v0	70	9	12	26	10	9	12	13	20

Table-8

NNMB-AVERAGE INTAKE OF FOODSTUFFS (g/cu/day) IN DIFFERENT URBAN GROUPS

Income Group	Cereals and Millets	Pulses	Leafy vege-tables	Other vege-tables	Roots and Tubers	Nuts and oil seeds	Condi-ments and spices	Fruits	Fish	Other flesh foods	Milk	Fats oils	Sugar Jaggery
HIG	316	57	21	113	82	21	13	124	12	19	424	46	34
MIG	361	49	21	89	78	15	13	66	12	10	250	35	31
LIG	428	42	16	55	66	13	16	35	10	9	95	22	28
IL	420	41	13	56	67	14	14	35	13	9	98	23	29
SLUM	416	33	11	40	70	9	12	26	10	9	42	13	20

Table-9

NNMB - AVERAGE INTAKE OP NUTRIENTS (cu/day) - URBAN - HIG

City/Town	No.of House-holds	Protein (g)	Calories (Kcal)	Calcium (mg)	Iron)mg)	Vit-A Retinol (ug)	Thiamine (mg)	Ribo-flavin (mg)	Niacin (mg)	Vit-C (mg)
Trivandrum	40	85.6	3084	1259	32.6	817	1.35	1.61	17.1	93
Madras	20	73.1	2672	1311	28.3	1042	1.24	1.62	12.8	92
Bangalore	17	86.9	2916	1130	36.7	743	1.76	1.47	13.5	78
Hyderabad	80	71.7	2605	1114	27.5	800	1.35	1.51	13.7	87
Nagpur	20	63.1	2234	579	25.5	973	1.67	1.16	18.1	60
Ahrnedabad	40	68.1	2519	1266	23.0	837	1.55	1.67	14.1	126
Bhopal	20	66.5	2567	1118	24.1	1061	1.72	1.68	15.3	106
Bhubanesvar/Cuttack/ Puri				N o t c o v e r e d						
Calcutta	18	74.9	2363	1088	25.5	1142	1.40	1.36	16.9	89
Lucknow/Kanpur	17	66.2	1998	929	22.0	499	1.64	1.41	15.0	83
Pooled	272	73.1	2603	1121	27.3	881	1.47	1.52	15.3	93
Recommended Intake (ICMR-1981)		55.0	2400	400-500	24.0	750	1.20	1.40	16.0	40

Table-10

NNMB - AVERAGE INTAKE OF NUTRIENTS (cu/day) - URBAN - MIG

City/Town	No.of House holds	Protein (g)	Calories (Kcal)	Calcium (mg)	Iron (mg)	Vit-A Retinol (ug)	Thiamine (mg)	Ribo-flavin (mg)	Niacin (mg)	Vit-C (mg)
Trivandrum	43	64.0	2578	1037	33.5	792	1.32	1.14	13.1	70
Madras	79	57.4	2229	671	25.5	503	0.94	0.92	12.7	63
Bangalore	114	69.7	2715	1022	29.8	537	1.47	1.31	15.1	60
Hyderabad	100	58.5	2349	696	26.0	573	1.06	1.03	13.6	70
Nagpur	79	69.8	2430	984	28.0	732	1.67	1.43	17.1	94
Ahmedabad	119	59.5	2278	951	23.4	592	1.48	1.35	13.9	71
Bhopal	40	53.1	1879	539	21.0	272	1.51	1.00	14.8	46
Bhubaneswar/Cuttack/ Puri	40	72.1	2620	634	31.2	486	1.54	1.04	19.2	91
Calcutta	60	63.8	2236	673	26.2	442	1.37	0.99	17.0	82
Lucknow/Kanpur	59	69.6	2114	306	24.9	482	1.80	1.35	18.1	61
Pooled	733	63.2	2364	821	26.7	555	1.37	1.17	15.0	70
Recommended Intake (ICMR - 1981)		55.0	2400	400-500	24.0	750	1.20	1.40	16.0	40

Table- 11

NNMB - AVERAGE INTAKE OF NUTRIENTS (cu/day) - URBAN - LIG

City/Town	No.of House holds	Protein (g)	Calories (Kcal)	Calcium (mg)	Iron (mg)	Vit-A Retinol ( )	Thiamine (mg)	Ribo-flavin (mg)	Niacin (mg)	Vit-C (mg)
Trivandrum	80	55.4	2207	604	24.2	246	0.92	0.87	13.3	64
Madras	99	50.6	1976	482	22.7	328	0.70	0.64	11.7	37
Bangalore	115	64.7	2468	1053	34.9	366	1.69	1.09	14.5	50
Hyderabad	100	51.9	2143	420	22.9	366	0.92	0.75	13.5	43
Nagpur	58	70.8	2460	484	30.9	377	1.97	1.15	21.4	55
Ahmedabad	118	55.6	2053	527	23.0	321	1.59	1.04	16.0	49
Bhppal										
Bhubaneswar/Cuttack/ Puri	20	63.9	2003	394	27.4	279	1.99	1.11	20.8	38
Calcutta	20	69.0	2666	547	34.4	382	1.33	0.85	17.7	97
Lucknow/Kanpur	19	50.9	1761	312	23.9	243	1.35	0.75	15.9	41
				N o t c o v e r e d						
Pooled	629									
Recommended Intake (ICMR - 1981)		57.8	2230	595	26.5	332	1.31	0.92	15.0	50
		55.0	2400	400-500	24.0	750	1.20	1.40	16.0	40

Table-12

NNMB - AVERAGE INTAKE OF NUTRIENTS (cu/day) - URBAN - IL

City/Town	No.of House-holds	Protein (g)	Calories (Kcal)	Calcium (mg)	Iron (mg)	Vit-A Retinol ( )	Thiamine (mg)	Ribo-flavin (mg)	Niacin (mg)	Vit-C (mg)
Trivandrum	114	55.2	2235	715	26.0	482	0.94	0.87	12.4	53
Madras	80	54.6	2174	532	24.5	360	0.63	0.73	12.5	46
Bangalore	115	56.9	2291	695	25.9	435	1.14	0.96	13.1	55
Hyderabad	119	52.7	2194	415	23.6	302	0.87	0.67	13.7	41
Nagpur	100	72.3	2511	497	33.1	453	2.00	1.15	21.4	49
Ahmedabad	119	59.7	2177	535	25.1	245	1.78	1.13	17.8	41
Bhopal	40	56.8	1907	352	23.6	116	1.92	1.03	19.5	29
Bhubaneswar/Cuttack/ Puri	20	59.3	2243	386	27.7	285	1.35	0.82	16.7	61
Calcutta	39	68.8	2180	429	26.6	191	1.73	0.97	21.1	51
Ltiicknow/Kanpur	20	79.5	2416	711	30.9	372	2.08	1.31	23.2	58
Pooled	766	59.4	2243	548	26.3	352	1.35	Q.94	15.9	47
Recommended Intake (ICMR - 1981)		55.0	2400	400-500	24.0	750	1.20	1.40	16.0	40

Table-13

NNMB - AVERAGE INTAKE OF NUTRIENTS (cu/day) - URBAN - SLUM

City/Town	No.of House-holds	Protein (g)	Calories (Kcal)	Calcium (rag)	Iron (mg)	Vit-A Retinol ( )	Thiamine (mg)	Ribo-flavin (mg)	Niacin (mg)	Vit-C (mg)
Trivandrum	99	38.8	1848	526	19.1	137	0.77	0.66	10.3	72
Madras	99	43.9	1781	406	20.5	255	0.59	0.54	10.5	36
Bangalore	109	55.5	2287	993	33.1	297	1.46	0.88	11.8	36
Hyderabad	101	.45.7	1988	369	21.0	251	0.61	0.52	12.0	31
Nagpur	97	63.8	2130	360	28.3	289	1.93	1.02	20.1	34
Ahmedabad	120	65.4	2200	472	27.7	279	1.84	1.16	18.3	35
Bhopal	40	56.5	1759	301	24.4	119	1.91	0.95	19.3	19
Bhubaneswar/Cuttack/ Puri	20	57.4	2096	522	26.8	434	0.91	0.74	14.9	44
Calcutta	60	50.0	1835	360	22.4	270	1.11	0.71	14.7	52
Lucknow/Kanpur	50	63.5	1890	366	24.5	172	1.75	0.98	19.5	27
Pooled	795	53.4	2008	492	24.9	248	1.27	0.81	14.6	40
Recommended Intake (ICMR - 1981)		55.0	2400	400-500	24.0	750	1.20	1.40	16.0	40

Table- 14

NNMB - AVERAGE INTAKE OF NUTRIENTS (cu/day) IN DIFFERENT URBAN GROUPS

Income Group	Protein (g)	Calories (Kcal)	Calcium (mg)	Iron . (mg)	Vit-A Retinol (/ug)	Thiamine (mg)	Ribo-flavin (mg)	Niacin (mg)	Vit-C (mg)
HIG	73.1	2603	1121	27.3	881	1.47	1.52	15.3	93
MIG	63.2	2364	821	26.7	555	1.37	1.17	15.0	70
LIG	57.8	2230	595	26.5	332	1.31	0.92	15.0	50
IL	59.4	2243	548	26.3	352	1.35	0.94	15.9	47
SLUM	53.4	2000	492	24.9	248	1.27	0.81	14.6	40
Recommended Intake (ICMR-1981)	55.0	2400	400-500	24.0	750	1.20	1.40	16.0	40

Table-15

NNMB - NUTRITIONAL ASSESSMENT - COVERAGE

Age Group	in years	Sex	HIG	Socio Economic Group				TOTAL
				MIG	LIG	IL	SLUM	
Infants	Below 1	B + G	17	115	184	249	311	876
Pre-schoolers	1 - 5	B + G	191	815	933	1167	1287	4393
School Age	5 - 12	Boys	121	777	738	977	869	3402
		Girls	110	376	730	881	899	3496
Adolescents	12 - 21	Boys	172	813	732	882	905	3504
		Girls	219	902	809	842	884	3656
Adults	21 & above	Males	318	1403	1172	1375	1402	5670
		Females	441	1777	1544	1798	1695	7255
		Total	1589	7478	6842	8171	8252	32332

Table-16

NNMB - PERCENT PREVALENCE OF DEFICIENCY SIGNS - INFANTS

Deficiency Signs	HIG*	MIG*	LIG	IL	SLUMS
Number			159	178	254
NAD			92.5	93.8	91.3
Emaciation			1.9	1.1	1.6
Marasmus			0.6		4.0
Conj. Xerosis				-	
Total vitamin A deficiency	-		0.6	-	-
Bitot's spot			0.6	-	

* Coverage in HIG and MIG was less than 25, hence prevalence figures are not provided

\- Nil prevalence

Table-17

NNMB - PERCENT PREVALENCE OF DEFICIENCY SIGNS - PRESCHOOL CHILDREN

Deficiency Signs	HIG	MIG	LIG	1L	SLUMS
Number	155	795	915	1158	1285
NAD	87.1	92.1	88.1	86.4	74.4
Oedema				0.1	0.9
Emaciation	-	-	-	0.6	1.2
Marasmus		0.1	0.1	1.1	2.0
Two or more signs of PCM	-	0.2	0.1		0.6
Conj.Xerosis				-	0.7
Bitot's spot	-	-	-	2.1	2.9
Total vitamin 'A' deficiency		0.1	0.6	1.4	3.7
Angular stomatitis	-	0.2	0.6	3.5	7.2
Other B-complex deficiency		0.4	1.3	2.7	0.7
Total B-complex deficiency	-	2.3	4.1	0.3	8.0
Caries			0.5	3.0	1.2

Table-18

NNMB - PERCENT PREVALENCE OF DEFICIENCY SIGNS - SCHOOL AGE BOYS

Deficiency Signs	HIG	MIG	LIG	IL	SLUMS
Number	83	759	708	.977	869
NAD	62.6	77.7	70.6	74.1	62.8
Emaciation	-	-	-	0.1	0.5
Conj.Xerosis	-	2.1	1.8	3.5	3.2
Bitot's spot	-	2.6	2.3	3.4	4.6
Total vitamin 'A' deficiency	-	4.7	4.1	6.8	7.8
Angular stomatitis	1.2	6.1	7.3	6.6	13.8
Other B-complex deficiency	-	0.4	0.6	0.5	1.4
Total B-complex deficiency	1.2	6.5	7.9	7.1	15.3
Caries	23.4	13.6	15.0	11.0	11.5

Table-19

NNHB - PERCENT PREVALENCE OF DEFICIENCY SIGNS - SCHOOL AGE GIRLS

Deficiency Signs	HIG	MIG	LIG	IL	SLUMS
Number	67	859	690	881	899
NAD	64.1	72.7	77.7	77.2	68.1
Emaciation	-	-	-	0.1	0.2
Conj.Xerosis	1.5	1.5	0.6	2.6	1.6
Bitot's spot	1.5	2.5	2.4	2.3	3.3
Total vitamin 'A' deficiency	3.0	4.0	3.0	4.9	4.9
Angular stomatitis	1.5	3.9	3.7	6.1	13.0
Other B-complex deficiency	1.5	0.2	0.4	0.7	0.9
Total B-complex deficiency	3.0	4.2	4.2	6.8	13.9
Caries	26.9	11.5	11.0	11.0	10.3

Table- 20

NNMB - PERCENT PREVALENCE OF DEFICIENCY SIGNS - ADOLESCENT BOYS

Deficiency Signs	HIG	MIG	LIG	IL	SLUMS
Number	159	789	727	863	855
NAD	88.0	88.8	80.7	79.1	72.5
Conj.Xerosis	0.6	0.4	0.8	2.1	1.8
Bitot's spot	0.6	0.5	2.9	3.6	4.2
Total vitamin 'A' deficiency	1.2	0.9	3.7	5.8	6.0
Angular stomatitis	2.5	1.9	4.1	4.7	11.0
Other B-complex deficiency	-	0.6	1.8	0.7	2.2
Total B-complex deficiency	2.5	2.5	5.9	5.4	13.2
Caries	8.9	4.0	6.5	4.6	6.1

Table-21

NNMB - PERCENT PREVALENCE OF DEFICIENCY SIGNS - ADOLESCENT GIRLS

Deficiency Signs	HIG	MIG	LIG	IL	SLUMS
Number	269	896	769	842	861
NAD	83.4	88.6	80.9	83.2	87.2
Conj.Xerosis	-	0.2	0.6	0.6	0.9
Bitot's spot	-	0.7	2.3	1.6	1.8
Total vitamin 'A' deficiency	-	1.0	3.0	2.1	2.7
Angular stomatitis	1.8	0.8	3.0	3.8	6.7
Other B-complex deficiency	-	0.5	1.2	1.0	1.7
Total B-complex deficiency	1.8	1.4	4.2	4.7	8.5
Caries	7.1	4.7	3.5	4.4	6.0

Table-22

NNMB - PERCENT PREVALENCE OF DEFICIENCY SIGNS - ADULT MALES

Deficiency Signs	HIG	MIG	LIG	IL	SLUMS
Number	303	1403	1172	1375	1402
NAD	82.5	85.1	89.3	86.4	80.1
Conj.Xerosis	-	0.4	0.2	0.3	0.8
Bitot's spot	0.3	0.3	0.4	1.4	1.4
Total Vitamin 'A' deficiency	0.3	0.6	0.6	1.6	2.1
Angular stomatitis	0.3	0.9	2.1	2.3	3.9
Other B-complex deficiency	0.3	0.2	0.6	0.5	1.4
Total B-complex deficiency	0.7	1.1	2.7	2.7	5.4
Caries	14.2	6.2	4.0	4.4	4.6

Table-23

NNMB - PERCENT PREVALENCE OF DEFICIENCY SIGNS - ADULT FEMALES

Deficiency Signs	RIG	MIG	LIG	IL	SLUMS
Number	441	1777	1544	1798	1695
NAD	79.1	75.8	67.8	69.6	58.1
Conj.Xerosis	-	0.1	0.3	0.1	0.4
Bitot's spot	-	0.1	0.4	0.5	0.9
Total vitamin 'A' deficiency	-	0.2	1.0	0.5	1.3
Angular stomatitis	-	0.9	2.4	1.8	4.2
Other B-complex deficiency	0.4	0.7	1.2	0.8	1.6
Total B-complex deficiency	0.4	1.6	3.6	2.6	5.8
Caries	10.2	9.5	6.4	5.3	5.3

