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A STUDY ON BIOSOCIAL ASPECTS OF INFANT AND CHILDHOOD
MORTALITY AMONG TWO TRIBAL GROUPS OF
LOHIT DISTRICT, ARUNACHAL PRADESH

A REPORT ON THE PROJECT CARRIED OUT UNDER THE J.S.T.F. SCHEME
OF I.S.C.D., GUWAHATI

BY

DIPAK KUMAR ADAK
N.E.C. FELLOW, I.S.C.D.



UNDER THE SUPERVISION OF

PROF.(MISS) RENUKA DAS
DEPARTMENT OF ANTHROPOLOGY
GAUHATI UNIVERSITY
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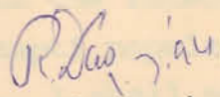
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TO WHOM IT MAY CONCERN

This is to certify that Sri Dipak Kr. Adak, who joined the Institute of Social Change and Development, Guwahati on 28.9.93 as a North Eastern Council Scholar, under Junior Short Term Fellowship Programme was working under my supervision during the period of fellowship.

The report entitled "A Study on Biosocial Aspects of Infant and Childhood Mortality among two Tribal Groups of Lohit District, Arunachal Pradesh" submitted by Sri Adak to ISCD is the result of his own investigation done under my supervision.


(Renuka Das)

Professor
Anthropology Department
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(DIPAK KUMAR ADAK)

ACKNOWLEDGEMENTS

I am profoundly indebted to my Supervisor, Prof. (Miss) Renuka Das, Department of Anthropology, Gauhati University for her valuable guidance and inspiration throughout the course of this study.

I am to acknowledge my deep sense of gratitude to Prof. B.M. Das, UGC Emeritus Fellow, Department of Anthropology, Gauhati University for his invaluable advice, inspiration and encouragement time to time.

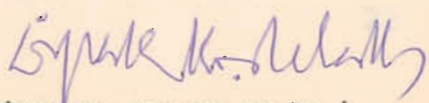
The facilities and financial support which I received from I.S.C.D., Guwahati in the form of N.E.C. Fellow is gratefully acknowledged.

I express my gratitude to Dr. S.C. Ghosal, A.R.O, All India Radio, Tezu; Mr. Somesh Choudhury, A.R.O, Department of Research, Tezu, Mr. C. Gohain, Ex. M.P. Chowkham and Mr. G.K. Bezbaruah, Vice Principal H.S. School, Chowkham for their invaluable assistance in different stages of the work.

I express my sincere thanks to the interpreters and informants of the Miju Mishmi and Khampati population groups of Lohit district, Arunachal Pradesh. I shall never forget their sincere cooperation during the course of my work.

I shall be failing in my duty if I do not express my gratitude and indebtedness to Mr. K.I. Timothy and Mr. Sanjay Sarma, Research Scholars of Physics Department, Gauhati University for their assistance in my work.

Finally I am grateful to Mr. Noor Ahmed for undertaking the responsible job of typing the manuscript.


(DIPAK KUMAR ADAK)

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CHAPTER - I : INTRODUCTION

Children are loved everywhere in this globe. They occupy a special position in people's life. But a large number of them become a cause of sorrow due to their illness and untimely deaths.

The death of infant and child is used as an indicator of general health status of a population. This may be taken as a reliable index of the total health condition of a community as well as a country. For effective planning and implementation of many developmental programmes in any country the knowledge of infant and childhood mortality among different cultural groups and their determinants is essential. The same data are also equally important for formulating family planning, medical and public health programmes.

According to Mahadevan et al.³ "data on various aspects of mortality are needed for the judicious use of the meagre inputs by different agencies of the Government and the voluntary organizations in order to channelise the services in a balance and equitable manner among the needy sections of the population". Rele⁴ says that the survival and growth of any family or a closed social group depends intrinsically upon the level of fertility in relation to mortality.

There has been a progressive decline in infant and childhood mortality in India but our country is still among the high infant and child mortality rate countries of the world. Therefore, the significant growth in India's population on one hand and high rate of infant and child mortality on other hand is a matter of serious concern not only for the demographers, social scientists, economists and policy makers but for each and every conscious citizen of this country.

