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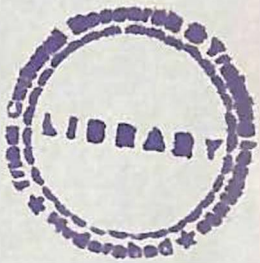
DEMOGRAPHIC STUDY ON THE CHANGING TRENDS AMONG THE CHENCHUS

A PRIMITIVE TRIBAL GROUP OF A.P.



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DEMOGRAPHIC STUDY ON THE CHANGING TRENDS AMONG THE CHENCHUS

A Primitive Tribal Group of Andhra Pradesh

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— AUTHORS

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INTRODUCTION

The tribal population of Andhra Pradesh is 41.99 lakhs according to the 1991 Census, which shows a growth rate of 33.21 over the decade. The *Scheduled Tribe population constitute about 6.31% of total population of the* State i.e. 6.68 crores. Andhra Pradesh has highest tribal population in South India and it occupies 7th place in India so far as tribal population is concerned. The scheduled areas in Andhra Pradesh spread over an average of 31,485.34 Sq.Kms. in the districts of Srikakulam, Vizianagaram, Visakhapatnam, East Godavari, West Godavari, Khammam, Warangal, Adilabad and Mahboobnagar with 5936 Scheduled Tribal villages. This scheduled area constitutes 11% of total area of the State.

Andhra Pradesh is the traditional home of the 33 tribal groups (District-wise *tribal population - Annexure I). Most of these tribals are found living on the* hills, in valleys and forests, except few tribes like Yanadi, Yerukula, who are exclusively confined to the plain areas. Lambadas are found both in the plains *and the hilly areas.*

Of the 33 Scheduled Tribes of Andhra Pradesh, 8 groups have been recognised as Primitive Tribal Groups (P.T.Gs.) by Government of India, basing on criteria like pre-agricultural stage of economy; low level of literacy and stagnant or declining population. The Chenchu tribe was first recognised as P.T.G. in the year 1975. The other P.T.Gs. are Kolam, Konda Reddy, Konda *Savara, Gadaba, Khond, Porja and Thoti.* The P.T.G. wise population are furnished in Annexure II.

CHAPTER II

AREA AND POPULATION

The Chenchus are found living in the Nallamalai forest areas of Mahboobnagar, Prakasam and Kurnool districts and areas adjoining Guntur, Nalgonda and Ranga Reddy districts. The either sides of Krishna river banks and the adjoining forest areas is their traditional habitat. Over a period of time increase in the pressure of population, immigration of the non-tribals and even relatively advanced tribal groups; the complextion of their habitat has undergone a sea change; bringing in its wake not only adverse economic but also psychological and cultural effects. Unlike the other P.T.Gs. who live with the pristine purity of their habitat more or less intact, the Chenchu is surrounded by relatively more advanced and aggressive population. This initial locational disadvantage has recently been accentuated by the Tiger Reserve and strict implementation of forest conservancy regulations. Anyone who comes into contact with the Chenchu gets a feeling that they have "no zest for life" - is it "loss of nerve"?

With regard to somatological features, the Chenchus who belong to the proto-australoid stock, have skin colour which varies from black to copper brown, broad noses, coarse wavy hair and scanty bodily hair with medium stature.

Most of the families of Chenchus are of nuclear type. In the present sample study, the average size of the Chenchu family is 4.38 which is considered to be very smaller and it can be attributed to the under utilisation of medical services, prevalence of unhygienic conditions, poor drinking water resources and high incidence of infant mortality rates etc.

With regard to occupation, basically the Chenchus are food gatherers and hunters. Due to developmental activities taken up by the Government of Andhra Pradesh, some of the Chenchus are now practising settled agriculture. Forest Department and certain other Governmental Organisations are providing a source of gainful employment opportunities to the Chenchus on a limited scale. Gathering of some of the minor forest produce items like gum, honey etc. are fetching a good income for their livelihood. Chenchus are adept in

the collection of honey. The overall effect of these sources is not perceptible because of the fact that with a few exceptions, the Chenchu does not utilise these as one would normally expect. Their apethy is inexplicable, it is perplexing. It is perhaps because of a combination of several socio-cultural and economic factors which act as a barrier. The effort of the developmental programme therefore needs to be clearly focused on removal of these barriers so that the effect of development will be sustainable.

Coming to settlement patterns, the Chenchu villages which are usually called as "gudems" or "pentas" consists of about 10 to 15 hutments and are very rarely large. The houses vary in type and structure as per the ecological setting of the area. The houses of the Chenchu living in the forests build round bottom conical shape while the Chenchus living on the road side prefer rectangular, square or oblong type of huts made up of mats and bamboo wattles. Most of their huts are usually single roomed without any proper ventilation facilities. They domesticate animals like goat and sheep and are tethered inside their huts during night times which make the huts look clumsy and unhygienic.

Due to unhygienic conditions in and around their houses, diseases like fevers, diarrhoea, malaria, skin ailments and respiratory tract diseases are very common among the Chenchus. For the treatment of minor ailments, most of the Chenchus depend on native medicine. The present day younger generation is gradually looking towards modern medicine; it is also due to establishment of medical institutions within their reach.

Earlier the Chenchus were unaware of the Food Security. Now-a-days, due to awareness created by certain institutions coupled with practising of agriculture, the Chenchus have taken to storage of food items for future use, this is a feature which is relatively new and needs to be encouraged. Whatever income they earn from agriculture outputs and through employment is wasted on liquor and smoking rather than what we perceive as their basic needs. Apparently their priorities appear to be wrong but it has to be recognised that like all other human beings, they go in forest for what is easily available to them rather than what would improve their quality of life. The younger generation; some of them who are educated have come to realise this. Saving

for a rainy day and differentiating between immediate gratification and deffered benefits is totally absent in their society: their behaviour is typical of the children of nature - "never think of tomorrow as nature will take care of it".

Food & Food Habits:

Food habits of the Chenchus vary depending upon the habitat. Their food is mainly by gathering fruits, honey, tubers etc., from the forest, through agriculture and agricultural wages and from gainful employment if their habitat is away from the forests. Forest plays a pivotal role in influencing the dietary patterns of the Chenchus. The staple food of the Chenchus who have taken to agriculture is rice and jowar.

The other important food items of the Chenchus are roots and tubers, which are available in the forests. These are consumed particularly during the lean season. Some of the roots and tubers which are worth mentioning are Chenchugadda, Elavaragadda, Nulagadda, Tamaragadda (Nelumbium nelumbo) and Kaluvagadda.

The important leafy vegetables that are consumed by the Chenchus are Palakura (Spinacia obrecea), Thotakura (Amaranthus indica), Gangabailukura, Chanchalkura, Thummikura, Gongura (Hibiscus cannabirnus) and Ponnagantikura (Altermanthera sessilis). In summer, consumption of these leafy vegetables is less due to scarcity.

Tomato (Lycopersicum esculentum), Brinjal (Solanum melongena), Ladyfinger (Abelmoschus esculentum), Bittergourd (Momordia charantia), Pumpkin (Cucurbita maxima), ridgegourd (Luffa acutangula), Cucumber (Cucumis sativus), beans (Dolichos species) etc. are some of the vegetables that are consumed by the Chenchus.

Chenchus use the Mohwa flowers in the preparation of liquor which is considered to be their most favourite drink of all.

Innumerable varieties of fruits are consumed by the Chenchus and among them Kalepandlu (Cassia), Chittimitipandlu, janapandlu, Kondaregu (Zizipus jutuba), Donda Pandlu, Pariki Pandlu, Sara Pandlu (Buchanania lonzan), Ippa Pandlu (Madhuca longifolia) etc. are some of the important fruits.

The Chenchus who are adept in honey collection, use honey while eating the Pan cakes prepared with the flour of Ragi and Jowar.

Gommukokkulu and Mamidikokkulu are some of the mushrooms eaten by the Chenchus, which sprout at the onset of monsoons.

Coming to the flesh foods, the Chenchus hunt several varieties of birds and animals for the sake of consumption. Most important are Rabbits, Deers, Sambars, Squirrels, Iguanas, Jungle Fowls, Peacocks, Jungle goose and other wild birds.

Certain variety of white ants called "Usirlu" is a delicasy for the Chenchus which are eaten by seasoning with oil and chilly powder.

Fishing plays a less prominent role in the Chenchus life except for those living on either side of the River Krishna, which has abundant varieties of fish.

The contribution of agriculture to the Chenchu diet is very less as only few Chenchus are practising agriculture. They sell away the agriculture produce like Jowar, Ragi, Variga, Bajra and pulses like horsegram and cowpea etc. in the market for defray their expense in cash. The Chenchus purchase the same items by paying higher prices in off season.

Eventhough the Chenchus intake of food consists of a large variety but yet their general physical condition exhibits signs of debility; therefore it can be taken as a hypothesis that their versalite food habits have led to their present condition. The effect of consumption of tubers and roots and the combination of the different varieties has an adverse affect. An indepth study is therefore required.