Table - 24

URB'2 - MEAN ANTHROPOMETRIC MEASUREMENTS BY AGE - MALES - ALL STATES POOLED - HIG - 1975-77

Age	N	Height (cm)			Weight (kg)			Arm Circumference (cm)			Fat fold at Triceps (mm)		
		Mean	S.D.	C.V.	Mean	S.D.	C.V.	Mean	S.D.	C.V.	Mean	S.D.	C.V.
00	4	69.7	—	—	6.0	—	—	12.6	—	—	7.8	—	—
01 +	8	77.8	—	—	9.7	—	—	14.4	—	—	8.2	—	—
02 +	7	89.1	—	—	11.4	—	—	14.3	—	—	9.2	—	—
03 +	46	95.0	4.11	4.3	13.6	1.57	11.6	14.9	1.18	7.9	8.5	2.36	27.7
04 +	28	100.4	8.40	5.4	14.4	1.79	12.4	15.1	1.11	7.4	8.3	1.81	22.0
05 +	11	110.4	5.30	4.8	18.2	4.63	25.4	15.2	1.36	9.0	7.5	2.06	27.6
06 +	30	112.4	4.28	3.8	17.4	2.60	14.9	15.3	1.38	9.0	8.7	2.37	33.1
07 +	8	122.8	—	—	23.1	—	—	17.7	—	—	7.9	—	—
08 +	30	125.2	5.29	4.2	21.2	2.66	12.5	16.4	1.53	9.3	7.8	2.02	25.9
09 +	23	131.7	6.06	4.6	24.7	4.05	16.4	17.3	1.93	11.2	8.4	2.09	24.9
10 +	13	133.9	5.85	4.4	26.6	4.73	17.8	17.8	2.24	12.6	7.6	3.44	45.1
11 +	15	138.5	6.03	4.4	28.4	3.50	12.3	18.1	1.61	8.9	8.2	2.96	36.1
12 +	24	144.2	9.58	6.6	30.8	6.25	20.3	18.2	1.90	10.4	7.7	3.45	44.6
13 +	22	146.8	9.03	6.2	33.4	6.97	20.9	18.8	2.25	11.9	7.8	2.20	28.2
14 +	38	151.6	5.93	3.9	40.5	5.22	12.9	20.9	2.36	11.3	13.1	3.75	28.5
15 +	29	152.3	4.88	3.2	41.4	6.10	13.8	21.4	2.23	10.4	13.5	4.62	34.2
16 +	16	164.5	9.60	5.8	46.2	7.21	15.6	21.7	1.79	8.3	7.2	2.43	33.6
17 +	14	166.9	7.14	4.3	50.8	10.20	20.1	23.0	2.42	10.5	7.8	3.42	44.1
18 +	18	166.9	6.79	4.1	49.5	5.73	11.6	23.2	1.96	8.4	6.5	2.03	31.2
19 +	6	166.6	—	—	49.5	—	—	23.7	—	—	5.6	—	—
20-25	41	166.4	5.51	3.3	50.4	7.46	14.8	27.5	5.23	19.0	7.0	3.55	50.9
25-30	32	166.0	6.76	4.1	55.5	9.70	17.5	25.3	2.59	10.3	8.3	4.31	51.9
30-35	21	167.1	3.99	2.4	59.0	7.32	12.4	25.8	2.68	10.4	10.6	4.32	40.7
35-40	21	167.2	7.70	4.6	61.3	10.11	16.5	25.8	2.37	10.0	11.2	4.79	42.8
40-45	51	166.8	5.56	3.3	66.3	9.10	13.7	28.1	2.95	10.5	13.7	5.40	39.3
45-50	40	168.5	5.73	3.4	65.2	11.01	16.9	27.5	2.87	10.4	11.6	5.20	45.0
50-55	56	167.2	5.44	3.3	62.2	10.18	16.4	26.7	2.90	10.9	11.1	4.89	43.9
55-60	34	165.9	7.34	4.4	63.5	10.52	16.6	26.9	2.56	9.5	12.6	5.29	42.1
≥ 60	25	161.5	7.72	4.7	58.0	9.82	16.9	19.3	9.83	50.9	10.1	5.52	54.5

Whenever sample covered was less than 10, SD and CV are not provided

Table - 25

NNMB - MEAN ANTHROPOMETRIC MEASUREMENTS BY AGE (FEMALES) - ALL STATES POOLED - HTG - 1975-77

Age	N	Height (cm)			Weight(Kg)			Arm Circumference (cm)			Skin Fold at Triceps (mm)		
		Mean	S.D.	C.V.	Mean	S.D.	C.V.	Mean	S.D.	C.V.	Mean	S.D.	C.V.
00	6	64.8	—	—	6.2	—	—	12.5	—	—	10.1	—	—
01 +	8	75.9	—	—	9.2	—	—	13.9	—	—	8.8	—	—
02 +	5	87.8	—	—	11.9	—	—	14.3	—	—	10.5	—	—
03 +	43	94.0	4.71	5.0	12.6	1.35	10.7	15.0	8.50	5.7	8.1	1.71	21.2
04 +	36	100.2	5.05	5.0	13.8	1.65	11.9	14.7	8.19	5.6	8.5	1.96	23.0
05 +	11	107.6	6.02	5.6	16.2	2.13	13.1	15.4	9.42	6.1	9.6	1.66	17.3
06 +	31	111.5	5.15	4.6	17.0	2.35	13.8	15.4	1.23	7.9	9.0	2.36	26.4
07 +	7	116.0	—	—	18.2	—	—	16.0	—	—	7.3	—	—
08 +	13	121.9	5.72	4.7	19.8	2.99	15.1	15.9	1.28	8.0	6.5	1.91	29.5
09 +	8	122.8	—	—	20.8	—	—	16.3	—	—	9.5	—	—
10 +	15	130.7	8.99	6.9	24.4	3.76	15.4	16.8	1.54	9.2	8.3	2.70	32.7
11 +	16	132.2	6.98	5.3	24.9	6.79	27.2	18.0	3.44	19.1	10.5	3.71	35.2
12 +	26	140.4	7.40	5.3	29.9	6.63	22.1	18.1	2.08	11.5	9.7	3.05	31.6
13 +	35	147.4	9.50	6.4	36.7	7.10	19.4	21.4	4.52	21.1	10.7	3.59	33.3
14 +	38	151.8	5.93	3.9	40.5	5.22	12.9	20.9	2.36	11.3	13.1	3.75	28.5
15 +	29	152.3	4.88	3.2	41.4	6.10	14.7	21.4	2.23	10.4	13.5	4.62	34.2
16 +	16	156.2	5.33	3.4	43.1	4.63	10.7	21.5	1.51	7.0	13.9	3.99	28.7
17 +	20	152.9	4.62	3.0	44.9	6.44	14.3	22.6	2.83	12.5	12.0	5.40	44.9
18 +	15	153.4	7.74	5.0	43.4	5.73	13.2	22.7	3.61	15.9	13.5	5.16	38.2
19 +	17	154.8	7.14	4.8	46.2	6.68	14.5	22.5	3.37	15.0	13.3	4.46	33.6
20-25	75	154.6	6.14	3.9	46.8	6.50	13.9	22.6	2.41	10.7	13.0	5.02	38.6
25-30	51	155.6	4.66	3.0	50.9	8.59	16.9	24.4	2.74	11.2	16.3	6.12	37.4
30-35	58	154.2	5.39	3.5	52.4	9.50	18.2	25.7	3.21	12.5	15.9	6.35	40.0
35-40	69	152.4	5.69	3.7	55.2	10.02	18.1	26.8	3.41	12.7	18.6	7.83	42.0
40-45	75	153.1	4.94	3.2	56.0	10.17	18.2	24.9	4.28	17.2	18.5	8.36	45.0
45-50	51	151.6	5.26	3.5	56.1	9.78	17.4	27.4	3.64	13.3	19.4	7.14	36.9
50-55	36	152.1	6.02	4.0	55.2	10.86	19.7	26.6	3.55	13.3	18.9	7.61	40.2
55-60	4	152.5	—	—	49.0	—	—	25.2	—	—	17.5	—	—
≥60	31	148.0	5.05	3.4	48.5	9.29	19.2	23.5	2.70	11.0	11.8	5.13	43.4

HTG Females

Table I - 20

NNMB - MEAN ANTHROPOMETRIC MEASUREMENTS BY AGE (MALES) ALL STATES POOLED - MIG - 1975-1979

Age	N	Height (cm)			Weight (kg)			Arm Circumference (cm)			Fat/fold at Triceps (mm)		
		Mean	S.D.	C.V.	Mean	S.D.	C.V.	Mean	S.D.	C.V.	Mean	S.D.	C.V.
00	56	66.7	6.02	9.0	7.0	1.63	23.4	12.8	1.45	11.3	8.2	1.87	22.8
01+	75	77.1	4.51	5.8	9.5	1.41	14.9	13.8	1.38	10.0	7.7	1.86	24.1
02+	91	85.3	5.21	6.1	11.1	1.37	12.4	14.0	1.29	9.2	7.7	2.08	27.0
03+	98	91.8	6.12	6.7	12.3	1.66	13.5	14.3	1.04	7.3	7.9	1.81	22.7
04+	171	98.6	5.53	5.6	13.9	1.69	12.2	14.5	1.08	7.5	7.3	1.99	27.3
05+	106	105.8	5.73	5.1	15.5	1.92	12.4	14.8	1.00	6.7	6.9	1.50	21.8
06+	106	111.0	6.37	5.7	16.5	2.17	13.1	14.7	1.16	7.9	6.6	1.47	22.1
07+	99	117.6	5.89	5.0	18.8	2.56	13.6	15.2	1.33	8.8	6.3	1.95	30.8
08+	140	121.1	6.16	5.1	20.1	2.77	13.7	15.6	1.52	9.8	6.3	1.95	31.2
09+	117	126.9	6.63	5.2	22.3	3.22	14.4	16.0	1.33	8.3	5.9	1.49	25.0
10+	141	130.0	6.32	4.9	23.7	3.30	13.9	16.4	1.52	9.3	6.3	2.10	33.1
11+	115	135.8	8.11	6.0	25.8	4.35	16.9	16.6	1.33	8.0	5.9	1.52	25.8
12+	122	137.9	7.32	5.3	27.4	3.89	14.2	17.2	1.46	8.5	6.4	2.02	31.8
13+	98	145.5	8.39	5.8	31.0	5.46	17.6	17.8	1.74	9.8	6.6	2.44	37.0
14+	102	149.7	8.63	5.8	35.1	7.11	20.3	19.0	2.39	12.6	6.6	2.56	38.8
15+	89	158.6	9.41	5.9	41.1	7.69	18.7	20.2	2.35	11.6	6.6	2.25	34.2
16+	106	162.0	7.92	4.9	44.0	6.84	15.5	21.0	2.19	10.4	6.7	2.42	35.6
17+	75	164.3	6.58	4.0	47.6	6.90	14.5	22.3	2.70	12.1	6.9	2.76	40.0
18+	83	163.9	7.12	4.4	47.8	6.35	13.3	22.5	1.87	8.3	6.6	2.52	37.8
19+	66	166.5	6.78	4.1	48.5	7.88	16.2	22.6	2.20	9.7	6.2	2.59	41.7
20-25	230	166.0	6.70	4.0	50.7	7.82	15.4	23.3	2.47	10.6	6.7	3.46	51.3
25-30	147	164.8	7.10	4.3	53.1	8.75	16.5	24.4	2.83	11.6	7.9	4.11	52.0
30-35	182	166.4	6.12	3.7	60.5	9.95	16.4	26.2	2.87	10.9	9.9	4.43	45.0
35-40	211	166.1	6.25	3.8	59.6	9.00	15.1	26.2	2.80	10.7	10.2	4.77	46.8
40-45	252	165.2	6.38	3.9	60.1	10.03	16.7	26.5	2.86	10.8	9.9	4.39	44.9
45-50	230	164.7	6.12	3.7	60.0	11.09	18.5	26.3	3.07	11.7	10.0	4.61	46.2
50-55	142	164.1	5.84	3.6	57.0	10.13	17.8	25.4	2.96	11.6	9.1	3.88	42.7
55-60	70	164.7	6.30	3.8	57.8	10.08	17.4	25.2	2.81	11.2	9.2	4.80	52.0
7/60	53	162.9	5.72	3.5	54.8	11.10	20.3	24.2	3.31	13.7	9.2	4.00	43.6

Table - 27

NMMB - MEAN ANTHROPOMETRIC MEASUREMENTS BY AGE (FEMALES) ALL STATES POOLED - NIG - 1975-1979

Age	N	Height (cm)			Weight (kg)			Arm Circumference (cm)			Fat fold at Triceps (mm)		
		Mean	S.D.	C.V.	Mean	S.D.	C.V.	Mean	S.D.	C.V.	Mean	S.D.	C.V.
bo	55	65.5	5.78	8.8	6.8	1.63	24.1	12.9	1.36	10.5	8.4	1.59	18.8
01+	55	75.9	4.50	5.9	9.0	1.28	14.1	13.6	1.30	9.6	7.6	1.95	25.8
02+	81	83.8	4.74	5.7	10.5	1.32	12.5	13.9	1.13	8.1	8.2	1.85	22.4
03+	107	91.6	5.22	5.7	12.2	1.57	13.0	14.3	1.16	8.1	8.4	1.95	23.3
04+	126	97.9	5.88	6.0	12.2	3.98	32.7	14.4	1.28	8.9	7.7	1.97	25.8
05+	108	104.0	6.16	5.9	14.6	1.95	13.3	14.6	1.17	8.0	7.7	2.03	26.4
06+	111	109.9	6.16	5.6	16.3	2.02	12.4	14.8	1.17	7.9	7.1	1.82	25.5
07+	106	115.5	7.33	6.4	17.9	2.56	14.3	15.1	1.22	8.1	6.9	1.99	28.9
08+	121	119.8	10.14	8.5	19.9	3.27	16.4	15.8	1.70	10.8	7.1	1.93	27.0
09+	116	125.0	6.61	5.3	21.9	3.59	16.4	16.3	1.40	8.6	7.7	2.26	29.4
10+	118	131.0	7.51	5.7	24.5	4.08	16.7	16.9	1.53	9.1	7.7	1.98	25.7
11+	116	136.4	7.39	5.4	26.7	5.06	18.9	17.4	1.96	11.2	7.5	2.13	28.4
12+	119	141.2	8.44	6.0	30.6	6.09	19.9	18.2	2.02	11.1	8.3	2.94	35.5
13+	129	145.7	7.49	5.1	34.2	6.34	18.5	19.1	2.29	12.0	8.8	3.25	36.9
14+	116	150.2	6.59	4.4	38.6	6.08	15.8	18.5	4.51	24.4	10.2	3.55	34.8
15+	74	150.9	7.51	5.0	39.8	6.10	15.3	20.5	2.59	12.6	10.6	3.56	33.5
16+	105	151.7	6.48	4.3	42.3	7.11	16.8	21.5	2.07	9.6	11.5	4.20	36.4
17+	88	152.4	6.98	4.6	42.7	6.79	15.9	21.7	2.36	10.9	11.2	4.26	37.9
18+	85	153.1	6.31	4.1	44.3	6.72	15.2	22.2	2.36	10.6	11.6	4.60	39.6
19+	80	152.7	5.36	3.5	44.5	6.68	15.0	23.5	4.22	18.0	12.0	4.55	37.9
20-25	318	152.2	6.08	4.0	44.6	6.74	15.1	22.3	2.41	10.8	11.2	4.67	41.7
25-30	318	151.8	5.73	3.8	48.6	8.84	18.2	24.3	3.44	14.2	14.0	6.94	49.6
30-35	274	151.9	5.64	3.7	50.0	10.03	20.0	25.1	3.77	15.1	14.6	6.87	47.2
35-40	332	151.7	5.35	3.5	50.6	9.37	18.5	25.4	3.60	14.2	15.5	6.69	43.1
40-45	233	150.8	5.51	3.7	50.8	9.93	19.6	25.4	3.67	14.4	15.8	7.51	47.5
45-50	145	151.3	6.13	4.0	51.8	10.97	21.2	25.5	3.99	15.7	16.2	7.08	43.6
50-55	73	150.2	5.72	3.8	51.0	10.97	21.5	25.7	4.10	15.9	14.9	6.80	45.7
55-60	31	148.7	4.66	3.1	49.9	11.38	22.8	25.1	3.36	13.4	13.8	6.54	47.2
60	160	146.7	5.66	3.9	44.1	9.14	20.7	23.2	3.12	13.4	10.4	5.76	55.3