The determinants of infant, child and adult mortality vary among geographical regions, among cultural groups and also among the countries of various economic status. Again, among the infants and children the risk of death is very closely related to the environment in which they grow. The deaths occur for less medical facilities to deal with infections, inadequate food and lack of elementary hygiene.⁷

OVERVIEW OF LITERATURE

Mortality studies carried out so far in our country are largely based on data generated through census, Sample Registration Scheme, hospital data and National Sample Surveys.⁵ Most of these studies were carried out using secondary data. Though a system of Civil Registration has been in existence in the country since 1879, the vital registration data are grossly deficient, both quantitatively and qualitatively.⁶

However, the pioneering work of Chandrasekhar⁸ based on secondary data, covered most of the dimensions of mortality study besides comparing the findings, cross culturally and internationally. The study of Jain,⁹ based on Bombay and Poona secondary data on mortality. Kulkarni¹⁰ and Agarwala¹¹ focused mainly on establishing the relationship between infant and childhood mortality and its influence on fertility.

Some major studies have been carried out in different parts of India, generating primary data on mortality. For example; Simmons¹² and Smucker et al.¹³ conducted study in Uttar Pradesh. Madadevan et al.⁵ conducted a study on nutrition and infant and childhood mortality. The study area was Andhar Pradesh. Socio-economic and Cultural correlates of infant mortality was studied by Sandhya¹⁴ in Andhra Pradesh.

Though, in North-East India as a whole in comparison to rest of our country very few works have been done on mortality, considerable works on the same are available in Assam in particular.

Among the prominent investigators on physical anthropological studies in Assam, Das et al.¹⁵⁻²¹ have done some pioneering work. They have studied infant and child mortality among several population groups of rural Assam.

THE TOPIC

In Arunachal Pradesh hardly any research has been done to find out infant and child mortality and its correlates particularly among the tribal populations.

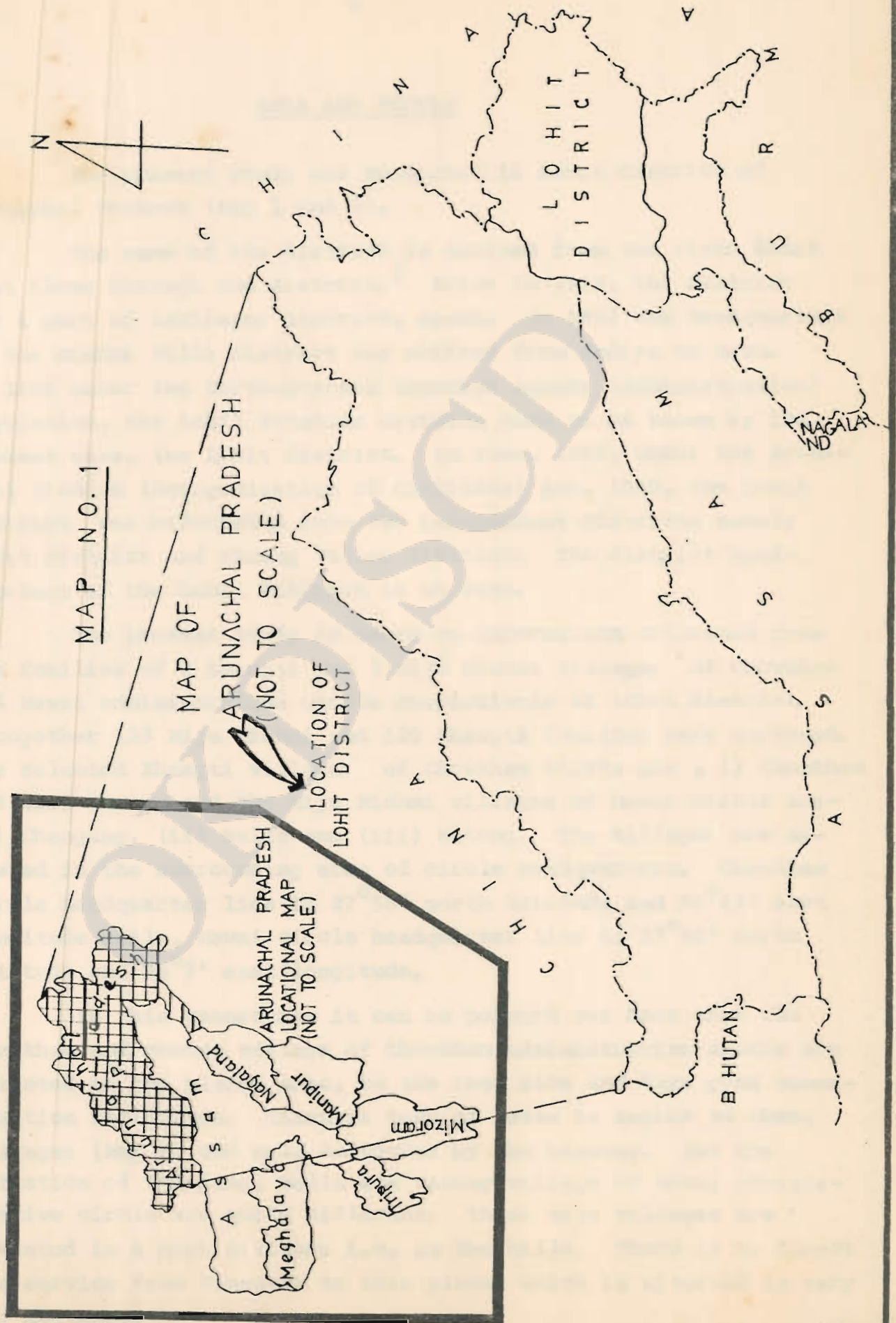
The Khampti and Miju Mishmi of Lohit district of Arunachal Pradesh bear different cultural identity. The Khampti are Buddhist, whereas the Miju Mishmi have their own animistic religious faith. These two populations show dissimilarities in their occupation also. The Khampti are mainly engaged in business like timber merchant, whereas agriculture is the main occupation of the Miju Mishmi.