Chenchus - Developmental Activities:

For the overall development of the Chenchus, an I.T.D.A. was established in 1976 with its headquarters at Hyderabad. Later, in 1988, the headquarters has been shifited to Srisailam so as to have better implementation of the schemes and also make the Chenchus feel that the I.T.D.A. is at their door

steps. So far several developmental schemes like agriculture, animal husbandry, housing colonies and small scale industries etc. have been implemented since the inception of I.T.D.A.

The jurisdiction of this I.T.D.A. spreads over an area of 3500 Sq.Kms. covering Mahboobnagar, Prakasam, Kurnool, Guntur, Nalgonda and Ranga Reddy districts. Except perhaps in the core area, the non-tribals and the other tribal groups are outnumber them.

METHODOLOGY

During the course of conducting the T.B. Survey, the information relating to vital statistics was collected through structured schedules.

In this schedule, information relating to household literacy level, mortality rate, marital status and other parameters relating to reproductive life was collected. 10% of the villages were selected on random sampling basis.

Objectives of the Study:

The Primary objective of the study is to determine the status of the *women and child regarding:*

1. Reproductive parameters.
2. Various causes for deaths among children and mothers.
3. To find out C.B.R. and C.D.R.
4. To find out the most fertile age groups of the Chenchu women.
5. The average age at first and last conception.

CHAPTER IV

DEMOGRAPHIC STRUCTURE/COVERAGE OF THE POPULATION

A total number of 1230 Chenchu households were covered in Mahboobnagar, Kurnool and Prakasam districts where large number of Chenchus are inhabiting were included in this study. In Demographic structure, all district populations are clubbed and brought in as a main picture. District-wise differentiation was not shown, as it is a compact study.

Population Structure

Age Group	Males	Females	Total
0 - 4	383 (13.95)	389 (14.74)	772 (14.34)
5 - 9	512 (18.66)	421 (15.95)	933 (17.33)
10 - 14	278 (10.13)	234 (8.86)	512 (9.51)
15 - 19	197 (7.18)	232 (8.74)	429 (7.96)
20 - 24	222 (8.09)	335 (12.69)	557 (10.34)
25 - 29	315 (11.47)	281 (10.64)	596 (11.07)
30 - 34	203 (7.39)	193 (7.31)	396 (7.35)
35 - 39	184 (6.70)	173 (6.55)	357 (6.63)
40 - 44	136 (4.95)	120 (4.54)	256 (4.75)
45 - 49	109 (3.97)	83 (3.14)	192 (3.56)
50 - 54	71 (2.58)	74 (2.80)	145 (2.69)
55 - 59	40 (1.45)	34 (1.28)	74 (1.37)
60 +	94 (3.42)	70 (2.65)	164 (3.04)
Total:	**2744 (100.00)**	**2639 (100.00)**	**5383 (100.00)**

Sex ratio: 940 females per 1000 males.

Nearly 50% of the population in sample study are dependents. Out of total population, 31% are children below 10 years of age and another 10% are young boys and girls between 10 to 14 years. Thus, out of every 1000 persons, 40% are below the age of 14 years, 36% are adults in between 15-34 years, 17% are middle aged persons between 35-54 years and 4.41% are old aged persons of above 55 years of age. 41% are below 14 years showing that the

population is very young, typical of primitive communities experiencing high fertility, high child mortality and lower life expectancy. The women in the reproductive age of 15-44 constitute 48% of the total female population. The population appears to be static between 15-34 years and there is a slight decline afterwards. The sharp decline after 5-9 years may be due to overlapping in the age structure and also due to deaths. Some posting errors will also leads to it. After 59 years, the death rate is more. Sex specific distribution, showing that more number of male children than female showing more deaths among females than males in all the age groups. Although it is a slight difference but this is showing the M.M.R. and I.M.R. and child deaths and their high prevalance among females compared to their male counterparts. The sex ratio of the sample is 940 females per 1000 males.

Type of families:

The families are generally nuclear (70%). Vertically extended is 15%. It can be ascertained that Chenchus prefer nuclear families. The average size of the household is 4.38%.

Distribution of households according to type of families

Sl. No.	Type of Family	No.of Households	Percentage
1.	Couple	129	10.50
2.	Nuclear	861	70.00
3.	Vertically Extended	184	14.95
4.	Horizontally Extended	56	4.55
	Total	**1230**	**100.00**

Occupation:

All the households subsist on collection of minor forest produce and hunting as the principal occupation. Some of the households are settled cultivators. Nearly 74% of the sample households are depending on agricultural and agricultural labour while 21.22% are manual labourers. Very few percentage (5.22%) are Government employees.

Occupation Paticulars

Sl. No.	Occupation	No.of Households	Percentage of households
1.	Agriculture + Agriculture Labourers	906	73.66
2.	Manual Labourers	261	21.22
3.	Government Employees	63	5.12
	Total	**1230**	**100.00**

Marital Status:

The unmarried are 45% among females and it is 55% among males. It is showing prevalance of voli in this community and easy marriage ability among females. Married twice or more often are 7.02% among females because of relaxed social custom. Widowed, divorced is also less among females showing less rate of deaths in the aged females than males.

Marital Status

Sl. No.	Marital Status	Males		Females	
		Number	%	Number	%
1.	Unmarried	1,505	54.86	1,186	44.96
2.	Married once	1,197	43.64	1,263	47.83
3.	Married twice or more often	35	1.26	185	7.02
4.	Widowed, divorced or separated	7	0.24	5	0.19
	Total:	**2,744**	**100.00**	**2,639**	**100.00**

Literacy Level:

As seen from the table the literacy level is gradually declining. There is steep fall when the age is advancing. The rate is more at primary level, while in other age groups, it is nil showing high drop outs. It is interesting to note that there are no literates after 39 years and prior to that age groups

also, the literacy level is negligible. It is 47.06% in the age group 5-9 years due to Rice incentive scheme. But there is a steep drop out after 5-9 age group and it gradually declined upto 35-39 and afterwards there are no literates.

Literates

Age Group	Males	Females	Total	Percentage
0 - 4	-	-	-	-
5 - 9	170	85	255	47.66
10 - 14	56	38	94	17.57
15 - 19	30	27	57	10.67
20 - 24	21	24	45	8.41
25 - 29	28	6	34	6.35
30 - 34	25	5	30	5.60
35 - 39	17	3	20	3.74
40 - 44	-	-	-	-
45 - 49	-	-	-	-
50 - 54	-	-	-	-
55 - 59	-	-	-	-
60 +	-	-	-	-
Total:	**347**	**188**	**535**	**100.00**

Comparative analysis with other tribal groups:

Mean Marriage Age:

When compared to 1976 study, the age at marriage increased by 2 years thus showing a healthy trend and it is almost in agreement with the other tribal groups.

Maternal Mortality Rate:

It is highest among the Chenchus. In fact it reduced to a large extent after 1976 from 44 to 7 per 1000.

Infant Mortality Rate:

It is 215/1000 in the year of study. It is 81/1000 for India and 73/1000 for Andhra Pradesh. For all age cohorts the I.M.R. is 142.65.

The age at menopause is 44 years and the advancement of age compared to 1976 study showing a healthy trend. The age at menarche is 14 years. But the span of reproductive period has expanded or increased by 2 years because the onset of menstruation has extended by 2 years.

	Present Study	1976 Study
C.B.R.	35.29	55.97
C.D.R.	7.6	28.11
Growth Rate	3.53	2.61
General growth rate of Scheduled Tribes		3.23
General growth rate of Andhra Pradesh		2.17
General growth rate of India		2.14

This rate is agreeing with the general Scheduled Tribe's growth rate of 1991 Census. The C.B.R. and C.D.R. are less compared to 1976 study showing a healthy trend on an average. The high I.M.R. rate during the present study is due to Measles and diarrhoea and also to some extent intoxication among women. The spurious liquor is spoiling their health and it has got effect on the foetus of the pregnant women leading to high mortality of infants. But this rate is static with high rate of child births showing non-observance of family planning methods. The Chenchus are drug addicts and in the recent past due to contact with outsiders and due to development of communication facilities, they are adding dry battery cells in the liquor which is highly dangerous and thus spoiling their health. Children are also addicted with these liquors which is proving injurious to their health.