NIG Revised

Table - 28

NNMB - MEAN ANTHROPOMETRIC MEASUREMENTS BY AGE (MALES) ALL STATES POOLED - LIG - 1975-1979

Age	N	Height (cm)			Weight (kg)			Arm Circumference (cm)			Fat fold at Triceps (mm)		
		Mean	S.D.	C.V.	Mean	S.D.	C.V.	Mean	S.D.	C.V.	Mean	S.D.	C.V.
00	98	62.7	7.16	11.4	6.1	1.80	29.6	12.2	1.73	14.2	7.9	2.65	33.5
01+	106	74.0	4.65	6.2	8.6	1.30	15.2	13.3	1.19	8.9	7.8	1.72	22.1
02+	106	81.6	5.45	6.7	10.0	1.39	13.9	13.5	1.19	8.9	7.7	2.06	26.6
03+	183	89.5	5.28	5.9	11.7	1.39	11.8	14.0	0.97	6.9	8.0	2.02	25.2
04+	140	95.6	6.27	6.6	12.8	1.74	13.6	14.1	1.03	7.3	7.8	2.00	25.7
05+	108	100.8	7.18	7.1	14.3	2.00	14.0	14.4	1.06	7.4	7.1	1.69	23.7
06+	104	107.2	6.11	5.7	15.8	2.23	14.1	14.5	1.29	8.9	6.4	1.82	28.4
07+	112	113.2	5.84	5.2	17.4	2.23	12.8	14.6	0.96	6.5	5.8	1.66	28.3
08+	91	119.3	6.43	5.4	19.5	2.69	13.8	15.3	1.25	8.2	5.9	1.44	24.3
09+	114	122.1	6.68	5.5	20.6	3.29	16.1	15.3	1.20	7.8	5.8	1.16	25.9
10+	105	127.1	6.80	5.3	22.3	2.91	13.0	15.9	1.37	8.6	6.0	1.47	24.5
11+	89	131.5	7.04	5.4	24.3	3.22	13.3	16.4	1.35	8.2	5.8	1.43	24.6
12+	115	136.1	6.95	5.1	26.3	3.83	14.6	16.8	1.81	10.7	6.3	2.02	32.3
13+	115	140.5	7.01	5.4	28.6	4.87	17.1	17.3	1.73	10.0	6.1	1.98	32.8
14+	96	148.2	8.52	5.7	33.0	6.02	18.2	18.4	1.76	9.6	6.1	1.90	31.2
15+	73	153.4	7.34	4.8	38.4	6.03	15.7	20.0	2.01	10.1	6.3	2.10	33.6
16+	78	158.3	7.86	5.0	41.3	7.11	17.2	20.5	2.44	11.9	6.1	1.85	30.6
17+	55	162.2	7.10	4.4	43.9	6.54	14.9	22.2	3.06	13.7	6.1	2.40	39.3
18+	76	162.5	6.69	3.4	46.1	5.74	12.5	22.2	2.13	9.6	6.4	1.90	29.9
19+	48	163.6	7.09	4.3	46.5	6.23	13.5	22.3	2.19	9.8	6.2	3.02	48.4
20-25	207	163.8	6.59	4.0	48.4	6.75	13.9	23.0	2.26	9.8	5.8	2.00	34.7
25-30	171	163.8	5.95	3.6	51.8	8.33	16.1	24.1	2.74	11.4	6.8	3.48	51.3
30-35	181	163.6	7.23	4.4	52.7	9.31	17.7	24.6	3.32	13.5	7.6	4.33	57.0
35-40	208	164.1	6.87	4.2	52.8	9.40	17.8	24.8	3.20	12.9	7.4	4.07	55.0
40-45	188	163.8	6.24	3.8	53.7	9.51	17.7	24.8	2.96	11.9	7.9	4.35	55.0
45-50	161	163.1	6.01	3.7	51.4	9.24	18.0	24.1	2.86	11.9	7.2	3.71	51.7
50-55	122	162.2	6.28	3.9	51.1	8.47	16.6	24.0	2.75	11.5	7.5	3.35	44.4
55-60	60	161.5	5.92	3.7	51.3	10.05	19.6	23.9	2.75	11.5	7.8	3.94	50.2
7760	46	160.2	6.71	4.2	48.9	9.88	20.2	23.1	3.17	13.7	8.4	4.28	50.9

Table - 29

NNMB - MEAN ANTHROPOMETRIC MEASUREMENTS BY AGE (FEMALES) ALL STATES POOLED - LIG - 1975-1979

Age	N	Height (cm)			Weight (kg)			Arm Circumference (cm)			Fat fold at Triceps (mm)		
		Mean	S.D.	C.V.	Mean	S.D.	C.V.	Mean	S.D.	C.V.	Mean	S.D.	C.V.
00	95	62.4	6.38	10.2	5.9	1.67	28.3	12.1	1.64	13.6	8.6	2.49	29.1
01+	81	72.1	5.14	7.1	7.9	1.41	17.8	12.7	1.27	10.1	7.6	2.01	26.3
02+	90	80.4	4.69	5.8	9.6	1.46	15.3	13.3	1.23	9.2	7.8	2.15	27.9
03+	126	87.6	6.00	6.8	11.1	1.76	15.8	13.8	1.06	7.6	8.2	2.26	27.1
04+	126	94.1	5.96	6.3	12.7	1.78	14.1	14.1	1.29	9.1	8.2	2.30	28.2
05+	99	101.1	5.32	5.3	14.1	1.56	11.0	14.5	1.15	7.9	7.7	1.93	24.2
06+	90	106.0	6.23	5.9	15.3	1.83	11.9	14.6	1.28	8.8	7.4	2.18	29.3
07+	110	112.4	5.70	5.1	17.1	2.44	14.3	15.0	1.21	8.1	7.0	2.00	28.5
08+	98	116.6	5.74	4.9	18.5	2.38	12.9	15.2	1.15	7.6	6.9	1.68	24.3
09+	112	123.9	6.91	5.6	20.7	2.85	13.8	15.9	1.52	9.6	7.0	2.10	30.0
10+	112	128.6	6.79	5.3	22.9	3.68	16.1	16.4	1.40	8.5	7.0	2.05	29.4
11+	87	132.5	7.43	5.6	24.6	4.01	16.3	16.6	1.37	8.3	6.9	1.93	27.9
12+	125	139.4	10.27	7.4	28.7	5.61	19.5	18.0	1.77	9.8	8.0	2.24	28.0
13+	99	141.7	7.17	5.1	31.2	5.45	17.5	18.6	2.12	11.4	8.2	2.60	31.6
14+	91	146.8	6.79	4.6	35.7	5.43	15.2	19.6	1.99	10.1	9.4	3.03	32.2
15+	77	149.0	6.78	3.9	39.4	6.64	16.6	21.3	2.38	11.2	10.0	3.39	34.0
16+	106	150.3	7.58	5.0	39.6	9.66	24.2	21.6	2.25	10.5	11.4	4.07	35.6
17+	77	151.1	5.20	3.4	41.9	6.67	15.7	21.6	2.32	10.7	11.2	4.04	36.2
18+	76	150.2	5.95	4.0	42.2	5.92	14.0	22.1	2.37	10.7	10.6	3.74	35.2
19+	59	152.0	5.65	3.7	42.4	6.29	14.9	21.9	2.77	12.7	10.7	4.59	42.8
20-25	319	150.8	5.53	3.7	42.8	6.01	14.1	22.0	2.36	10.7	10.0	4.04	40.4
25-30	288	150.9	5.65	3.7	43.7	6.45	14.8	22.5	2.70	12.0	10.2	4.88	47.7
30-35	250	149.9	5.39	3.6	44.3	7.97	18.0	23.1	2.90	12.6	11.0	5.15	46.9
35-40	284	150.0	5.94	4.0	44.5	8.43	18.9	23.2	3.12	13.4	11.4	5.59	49.1
40-45	168	149.9	6.89	3.7	46.3	9.89	21.4	23.9	3.61	14.7	12.3	5.85	47.5
45-50	142	149.8	6.62	4.4	46.8	10.49	22.4	23.9	3.50	14.6	13.1	6.67	50.9
50-55	44	149.0	5.06	3.4	44.2	9.47	21.4	23.0	2.64	11.5	11.8	5.46	46.1
55-60	35	149.1	6.10	4.1	44.2	10.55	23.9	22.6	3.35	14.8	10.7	5.78	54.2
7/ 60	92	147.0	6.36	4.3	42.4	9.74	23.0	22.4	3.43	15.3	9.9	4.83	48.8

Table - 30

NMHS - MEAN ANTHROPOMETRIC MEASUREMENTS BY AGE (MALES) ALL STATES POOLED- II - 1975-1979

Age	N	Height (cm)			Weight (kg)			Arm Circumference (cm)			Fat fold at Triceps (mm)		
		Mean	S.D.	C.V.	Mean	S.D.	C.V.	Mean	S.D.	C.V.	Mean	S.D.	C.V.
00	183	63.3	5.67	8.8	6.3	1.63	24.3	12.4	1.37	11.0	7.9	2.17	27.4
01+	134	74.7	4.63	6.2	8.4	1.21	14.4	13.1	1.47	11.2	7.4	1.86	25.2
02+	139	82.2	5.32	6.5	10.2	1.73	16.9	13.6	1.30	9.6	7.9	2.03	25.8
03+	152	89.0	5.87	6.6	11.6	1.60	13.8	13.9	1.31	9.4	7.9	1.77	22.4
04+	179	95.2	5.98	6.3	12.9	1.65	12.8	14.3	1.19	8.3	8.0	1.99	24.9
05+	137	101.9	6.54	6.4	14.2	1.88	13.2	14.2	1.12	7.9	6.8	1.84	26.6
06+	128	107.6	5.47	5.1	15.7	1.87	11.9	14.6	1.13	7.8	6.3	1.56	24.6
07+	156	113.4	7.27	6.4	16.9	2.69	15.9	14.7	1.06	7.2	6.0	1.71	28.6
08+	143	118.4	6.22	5.3	18.8	2.56	13.6	15.0	1.49	9.9	6.2	1.82	29.6
09+	136	122.6	5.89	4.8	20.6	2.58	12.6	15.5	1.26	8.7	5.9	1.60	26.9
10+	136	127.4	6.38	5.0	22.2	2.93	13.2	15.6	1.41	9.0	6.1	1.81	29.7
11+	121	131.4	6.59	5.0	23.4	4.94	21.1	16.4	1.49	9.1	6.2	1.97	32.0
12+	133	136.8	7.21	5.3	25.6	3.69	13.9	16.6	1.48	8.8	6.2	2.10	34.1
13+	100	140.5	8.02	5.7	28.7	4.75	16.6	17.6	1.68	9.6	6.5	1.99	30.7
14+	99	145.8	8.24	5.7	32.1	5.70	17.7	18.2	1.84	10.1	6.1	2.07	33.9
15+	90	152.2	9.00	5.9	34.6	6.74	19.4	19.2	2.19	11.4	6.1	2.33	37.9
16+	109	157.2	9.14	5.8	40.8	6.12	15.0	20.2	2.14	10.6	6.2	1.77	28.7
17+	84	160.0	5.45	3.4	43.5	5.72	13.1	20.9	2.09	10.0	6.1	2.18	36.9
18+	88	162.3	5.82	3.6	46.3	6.61	18.1	28.1	2.22	10.0	6.2	1.91	30.8
19+	68	162.6	7.26	4.5	46.7	5.87	12.6	22.4	2.15	9.6	7.0	2.94	42.1
20-25	231	162.9	6.55	4.0	48.0	6.42	13.4	23.3	2.15	9.2	6.3	2.43	38.4
25-30	204	162.7	6.61	4.1	50.6	8.26	16.3	24.2	2.64	10.9	7.1	3.59	50.5
30-35	198	163.2	6.34	3.9	52.8	8.43	16.0	24.4	2.68	10.6	7.1	3.14	44.2
35-40	244	163.8	6.46	3.9	54.3	9.25	17.0	25.0	2.92	11.7	7.9	3.78	48.0
40-45	218	162.8	6.64	4.1	54.5	9.19	16.9	25.1	2.91	11.6	9.0	5.19	58.0
45-50	159	162.5	6.43	4.0	53.5	9.11	17.0	24.9	3.06	12.2	8.4	3.96	47.2
50-55	140	161.2	6.17	3.8	52.6	8.25	15.7	24.6	3.27	13.3	9.4	4.38	46.6
55-60	76	160.4	5.74	3.6	49.0	8.75	17.9	23.6	2.93	12.4	7.6	3.37	44.2
60+	40	160.7	7.18	4.5	45.6	9.25	20.3	22.3	3.26	14.7	7.1	4.19	58.1

Table - 31

AHMM - MEAN ANTHROPOMETRIC MEASUREMENTS BY AGE (FEMALES) ALL STATES POOLED - II - 1975-1979

Age	N	Height (cm)			Weight (kg)			Arm Circumference (cm)			Fat fold at Triceps (mm)		
		Mean	S.D.	C.V.	Mean	S.D.	C.V.	Mean	S.D.	C.V.	Mean	S.D.	C.V.
00	126	61.8	6.19	10.0	6.9	1.62	27.3	12.2	1.76	14.4	8.1	2.54	31.3
01+	131	73.0	5.37	7.4	7.9	1.34	16.9	12.7	1.18	9.4	7.4	1.84	24.7
02+	126	80.7	5.27	6.5	9.5	1.32	13.9	13.3	1.12	8.4	8.0	2.26	28.2
03+	137	87.0	5.91	6.8	11.1	1.73	15.7	13.6	1.37	10.1	8.5	2.10	24.5
04+	154	93.6	5.89	6.3	12.3	1.73	14.0	14.1	1.26	8.9	8.4	2.17	25.7
05+	181	101.2	5.90	5.8	15.4	2.76	18.0	14.4	1.14	7.9	7.8	1.99	25.4
06+	119	106.1	5.24	4.9	15.1	1.98	13.2	14.4	1.10	7.6	7.0	1.76	25.0
07+	129	111.7	6.67	5.9	17.0	2.76	16.2	15.4	1.52	9.8	7.1	1.92	27.0
08+	135	118.0	6.62	5.6	18.8	2.92	15.5	15.3	1.52	10.0	6.7	1.83	27.3
09+	105	122.2	7.39	6.1	20.4	3.13	15.3	15.9	1.31	8.3	7.2	2.18	30.4
10+	129	127.4	7.78	6.1	23.0	4.51	19.6	16.7	1.82	10.9	7.5	2.15	28.9
11+	96	131.7	7.60	5.8	25.2	4.64	18.4	17.0	1.74	10.2	7.6	2.73	36.2
12+	119	138.1	7.70	5.6	28.1	4.92	17.5	17.9	1.79	10.0	7.9	2.49	31.3
13+	98	143.4	7.12	5.0	31.6	6.07	19.2	18.7	2.20	11.8	8.5	2.88	33.9
14+	94	147.7	6.30	4.3	36.4	5.64	15.5	20.0	2.56	12.8	8.9	2.66	29.8
15+	87	149.1	6.18	4.1	39.2	6.87	17.5	22.0	3.90	17.7	10.8	4.24	39.3
16+	104	149.6	5.95	4.0	40.4	5.93	14.7	21.3	2.48	11.6	9.9	4.69	47.3
17+	67	150.9	5.47	3.6	42.3	6.55	15.5	21.5	1.81	8.4	10.8	3.64	33.8
18+	91	150.9	6.66	4.4	42.1	5.30	12.6	21.9	2.10	9.6	11.0	3.82	34.7
19+	69	152.7	5.94	3.9	42.6	6.14	14.4	22.1	2.31	10.4	10.6	3.95	37.4
20-25	396	150.1	3.44	3.6	43.2	6.38	14.8	22.5	2.48	11.0	10.5	4.87	46.3
25-30	367	150.8	5.60	3.7	44.4	7.95	17.9	23.0	3.37	14.2	10.7	5.11	47.6
30-35	294	150.6	5.76	3.8	45.9	6.63	18.8	22.6	3.03	13.4	11.7	5.77	49.4
35-40	299	150.4	5.92	3.9	46.8	9.27	19.8	24.1	3.42	14.2	13.4	6.91	51.7
40-45	182	150.1	6.41	4.3	46.7	9.59	20.6	23.9	3.39	14.2	12.9	6.64	51.4
45-50	145	149.1	5.60	3.8	45.3	8.95	19.7	23.7	3.29	13.9	12.6	5.74	45.5
50-55	64	147.8	5.84	2.5	43.3	6.36	14.7	22.5	2.77	12.3	11.5	5.16	45.1
55-60	29	148.5	5.46	3.7	42.8	9.36	21.9	22.5	3.49	15.5	10.0	4.91	49.2
7/ 60	80	147.3	5.45	3.7	41.7	7.51	18.0	22.3	2.92	13.1	9.9	4.89	49.4