In the present study an attempt is, therefore made to examine the biosocial aspects of infant and childhood mortality among the Khampti and Miju Mishmi of Lohit district of Arunachal Pradesh.

OBJECTIVES

In the light of the above discussion, the objectives of the present study will be :

1. To find out the rate of infant and child mortality among the Khampti and Miju Mishmi population groups of Lohit district, Arunachal Pradesh;
2. To find out different biosocial factors related with infant and childhood mortality among the said population groups and
3. Finally, to find out the reasons of high/low rate of infant and child mortality among the Khampti and Miju Mishmi.



AREA AND PEOPLE

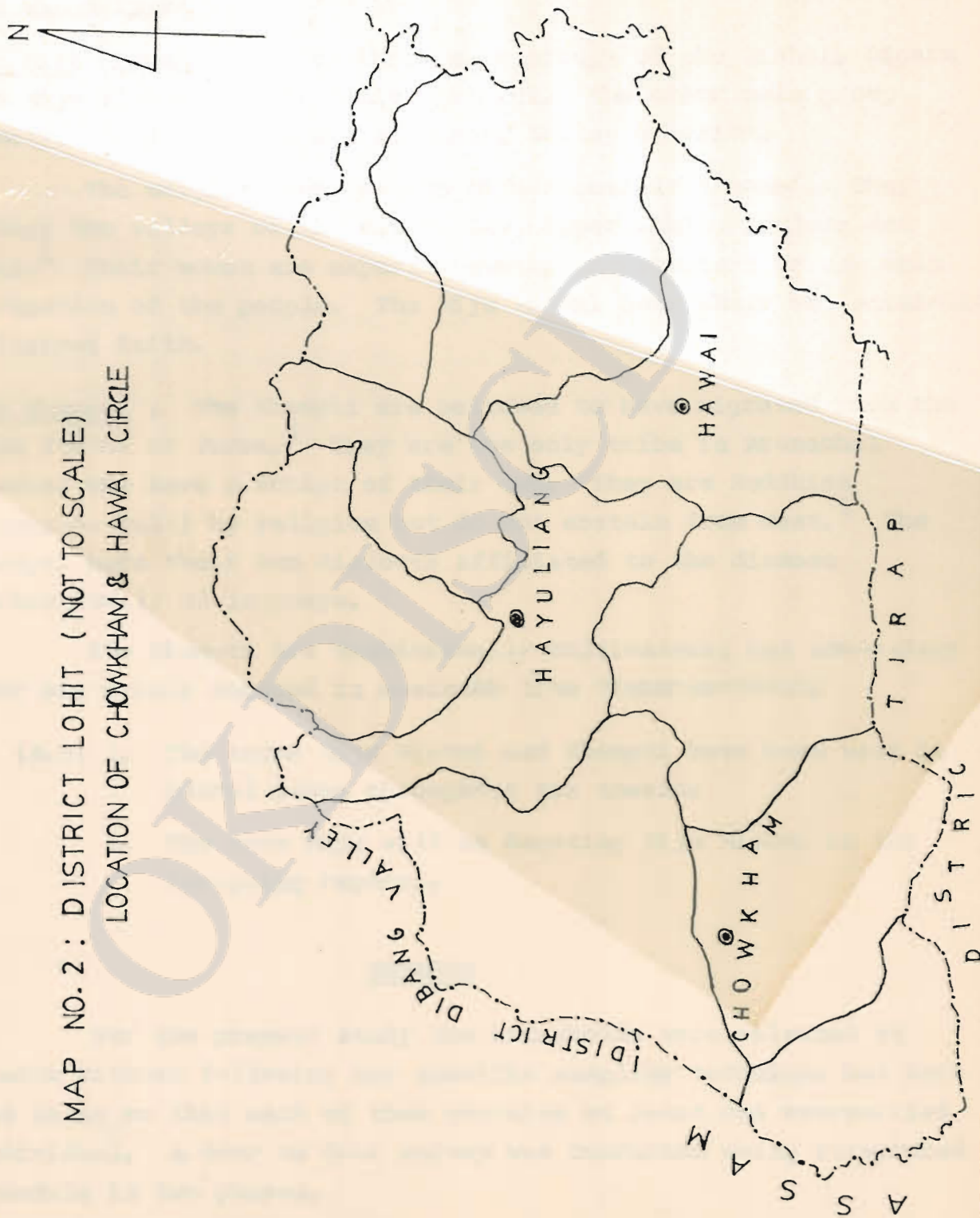
The present study was conducted in Lohit district of Arunachal Pradesh (Map 1 and 2).