Mean Marriage Age

Yanadis	20.08%
Kolams	15.68%
Chenchus (1976)	14.04%
Konda Reddis	17.80%
SCHEDULED TRIBE COMMUNITIES: 17.65%	
1. Savara	16.98%
2. Jatapa	17.71%
3. Gadaba	17.94%
4. Mukha Dora	18.37%
5. Konda Dora	18.25%
MATERNAL MORTALITY RATES:	
Kolams	8/1000
5 Tribal Groups	25/1000
Chenchus (1976)	44/1000
Yanadis	-
Konda Reddis	11/1000
INFANT MORTALITY RATES:	
Konda Reddis	153.23
Yanadis	10.08
Chenchus (1976)	165.68/1000
Kolams	197.37/1000
Five Tribes:	**151.30/1000**
(a) Savara	213.23
(b) Jatapau	102.04
(c) Gadaba	239.43
(d) Mookha Dora	88.88
(e) Konda Dora	102.56
CHILD MORTALITY RATES:	
Yanadis	4.28
Chenchus (1976)	-

Age at menopause

Age group	Savara	Jatapu	Gadaba	Mookha Dora	Konda Dora	Kolam	Chenchu 1970	Konda Reddy	Yanadi
30-34	-	-	-	-	-	-	2 (8.70)	-	-
35-39	1 (16.67)	-	-	-	-	-	5 (21.70)	-	-
40-44	4 (66.67	4 (80.00)	3 (37.50)	5 (71.43)	3 (37.50)	21 (23.08)	13 (56.52)	57 (78.09)	20 (28.57)
45-49	1 (16.67)	1 (20.00)	5 (62.50)	2 (28.57	5 (62.50)	58 (63.74)	3 (13.08)	11 (15.07)	42 (60.00)
50 +	-	-	-	-	-	12 (13.18)	-	5	8 (11.43)
Total	6	5	8	7	8	91	23	73	78
Mean Age	41.25	42.06	43.45	41.65	43.45	46.03 + 0.09	41.13 + 0.74	43.90 + 0.33	46.14

Age at menarche

Menarcheal age in Year	Yanadi	Savara	Jatapu	Gadaba	Mookha Dora	Konda Reddi	Konda Dora	Kolam	Chenchu 1976
12	6 (1.15)					10 (1.92)		21 (6.84)	2 (0.99)
13	239 (45.95)	17 (15.74)	3 (2.66)	1 (0.96)	12 (11.65)	136 (26.10)	5 (4.67)	112 (36.48)	21 (10.45)
14	241 (46.35)	74 (68.51)	65 (57.22)	22 (21.15)	37 (35.93)	229 (43.95)	47 (43.93)	106 (34.53)	119 (59.20)
15	34 (6.54)	8 (7.41)	27 (23.89)	42 (40.39)	50 (48.54)	131 (25.14)	28 (26.17)	66 (21.50)	55 (27.36)
16	-	8 (7.41)	16 (14.16)	38 (36.54)	4 (3.88)	15 (2.89)	24 (22.43)	2 (0.65)	3 (1.49)
17	-	1 (0.93)	2 (1.77)	1 (0.96)	-	-	3 (2.80)	-	1 (0.50)
TOTAL MEAN	520 13.58	108 14.38 +0.08	113 14.65 +0.10	104 15.56 +0.09	103 14.47 +0.07	521 14.85 +0.11	107 15.07 +0.09	307 13.73 +0.12	201 14.30 +0.04

INFANCY & CHILDHOOD DEATHS

Infant Mortality:

A very high level of infant and child mortality continues to persist in the Indian population. Infant Mortality Rate (I.M.R.) defined as number of children dying within one year of age per 1000 live births, has been universally accepted as a realistic index of health conditions and quality of life. At the begining of century, I.M.R. in India was over 200/1000 live births. This has declined to 96/1000 in 1987 and 92/1000 in 1991. It is generally observed that (UNICEF's State of World Children 1993) I.M.R. among female infants is substantially higher than male infants especially in rural areas. I.M.R. in rural areas in all the States exceeds that of urban areas. The major causes of high I.M.R. are malnutrition, diarrhoea and respiratory infections. The source of drinking water, literacy level of women, age at marriage of women and availability of health care have profound influence on I.M.R. The I.M.R. can be substantially reduced by the availability of safe drinking water, improved environmental sanitation, education and health.

In the present study:

I.M.R. for Chenchus is 215 per 1000 live births during the year of enquiry (1992) and it is 142.65 for all age cohorts. In the present study, the conventional infant mortality rate which is the number of infant deaths that occur during a given period of time per 1000 live births in the same period in a given population is adopted. In the present study, infant mortality rate is calculated out of live births of women from dates of marriage till the time of investigation and the number of children who died within one year of their birth.

Studies of I.M.R. in our country reveal that half the number of deaths under one year occur among infants under one month and half the number of deaths under one month occur during the first week of life and half the deaths under one week on the very first day of life.

Percentage of infant deaths

Age Group	Male	Females	Total
0-1 week	8 (30.77)	3 (20.00)	11 (26.83)
2 weeks - 3 months	10 (38.46)	5 (33.33)	15 (36.59)
4-6 months	5 (19.23)	5 (33.33	10 (24.39)
7 months - 1 year	3 (11.54)	2 (13.34)	5 (12.19)
Total:	**26 (63.41)**	**15 (36.59)**	**41**

N.B.:

Total Male Births	: 105
Total Female Births	: 85
Total Births	: **190**
C.B.R.	: 35.29
C.D.R.	: 7.6
Annual Growth Rate	: 3.53

Time Trend:

To analyse the time trend in infant mortality, infant births and deaths are divided into pre 70 post 70 and post 80 respectively. A gradual decline is observed upto post 80 showing awareness towards health programmes.

Infant mortality by birth cohort

Birth Cohort	No.of live births	No.of Infant Deaths	Infant Mortality
Post 1980	1,894	235	124.08
Post 1970	1,045	147	140.67
Post 1970	1,281	220	171.74
All Cohorts	**4,220**	**602**	**142.65**

Differential Infant Mortality Rate:

In the sample study, nearly 63% infant deaths is due to less resistance power. Nearly 63.41% of infant deaths are occurring among males than females (37%). There is gradual decline as the age advances.

The C.B.R. is 35.29

C.D.R. is 7.6 and the annual growth rate is 3.53.

Percentage of infant and child deaths during the year of enquiry:

From the table, it is clear that infant deaths are more compared to child deaths. This percentage has come down gradually with the advancement of age. In the current year (1992) the I.M.R. is 215 which is high due to Measles. The I.M.R. (Diarrhoea) among males is 136.84 and females, it is 78.94.

The child deaths are more among males (56.29) than females (43.21).

Percentage of infant and child deaths (year of enquiry)

Age Group	Males	Females	Total
0 - 1	26 (56.52)	15 (42.86)	41 (50.62)
1 - 3	9 (32.61)	9 (45.71)	18 (38.27)
3 - 5	+ 6	+ 7	+ 13
6 +	5 (10.87)	4 (11.43)	9 (11.11)
Total	**46** **(100.00)** **(56.79)**	**35** **(100.00)** **(43.21)**	**81** **(100.00)**

Causes:

From the survey, it is observed that more number of deaths are due to Measles (30.86%), followed by Diarrhoea (24.69). It is interesting to note that whereever the child is affected with Measles, the information is not leaked out with the fear that the other child may also get the Measles. They are reluctant to go to hospital. This table is showing the failure of I.C.D.S. programmes and also immunization programmes in Chenchu areas.

Causes of deaths of children at various ages

Group	Gastro-enteris	Diar-rhoea	Measles	Bron-chitis	Tetanus	Reasons not known	Total no.of deaths
0-1 week	1 (7 14)	2 (10.00)	-	-	-	-	3 (3.70)
1 week-1 month	-	3 (15.00)	-	2 (28.57)	1 (33.33)	1 (8.33)	7 (8.64)
1-3 months	2 (14.29)	4 (20.00)	3 (12.00)	-	1 (33.33)	-	10 (12.35)
4-6 months	-	1 (5.00)	4 (16.00)	1 (14.29)	-	1 (8.33)	7 (8.64)
7-9 months	1 (7.14)	-	2 (8.00)	-	-	-	3 (3.70)
10-12 months	1 (7.14)	-	8 (32.00)	1 (14.29)	-	1 (8.33)	11 (13.58)
1-3 years	7 (50.00)	4 (20.00)	3 (12.00)	-	-	4 (33.33)	18 (22.22)
4-5 years	2 (14.29)	2 (10.00)	5 (20.00)	1 (14.29)	1 (33.54)	2 (16.67)	13 (16.05)
Above 6 years	-	4 (20.00)	-	2 (28.57)	-	3 (25.00)	9 (11.11)
Total:	**14 (17.20)**	**20 (24.69)**	**25 (30.86)**	**7 (8.65)**	**3 (3.70)**	**12 (14.82)**	**81 (100.00)**

Maternal Mortality Rate:

It is the number of deaths of females ascribed to pregnancy, child bearing and puerperium state per 1000 live births. Generally, the following factors contribute to high Maternal Mortality Rate (M.M.R.).

1. The Women are illiterate.
2. The orthodoxy has deep roots.
3. The health of women is not cared for
4. Interval between the births of two children is rather less.
5. There are no medical facilities or if all these are available, they are quite inadequate.
6. Pregnant women are not provided with nutritive food.
7. The system of child marriage prevails. The M.M.R. among Chenchus is 7 per 1000. The prevailing causes for this high rate is tetanus.

CHAPTER VI

PARAMETERS OF REPRODUCTIVE LIFE

The fertility performance of females is directly influenced by their age at entry and exit from reproductive life. Effective married life starts after conception and not at the age of marriage. Generally, the effective married life begins when the women attains maturity. The age at menarche, age at effective married life, age at menopause, incidence of divorce, separation and re-marriage, establish the span of reproductive life, while the factors like proportion of males and females remaining single, age at first maternity, inter birth spacing, extent of total wastage and cultural norms associated with sex and family life determine the level of natural fertility. Artifical methods of fertility control, if adopted, may alter the natural level of fertility. The attitude also plays a vital role in measuring the fertility rate.