Table - 32

NNMB - MEAN ANTHROPOMETRIC MEASUREMENTS BY AGE (MALES) ALL STATES POOLED - SLUM - 1975-79

Age	N	Height (cm)			Weight (kg)			Arm circumference (cm)			Fat fold at Triceps (mm)		
		Mean	S.D.	C.V.	Mean	S.D.	C.V.	Mean	S.D.	C.V.	Mean	S.D.	C.V.
00	155	62.8	6.62	10.6	6.0	1.55	26.1	12.0	1.82	15.2	7.4	2.53	38.9
01+	160	73.1	5.20	7.1	8.1	2.08	25.9	12.4	1.29	10.4	7.5	2.15	28.4
02+	158	79.5	5.76	7.2	9.5	1.48	15.6	13.0	1.26	9.7	7.7	2.31	30.0
03+	201	85.5	5.53	6.5	10.9	1.61	14.8	13.4	1.36	10.1	8.3	2.50	30.1
04+	190	92.6	5.27	5.7	12.5	1.55	12.4	13.8	1.21	8.7	7.9	2.18	27.7
05+	139	99.8	5.56	5.6	13.9	1.73	12.5	13.9	1.02	7.4	7.1	1.94	27.3
06+	122	104.6	5.80	5.5	15.4	2.11	13.8	14.3	1.16	8.1	6.7	1.94	28.9
07+	136	109.1	5.70	5.2	16.5	1.85	11.2	14.4	0.99	6.9	6.3	2.11	33.6
08+	166	115.6	6.16	5.3	18.1	2.49	13.8	14.6	1.15	7.9	6.1	1.55	25.5
09+	119	120.5	6.26	5.2	19.7	2.56	13.0	14.9	1.18	7.9	5.7	1.70	29.8
10+	131	125.1	6.52	5.2	22.8	4.29	18.8	15.6	1.45	9.2	6.1	1.89	30.9
11+	87	130.0	6.83	5.3	23.9	3.62	15.2	18.1	1.46	9.1	5.8	1.72	29.8
12+	146	132.6	7.05	5.3	25.1	3.64	14.5	16.6	1.36	8.2	6.0	1.89	31.6
13+	124	137.6	7.94	5.8	27.0	4.21	15.6	16.9	1.39	8.2	5.9	1.41	24.1
14+	97	143.7	7.94	5.5	31.0	5.65	18.2	17.7	2.01	11.4	6.2	2.12	34.2
15+	94	149.8	8.61	5.7	34.8	6.37	18.3	18.6	2.07	11.1	6.0	1.91	31.7
16+	77	154.7	8.06	5.2	38.6	5.76	14.9	19.7	2.07	10.5	6.0	1.67	28.0
17+	76	160.1	6.72	4.2	42.9	4.60	10.7	21.1	1.63	7.7	6.1	1.97	32.5
18+	112	157.9	6.86	4.3	43.0	4.93	11.5	21.4	1.84	8.6	5.7	1.92	34.0
19+	49	160.8	6.47	4.0	45.8	4.53	9.9	22.3	1.62	7.3	5.7	1.88	32.8
20-25	294	161.4	6.40	4.0	46.6	5.47	11.7	22.5	2.06	9.1	6.0	2.26	37.7
25-30	259	161.7	6.72	4.2	48.0	6.32	13.2	23.2	2.16	9.3	5.8	2.26	39.0
30-35	206	162.2	7.01	4.3	46.9	7.49	16.0	23.3	2.43	10.4	6.0	2.91	48.6
35-40	223	162.3	6.35	3.9	48.9	7.30	14.9	23.6	2.21	9.4	5.9	3.10	52.2
40-45	166	161.2	6.24	3.9	48.1	6.99	14.5	23.3	2.23	9.6	6.2	3.07	49.9
45-50	137	161.4	5.58	3.5	47.8	6.27	13.1	23.1	2.32	10.0	6.2	3.20	51.7
50-55	97	161.1	6.98	4.3	48.2	6.68	13.8	23.1	2.16	9.3	6.2	2.66	42.7
55-60	57	160.5	6.14	3.8	47.0	7.21	15.4	22.7	2.44	10.7	6.2	3.41	55.3
>/ 60	89	160.7	7.24	4.5	44.6	7.90	17.7	21.8	2.48	11.4	6.0	2.61	43.2

Table -133

NNMB - MEAN ANTHROPOMETRIC MEASUREMENTS BY AGE (FEMALES) ALL STATES POOLED - SLUM - 1975-79 I

Age	N	Height (cm)			Weight (kg)			Arm circumference (cm)			Fat fold at Triceps (mm)		
		Mean	S.D.	C.V.	Mean	S.D.	C.V.	Mean	S.D.	C.V.	Mean	S.D.	C.V.
00	150	61.2	5.83	9.5	5.7	1.54	27.1	11.8	1.79	15.2	7.9	2.73	34.7
01+	128	71.9	5.57	7.7	7.5	1.25	16.6	12.0	1.10	9.2	7.4	2.43	32.7
02+	136	78.5	5.04	6.4	9.0	3.47	38.7	13.0	1.20	9.3	8.2	2.11	25.7
03+	152	84.5	5.74	6.8	10.4	3.79	36.5	13.4	1.25	9.4	8.4	2.51	29.8
04+	166	91.1	7.42	8.1	12.0	1.82	15.1	13.7	1.21	8.8	8.1	2.36	29.1
05+	127	98.7	5.28	5.3	13.6	1.81	13.3	14.1	1.11	7.9	7.7	2.10	27.3
06+	114	104.5	5.91	5.7	15.1	2.45	16.2	14.4	1.04	7.2	7.4	2.05	27.8
07+	131	109.8	6.60	6.0	16.4	2.12	13.0	14.6	1.09	7.4	6.9	1.83	26.6
08+	154	116.1	5.73	4.9	18.4	2.38	12.9	15.1	1.10	7.3	6.6	2.04	30.9
09+	114	121.2	6.25	5.2	20.2	2.56	12.7	15.5	1.26	8.1	6.8	1.82	26.7
10+	153	123.9	7.43	6.0	21.6	3.59	16.6	15.9	1.44	9.1	6.9	2.09	30.2
11+	77	128.9	7.09	5.5	23.7	4.00	16.8	16.6	1.73	10.4	6.9	2.19	31.7
12+	141	133.7	6.62	4.9	26.8	4.25	15.8	17.1	1.68	9.8	7.5	2.20	29.4
13+	112	138.6	6.81	4.9	29.6	4.84	16.3	18.0	1.81	10.0	7.6	2.54	33.3
14+	90	144.1	6.81	4.7	34.1	6.46	18.9	19.1	2.13	11.2	8.7	3.40	39.2
15+	81	146.6	4.41	4.4	37.6	5.28	14.0	20.3	2.26	11.1	9.6	2.81	29.4
16+	78	148.6	5.58	3.7	39.1	4.65	11.9	21.0	2.14	10.2	10.1	3.29	32.7
17+	65	150.3	6.26	4.2	41.2	6.30	15.3	21.3	2.20	10.3	10.5	4.54	43.0
18+	115	149.6	6.01	4.0	42.0	5.73	13.6	22.1	2.27	10.3	10.3	3.74	36.4
19+	58	150.0	5.70	3.8	40.5	4.64	11.5	21.1	1.91	9.0	9.1	2.66	29.2
20-25	395	150.1	5.74	3.8	41.7	5.53	13.3	21.7	1.98	9.1	9.4	3.46	36.9
25-30	386	150.3	5.75	3.8	42.4	5.72	13.5	22.0	2.17	9.9	9.6	4.01	41.9
30-35	263	149.7	6.21	4.1	42.0	5.75	13.7	22.1	2.08	9.4	9.3	4.22	45.4
35-40	263	150.5	6.52	4.3	43.1	7.31	17.0	22.3	2.31	11.2	9.6	4.15	43.3
40-45	141	149.6	6.34	4.2	41.6	7.30	17.6	22.0	2.69	12.3	9.7	5.61	57.8
45-50	108	150.7	7.22	4.8	42.4	7.35	17.3	22.2	2.53	11.4	9.9	4.83	48.7
50-55	64	150.8	7.30	4.8	42.1	8.82	20.9	21.9	2.76	12.6	9.6	5.09	52.9
55-60	64	148.5	7.92	5.3	41.4	7.80	18.8	22.0	2.67	12.2	9.4	4.70	49.9
7/ 60	96	148.7	7.67	5.2	39.9	6.78	17.0	21.2	2.37	11.2	8.1	3.78	46.6

Table-34

NNMB - PERCENTAGE DISTRIBUTION OF 1-5 YEARS CHILDREN ACCORDING TC GOMEZ CLASSIFICATION - MIG - BOYS (1975-79)

City/Town	Number Surveyed	Weight as percentage of standard			
		≥90 Normal	75-90 Mild	60-75 Moderate	<60 Severe
Trivandrum	36	25.0	47.2	27.8	0.0
Madras	41	17.1	46.3	29.3	7.3
Bangalore	69	27.5	55.1	17.4	0.0
Hyderabad	70	24.3	55.7	20.0	0.0
Nagpur	32	40.6	43.8	15.6	0.0
Ahmedabad	121	33.1	52.0	14.9	0.0
Lucknow/Kanpur	28	35.7	46.4	17.8	0.0

Note: Whenever sample covered was less than 25, Gomez classification was not attempted.

Table-35

NNMB - PERCENTAGE DISTRIBUTION OF 1-5 YEARS CHILDREN ACCORDING TO GOMES CLASSIFICATION - MIG - GIRLS (1975-79)

City/Town	Number Surveyed	Weight as percetage of standard			
		≥90 Normal	75-90 Mild	60-75 Moderate	∠60 Severe
Trivandrum	25	44.0	40.0	16.0	0.0
Madras	42	40.5	38.1	19.0	2.4
Bangalore	70	54.3	35.7	10.0	0.0
Hyderabad	74	50.0	44.6	5.4	0.0
Ahmedabad	73	45.2	43.8	11.0	0.0
Lucknow/Kanpur;	36	58.3	25.0	16.7	0.0
Pooled	320	49.1	39.0	11.6	0.9

Note: Sample covered was less than 25 in other areas.

Table-36

NNMB PERCENTAGE DISTRIBUTION OF 1-5 YEARS CHILDREN ACCORDING TO GOMEZ CLASSIFICATION - MIG - POOLED (1975-79)

City/Town	Number Surveyed	Weight as percentage of standard			
		≥90 Normal	75.90 Mild	60-75 Moderate	∠60 Severe
Trivandrum	61	32.8	44.3	22.9	0.0
Madras	83	28.9	42.2	24.1	4.8
Bangalore	139	41.0	45.3	13.7	0.0
Hyderabad	144	37.5	50.0	12.5	0.0
Nagpur	51	45.1	33.3	21.6	0.0
Ahmedabad	194	37.6	49.0	13.4	0.0
Bhopal	27	37.0	51.9	11.1	0.0
Calcutta	35	51.4	40.0	8.6	0.0
Lucknow/kanpur	64	48.4	34.4	17.2	0.0
Pooled	798	38.8	45.0	15.7	0.5

Note: Sample covered was less than 25 in the city of Bhubaneswar

Table-37

NNMB - PERCENTAGE DISTRIBUTION OF 1-5 YEARS CHILDREN ACCORDING TO GOMEZ CLASSIFICATION- LIG - BOYS (1975-79)

City/Town	Number Surveyed	Weight as percentage of standard			
		≥90 Normal	75-90 Mild	60-75 Moderate	∠60 Severe
Trivandrum	73	24.7	50.7	19.1	5.5
Madras	60	10.0	41.7	40.0	8.3
Bangalore	97	14.4	52.6	32.0	1.0
Hyderabad	33	15.7	51.8	30.1	2.4
Nagpur	33	0.0	39.4	48.5	12.1
Ahmedabad	102	8.8	50.0	37.3	3.9
Pooled	448	13.4	49.1	33.0	4.5

Note: Sample covered was less than 25 in other areas.

No coverage in Lucknow/Kanpur city.

Table- 38

NNMB - PERCENTAGE DISTRIBUTION OF 1-5 YEARS CHILDREN ACCORDING TO GOMEZ CLASSIFICATION - LIG - GIRLS (1975-79)

City/Town	Number Surveyed	Weight as percentage of standard			
		≥90 Normal	75-90 Mild	60-75 Moderate	∠60 Severe
Trivandrum	62	46.8	46.8	6.4	0.0
Madras	66	18.2	39.4	37.9	4.5
Bangalore	67	31.3	44.8	23.9	0.0
Hyderabad	69	31.9	47.8	17.4	2.9
Nagpur	43	9.3	51.2	39.5	0.0
Ahmedabad	82	24.4	46.3	26.8	2.5
Pooled	389	27.8	45.8	24.6	1.8

Note: Sample covered was less than 25 in other areas.

No coverage in Lucknow/kanpur city.

Table-39

NNMB - PERCENTAGE DISTRIBUTION OF 1-5 YEARS CHILDREN ACCORDING TO GOMEZ CLASSIFICATION - LIG - POOLED (1975-79)

City/Town	Number Surveyed	Weight as percentage of standard			
		≥90 Normal	75-90 Mild	65-75 Moderate	∠60 Severe
Trivandrum	135	34.8	48.9	13.3	3.0
Madras	126	14.3	40.5	38.9	6.3
Bangalore	164	21.3	49.4	28.7	0.6
Hyderabad	152	23.0	50.0	24.4	2.6
Nagpur	76	5.3	46.0	43.3	5.3
Ahmedabad	184	15.8	48.3	32.6	3.3
Bhopal	32	34.4	46.9	12.5	6.2
Bhubaneswar/Cuttack/ Puri	36	8.3	44.5	38.9	8.3
Calcutta	28	21.4	53.6	21.4	3.6
Lucknow/Kanpur		N o t c o v e r e d			
Pooled	933	20.2	47.6	28.7	3.5

Table-40

NNMB - PERCENTAGE DISTRIBUTION OF 1-5 YEARS CHILDREN ACCORDING TO GOMEZ CLASSIFICATION - IL - BOYS (1975-79)

City/Town	Number Surveyed	Weight as percentage of standard			
		≥90 Normal	75-90 Mild	60-75 Moderate	∠60 Severe
Trivandrum	86	25.6	54.6	18.6	1.2
Madras	55	5.5	52.7	40.0	1.8
Bangalore	76	35.5	43.4	21.1	0.0
Hyderabad	108	10.2	52.8	35.1	1.9
Nagpur	96	10.4	30.2	47.9	11.5
Ahmedabad	124	12.9	43.5	37.9	5.7
Bhopal	48	8.3	50.0	39.6	2.1
Pooled	593	15.7	46.0	34.4	3.9

Note: Coverage was less than 25 in the city of Calcutta

- No coverage in Lucknow and Bhubaneswar.

Table-41

NNMB - PERCENTAGE DISTRIBUTION OF 1-5 YEARS CHILDREN ACCORDING TO GOMEZ CLASSIFICATION - IL - GIRLS (1975-79)

City/Town	Number Surveyed	Weight as percentage of standard			
		≥90 Normal	75-90 Mild	60-75 Moderate	∠60 Severe
Trivandrum	63	44.4	46.1	9.5	0.0
Madras	54	24.1	48.1	25.9	1.9
Bangalore	63	34.9	42.9	20.6	1.6
Hyderabad	101	20.8	48.5	28.7	2.0
Nagpur	89	10.1	48.3	32.6	9.0
Ahmedabad	128	26.6	44.5	28.1	0.8
Bhopal	31	12.9	45.2	41.9	0.0
Pooled	529	24.8	46.3	26.4	2.5

Note: Coverage is less than 25 in the city of Calcutta.

- No coverage in Bhubaneswar and Lucknow city.