The name of the district is derived from the river Lohit that flows through the district.¹ Prior to 1914, the district was a part of Lakhimpur district, Assam. In 1952 the headquarters of the Mishmi Hills district was shifted from Sadiya to Tezu. In 1965 under the North-Eastern Frontier Agency (Administration) Regulation, the Lohit Frontier Division came to be known by its present name, the Lohit district. In June, 1980, under the Arunachal Pradesh (Reorganisation of Districts) Act, 1980, the Lohit district was bifurcated into two independent districts namely Lohit district and Dibang Valley district. The district headquarters of the Lohit District is at Tezu.

The present study is based on information collected from the families of 2 Khampthi and 3 Miju Mishmi villages of Chowkham and Hawai administrative circle respectively of Lohit district. Altogether 123 Miju Mishmi and 120 Khampthi families were surveyed. The selected Khampthi villages of Chowkham circle are : i) Chowkham and (ii) Momong and the Miju Mishmi villages of Hawai circle are- (i) Changung, (ii) Walla and (iii) Watong. The villages are situated in the surrounding area of circle headquarters. Chowkham circle headquarter lies in $27^{\circ}56'$ north latitude and $96^{\circ}43'$ east longitude while, Hawai circle headquarter lies in $27^{\circ}50'$ north latitude and $96^{\circ}7'$ east longitude.

In this connection it can be pointed out here that the Chowkham and Momong village of Chowkham administrative circle are situated in the plains area, on the road side and have good communication facilities. Tinsukia town of Assam is nearer to these villages (Map 2) and well connected by the highway. But the situation of Changung, Walla and Watong village of Hawai administrative circle are quite different. These Miju villages are situated in a high altitude i.e. in the hills. There is no direct bus service from Tinsukia to this place, which is situated in very far distance.

MAP NO.2 : DISTRICT LOHIT (NOT TO SCALE)
LOCATION OF CHOWKHAM & HAWAI CIRCLE



The fieldwork was conducted during the month of February and March, 1994.

The Miju Mishmi : Out of three main groups of the Mishmi, Digaru and Miju Mishmi live in Lohit district. The other main group namely, the Idu Mishmi are in Dibang Valley district.

The original name of the Miju Mishmi is 'Kaman'. They occupy the valleys of the rivers Dav, Upper Lohit, Kamlang and Lati.¹ Their women are expert weavers. Agriculture is the main occupation of the people. The Miju Mishmi have their own animistic religious faith.

The Khampati : The Khampati are believed to have migrated from the Shan states of Burma.² They are the only tribe in Arunachal Pradesh who have a script of their own. They are Buddhist (Hanayana cult) by religion but do not abstain from meat.¹ The Khampati have their own dialects affiliated to the Siamese Burman family of language.

The Khampati are traditionally cultivators, but now-a-days they are mainly engaged in business like timber merchant.