Age at Marriage:

There are many factors which influence the age at marriage and help in rather increasing it: (1) Economic conditions of the community; (2) cultural system; (3) social conditions - it is socially desirable that the girl should be married at the earliest; (4) education - it has became more or less compulsory for girls in urban areas rather than in rural areas; and (5) employment - it has no influence in rural areas, whereas in urban areas, it is desirable that both boys and girls are suitably employed.

Age at marriage also influences fertility. As the age at marriage goes up, there is every likelihood of fertility rate coming down. The usual age at marriage for Chenchus is between 15-17 Years. Nearly 50% of the Chenchu women got marriage between 15-17 years of age. The next preferential age is between 13-15 (22.48%). The percentage of marriages after 20 years are very negligible. Moreover, voli system is in prevalance among Chenchus and getting them married is not difficult compared to their male counterparts. The populations are classified into 4 groups by median age of females according to age at first effective marriage.

1. Child marriage (less than 18 years).
2. Early marriage (18-19 years).
3. Marriage at maturity (20-21 years).
4. Late marriage (22 years and above).

According to International standands, this indicates that marriage takes place at an early age. But according to Indian standards, the marriage may be considered marriages at maturity.

Age at marriage

Age at Marriage (in years)	No.of women	Percentage
Less than 11 years	45	3.15
11 - 13 years	257	18.00
13 - 15 years	321	22.48
15 - 17 years	627	43.91
17 - 19 years	127	8.89
19 - 21 years	36	2.52
21 - 23 years	15	1.05
Total:	**1,428**	**100.00**

Mean Marriage Age:

The average age at which girls of various age groups married reveals that it ranges between 12.95 to 16.72 years. An attempt has been made in this study to find out change in the marriages over decades by taking average age at marriage, in diffferent age cohorts of women ralating to the present age group. There is a gradual decline in the marriage age as the age groups are advancing. In the older generation the mean marriage age is 16.72 years. This is showing a healthy trend among Chenchus and a considerable increase in the mean marriages over the last decade.

Mean marriage age

Present age group	Mean marriage Age
15 - 19	16.72
20 - 24	16.54
25 - 29	15.68
30 - 34	14.20
35 - 39	13.70
40 - 44	13.47
45 - 49	13.20
50 - 54	13.09
55 - 59	13.05
60+	12.95

Mean effective married life:

Depending upon the socio cultural practices and the prevalance of child marriages before menarche, the age at which girls enter into effective married life may deviate from mean marriage age. So an attempt has been made to find out the mean effective marriage age in Chenchus in diferent age cohorts.

The mean effective marriage age is 15.80 where as the age at marriage is 15.65 years thereby revealing that mean effective marriage age starts usally a few months after marriage, The effective marriage ranges between 14.10 to 17.12. For older generation, it is 14.10 whereas in younger generation, it is 17.12 Years. It is evident from the table that the young Chenchu females are maintaining a healthy trend. It is clear that the younger generation of Chenchus have realised the importance of raising the marriage age as well as effective married age over the last 3 decades and marriage is taking place only after a girl attains maturity.

First effective marriage

Present Age Group	First Effective Marriage
15 - 19	17.12
20 - 24	16.93
25 - 29	16.14
30 - 34	14.82
35 - 39	14.13
40 - 44	14.70
45 - 49	14.92
50 - 54	14.32
55 - 59	14.22
60 +	14.10

Age at menarche:

The start of periodic menstruation is known as menarche and it is just one phase of menstrual cycle which is governed by hormones from pituitary gland in the brain and from the ovaries Menarche is an important process in women's life.

In the population dynamics, age at menarche plays a vital role as it is the starting point in the reproductive life of a women. The onset of menarche is the indication in the life of female that she is able to produce over which if they had an opporutunity to meet sperm can result in pregnancy. Menarcheal age is of great biological importance and is influenced by nutrition, socio-economic status, climate and food habits, racial and environmental factors, body built and genetic control. It occurs in most populations between 12-13 years but it also takes its normal appearance as early as 9 and as late as 18 years.

The mean age at menarche is 14 years. The age at marriage is between 15-17 years. It seems a gap period of 2 years is being observed between age at menarche and age at marriage which is showing a healthy trend.

Age at manarche

Menarcheal Age	No.of Women	Percentage
12	15	1.05
13	143	10.01
14	858	60.08
15	402	28.15
16	7	0.50
17	3	0.21
Total:	**1428**	**100.00**

Age at menopause:

Menopause is characterised by the cessation of mensus and loss of reproductve capacity. Hence, pregnancy is no longer possible. Warmer climate, poor diet, excessive child bearing and poor hygienic conditions result in early menopause reducing the reproductive life.

Among Chenchus, the age at menopause generaliy occur in between 40-44 years. The general age at menarche is 14 years. On average, their fertility period is 28 years and by taking into account the age at marriage, each Chenchu woman can produce 13 children on average if all the harmonial conditions prevail.

In the sample study, nearly 46% of women attained menopause when they are in the age group of 40-44 whereas 44% women attained menopause when they are in the age group of 45-49. Thus 90% of women are reaching the stage of menopause after 40 years. Very negligible percentage attained menopause after 50 and before 39 years. This rate is generally tallied with the rate among general population.

Age at menopause

Age Group	No.of Women	Percentagae
30 - 34	5	1.90
35 - 39	12	4.50
40 - 44	123	46.07
45 - 49	118	44.20
50 +	9	3.37
Total:	**267**	**100.00**

CHAPTER VII

SUGGESTIONS & SUMMARY

The following strategy and approach to tackle the problem of high infant mortality rate may be adopted.

1. Safe drinking water.
2. Health facilities.
3. Intensive Immunisation Programme.

According to National Water Policy 1987, "Drinking water needs of human beings and animals should be first charge on any available water". Any irrigation and multipurpose project should invariably include a drinking water component, wherever there is no alternative. We should consider drinking water along with the domestic use of water, both quantity and quality are important. Water should be available near the household so that unnecessary time and energy is not spent on collection of water. This also reduce much of the social, physical and economic evils involved in obtaining water from long distances.

In exploring the ground water, the following methods may be adopted.

Traditional and contemporary experiences of integrated use of surface and ground water need to be documented and practised. Field experiments on modern methods of conjunctive use of surface and ground water need to be initiated.

School curriculum can play a vital role in imparting knowledge, generating awareness and making the students conscious of the facts and issues related to water in general and drinking water and water for domestic use in particular health in general and child mortality in particular.

It is a well known fact that the number of deaths occurring within one year of birth referred as infant (IMR) mortality and is a good indicator of health conditions and level of living of people 'UNICEF' has recently argued that rates of IMR and child mortality are more powerful and realistic

measures/indicators of level of living than other measures such as G.N.P. and per capita income. Infant deaths within the first week are caused mostly by maternal and delivery related factors such as extremes of age multiparity at short birth intervals, malnutrition and hard physical work. All these tend to result in a low birth weight baby whose chances of dying are 3 to 4 times higher than that of a normal weight baby. Most of the deliveries take place at home under hygienic conditions and assisted by untrained dais resulting in a high death rate due to problems of delivery and infections. Prominent among them being neo natal tetanus. It accounts for 6 to 10% of total infant deaths. This is due to using unclean instruments for cutting the umbelical cord and contaminated dressing with cow dung or ash. This can be easily prevented by using sterilised instruments.

The other main causes of child deaths are tetanus, diarrhoea and respiratory infections. Diarrhoea is a major killer resulting in 4 to 5 percent of deaths. Pneumonia and other respiratory infections also contribute to deaths in infancy and pre-school years.

Some of the other important diseases contributing to infant and childhood deaths are measles. It is thus evident that a great deal of mortality and morbidity among infants and children is preventable by immunisation.

It is already discussed earlier that the causes for higher infant mortality are multiple and may act in conjunction with each other. In a recent publication by Registrar General of India (1983), it is shown that some socio-economic variables have strong association with I.M.R.

Three such facts namely source of drinking water, education and age at marriage of women have profound effect on I.M.R.

The source of drinking water particularly well water influences the I.M.R. considerably. Age at marriage of women is also implicated in I.M.R. Those who have early marriages show a very high I.M.R. compared to those who marry at 21 years or above.

It is apparent that I.M.R. can be substantially reduced if other factors like safe drinking water and sufficient domestic water is made available, the rate of level of literacy among women enhanced and awareness of general health care spread.

Malnutrition and ill-health are traceable partly to economic causes and partly to educational factors. For even in poverty, the health and nutrition status would be appreciably better, if people know what to do about it.

It was common to find infants in the case of 5 to 7 years old girls who themselves drank contaminated water gave it to the infants and were surrounded by human, animal, and other wastes. It was also observed that education of the mother perse had an impact on infant mortality and was more than a proxy for the socio-economic condition of the family. A mother with 5 to 8 years of schooling made for a change in the attitudes in the family right from the first pregnancy and created a demand for modern health facilities. The value of women's groups as a learning forum to absorb and apply knowledge and resources. Birth interval is to be increased.