Table-42

NNMB - PERCENTAGE DISTRIBUTION OF 1-5 YEARS CHILDREN ACCORDING TO GOMEZ CLASSIFICATION - IL - POOLED (1975-79)

City/Town	Number Surveyed	Weight as percentage of standard			
		≥90 Normal	75-90 Mild	60-75 Moderate	∠60 Severe
Trivandrum	149	33.6	51.0	14.7	0.7
Madras	109	14.7	50.5	33.0	1.8
Bangalore	139	35.3	43.2	20.8	0.7
Hyderabad	209	15.3	50.7	32.1	1.9
Nagpur	185	10.3	38.9	40.5	10.3
Ahmedabad	252	19,8	44.1	32.9	3.2
Bhopal	79	10.1	48.1	40.5	1.3
Calcutta	45	4.4	44.4	42.3	8.9
Pooled	1167	19.4	46.1	31.1	3.4

Note: No coverage in Bhubaneswar and Lucknow city.

Table-43

NNMB - PERCENTAGE DISTRIBUTION OF 1-5 YEARS CHILDREN ACCORDING TO GOMEZ CLASSIFICATION - SLUM - BOYS - (1975-79)

City/Town	Number Surveyed	Weight as percentage of standard			
		≥90 Normal	75-90 Mild	60-75 Moderate	∠60 Severe
Trivandrum	62	12.9	54.8	30.7	1.6
Madras	124	12.9	39.5	39.5	8.1
Bangalore	149	8.1	36.2	43.6	12.1
Hyderabad	82	11.0	35.4	48.8	4.8
Nagpur	65	1.5	27.7	50.9	20.0
Ahmedabad	121	7.4	33.9	48.8	9.9
Calcutta	50	10.0	50.0	28.0	12.0
Lucknow/Kanpur	37	5.4	54.1	37.8	2.7
Pooled	690	9.0	39.1	42.5	9.4

Note: Coverage is less than 25 in the city of Bhopal

No coverage in Bhubaneswar city.

Table-44

NNMB - PERCENTAGE DISTRIBUTION OF 1-5 YEARS CHILDREN ACCORDING TO GOMEZ CLASSIFICATION, - SLUM - GIRLS (1975-79)

City/Town	Number Surveyed	Weight as percentage of standard			
		≥90 Normal	75-90 Mild	60-75 Moderate	∠60 Severe
Trivandrum	53	30.2	49.1	18.8	1.9
Madras	78	28.2	47.4	21.8	2.6
Bangalore	107	11.2	51.4	29.0	8.4
Hyderabad	100	19.0	41.0	36.0	4.0
Nagpur	50	6.0	30.0	54.0	10.0
Ahmedabad	102	13.7	29.4	51.0	5.9
Bhopal	25	12.0	48.0	28.0	12.0
Calcutta	40	10.0	57.5	30.0	2.5
Pooled	555	16.8	43.0	34.6	5.6

Note: Coverage is less than 25 in the city of Lucknow,

No coverage in Bhubaneswar city.

Table-45

NNMB - PERCENTAGE DISTRIBUTION OF 1-5 YEARS CHILDREN ACCORDING TO GOMEZ CLASSIFICATION. - SLUM - POOLED (1975-79)

City/Town	Number Surveyed	Weight as percentage of standard			
		≥90 Normal	75-90 Mild	60-75 Moderate	∠60 Severe
Trivandrum	115	20.9	52.2	25.2	1.7
Madras	202	18.8	42.6	32.7	5.9
Bangalore	256	9.4	42.6	37.5	10.5
Hyderabad	182	15.4	38.5	41.7	4.4
Nagpur	115	3.5	28.7	52.1	15.7
Ahmedabad	223	10.3	31.8	49.8	8.1
Bhopal	43	11.6	39.6	30.2	18.6
Bhubaneswar/Cuttack/Puri	N o t c o v e r e d				
Calcutta	90	10.0	53.3	28.9	7.8
Lucknow/Kanpur	61	13.1	49.2	32.8	4.9
Pooled	1287	12.7	40.7	38.6	8.0

TABLE - 45(a)

NNMB — PERCENTAGE DISTRIBUTION OF 1-5 YEARS CHILDREN ACCORDING TO GOMEZ CLASSIFICATION - POOLED - BOYS (1975-79)

Income Group	Number surveyed	Weight as percentage of standard			
		≥90 Normal	75-90 Mild	60-75 Moderate	∠60 Severe
HIG	92	41.3	46.7	12.0	0.0
MIG	397	29.0	51.1	19.1	0.8
LIG	448	13.4	49.1	33.0	4.5
IL	593	15.7	46.0	34.4	3.9
Slum	690	9.0	39.1	42.5	9.4

TABLE - 45(b)

NNMB - PERCENTAGE DISTRIBUTION OF 1-5 YEARS CHILDREN ACCORDING TO GOMEZ
i CLASSIFICATION- POOLED - GIRLS (1975-79)

Income Group	Number surveyed	Weight as percentage of standard			
		≥90	75-90	60-75	∠60
HIG	99	54.5	35.4	9.1	1.0
MIG	320	49.1	39.0	11.6	0.3
LIG	389	27.8	45.8	24.6	1.8
IL	529	24.8	46.3	26.4	2.5

TABLE - 45(c)

NNMB - PERCENTAGE DISTRIBUTION OF 1-5 YEARS CHILDREN ACCORDING TO GOMEZ CLASSIFICATION - POOLED - BOYS+GIRLS (1975-79)

Income Group	Number surveyed	Weight as percentage of standard			
		≥90	75-90	60-75	∠60
HIG	191	48.2	40.8	10.5	0.5
MIG	798	38.8	45.0	15.7	0.5
LIG	933	20.2	47.6	28.7	3.5
IL	1167	19.4	46.1	31.1	3.4
Slum	1287	12.7	40.7	38.6	8.0

Table - 46

NNMB - PERCENT PREVALENCE OF DEFICIENCY SIGNS INFANTS OF IL

City/ Town	Bangalore	Hyderabad	Nagpur	Ahmedabad
Number	29	33	65	51
NAD	89.7	93.9	90.8	100.0
Emaciation	3.5	-	1.5	-
Marasmus	-	-	-	-
Conj- Xerosis	-	-	-	-
Bitot's spot	-	-	-	-
Total vit.A deficiency	-	-	-	-

Note : Wherever the sample covered was less than 25, the prevalence figures were not calculated.

Table - 47

NNMB - PERCENT PREVALENCE OF DEFICIENCY SIGNS INFANTS OF SLUMS

City/ Town	Madras	Bangalore.	Hyderabad	Nagpur	Ahmedabad
Number	59	63	36	29	67
NAD	91.5	90.5	100.0	93.1	86.6
Emaciation	1.7	-	-	6.9	1.5
Marasmus	3.4	1.6	-	-	10.5
Conj. Xerosis	-	-	-	-	-
Bitot's spot	-	-	-	-	-
Total vit.A deficiency	-	-	-	-	-

Note: In other urban areas the sample covered was less than 25.

Table - 48

NNMB- PERCENT PREVALENCE OF DEFICIENCY SIGNS - PRESCHOOL CHILDREN OF HIG

City/ Town	Trivandrum	Madras	Bangalore	Ahmedabad
Number	41	37	16	77
NAD	85.4	75.7	87.5	93.5
Oedema	-	-	-	-
Emaciation	-	-	-	-
Marasmus	-		-	-
Two or more signs of	PCM -	-	-	-
Conj.Xerosis	-	-	-	-
Bitot's spot	_	-	6.3	-
Total vitamin A deficiency	—	-	6.3	-
Angular stomatitis		5.4	6.3	2.6
Other B-complex deficiency	_	-	-	-
Total B-complex deficiency	-	5.4	6.3	2.6
Caries	—	5.4	—	3.9

Note: Coverage was less than 25 in Calcutta and Lucknow/Kanpur

Table - 49

NNMB - PERCENT PREVALENCE OF DEFICIENCY SIGNS - PRESCHOOL CHILDREN OF M

	Trivan-drum	Madras	Banga-lore	Hydera-bad	Nagpur	Ahmeda-bad	Bhopal	Cal cut
	61	83	138	143	51	194	27	35
	96.1	83.1	90.6	95.1	92.2	90.7	100.0	97.
	-	-	-	-	-	-	-	-
tion	-	-	0.7	-	-	-	-	-
is		1.2	-	-	-	0.5	-	-
more signs of	-	-	-	-	-	-	-	-
Kerosis	-	1.2	-	-	-	-	-	-
s spot	-	2.4	-	-	-	-	-	-
Vitamin A iency	-	3.6	-	-	-	-	-	-
r stomatitis	-	4.8	4.4	0.7	-	2.1	-	-
B-complex iency	-	-	-	-	-	-	-	-
B-complex		4.8	4.4	0.7	-	2.1	-	-

Table - 50

NNMB - PERCENT PREVALENCE OF DEFICIENCY SIGNS - PRESCHOOL CHILDREN OF LIG

City/ Town	Trivan-drum	Madras	Banga-lore	Hydera-bad	Nagpur	Ahmeda-bad	Bhopal	Bhubane-swar/ Cuttack/ Puri	Cal-cutta	Lucknow/ Kanpur
Number	119	126	164	151	76	184	31	36	28	NC
NAD	92.6	87.3	81.7	90.7	77.6	94.0	100.0	69.4	96.4	-
Oedema	-	-	-	-	-	-	-	-	-	-
Emaciation	-	-	0.6	-	-	-	-	-	-	-
Marasmus	-	-	-	-	-	0.5	-	-	-	-
Two or more signs of PCM	-	-	-	-	-	-	-	-	-	-
Conj. Xerosis	-	-	-	-	-	0.5	-	11.1	3.6	-
Bitot's spot	-	-	1.8	-	1.3	1.1	-	-	-	-
Total vitamin A deficiency	-	-	1.8	-	1.3	1.6	-	11.1	3.6	-
Angular stomatitis	1.7	6.3	7.9	4.6	-	2.2	-	11.1	-	-
Other B-complex deficiency	-	2.4	-	-	-	-	-	5.6	-	-
Total B-complex deficiency	1.7	8.7	7.9	4.6	-	2.2	-	16.7	-	-
Caries	2.5	2.4	3.1	1.3	2.6	1.1	-	8.3	-	-

NC: Not covered

Table - 51

NNMB - PERCENT PREVALENCE OF DEFICIENCY SIGNS - PRESCHOOL CHILDREN OF IL

City/ Town	Trivan-drum	Madras	Banga-lore	Hydera-bad	Nagpur	Ahmeda-bad	Bhopal	Bhubane-Swar/ Cuttack/ Puri	cal-cutta	Lucknow/ kanpur
Number	149	113	138	198	185	252	78	NC	45	NC
NAD	90.6	87.6	89.1	84.3	81.6	87.3	89.7		80.5	,,
Oedema	-	-	-		-		-		2.2	
Emaciation	-	-	-	0.5	0.5	-			11.1	
Marasmus	-	-	-	0.5	-	4.8	-			
Two or more signs of PCM					-					
Conj. Xerosis	2.0	1.8	0.7	1.5	1.1	3.2	3.9		4.4	,,
Bitot's spot	1.3	1.8	0.7	1.5	2.2	-	5.1			
Total vitamin^{A} deficiency	3.3	3.6	1.4	3.0	3.3	3.2	9.0		4.4	
Angular stomatitis	0.7	4.4	1.5	8.1	1.1	1.6			2.2	,,
Other B-complex deficiency	0.7	-	-	-	_	-	1.3		2.2	,,
Total B-complex deficiency	1.4	4.4	1.5	8.1	1.1	1.6	1.3	,,	4.4	
Caries	0.7	1.8	4.4	2.0	0.5	1.2	-	,,		

NC: Not covered

Table - 52

NNMB - PERCENT PREVALENCE OF DEFICIENCY SIGNS - PRESCHOOL CHILDREN OF SLUMS

City/ Town	Trivan-drum	Madras	Banga-lore	Hydera-bad	Nagpur	Ahmeda-bad	Bhopa l	Bhubane-swar/ Cuttack/ Puri	Cal-cutta	Lucknow/ Kanpur
Number	115	202	255	182	115	222	43	NC	90	61
NAD	80.9	82.2	64.7	74.7	77.4	68.9	88.4	,,	86.7	62.3
Oedema	-	-	1.2	1.6	0.9	2.3	-	,,	-	-
Emaciation	-	-	2.4	0.5	0.9	0.9	-	,,	4.4	3.3
Marasmus	-	2.0	0.8	1.1	0.9	7.7	-	,,	-	-
Two or more signs of PCM	-	-	2.0	-	0.9	0.5	-	,,	-	-
Conj.Xerosis	0.9	-	0.4	-	-	-		,,	2.2	8.2
Bitot's spot		2.9	7.1	2.7	-	0.5	9.3	,,	1.1	4.9
Total vitamin A deficiency	0.9	2.9	7.5	2.7	—	0.5	9.3	,,	3.3	13.1
Angular stomatitis	4.4	7.4	16.1	9.3		4.1	-	,,	2.2	6.6
Other B-complex deficiency	4.4	1.0	-	-	-	0.5	-	,,	-	1.6
Total B-complex deficiency	8.8	8.4	16.1	9.3	-	4.6	—	,,	2.2	8.4
Caries	3.5	3.0	0.4	-	0.9	0.9	—	,,	1.1	1.6

NC: Not covered

Table - 53

NNMB - PERCENT PREVALENCE OF DEFICIENCY SIGNS - SCHOCLAGE BOYS - MIG

City/ Town	Madras	Banga-lore	Hydera-bad	Nagpur	Ahmeda-bad	Bhopal	Bhubane-swar/ Cuttack/ Puri	Cal-cutta
Number	74	131	223	59	150	42	31	49
NAD	66.2	66.4	87.7	71.2	74.0	90.5	80.7	85.7
Emaciation	-	-	-	-	-	-	-	-
Conj.Xerosis	4.1	3.8	2.5	1.7	0.7	-	-	-
Bitot's spot	4.1	3.8	3.9	1.7	-	2.4	-	2.0
Total vitamin A deficiency	8.2	7.6	6.4	3.4	0.7	2.4	-	2.0
Angular stomatitis	6.7	13.7	3.9	3.4	8.0	-	3.2	-
Other B-complex deficiency	-	-	0.5	-	-	-	6.5	-
Total B-complex deficiency	6.7	13.7	4.4	3.4	8.0	-	9.7	-
Caries	13.5	17.6	11.8	18.6	14.0	7.1	6.5	14.3

NC: Coverage was less than 25 in Trivandrum and Lucknow/Kanpur

Table-54

NNMB - PERCENT PREVALENCE OP DEFICIENCY SINGS - SCHOOLAGE BOYS - LIG

City/ town	Trivan- drum	Madras	Banga- lore	Hydera- bad	Nagpur	Ahmeda- bad	Bhopal	Cal- cutta	Lucknow/ Kanpur
Number	68	157	131	114		124	18	46	NC
NAD	73.5	68.2	66.4	76.3	73.5	68.6	88.9	73.9	,,
Emaciation	-		-	-	-	-	-		,,
Conj.Xerosis	-	2.6	3.8	0.9	-	1.6	5.6	2.2	,,
Bitot's spot	1.5	1.9	3.8	0.9	5.9	0.8	11.5	2.2	,,
Total vitamin A deficiency	1.5	4.5	7.6	1.8	5.9	2.4	16.7	4.4	,,
Angular stomatitis	7.4	7.6	13.7	7.0	-	7.3	-		,,
Other B-complex deficiency	1.5	1.3	-	-	-	0.8	-		,,
Total B-cpmplex deficiency	8.9	8.9	13.7	7.0	-	8.1	-		,,
Caries	25.0	12.1	17.6	7.9	16.2	17.7	-	10.9	,,

Note: Coverage was less than 25 in Bhubaneswar/Cuttack/Puri.