- (N.B: 1. The terms Miju Mishmi and Khampati have been used in plural sense throughout the thesis.
2. The term Muju will be denoting Miju Mishmi in the foregoing report).

METHODS

For the present study the households were selected at random without following any specific sampling technique but care was taken so that each of them contains at least one evermarried individual. A door to door survey was conducted using structured schedule in two phases.

In the first phase general demographic data were collected from 123 Miju and 120 Khampti families. The information was mainly collected from female informants. Difficulties were experienced by the investigator in the assessment of age of the individuals as there is no birth registration or any tradition of written records, though a few of them kept these. Therefore, to obtain the age retrospective method depending on recall has been applied and cross-checked from a number of elderly individuals.

In the second phase 32 Miju and 30 Khampti mothers were specially interviewed who experienced at least one infant or child death during the last decade. In this connection the cases of last deaths only have been taken into consideration.

CHAPTER - II : POPULATION STRUCTURE, INFANT AND CHILD MORTALITY.

In this chapter the following topics have been dealt with :

- i) Sex distribution ;
- ii) Distribution by age and sex ;
- iii) Age, sex and sex-ratio in pre-fertile, fertile and post-fertile age groups;
- iv) Childless mothers ;
- v) Infant mortality;
- vi) Child mortality and
- vii) Mortality before reproductive age.

Sex distribution : Table II.1 shows the sex distribution among the Miju and Khampti. It appears that in both the populations number of females is more than the males. The same is evident in case of sex-ratio values.

On application of Chi-square test it appears that the differences between the two population groups are statistically not significant.

Table II.1: Sex distribution (in %)

Group	No.	Male	Female	M:F
Miju	513	244 (47.56)	269 (52.44)	90.71:100
Khampti	531	255 (48.02)	276 (51.98)	92.39:100
Total	1044	499 (47.80)	545 (52.20)	91.56:100

(Figures in parenthesis indicate percentage value)

χ^2 - analysis, d.f. = 1

Miju Vs Khampti : 0.022

Distribution by age and sex : Populations differ greatly in the way their numbers are distributed in the various age and sex category. Sex and age-group of a population are the building blocks that construct the composition of a population.

Table II.2a and b show the distribution by age and sex for the Miju and Khampti population groups respectively.

Table-II.2a

Distribution by age and sex.