Insanitary Environments:

Breast feeding strengthened in time by infant weaning is the nutritional sheet anchor of child development. It is within the reach of all but adverse trends appear from opposite ends of the socio-economic spectrum, the relatively recent in roads of 'amulspray' etc.

1. Maternal Nutrition.
2. Exclusive breast feeding.
3. Better hygiene.
4. Infant feeding practices.
5. Child care during infection and not the least, regulating the use of commercial infant foods.
6. A judicious combination of habitual family foods like legumes, cereals, fruits and vegetables with continued breast feeding as long as possible. A vast majority are seeking medical help from traditional remedies.
7. Avenues to employment and credit.
8. Safe water and clean environment.

9. Subsidies on food and land reform.
10. Reduction in the workload of women.
11. Oral rehydration therapy.
12. Acute respiratory infection like pneumonia contribute about 1/5th of the mortality in children under 5 years of age. This pnuemonia is caused by Bacteria. (Unlike in Europe and North America where pneumonia is caused mainly by virus). Cheap and anti-microbial drugs are available, which is given in time selectively and in proper dosage can reduce mortality subsequently.

13. Community health workers can be trained to recognise pneumonia, administer anti-microbials in appropriate doses and prevent deaths. At the same time, indiscriminate use of antibiotics is to be controlled, particularly in case of upper respiratory infection. Standardized diagnostic treatment and referral criteria are central to the community level of ARI control now being promoted.

14. Reorganisation of medical institutions in Chenchu area in order to serve all the people.

15. Opening of two more I.C.D.S. Projects to cover entire Project area.

16. Selection of local women as Dais and train them for delivery and immunisation.

17. Maintenance of cold chain system for effective immunisation coverage.

There can be no health when poverty and exploitation are rampant and there is widespread degradation of environment. The close inter-relationship between hunger and degraded environment has to be always kept in focus. These factors will chase any economic development programme out however well thought out it might otherwise be - devoid of prosper environment nothing can sustain, not even the man who endeavours assidiously in the direction of poverty alleviation. Eventhough the foregoing description relates to a micro situation, it has the potential of crossing the national-regional barriers and get globalised. Here lies its importance and urgency to tackle it. This can be compared with the onset of cancer in human body.

ANNEXURE - I

SCHEDULED TRIBE POPULATION - 1991 CENSUS

(In lakhs)

Sl. No.	Name of the District	Total population	Sch.Tribe population	% of S.T. population to total population
1.	Srikakulam	23.21	1.34	5.8
2.	Vizianagaram	21.11	1.90	9.0
3.	Visakhapatnam	32.85	4.69	14.3
4.	East Godavari	45.41	1.76	3.9
5.	West Godavari	35.18	0.85	2.4
6.	Krishna	36.99	0.92	2.5
7.	Guntur	41.07	1.82	4.4
8.	Prakasam	27.59	0.99	3.6
9.	Nellore	23.92	2.14	8.9
10.	Chittoor	32.61	1.05	3.2
11.	Cuddapah	22.68	0.47	2.1
12.	Anantapur	31.84	1.11	3.5
13.	Kurnool	29.73	0.56	1.9
14.	Mahboobnagar	30.77	2.27	7.4
15.	Ranga Reddy	25.52	1.09	4.3
16.	Hyderabad	31.46	0.29	0.9
17.	Medak	22.70	0.95	4.2
18.	Nizamabad	20.38	1.21	5.9
19.	Adilabad	20.82	3.55	17.0
20.	Karimnagar	30.37	0.83	2.7
21.	Warangal	28.19	3.85	13.7
22.	Khammam	22.16	5.59	25.2
23.	Nalgonda	28.52	2.76	9.7
		665.08	41.99	6.3

Source: N.I.C. (SR), A.P. Unit.

ANNEXURE - II

STATEAMENT SHOWING TRIBE WISE P.T.G. POPULATION

Sl. No.	Name of the P.T.G.	Predoniment places of habitation (Districts)	Population according to 1981 Census
1.	Chenchu	Mahboobnagar, Prakasam, Kurnool, Guntur, Nalgonda and Ranga Reddy	29,297
2.	Kolam	Adilabad	20,892
3.	Thoti	Adilabad	1,753
4.	Konda Reddi	East Godavari, West Godavari and Khammam	54,473
5.	Khond	Visakhapatnam	50,725
6.	Porja	Visakhapatnam	16,374
7.	Savara	Srikakulam, Vizianagaram	81,121
8.	Gadaba	Srikakulam, Vizianagaram and Visakhapatnam	28,049
		Total:	**2,82,684**

Source: ITDA, PTG (Chenchu): Chenchu Development Programmes, Government of Andhra Pradesh, Kurnool, 1992.

ANNEXURE - III

ADDITIONAL INFORMATION ON VARIOUS PARAMETERS

1. Incidence of T.B. among males is 5.73% and for females 3.50%; total: 4.43 General Rate is 1.8% to 2.5%.
2. Sex Ratio: 940 females per 1000.
3. Cross-cousin marriages are common.
4. Average marriage age for males is 18 and for females, it is 15 years.
5. Child marriages are not uncommon.
6. Average Household size is 4.38.
7. I.M.R: 215 (latest findings of the survey) - Measles & diarrhoea, all cohort (old findings): 140.32. For Andhra Pradesh general population, it is 73
8. M.M.R: 7 per 1000. For general population: 4 per 1000.
9. Medical Institutions:

Government Civil Hospitals	: 5
Primary Health Centres	: 10
Health Units	: 1
Mobile Medical Units	: 2
Ayurvedic dispensaries	: 3
Homeopathic dispensaries	: 1
Total:	: 22

The concentration of Medical Institutions is more in Mahboobnagar district (12) when compared to Prakasam district (5), although the populations in both the district are almost equal.

10. Under U.N.F.P.A., strengthening of the medical units are proposed. Health Camps and encouragement of local/native medical systems are also proposed.
11. Under P.T.G. Action Plan by Government of India, 6 (six) Mobile Medical Units are proposed.
12. Under N.M.E.P. which is aided by World Bank, complete eradication of malaria will be taken.
13. There are only 2 I.C.D.S. Projects functioning which cover only the periphery of tribal areas which are located at Achampet and Dornala.

For complete coverage of the Chenchu area, 2 more I.C.D.S. Projects are necessary.

C.B.R: 35.29 per thousand (present rate).

55.97 per thousand (old rate of Andhra Pradesh).

26 to 29 per thousand (old rate of India).

C.D.R: 7.6 per thousand (present rate).

28.11 per thousand (old rate of Andhra Pradesh).

9.7 to 9.8 per thousand (old rate of India).

Annual growth rate: 3.53 (present rate).

2.17 (old rate of Andhra Pradesh).

2.14 (old rate of India).

3.23 (for Scheduled Tribes only).

Infant Mortality Rates (I.M.R.):

All India General Population: 80.00.

Andhra Pradesh General Population: 73.00.

All India Scheduled Tribe Population: 8.08.

Andhra Pradesh Scheduled Tribe Population: 6.31.

1992 Studies:

Chenchus: 215 (General Population).

Chenchus: 298.00 (Core Area).

Chenchus: 177.00 (Periphery).

Maternal Mortality Rates (M.M.R.):

All India General Population: 4-5 per 1000 Live Births (estimated figure).

Andhra Pradesh General Population: 3-4 per 1000 Live Births.

Chenchus: 7 per 1000 Live Births (General).

Chenchus (Core Area): 9 per 1000 Live Births.

Chenchus (Periphery): 4 per 1000 Live Births.

Source: UNICEF, New Delhi: Children & Women in India - A situation Analysis, 1990.

DIETARY INTAKE AMONG THE CHENCHUS (C.U. PER DAY)
(An analytical presentation of Chenchus living in core area and periphery of forest area)

Sl. No.	Diet*	R.D.A.	Actual intake (core area)	% of surplus or deficiency	Actual intake (periphery)	% of surplus or deficiency
1.	Cereals (gms.)	460	458	- 0.43	475	+ 3.26
2.	Pulses (gms.)	40	52.33	+30.82	57.23	+43.07
3.	Oils & Fats (gms)	40	11.37	-71.57	17.25	-56.87
4.	Leafy Vegetables (gms.)	50	61.33	+22.66	49.25	- 0.15
5.	Vegetables	60	64.66	+ 7.76	70.25	+17.08
6.	Roots & Tubers	50	65.33	+30.66	40.72	-18.56
7.	Flesh Foods	75	48.00	-36.00	40.02	-46.64

* R.D.A. = Recommended Daily Allowance, N.I.N., 1992.

CHENCHU POPULATION GROWTH

Census Priod	Male	Female	Total	% Increase
1961	9,042	8,667	17,609	-
1971	12,780	11,398	24,178	37.30
1981	14,534	13,900	28,435	17.61

SEX RATIO (NO.OF FEMALES PER 1000 MALE POPULATION)

1961	947
1971	892
1981	956
1991	940

AGE STRUCTURE

Age Structure	Andhra Pradesh (S.T.)	Andhra Pradesh (General)	Chenchus (core area)	Chenchus (periphery)
Upto 14 years	41.33	38.61	49.54	42.82
15 to 19	7.80	9.09	3.67	8.02
20 to 49	38.89	38.98	35.78	40.51
50 & above	11.57	13.39	11.01	8.65

I.M.R.:

1976 TCR & TI - 140 for 1000 births.

1991 TCR & TI - 215 for 1000 births.

Core Area Chenchus: 298 for 1000 births.