Table-55

NNMB - PERCENT PREVALENCE OF DEFICIENCY SIGNS - SCHOOLAGE BOYS - IL

City/ Town	Trivan-drum	Madras	Banga-lore	Hydera-bad	Nagpur	Ahmeda-bad	Bhopal	Bhubane-swar/ Cuttack/ Puri	Cal-cutta	Lucknow/ Kanpur
Number	114	94	195	175	103	182	74	NC	40	NC
NAD	72.8	55.3	84.1	73.7	81.6	72.5	70.3	,,	70.0	,,
Emaciation	-	-	-	-	-	-	-	,,	2.5	,,
Conj.Xerosis	3.5	3.2	2.1	3.4	-	6.0	6.8	,,	2.5	,,
Bitot's spot	-	8.5	1.0	5.1	1.0	3.3	6.8	,,	5.0	,,
Total vitamin A deficiency	3.5	11.7	3.1	8.5	1.0	9.3	13.6	,,	7.5	,,
Angular stomatitis	3.5	18.1	2.6	10.3	3.9	7.1	1.4	,,	5.0	,,
Other B-complex deficiency	-	3.2	-	-	-	-	2.7	,,	-	,,
Total B-complex deficiency	3.5	21.3	2.6	10.3	3.9	7.1	4.1	,,	5.0	,,
Caries	9.7	11.7	9.7	10.9	10.7	11.5	16.2	,,	10.0	,,

NC: Not covered

Table- 56

NNMB - PERCENT PREVALENCE OF DEFICIENCY SIGNS - SCHOOL AGE BOYS - SLUMS

City/ Town	Trivan-drum	Madras	Banga-lore	Hydera-bad	Nagpur	Ahmeda-bad	Bhopal	Bhubane-swar/ Cuttack/ Puri	Cal-cutta	Lucknow/ Kanpur
Number	128	134	149	82	76	135	32	NC	81	52
NAD	64.1	58.2	51.7	51.2	93.4	50.4	90.6	,,	74.1	75.0
Emaciation	0.8	-	0.7	-	-	-		,,	2.5	-
Conj.Xerosis	3.1	3.7	1.3	2.4	1.3	5.2		,,	6.2	3.8
Bitot's spot	0.8	8.2	4.7	6.1	3.9	4.4	9.4	,,	2.5	3.8
Total vitamin A deficiency	3.9	11.9	6.0	8.5	5.2	9.6	9.4	,,	8.7	7.6
Angular stomatitis	10.2	12.7	24.2	20.7	7.9	19.3	3.1	,,	3.7	3.8
Other B-complex deficiency	1.6	3.7	-	_	-	1.5	-	,,	-	5.8
Total B-complex deficiency	11.8	16.4	24.2	20.7	7.9	20.8	3.1	,,	3.7	9.6
Caries	15.6	11.9	10.1	7.3	9.2	15.6	-	,,	17.3	1.9

NC: Not covered

Table- 57

NNMB-PERCENT PREVALENCE OF EFECIENCY SIGNS- SCHOOLAGE GIRLS OF MIDDLE INCOME GROUP

City/ Town	Trivan-drum	Madras	Banga-lore	Hydera-bad	Nagapur	Ahmeda-bad	Bhopal	Bhubane-swar/ Cuttack/ Puri	Cal-cutta
Number	26	101	143	259	50	153	51	29	47
NAD	69.2	17.3	81.1	76.1	78.0	86.9	90.2	58.6	87.2
Emaciation	-	-	-	-	—	-	-	-	
Conj.Xerosis	-	4.0	0.7	3.1	-	-	-	-	-
Bitot's spot	-	5.0	0.7	5.4	-	0.7	-	-	-
Total vitamin A deficiency	-	9.0	1.4	8.5	-	0.7	-	-	-
Angular stomatitis	3.9	5.9	2.8	7.3	-	2.0	-	3.4	-
Other B-complex deficiency	-	-	-	0.4	-	-	_	3.4	-
Total B-complex deficiency	3.9	5.9	2.8	7.7	-	2.0	-	6.8	-
Caries	11.5	12.9	11.2	10.8	16.0	9.8	9.8	17.2	12.8

Note: Coverage was less than 25 in Lucknow/Kanpur

Table-58

NNMB-PERCENT PREVALENCE OF DEFICIENCY SIGNS - SCHOOLAGE GIRLS OF LOW INCOME GROUP

City/ Town	Trivan-drum	Madras	Banga-lore	Hydera-bad	Nagpur	Ahmeda-bad	Cal-cutta	Luckno w/Kanp ur
Number	72	137	172	98	59	124	28	NC
NAD	69.4	68.6	81.4	84.7	86.4	75.8	85.7	,,
Emaciation	1.4	-	-	-	-	-	-	,,
Conj.Xerosis		1.5	-	1.0	-	0.8	-	,,
Bitot's spot	1.4	4.4	0.5	1.0	5.1	4.0	-	,,
Total vitamin A deficiency	1.4	5.9	0.5	2.0	5.1	4.8	-	,,
Angular stomati-tis	4.2	5.8	5.8	3.0	-	1.6	-	,,
Other B-complex deficiency	1.4	-	-	-	_	1.6	-	,
Total B-complex deficiency	5.6	5.8	5.8	3.0	-	3.2	-	,,
Caries	26.4	11.7	3.5	8.2	10.2	13.7	14.3	,,

Note: Coverage was less than 25 in Bhopal, Bhubaneswar/Cuttack/Puri.

NC: Not covered

Table-59

NNMB-PERCENT PREVALENCE OF DEFICIENCY SIGNS - SCHOOLAGE GIRLS OF INDUSTRIAL LABOURERS

City/ Town	Trivan drum	Madras	Banga- lore	Hydera- bad	Nagpur	Ahmeda- bad	Bhopal	Bhubane- swar/ Cuttack/ Puri	Cal- cutta	Lucknow/ Kanpur
Number	60	95	180	187	105	159	57	NC	38	NC
NAD	70.0	82.1	78.9	74.3	82.9	75.5	71.9	,,	81.6	,,
Emaciation	1.7	-	-	-	-	-	-	,,	-	,,
Conj.Xerosis	1.7	5.3	0.6	1.6	1.0	2.5	14.0	,,	-	,,
Bitot's spot	1.7	6.3	1.7	2.7	-	1.3	1.8	,,	5.3	,,
Total vitamin A deficiency	3.4	11.6	2.3	4.3	1.0	3.8	15.8	,,	5.3	,,
Angular stomatitis	3.3	11.6	3.3	9.1	2.9	7.6	-	,,	7.9	,,
Other B-complex deficiency	-	5.3	-	-	-	-	-	,,	2.6	,,
Total B-complex deficiency	3.3	16.9	3.3	9.1	2.9	7.6	_	,,	10,5	,,
Caries	18.3	8.4	15.6	10.2	4.8	10.1	14.0	,,	5.3	,,

NC: Not covered

Table-60

NNMB - PERCENT PREVALENCE OF DEFICIENCY SIGNS - SCHOOLAGE GIRLS OF SLUMS

City/ Town	Trivan-drum	Madras	Banga-lore	Hydera-bad	Nagpur	Ahmeda-bad	Bhopal	Bhubane-swar/ Cuttack/ Puri	Cal-cutta	Lucknow Kanpur
Number	91	116	169	121	89	149	33	NC	90	41
NAD	64.8	65.5	58.6	63.6	69.7.	64.4	97.0	,,	98.4	56.1
Emaciation	1.1	-	0.6	-	-	-	-	,,	-	-
Conj.Xerosis	3.3	0.9	2.4	1.7	1.1	-	-	,,	1.1	4.9
Bitot's spot	1.1	4.3	4.7	9.9	1.1	-	3.0	,,	1.1	2.4
Total vitamin A deficiency	4.4	5.2	7.1	11.6	2.2	-	3.0	,,	2.2	7.3
Angular stomatitis	9.9	11.2	24.3	20.7	7.9	10.7	-	,,	2.2	9.8
Other B-complex deficiency	1.1	4.3	-	0.8	-	0.7	-	,,	-	-
Total B-complex deficiency	11.0	15.5	24.3	21.5	7.9	11.4	-	,,	2.2	9.8
Caries	14.3	15.5	7.1	5.0	8.9	14.1	-	,,	12.2	9.8

Table-61

NNMB - PERCENT PREVALENCE OF DEPICIENCY SIGNS - ADOLESCENT BOYS OF HIG

City/ Town	Madras	Bangalore	Ahmedabad	Calcutta
Number	30	45	50	34
NAD	86.7	80.0	92.0	94.1
Conj.Xerosis	-	2.2	-	-
Bitot's spot	-	2.2	-	-
Total vitamin A deficiency	-	4.4	-	-
Angular stomatitis	6.7	2.2	2.0	-
Other B-complex deficiency	-	-	-	-
Total B-complex deficiency	6.7	2.2	2.0	-
Carles	10.0	11.1	8.0	6.3

Note: Coverage was less than 25 in Trivandrum, Lucknow/Kanpur

Table-62

NNMB - PERCENT PREVALENCE OF DEFICIENCY SIGNS - ADOLESCENT BOYS OF MIG

city/ Town	Madras	Banga-lore	Hydera-bad	Nagpur	Ahmeda-bad	Bhopal	Bhubane-swar/ Cuttack/ Puri	Cal-cutta
Number	122	120	117	83	174	61	26	86
NAD	81.9	90.0	93.2	79.5	89.7	96.7	96.2	90.7
Conj.Xerosis	0.8	0.8	-	1.2	-	-	-	-
Bitot's spot	2.5	0.8		-	-	-	-	-
Total vitamin A deficiency	3.3	0.8	0.8	1.2	-	-	-	-
Angular stomatitis	8.2	0.8	-	-	2.3	-	-	
Other B-complex deficiency	2.5	-	-	1.2	0.6	-	-	-
Total B-complex deficiency	10.7	0.8	-	1.2	2.9	-	-	-
Caries	1.6	5.0	2.6	6.0	1.0	3.3	-	8.1

Note: Coverage was less than 25 in Trivandrum and Lucknow/Kanpur

Table-63

NNMB - PERCENT PREVALENCE OF DEFICIENCY SIGNS - ADOLESCENT BOYS OF LIG

City/ Town	Trivan-drum	Madras	Banga-lore	Hydera-bad	Nagpur	Ahmeda-bad	Bhopal	Cal-cutt a
Number	75	171	134	69	89	129	26	34
NAD	77.3	75.4	85.1	92.8	83.1	76.0	100.0	70.6
Conj. Xerosis	2.7	1.2	0.7	1.4	-	-	-	-
Bitot's spot	-	4.1	3.7	1.4	6.7	0.8	-	2.9
Total vitamin A deficiency	2.7	5.3	4.4	2.8	6.7	0.8	-	2.9
Angular stomatitis	4.0	5.8	3.0	2.9	-	7.8	-	2.9
Other B-complex deficiency	1.3	4.7	-	1.4	-	1.6	-	2.9
Total B-omplex deficiency	5.3	10.5	3.0	4.3	-	9.4	-	5.8
Caries	12.0	8.8	4.5	1.4	2.2	6.2	-	17.6

Note: Coverage was less than 25 in Bhubaneswar/Cuttack/Puri.

Table-64

NNMB - PERCENT PREVALENCE OF DEFICIENCY SIGNS - ADOLESCENT BOYS OF IL

City/ Tdwn	Trivan-drum	Madras	Banga-lore	Hydera-bad	Nagpur	Ahmedabad	Bhopal
Number	74	159	134	138	105	208	45
NAD	78.4	62.9	91.8	75.4	81.0	84.6	82.2
Conj.Xerosis	5.4	2.5	2.2	2.2	-	1.4	4.4
Bitot's spot	4.0	7.6	3.0	1.4	0.9	3.4	4.4
Total vitamin A deficiency	9.4	10.1	5.2	3.6	0.9	4.8	8.8
Angular stomatitis	2.7	12.6	0.7	6.5	0.9	3.8	-
Other B-complex deficiency	-	2.5	-	-	-	1.0	-
Total B-complex deficiency	2.7	15.1	0.7	6.5	0.9	4.8	-
Caries	6.8	3.8	3.0	1.4	10.5	4.3	6.7

Notes Coverage was less than 25 in Calcutta.

Table- 65

NNMB - PERCENT PREVALENCE OF DEFICIENCY SIGNS - ADOLESCENT BOYS OF SLUMS

City/ Town	Trivan-drum	Madras	Banga-lore	Hydera-bad	Nagpur	Ahmeda-bad	Cal-cutta	Lucknow/ Kanpur
Number	106	141	137	101	102	218	50	31
NAD	74.5	69.5	68.6	91.1	81.4	61.5	80.0	74.2
Conj.Xerosis	4.7	-	1.5	1.0	-	2.8	-	3.2
Bitot's spot	0.9	6.4	8.0	3.0	2.9	3.7	2.0	-
Total vitamin A deficiency	5.6	6.4	9.5	4.0	2.9	6.5	2.0	3.2
Angular stomatitis	11.3	14.9	16.1	10.9	2.9	11.0	2.0	-
Other B-complex deficiency	1.9	6.4	2.2	2.0	-	0.9	-	3.2
Total B-complex deficiency	13.2	21.3	18.3	12.9	2.9	11.9	2.0	3.2
Caries	6.6	5.0	1.5	1.0	7.8	9.6	12.0	-

Note: Coverage is less than 25 in Bhopal.

Table-66

NNMB - PERCENT PREVALENCE OF DEFICIENCY SIGNS - ADOLESCENT GIRLS OF MIG

city/ Town	Trivan-drum	Madras	Banga-lore	Hydera-bad	Nagpur	Ahmeda-bad	Bhopal	Bhubane-swar/ Cuttack/ Puri	Cal-cutta
Number	33	138	146	131	97	160	63	32	96
NAD	81.8	83.3	93.8	88.5	82.5	89,4	100.0	84.4	89.6
Conj.Xerosis	3.0	0.7	-	-	-	-	-	-	-
Bitot's spot	-	2.2	0.7	1.5	-	-	-	-	-
Total vitamin A deficiency	3.0	2.9	0.7	1.5	-	-	-	-	-
Angular stomatitis	-	2.2	-	-	-	1.9	-	3.1	-
Other B-complex deficiency	-	2.2	-	0.8	-	-	-	-	-
Total B-complex deficiency	-	4.4	-	0.8	-	1.9	-	3.1	-
Caries	66.1	3.6	2.1	6.1	3.1	6.3	-	6.2	9.4

Note: Coverage was less than 25 in Lucknow/Kanpur

Table-67

NNMB - PERCENT PREVALENCE OF DEFICIENCY SIGNS - ADOLESCENT GIRLS OF LIG

City/ Town	Trivan-drum	Madras	Banga-lore	Hydera-bad	Nagpur	Ahmedabad	Calcutta
Number	82	169	155	95	79	151	38
NAD	89.0	82.8	86.5	86.3	83.5	84.1	86.8
Conj.Xerosis	-	-	0.6	2.1	-	1.3	-
Bitot[1]s spot	-	3.0	0.6	4.2	6.3	2.0	•
Total vitamin A deficiency	-	3.0	1.2	6.3	6.3	3.3	-
Angular stomatitis	2.4	2.4	4.5	2.1	-	5.3	
Other B-complex deficiency	2.4	3.0	-	-	-	1.3	-
Total B-complex deficiency	4.8	5.4	4.5	2.1	-	6.6	-
Caries	4.9	2.4	3.9	3.2	3.8	2.6	7.9

Note: Coverage was less than 25 in Bhopal and Bhubaneswar/Cuttack/Puri

Table- 68

NNMB - PERCENT PREVALENCE OF DEFICIENCY SIGNS - ADOLESCENT GIRLS OF IL

City/ Town	Tivan-drum	Madras	Banga-lore	Hydera-bad	Nagpur	Ahmeda-bad	Bhopal	Bhubane-swar/ Cuttack/ Puri	Cal-cutta	Lucknow/ Kanpur
Number	95	100	157	147	114	150	47	NC	32	NC
NAD	82.1	72.0	89.8	82.3	79.8	82.0	95.7	,,	93.8	,,
Conj.Xerosis	2.1	1.0	0.6	0.7	_	-	-	,,	-	,,
Bitot's spot	-	6.0	1.3	-	0.9	2.0	2.1	,,	-	,,
Total vitamin deficiency	2.1	7.0	1.9	0.7	0.9	2.0	2.1	,,	-	,,
Angular stomatitis	7.4	9.0	2.5	5.4	-	2.7	-	,,	-	,,
Other B-complex deficiency	3.2	2.0	-	0.7	-	1.3	-	,,	-	,,
Total B-coraplex deficiency	10.6	11.0	2.5	6.1	-	4.0	-	,,	-	,,
Caries.	1.1	8.0	2.5	2.7	3.5	8.7	2.1	,,	6.3	,,

NC: Not covered

TABLE - 69

NNMB - PERCENT PREVALENCE OF DEFICIENCY SIGNS - ADOLESCENT GIRLS OF SLUM

City/ Town	Trivan-drum	Madras	Banga-lore	Hydera-bad	Nagpur	Ahmeda-bad	Bhopal	Bhubana-swar/ Cuttack/ Puri	Calcutta
Number	116	203	103	120	98	145	25	NC	51
NAD	76.7	76.4	68.0	77.5	78.6	56.6	100.0	''	90.2
Conj.Xerosis	2.6	1.0	-	-	1.0	0.9	-	''	-
Bitot's Spot	-	4.9	1.9	0.8	2.0	0.7	-	''	-
Total vitamin A deficiency	2.6	5.9	1.9	0.8	3.0	1.6	-	''	-
Angular Stomatitis	6.9	8.4	7.8	10.0	2.0	7.6	-	''	-
Other B-complex deficiency	0.8	5.9	-	-	-	0.7	-	''	2.0
Total B-complex deficiency	7.7	14.3	7.8	10.0	2.0	8.3	-	''	2.0
Caries	6.0	5.8	1.0	5.0	4.1	11.7	-	''	9.8

Note: The coverage was less than 25 in Lucknow/Kanpur city,

NC : Not Covered.