MIJU

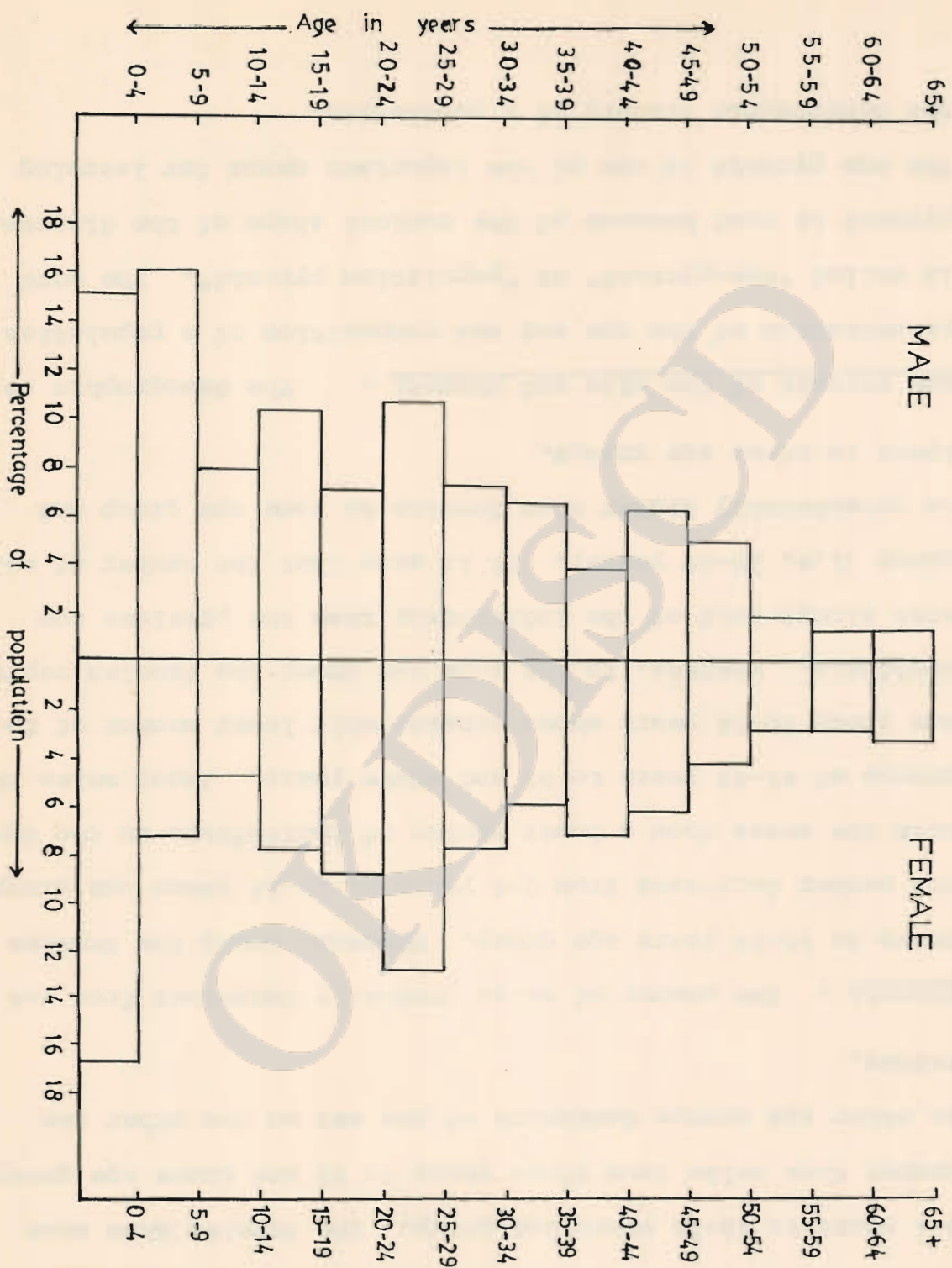
Age group (in years)	Male		Female		Total	
	No	%	No	%	No	%
0 - 4	38	15.57	45	16.73	83	16.18
5 - 9	39	15.98	20	7.43	59	11.50
10 - 14	19	7.79	13	4.83	32	6.24
15 - 19	25	10.24	21	7.81	46	8.97
20 - 24	17	6.97	24	8.92	41	7.99
25 - 29	26	10.65	35	13.01	61	11.89
30 - 34	18	7.38	21	7.81	39	7.60
35 - 39	16	6.56	16	5.95	32	6.24
40 - 44	9	3.69	20	7.43	29	5.65
45 - 49	15	6.15	17	6.32	32	6.24
50 - 54	12	4.92	12	4.46	24	4.68
55 - 59	4	1.64	8	2.97	12	2.34
60 - 64	3	1.23	8	2.97	11	2.14
65 +	3	1.23	9	3.35	12	2.34
Total	244	100.00	269	99.99	513	100.00

Table - II 2b : Distribution by age and sex

KHAMPTI

Age Group (in years)	Male		Female		Total	
	No	%	No	%	No	%
0 - 4	42	16.47	46	16.66	88	16.57
5 - 9	41	16.08	44	15.94	85	16.01
10 - 14	38	14.90	32	11.59	70	13.18
15 - 19	33	12.94	39	14.13	72	13.56
20 - 24	10	3.92	21	7.61	31	5.84
25 - 29	20	7.84	16	5.80	36	6.78
30 - 34	12	4.71	17	6.16	29	5.46
35 - 39	13	5.10	17	6.16	30	5.65
40 - 44	17	6.67	12	4.35	29	5.46
45 - 49	10	3.92	3	1.09	13	2.45
50 - 54	7	2.74	7	2.54	14	2.64
55 - 59	5	1.96	8	2.90	13	2.45
60 - 64	3	1.18	6	2.17	9	1.69
65 +	4	1.57	8	2.90	12	2.26
Total	255	100.00	276	100.00	531	100.00