Periphery Chenchus: 177 for 1000 births.

M.M.R.:

Among Chenchus: 7 per 1000 deaths.

Compared to 4 per 1000 deaths in Andhra Pradesh General Population.

Core Area Chenchus: 9 per 1000 deaths.

Periphery Chenchus: 4 per 1000 deaths.

Average size of the family among Chenchus: 4.38.

HEALTH:

TUBERCULOSIS:

4.43 out of 100 Chenchus have T.B.

Men have incidence of 5.73%.

Compared to females: 3.5%.

Core Area Chenchus: 3.67% for every 100 Chenchus.

MALARIA:

Incidence rate among Chenchus is 41.23% (Plasmodium Falciparum).

Among core area Chenchus is 45.41%.

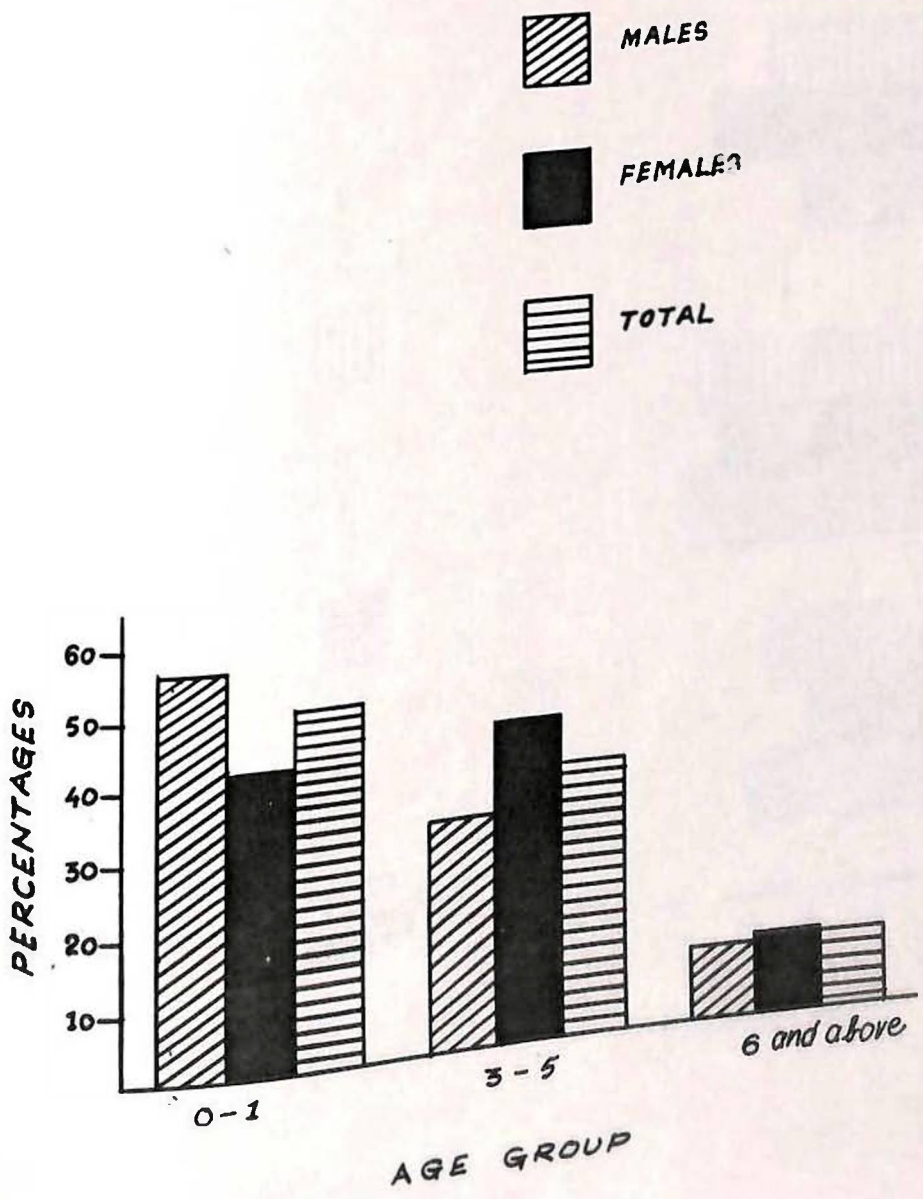
Periphery area Chenchus is 39.24%.

NUTRIENT INTAKE AMONG THE CHENCHUS (C.U. PER DAY)

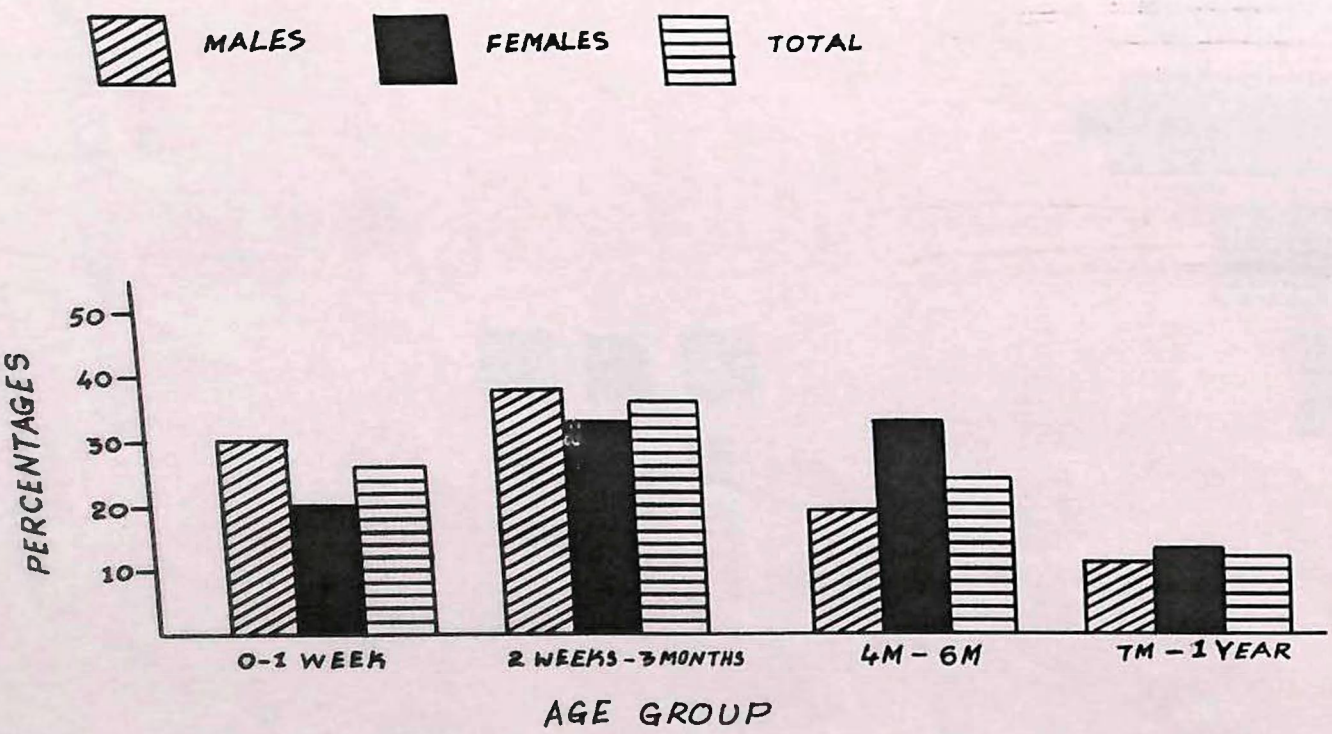
Sl. No.	Nutrition	R.D.A.	Actual intake (core area)	% of surplus or deficiency	Actual intake (periphery)	% of surplus or deficiency
1.	Calories (K.Cal)	2,875	2,675	- 6.95	2,978	+ 3.58
2.	Protein (mg.)	66	54.32	- 9.46	63.95	+ 6.58
3.	Calcium (mg.)	400	645	+61.25	513	-38.92
4.	Iron (mg.)	28	37.52	+34.00	35.65	+27.32
5.	Vitamin-A (mg.)	2,400	1,698.55	-29.25	1,948.92	-18.75
6.	Thiamine (mg.)	1.4	1.21	-13.57	1.81	+ 7.09
7.	Riboflavine (mg.)	1.6	1.39	-14.37	1.05	-34.37
8.	Nicotinic Acid (mg)	18	12.78	-29.00	11.32	-37.11