Table-70

NNMB-PERCENT PREVALENCE OF DEFICIENCY SIGNS-ADULT MALES OF HIG

City/ Town	Madras	Bangalore	Ahmedabad	Calcutta	Lucknow/ Kanpur
Number	54	57	69	72	51
NAD	79.6	93.0	8.1	84.7	90.2
Conj.Xerosis	-	-	-	-	
Bitot's spot		-	1.4	-	-
Total vitamin A deficiency	-	-	1.4	-	-
Angular stomatitis	1.9	-		-	-
Other B-complex deficiency	1.9	-	-	-	-
Total B-complex deficiency	3.8	-	-	-	-
Caries	14.8	5.3	30.4	15.3	-

Note: Coverage was less than 25 in Trivandrum

Table- 71

NNMB - PERCENT PREVALENCE OF DEFICIENCY SIGNS - ADULT MALES OF MIG

City/ Town	Trivan-drum	Madras	Banga-lore	Hydera-bad	Nagpur	Ahmeda-bad	Bhopal	Bhubane-swar/ CuttacK/ Puri	Cal-cutta	Lucknow/ Kanpur
Number	54	165	275	22S	122	174	103	53	157	75
NAD	100.0	81.8	93.5	91.6	73.8	89.7	88.3	98.1	87.9	88.0
Conj.Xerosis	-	0.6	-	-	2.5	-	1.0	-	-	-
Bitot's spot	-	1.8	-	-	0.8	-	-	-	-	-
Total vitamin A deficiency	-	2.4	-	-	3.3	-	-	-	-	
Angular stomatitis		1.8	0.7	0.9	0.8	2.3	-	-	0.6	-
Other B-complex deficiency	-	-	0.4	0.4	-	0.6	-	-	-	-
Total B-complex deficiency	-	1.8	1.1	1.3	0.8	2.9	-	-	0.6	-
Caries		3.6	4.0	4.9	17.2	4.0	11.7	1.9	11.5	-

Table- 72

NNMB - PERCENT PREVALENCE OF DEFICIENCY SIGNS - ADULT MALES OF LIG

City/ Town	Trivan-drum	Madras	Banga-lore	Hydera-bad	Nagpur	Ahmeda-bad	Bhopal	Bhubane-swar/ Cuttack/ Puri	Cal- cutta	Lucknow/ Kanpur
Number	125	198	282	160	125	129	55	42	56	NC
NAD	90.4	85.9	93.6	96.3	89.6	76.0	85.5	95.2	85.2	,,
Conj.Xerosis	-	1.0	-	-	-	-	-	-		,,
Bitot's spot	-	0.5	0.4	-	1.6	0.8	-	-		,,
Total vitamin A deficiency	-	1.5	0.4	-	1.6	0.8	_	-		,,
Angular stomatitis	2.4	1.5	1.8	1.3	-	7.8	-	2.4	-	
Other B-complex deficiency	1.6	1.5	-	-	-	1.6	-	-		,,
Total B-complex deficiency	4.0	3.0	1.8	1.3	-	9.4	-	2.4		,,
Caries	0.8	2.2	1.8	1.9	8.0	6.2	14.5	-	12.5	,,

NC:Not covered

Table - 73

NNMB - PERCENT PREVALENCE OF DEFICIENCY SIGNS - ADULT MALES OF IL

City/ Town	Trivan- drum	Madras	Banga- lore	Hydera- bad	Nagpur	Ahmeda- bad	Bhopal	Bhubane- swar/ Cuttack/ Puri	Cal- cutta	Lucknow/ Kanpur
Number	85	183	297	236	217	208	91	NC	58	NC
NAD	85.9	81.4	89.9	88.1	83.4	84.6	89.0	,,	91.4	,,
Conj.Xerosis	-	-	-	0.4	-	1.4	-	,,	-	,,
BitotIs spot	1.2	0.5	0.3	1.7	1.8	3.4	1.1	,,	-	,,
Total vitamin A deficiency-	1.2	0.5	0.3	2.1	1.8	4.8	1.1	,,	-	,,
Angular stomatitis	4.7	1..1	-	3.8	0.9	3.8	-	,,	1.7	,,
Other B-complex deficiency	4.7	1.6	-	0.8	0.5	1.0	-	,,	-	,,
Total B-complex deficiency	9.4	2.7	-	4.6	1.4	4.8	-	,,	1.7	,,
Caries	1.2	2.2	3.0	1.7	9.2	4.3	9.9	,,	6.9	,,

NC: Not covered

Table - 74

NNMB - PERCENT PREVALENCE OF DEFICIENCY SIGNS - ADULT MALES OF SLUMS

City/ Town	Trivan-drum	Madras	Banga-lore	Hydera-bad	Nagpur	Ahmeda-bad	Bhopal	Bhubane-swar/ Cuttakc/ Puri	Cal-cutta	Lucknow/ Kanpur
Number	166	155	281	185	160	218	51	NC	129	57
NAD	81.9	85.2	88.3	86.5	78.1	61.5	98.0	,,	75.2	71.9
Conj.Xerosis	1.8	-	-	-	0.6	2.8	2.0	,,	-	-
Bitot's spot	1.2	1.3	1.4	1.1	0.6	3.7	-	,,	-	-
Total vitamin A deficiency	3.0	1.3	1.4	1.1	1.2	6.5	2.0	,,	-	-
Angular stomatitis	6.6	2.6	3.2	3.8	-	11.0	-	,,	-	1.8
Other B-complex deficiency	4.8	2.6	0.4	1.1	-	0.9	-	,,	1.6	-
Total B-complex deficiency	11.4	5.2	3.6	4.9	-	11.9	-	,,	1.6	1.8
Caries	0.6	0.6	0.4	1.1	7.5	9.6	-	,,	20.2	1.8

NC: Not covered

Table - 75

NNMB - PERCENT PREVALENCE OP DEFICIENCY SIGNS - ADULT FEMALES OF HIG

City/ Town	Trivandrum	Madras	Bangalore	Ahmedabad	Calcutta	Lucknow/ Kanpur
Number	47	88	61	126	74	45
NAD	95.7	73.9	86.9	73.8	81.1	73.3
Conj.Xerosis	-	-	-	-	-	-
Bitot's spot	-	-	-	-	-	-
Total vitamin A deficiency	-	-	-	-	-	-
Angular stomatitis	-	-	-	-	-	-
Other B-complex deficiency	-	1.1	-	0.8	-	-
Total B-complex deficiency	-	1.1	-	0.8	-	-
Caries	-	15.9	4.9	22.2	17.6	2.2

Table - 76

NNMB - PERCENT PREVALENCE OF DEFICIENCY SIGNS - ADULT FEMALES OF MIG

City/ Town	Trivan-drum	Madras	Banga-lore	Hydera-bad	Bhopal	Ahmeda-bad	Nagpur	Bhubane-swar/ Cuttack/ Puri	Cal-cutta	Lucknow/ Kanpur
Number	111	194	299	284	171	303	124	53	143	95
NAD	94.6	73.7	77.9	77.1	65.5	72.3	89.5	66.0	75.5	65.3
Conj.Xerosis	-	-	-	-	1.2	-	-	-	-	-
Bitot's spot	-	_	-	0.4	0.6	-	-	-	-	-
Total vitamin A deficiency	-	-	-	0.4	1.8	-	-	-	-	-
Angular stomatitis	1.8	1.0	0.7	2.5	-	0.7	-	-	-	-
Other B-complex deficiency	-	2.6	-	0.7	0.6	0.7	-	-	-	3.2
Total B-complex deficiency	1.8	3.6	0.7	3.2	0.6	1.4	-	-	-	3.2
Caries	-	1.2	2.3	9.9	12.3	16.5	10.5	3.8	23.1	-

Table-77

NNMB - PERCENT PREVALENCE OF DEFICIENCY SIGNS - ADULT FEMALES OF LIG

City/ Town	Trivan-drum	Madras	Banga-lore	Hydera-bad	Nagpur	Ahmeda-bad	Bhopal	Bhubane-swar/ Cuttack/ Puri	Cal-cutta
Number	243	251	281	213	121	293	43	46	53
NAD	85.6	63.3	61.6	83.1	44.6	56.7	95.3	67.4	69.8
Conj.Xerosis	0.4	0.4	-	-	-	0.7	-	-	-
Bitot's spot	0.4	0.8	-	0.9	5.0	0.3	-	-	-
Total vitamin A deficiency	0.8	1.2	-	0.9	5.0	1.0	-	-	-
Angular stomatitis	3.3	0.8	2.1	4.2	-	3.4	-	4.3	-
Other B-complex deficiency	2.1	4.0	0.4	0.9	-	-	-	-	-
Total B-complex deficiency	5.4	4.8	2.5	5.1	-	3.4	-	4.3	-
Caries	0.8	4.4	3.6	0.9	8.3	15.7	—	6.5	26.4

Table - 78

NNMB - PERCENT PREVALENCE OF DEFICIENCY SIGNS - ADULT FEMALES OF IL

City/ Town	Trivan-drum	Madras	Banga-lore	Hydera-bad	Nagpur	Ahmeda-bad	Bhopal	Cal-cutta
NUmber	283	225	293	289	224	316	109	59
NAD	80.9	69.8	72.7	76.1	48.7	58.9	89.0	69.5
Conj.Xerosis	0.4	-	-	-	-	-	-	-
Bitot's spot	0.4	-	-	1.4	0.4	0.3	1.0	-
Total vitamin A deficiency	0.8	_	-	1.4	0.4	0.3	1.0	-
Angular stomatitis	3.2	0.9	0.7	4.2	-	1.9	-	1.7
Other B-complex deficiency	2.1	2.2	-	1.0	-	-	-	-
Total B-complex deficiency	5.3	3.1	0.7	5.2	-	1.9	-	1.7
Caries	-	3.6	1.4	3.1	7.1	11.4	8.3	22.0

Table - 79

NNMB - PERCENT PREVALENCE OF DEFICIENCY SIGNS - ADULT FEMALES OF SLUMS

City/ Town	Trivan-drum	Madras	Banga-lore	Hydera-bad	Nagpur	Ahmeda-bad	Bhopal	Bhubane-swar/ Cuttack/ Puri	Cal-cutta	Lucknow/ Kanpur
Number	260	241	273	224	178	304	43	NC	117	55
NAD	77.7	63.1	45.8	72.8	37.1	39.5	95.3	,,	72.7	56.4
Conj. Xerosis	1.9	-	-	-	1.1	-	-	,,	-	-
Bitot's spot	0.4	1.7	1.5	2.2	0.6	-	-	,,	-	-
Total vitamin A deficiency	2.3	1.7	1.5	2.2	1.7	-	-	,,	-	-
Angular stomatitis	5.8	5.6	5.5	9.8	0.6	1.6	-	,,	-	-
Other B-complex deficiency	2.7	4.5	-	1.8	-	1.3	-	,,	0.8	-
Total B-complex deficiency	8.5	10.1	5.5	11.6	0.6	2.9	-	,,	0.8	-
Caries	0.8	5.8	0.4	0.4	7.6	10.9	-	,,	21.4	-

NC: Not covered

SURVEY PROCEDURES
(METHODOLOGY)

DIET SURVEYS

I. Guidelines for the weighment method

a. The village leaders should be appraised of the details and the first contact of the families should preferably be carried out along with one of the local leaders.

The object of the survey must be explained to the family especially the house-wife in the presence of a local leader.

b. The investigator must familiarise himself with all local measures used and the corresponding weights and volumes. In recording, the actual weights in grams and volumes in millilitres should be entered.

c. Festival days and days of celebration of any kind should be avoided as the food consumption on these days deviates considerably from the normal.

d. It is necessary to make two visits to each household; one in the early morning and the other in the evening to weigh the raw foods before they are cooked.

e. All raw foods used in each meal are weighed individually and recorded separately (breakfast, lunch, snacks, tea and dinner or the local pattern whatever it may be). If a portion of any preparation is kept for consumption on the next day, this should be noted. Similarly, if any preparation left over from the previous day is consumed, this should be noted clearly. This is likely to happen, particularly with farmers going to the field in the early hours of the morning.

f. Any additional preparations consumed by the family members (like those bought in a cooked form, accepted from friends and relatives) should be noted with details (nature of preparation, ingredients, and possible proportion of each ingredient, weight of the preparation).

g. Non-edible portions of raw foods (tops of raddish, carrot, etc.) should be taken into consideration and only the weight of the edible portion should be recorded.

h. The ages of all the members in the family partaking the meals should be noted carefully.

This may differ considerably from the family general particulars record, as the members who are married and living separately, will not be staying here. Members, who are temporarfly away with the relatives, will be included in *the* family size but not for the dietary surveys.

i. In the case of pre-school children, information regarding breast feeding and supplementation should be clearly noted.

j. Physiological status of the women (pregnancy and lactation should be noted.

k. Occupational status of the family members must be recorded. This is essential since calorie requirements depend on the type of physical activity.

1. Number of guest meals and absentees (with details of age and sex) should be noted. Apart from the main meals, any snacks consumed outside by the family members should be noted (type of preparation, ingredients, possible

rations vary from family to family with regard to items prepared, quantities of ingredients used in each prepare-

tion and the volume of cooked preparation (variation in dilution). To take care of all these factors, the following stops are adopted.

1. Raw ingredients in each preparation are noted.

2. The amount of each raw ingredient in terms of actual weight if it is known (for example, vegetables) or approximate weight from the knowledge of local measures or with the help of cups is recorded.

Example: Preparation - Sambar

Foodstuffs used

	Local measure	Weight in grams
Red gram	1 pavu	250 g.
Brinjal	½ pavu	125g.
Onion	3 number small size	100 g.
Potato	6 number medium 1 pavu	250 g.
Oil	1 teaspoon	5 g.
Condiments	2 teaspoons	10 g.

c. The amount of cooked preparation is recorded in terms of cups.

When the housewife is not able to give the amount in terms of cups directly, she may be asked to fill the vessel used for the preparation with water upto the same level (approximate) as was with the preparation. This volume is then measured for the total cooked amount.

d. Prom the family preparation, a portion will be served, to individual members. This amount in terms of cups served

proportions, weight of the preparation).

m. The investigator should take particular care to judge that the day's items are not ovdr-estimated or under-estimated. In those families where the previous day's intake is also assessed through oral questionnaire, the rough estimates by these two methods should be compared on the spot as a check. They should not be grossly different.

n. It is better to discourage crowds, especially neighbouring women collecting at the home of the subject from whom information is being collected.

II. Guidelines for the oral questionnaire(24 hour recall) method

For the assessment of family intake and individual intake through this method of survey, a set of standardized cups are used.

The cups are numbered and their volumes measured. The usage of the cups is mainly to aid the house-wives to recapitualte the amounts of foodstuffs used, preparations made and distributed to the individual members in the family.

a. As in the case of weighment method, family particulars regarding age, sex, physiological status and occupational status of the members are noted.

b. The types of preparations for the previous day for each meal (i.e. breakfast, lunch, evening tea and snacks, dinner) are noted.

Except in the case of rice, all other types of prepa-

to each individual is noted.

Similar procedure should be adopted to all the preparations made in the family to assess the amount of cooked food consumed by each individual

e. If the individual is a preschool child, breast feeding and/or supplementation practices is also noted.

f. Intake of flesh foods, such as mutton and fish, is assessed by noting the total amount cooked in terms of number of pieces and the number of pices eaten by each individual.

g. Standardized spoons and ladles are used to assess the intake of suger, oil, etc.

NUTRITIONAL STATUS

I. CLINICAL SIGNS

1. Protein-calorie malnutrition

1.1 Hair

Sparse: The hair may become thin, fine and silky in texture and sparse.

Discoloured: The hair shows a distinct lightening of its normal colour, usually evident in the distal parts. In subjects with normally black hair, it turns dark brown, coppery red or blond. While recording this change, allowance should be made in some communities like washerman, in whom because of their profes. sion, dyspigmentation may be present. A positive recording should be made only when a considerable of hair is affected.