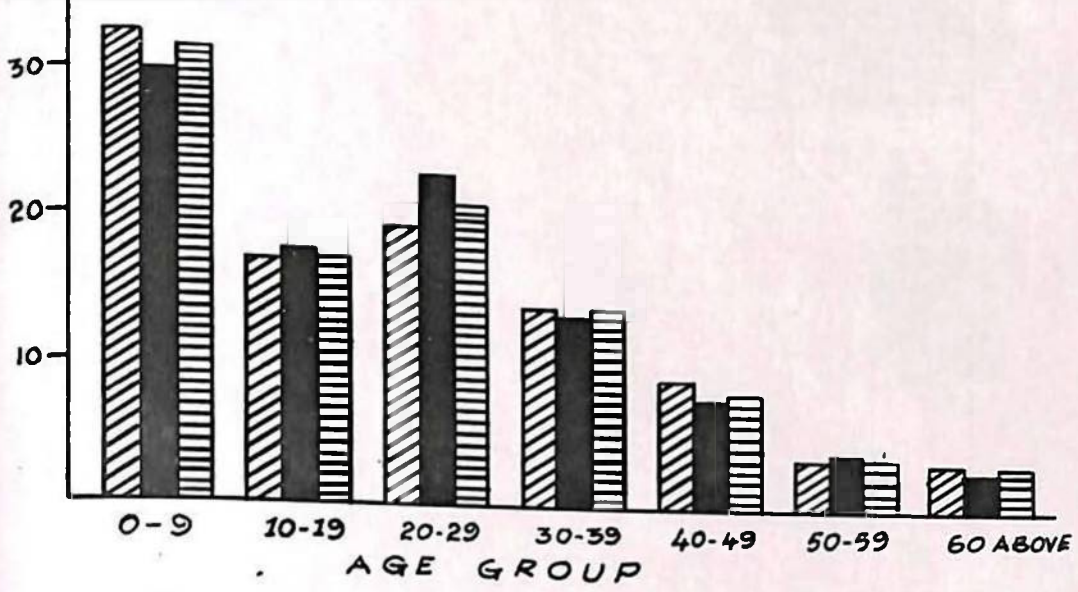
* R.D.A. = Recommended Daily Allowance, N.I.N., 1992.

PERCENTAGE OF INFANT AND CHILD DEATHS

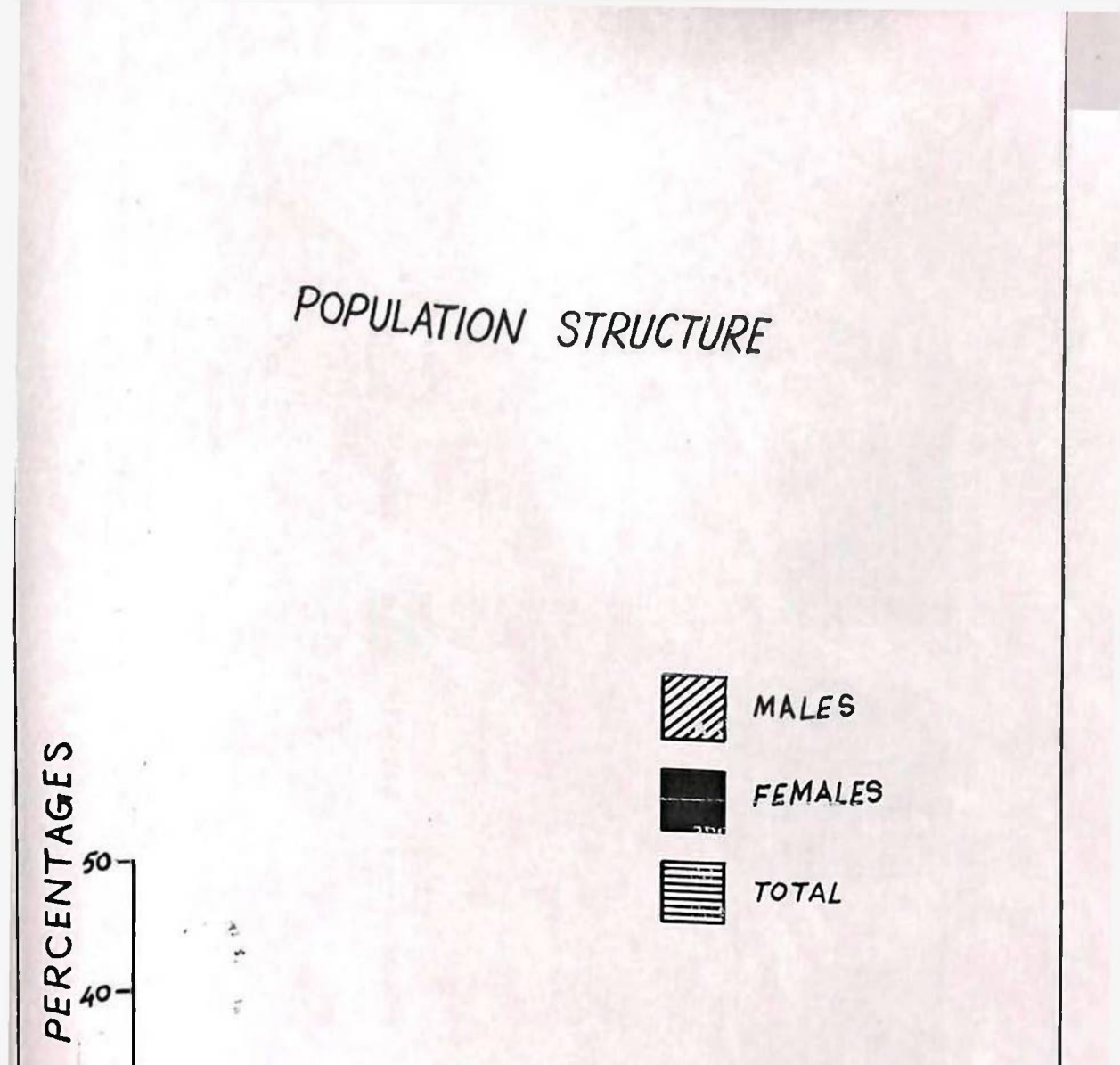


PERCENTAGE OF INFANT DEATHS

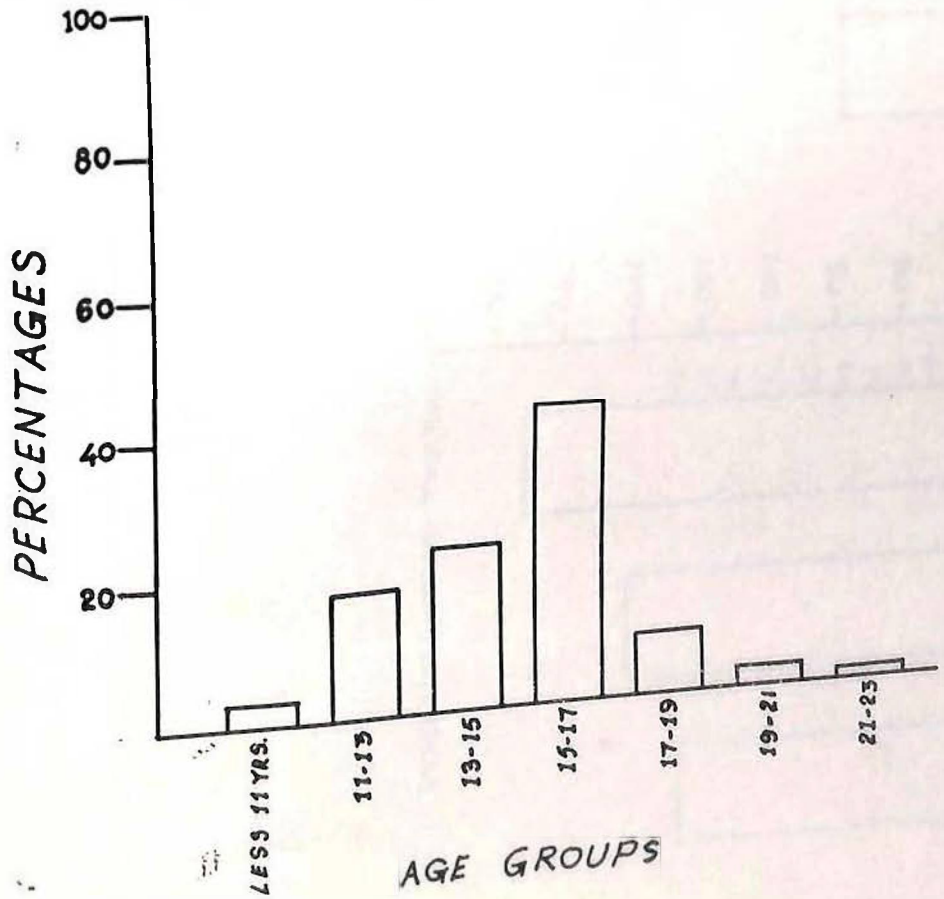



30
20
10
0-9
10-19
20-29
30-39
40-49
50-59
60 ABOVE
AGE GROUP

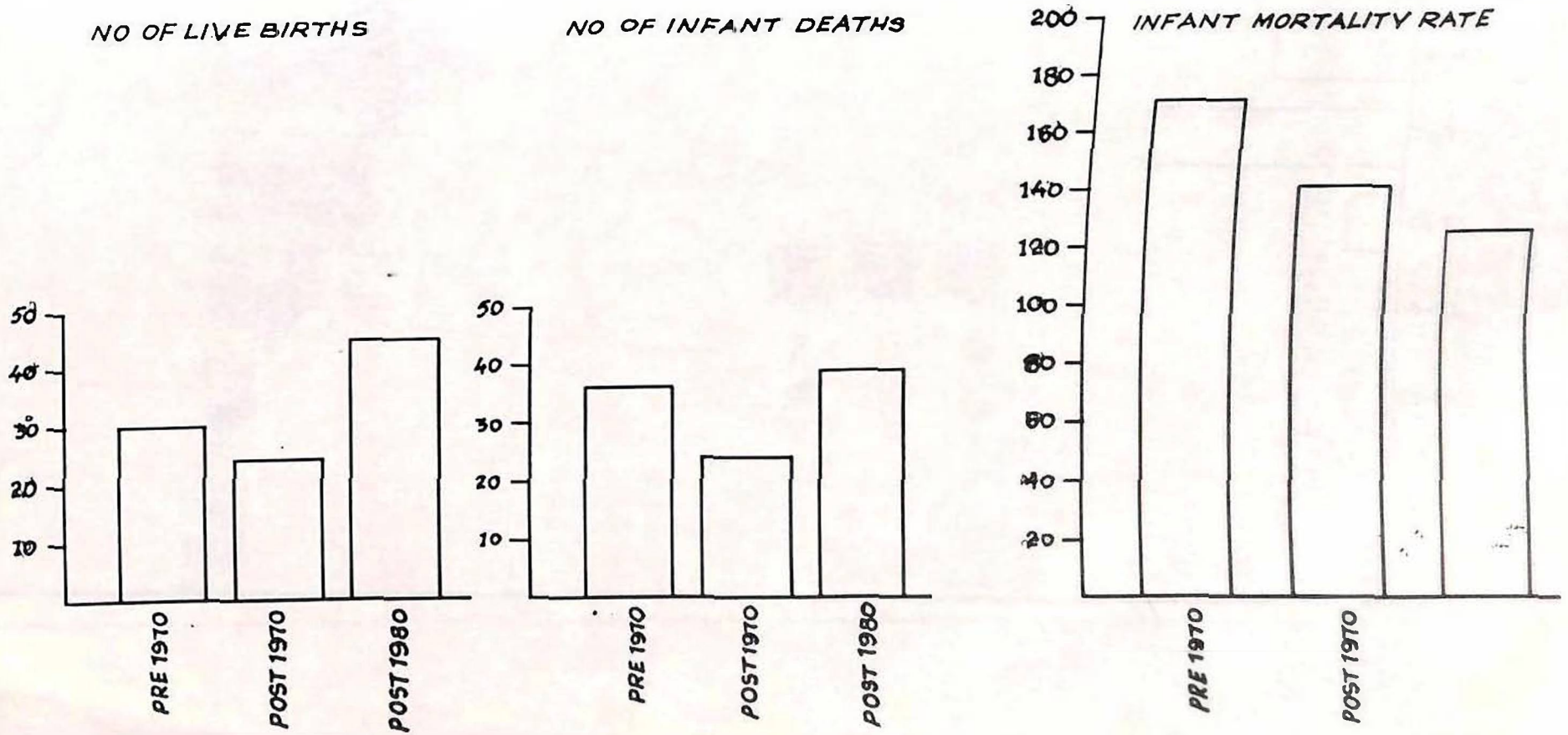
POPULATION STRUCTURE



AGE AT MARRIAGE



INFANT MORTALITY BY BIRTH COHORT

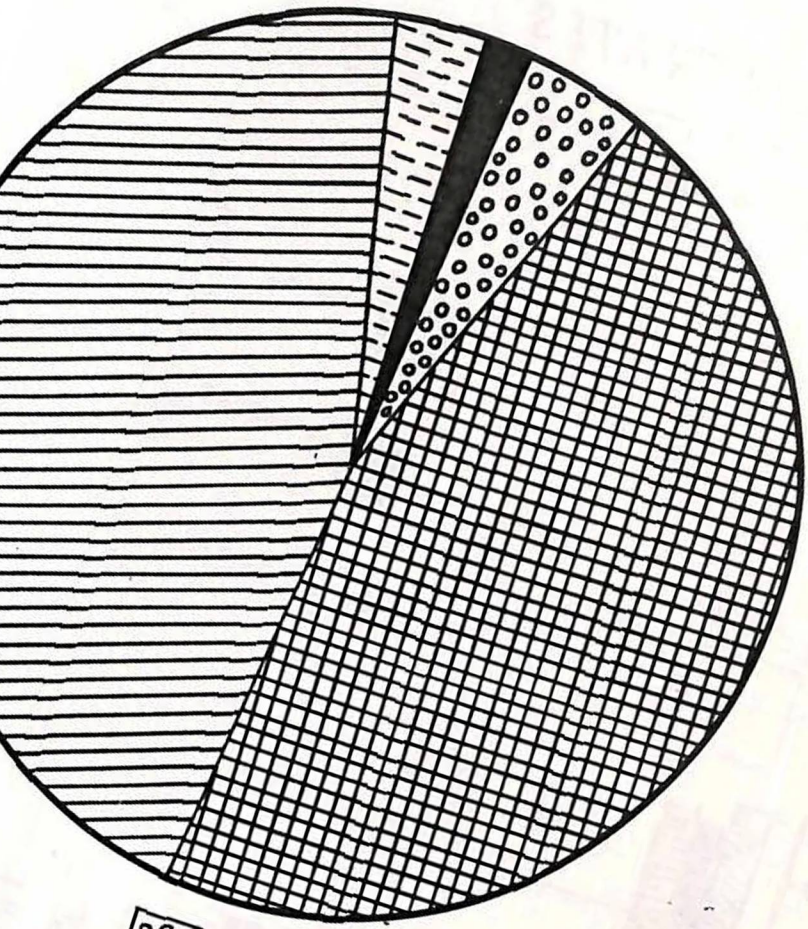


LITERATES

MALES

FEMALES
TOTAL
PERCENTAGES
50
40
30
20
10
5-9
10-14
15-19
20-24
25-29
30-34
55-59
AGE GROUPS

AGE AT MENOPAUSE



35-39 4·50%

40-44 46·07%

50 AND ABOVE 3·37%

REFERENCES

1. Agarwala, S.N. (1970) .. A Demographic Study of Six Urbanising Villages, Asia Publishing House, Bombay.

2. Bogue, J.D. (1969) .. Principles of Demography, John Willey & Sons, New York.

3. Chandrasekhar, S. (1959) .. Infant Mortality in India, George Allen & Unwin Ltd., London.

4. Council for Social Development (1971) .. Shadnagar Standard Fertility Survey, Interim report, C.S.D., Hyderabad.

5. Dandekar Kumudini (1967) .. Communication in Family Planning in India, Gokhale Institute of Politics and Economics, Poona.

6. Ghosh, A.K. & S. Kumari (1973) .. Effect of Menarcheal Age on Fertility, J. Ind. Anthrop. Soc: 8; 165-172.

7. Hans Rao .. Demography, 1989.

8. Mamoria, C.B. (1965) .. Population and Family Planning in India, Kitab Mahal Pvt. Ltd., New Delhi.

9. Mandelbaum, G.D. (1974) .. Human Fertility in India, University of California, Press California.

10. Mathur, Dr.J.S. (1971) .. Introduction to Social and Preventive Medicine, Oxford and I.B.H.Pub. Co., New Delhi.

11. Montague, M.F.Ashley, 1945 .. Adoloscent Sterlity Illinois, Charles C. Thomas.

12. Pratab, B.D., V.V. Ramana Rao and T. Aruna (1976) .. Fertility of Chenchu Women, Tribal Cultural Research & Training Institute, Hyderabad.

13. Pratap, D.R., V.V. Ramana Rao, O.S.V.D. Prasad Rao (1980) .. Fertility and Family Planning among Five Tribal Communities of Srikakulam District, T.C.R. & T.I., Hyderabad.

14. Saksena, D.N. (1973) .. Differential Urban Fertility, Lucknow Demographic Research Centre, University of Lucknow, Statistical Methods, pp 213-23.

15. Singh, I.P. and Bhasin M.K. (1968) .. Anthropometry/Bharati Bhavan, Delhi.

16. Sarkar S.S. and J. Choudhury (1967) .. Differential Fertility and Natural Selection, In Proc. Workshop on Med. and Hum. Population Genetics, S. Rey (Ed.) Central Family Planning Institute, New Delhi.

17. Sarmistha Bhattacharya, Sikha Chatterjee & S.K. Bhattacharya .. Menorcheal Age in some Endogamous Groups of Bengal, J. of Ind. Anthropological Soc. 12.60-68 (1977).

18. U.N.C. 1976 .. Demographic Year Book, U.N.O., New York.

19. C.E.S.S. .. Status of Women and Children in Andhra Pradesh, 1990, Govt. of Andhra Pradesh and UNICEF.

20. Dr. V.N.V.K. Sastry, O.S.V.D Prasad, S. Mohan & V.C. Vijay Kumar .. Women and Child - An overview, UNICEF & Govt. of A.P., 1992.