Easy pluckability: A small clump or tuft of hair can be easily pulled out with moderate force and without pain. It is usually accompanied by other hair changes such as dyspigmentation, thinness and spareness.

1.2. Moon face: This is a characteristic rounded prominence of the cheeks, protruding over the general level of the nasolebiel folds firm and rubbery to the touch. The mouth presents a pursed in appearance like that ofa fish. This is mostly seen among preschool children and is an early sign of protein-calorie malnutrition. The prominence does not pit on pressure.

1.3. Skin: (Flaky-paint dermatosis/crazy-pavement dermatosis) Usually seen as alternate patches of hyperpigmented and hypopigmented skin. Superficial ulceration is often present resembling a second-degree burn. It can occur anywhere but is characteristically seen on the buttocks and back of thighs. The condition is almost always associated with kwashiorkor.

1.4. Oedema: Apparent in mild cases over the ankles and feet and extends to other areas of the extremities in advanced cases. In early stages, it can be detected by applying firm digital pressure for a few seconds on the lower portion of the medial surface of the tibia. The sign is positive when there is a visible and palpable pit which persists after the pressure is removed. It is recorded when present bilaterally.

1.5 Diagnosis of kwashiorkor: There are four minimal signs that must be present to make a. diagnosis of kwashior-kor.

a. Oedemas This is a cardinal sign of kwashiorkor, and the syndrome should not be diagnosed in its absence.
b. Growth retardation: A low body weight for age and a low mid upper arm circumference.
c. Muscle wasting: The degree of wasting is variable.
d. Psychomotor changes: Apathy, misery and lack of interest in surroundings.

These four primary signs ore usually associated with one or more of the following; hair changes, moon-face, skin changes and other vitamin deficiencies. None of these are essential for making a diagnosis of kwashiorkor.

1.6. Marasmus. The two constant signs of nutritional marasmus are severe growth retardation and wasting of muscle and subcutaneous tissue.

Growth retardation is very marked and the weight is usually below 60% of the standard weight for age.
Muscle wasting: This is obvious. The arm looks thin and the skin hangs loosely and in folds. The legs look spindly. The chest is wasted and the ribs stand out.
Usually, hair and skin changes are not seen.

1.7. Emaciation: Milder degrees of protein-calorie malnutrition are seen much more frequently than the advanced syndromes.

The child is underweight, disproportionate, with long-seeming body and thin limbs. The buttocks are flattened and scapulae appear winged. The chest is small with prominent ribs. In contrast, the abdomen is often

somewhat distended.

2. Vitamin A deficiency

2.1. Night blindness; There is difficulty in seeing clearly at dusk or at night. This should be recorded as positive only after a careful evaluation of the history given by the mother. The subject's activities will be limited during dim light since visualization of object is poor.

2.2. Conjunctival xerosis: This condition is characterised by dryness, thickening, pigmentation and lack of usual lustre and transparency of bulbar conjunctiva of the exposed part of the eyeball. A few seconds' (usually fifteen to thirty) exposure by drawing back the lids will intensify the dryness and aid in its identification. Small, more or less vertical, dry folds of the conjunctiva appear at the temporal part of the conjunctiva with the eye is turned fully outwards. The xerotic conjunctiva is not wetted by tears.

2.3. Bitot's spots: There are well demarketed, superficial, dry, white or pearly-grey foamy plaques, often triangular, often confined to the regions lateral to the cornea. They are usually bilateral and often accompany the generalised conjunctival xerosis described above. The Bitot's spot may sometimes be seen in only one eye; it may also occur as a group of small dots.

2.4. Keratomalacia: This lesion is usually bilateral. Part or more often, the whole of the cornea becomes soft, perforates and there may be prolapse of the iris. Generally, there is unequal involvement in the two eyes. Conjunctival

xerosis is usually present. The condition is essentially quiet and insidious, with no pain or other complaints.

2.5. Corneal opacities: Their nature (fine or dense,deep or superficial) and position (which quandrant of the comes) should be noted, since they indicate headed areas of corneal damage.

3. B-complex deficiency

3.1 Angular stomatitis: Sodden and excoriated lesions are seen at the angles of the mouth, associated with fissuring. The fissures may be shallow or deep, confined to the angles of the mouta. They extend into the buccal cacity end also onto the skin outside. Milder lesions are discerned easily with the mouth half-open. The sign should be reported as positive only if both angles of the mouth are involved.

3.2. Cheilosis: This is charectarised by vertical fissuring, later complicated by redness, swelling and ulceration of the lips, other then at the angles. The centre of the lower lip is most usually affected. Climatic factors such as cold and wind may sometimes be responsible.

3.3. Glossitis. (red and raw tongue): The tongue may be bright red in colour, with the mucas membrane denuded to varying extents. The condition is often painful.

3.4. Papi11ae-atrephic: The filiform papillae may totally disappear giving the tongue a smooth bald appearance.

3.5. Papillae-hypertrophic: The papillae are hypertrophic and appear as red or pink protrusions. These give the tongue a granular or pebbly appearance. Sometimes the tongue has a

purplish-red or magenta colour. If this is present, it must be recorded.

3.6. Nasolabial dyssabacca The lesion consists.of dry greasy filiform projections, grayish or cream-coloured, usually seen in the nasolabial folds. They are also frequently seen on the nose, above the eye brows and on the back of the ears.

3.7. Pellagrous dermatosis : Symmetrical, clearly demarknted, hyperpiomentod areas with or without exfoliation. The lesions are common on parts exposed to sunlight, including the face and the forearms; when they appear around the neck the condition is called "casal's necklace".

4. Parotid enlargement:

This sign is positive if the parotid glands arc clearly visible on both sides. The glands are firm, painless and not tender. The overlying skin is normal.

5. Pigmentation over knuckles and face

6. Koilonychia

Nail surfaces are concave and spoon shaped instead of being convex. It must be recorded whether they are seen in the fingers or toes, or both.

7. Anaemia

Palo conjunctiva palo tongue, smooth and atrophic, pale nail beds and pale mucosal surfaces.

8. Scurvy•

Spongy, bleeding gums; purplish or red spongy swelling of the interdental papillae end/or the gum margins which

bleed easily on slight pressure. Presence or absence of gingivitis must also be noted, since infections can produce spongy bleeding gums.

9. Rickets

Craniotabes: This sign consists of areas of softening of the skull, usually involving the occipital and parietal bones. Affected areas dent on pressure and spring back after pressure is released. This sign is positive only in infancy.

Frontel and parietal bossing: This sign consists of localized thickening and heaping up of the frontal and parietal bones of the skull.

Epiphyseal enlargement: Obvious widening of the epi-physeal ends of long bones, particularly affecting the radius and ulna at the level of the wrist, and the tibia and fibula at the level of the ankle must be recorded.

Persistently open anterior fontanelle : Open anterior fonta-nelle on palpation after the age of eighteen months must be recorded.

Beading of ribs: A symmetrical nodular enlargement of the costochondral junctions producing a beaded or 'rosary' effect. This is a special localised form of epiphyseal enlargement.

Knock-knees and bow-legs: Anterolateral bowing of" the tibiae at the junctions of the middle and lower thirds and is seen in children of 2-3 years age with rickets (when the rachitic child begins to walk deformities of the shafts of the leg bones appear).

10. Teeth

Mottled enamel: This should be recorded as positive when there are chalky white or brownish patches, with or without erosion of pitting of enamel, best seen in the upper incisors.

Caries: The presence of decayed, missing or filled teech should be noted in adults. In children decayed teeth with cavities has to be recorded. The method of examination to be adopted is inspection.

Number and nature of lesion in each half of jaws must be noted.

11. Phrynoderma:

This is a hyperkeratotic lesion surrounding the mouths of hair folicles and forming projections that resemble cones. It is readily recognised by the spiky feeling it gives when the palm is passed over the effected skin. Most frequently seen on the buttocks, thighs and especially the extensor aspects of the legs and arms, and around the elbows and knees. The. cones are sometimes pigmented. The surrounding skin is dry.

12. Thyroid enlargement

Grade I: The enlargement is not visible in the normal sitting position but is palpable and hyper-extension of the neck brings the gland into prominence.

Grade II: The enlargement is just visible, and, the gland is readily seen moving with deglutition.

Grade III: The enlargement is very obvious.

13. Enlargement of spleen and liver:

In case of young children examination can be carried cut with the child reclining on the mother's lap, which reduces the likelihood of struggling. After preliminery detection, the abdomen should be palpated in the standard position, with the subject lying down, with the hips and knees flexed. The exact size below the costal margin should be recorded in centimeters. Details whether soft, firm, herd end whether surface is smooth or nodular should also be recorded.

II. ANTHROPOMETRY

1. Standing height:

Adults: It is measured with an 'anthropometer rod' or a wooden scale.

a) The subject is made to stand erect with heels together after removing foot-wear.
b) He will look straight so that the inferior orbital margin and the tragus of the ear fall in the same horizontal plane, parallel to the ground. The head is held comfortably erect, with the arms hanging at the side.
c) It must ensured that the buttocks, shoulder and back of the head are in the same line and will touch the anthropometer rod.
d) The movable head piece of the rod is lowered and this should touch the head gently.
G) Height is measured to the nearest millimeter.

Children

In the case infants and children who cannot stand, crown-heal length (equivalent of standing height) should be taken using an Infantometer. This is a specially prepared wooden scale on which the infant is made to lie down, with the head touching the fixed head piece. The legs are extended fully by pressure on the knees and the movable sliding piece is allowed to touch the flat of the soles of the feet firmly and the measurement is taken.

2. Body weight

a) To be measured at basal conditions.

b) The subject is made to stand on the plat form of a lever actuated balance after removing footwear and with minimal clothing.

c) The subject stands on the platform without touching any other surface or object.

d) Measurement is made to the nearest 1/lOth of a kilogram.

e) In case of children who do not co-operate, weight should be taken with an adult carrying him. The adult is then weighed separately and his weight deducted from the total, to get the child's weight.

3. Mid upper arm circumference

a) It is measured at the mid point of the upper arm on the left side,

d) The mid point is located by marking the central point of the distance between the olecrenon process of the ulna and the acromion of the scapula when the arm is flexed at the elbow.

c) The left arm is kept hanging loosely on the side, and the circumference of the arm is measured by passing a steel tape around it. The tape is applied firmly but without disturbing the contours of the arm.

4. Fat fold at triceps

a) This is measured on the left arm and the the same point where the arm circumference is measured.

b) A perpendicular line is drawn to the midpoint in line with the olecranon for convenience.

c) The subject is asked to hang the hand freely by the side.

d) The measurement is made with skin fold calipers with the elbow slightly fixed.

e) A fold of skin is lifted gently between the fingers of the left hand, about 1 cm. above the midpoint end the calipers applied at the marked site and the measurement taken in mm.

5. Head circumference

a) This is measured with a flexible steel tape.

b) The tape is passed round the head, encircling the occipital protruberence on the back, (the most prominent projecting pert on the back of the head) and the glabella on the anterior side of the head.

c) The tape is held firmly around end the measurement taken.

6. Chest circumference

e) This is measured with a flexible steel tape a***s*** above.

b) The tape is passed round the chest, just below the inferior angles of the scapuled on the back and over the nipples in front.

c) The measurement is taken with the tape held firmly in position.

d) Measurement is the mean of the readings at inspiration and expiretion.

APPENDIX-I

SAMPLING PROCEDURES

The main object of statistical sampling is to obtain a representative sample of the population from each state, so that the data collected on the diet and nutritional status closely reflects the situation as it exists in the population. A total of 500 rural households, each year in each of the states are covered. Out of the 500 households, in 400 households, family food intake is assessed by one day weighment (of raw food) method, while in the remaining 100 households, dietary intakes of all the individuals are assessed through oral questionnaire (24 hour recall) method of diet survey.

Selection of districts:

Since a State cannot be considered to be a homogenous group, it was decided to cover all districts within each state over a period of time. As there will be marked variations even between districts, they are stratified into four developmental categories, based on the following district level information.

a) Total foodgralns produced per year (making corrections for rural to urban ratio, within each district).
b) Proportion of area under food crops to total irrigated area.
c) Proportion of agriculturists to the total number engaged in agriculture (i.e. agriculturists + agricultural labourers).

In each of these three criteria it is assumed that higher the value, higher would be the district in the developmental scale. Hence for each of the criteria,

the district with the highest value, is given rank one while the district with the lowest value is given the last rank. After assigning ranks from these three criteria, for each district, the following procedure has been adopted;

The average rank for all three criteria put together for each district is obtained;

a) The districts are grouped into 4 categories: A, B, C and D based upon the average ranks.

b) The theoretically obtainable maximum average rank value has been divided into 4 equally spaced groups so that four quartiles are obtained.

Sample

If the maximumaverage value is 20, the following four quartiles obtained:

1st Quartile	-	1 to 5
2nd Quartile	-	6 to 10
3rd Quartile	-	11 to 15
4th Quartile	-	16 and above

These districts with ranks between 1 and 5 are grouped as A; between 6 and 10 as B; between 11 and 15 as C and 16 and above as D.

In each of these four categories, one district is selected for study every year, by random sampling procedure. By this procedure, it is expected that all the districts in a state will be covered within 3 to 6 years depending upon the total number of districts in the state. Once all the districts are covered, the second round of survey will be taken up.

Number of households in each district

This is determined by using the following information:

Percent rural population in each selected district to the total rural population of the state.

Contribution of each selected district to the total percentage of rural population as obtained in (a).

Example

If district (A) has 100,000 rural population and the state 1000,000 rural population, the district's contribution will be 10%. If four districts are selected, whose combined contribution comes to 25% of total rural population of the state, then in the district (*) 10/25 x 500 households will be covered i.e. 200 (since it has been decided that 500 households will be covered in the state).

As the above mentioned procedure of determination of number households to be surveyed in each district was found to result in a few instances in inadequate number of house-holds, it was decided in 1980 that uniformly 125 households should be surveyed by the teams in each selected district. In the report, no corrections were carried out in the pooling of these data collected from different districts.

Selection of villages

For this purpose, all the villages in each of the district were classified into the following three categories, using 1961 district census handbook.

APPENDIX-

Consumption Unit(C.U)

Practical nutrition work often involves the assessment of the. calorie needs of groups of persons. In such eases, it is usual to assess the needs of women and children in terms of those of the average man by applying various co-efficients to the different age and sex groups. The following scale is suggested for practical nutrition work in India, the calorie consumption of an average adult male doing sedentary work is taken as one consumption unit and the other co-efficients are worked out on the basis of the calorie require-ments. (Ref. Nutritive Value of Indian Foods - NIN, ICMR, Hyd. India, 1980).

Adult male (Sedentary worker)	1.0
Adult male(Moderate worker)	1.2
Adult male (Heavy worker)	1.6
Adult female (Sedentary worker)	0.8
Adult female (Moderate worker)	0.9
Adult female (Heavy worker)	1.2
Adolescents - 12 to 21 years	1.0
Children - 9 to 12 years	0.8
Children - 7 to 9 years	0.7
Children - 5 to 7 years	0.6
Children - 3 to 5 years	0.5
Children - 1 to 3 years	0.4

It must be emphasized that this scale of co-efficients is a somewhat arbitrary one, and concerns only calories. It is not meant to be applied in assessing the needs for other nutrients.

Standards* for body weight (kg) used for classification of children into nutritional grades (Gomez classification)

Age(Yrs.)	Boys	Girls
1+	10.50	9.80
2+	12.50	11.30
3+	14.75	13.30
4 +	17.25	15.65

* Source Hanumantha Rao, D., Satyanarayana, K. and Gowrinath Sastry, J. (1976) . Growth pattern of well-to-do Hyderabad pre-school children. Ind. J. Med. Res. 64, 629-638.

CLASSIFICATION OP ACTIVITIES BASED ON OCCUPATION

Sedentary

Kale: Teacher, Tailor, Barber, Executives, Shoe-maker, Priest, Retired Personnel, Land-Lord, Peon, Post-man etc.

Female: Teacher, Tailor, Executives, House-wife, Nurses etc.

Moderate

Male : Fisherman, Basket-maker, Potter, Gold-smith, Agri-cultural labour, Carpenter, Mason, Rickshaw-puller, Electrician, Fitter, Turner, Welder, Industrial labour, Cooli, V7eaver, Driver etc.

Female: Servant-Maid, Cooli, Basket-maker, Weaver, Agri-cultural labour, Beedi-maker etc.

Heavy:

Male: Stone-cutter, Black-smith, Mine-worker, Wood-cutter, Gang-man etc.

Female: Stone-cutter.