FIG. 1: AGE PYRAMID OF THE MIJU

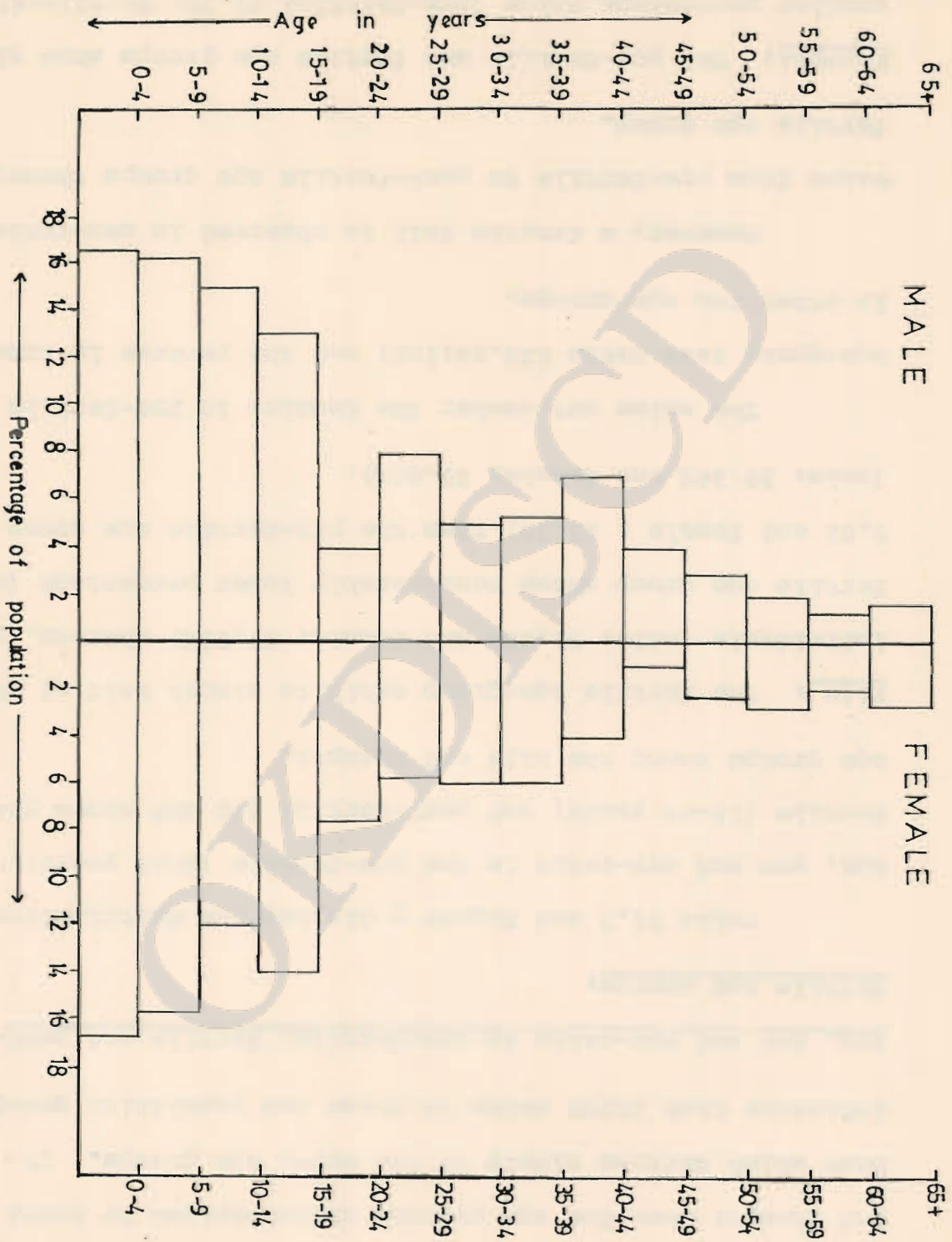


Miju: It is seen that, as the age increases, the number of males and females gradually decreases among the Miju from 0-4 years to 10-14 years age group. The females show more number than males from 45-49 years to 65 and above age groups. In other age groups dominance of one sex on the other sex varies.

Khampti : The number of males gradually decreases from 0-4 years to 15-19 years age group. Whereas, among the females the number decreases from 0-4 years to 10-14 years age group. Both the sexes show a lower number of individuals in the age groups of 45-49 years to 65 and above years. Among males the age group 20-24 years shows considerably lower number of individuals. Whereas, in the same age group the females represent almost half of the individuals than the previous age group (i.e. 15-19 years). It is seen that the number of males is considerably higher than females in some age group and lower in other age groups.

Age pyramid of the Miju and Khampti : The demographic representation of the age and sex composition of a population is called "age-pyramid" or "population pyramid". The word pyramid is used because of the conical shape of the diagram. The age pyramid is one of the important means for learning the demographic history of a population.

FIG. 2: AGE PYRAMID OF THE KHAMPTI



From the figures 1 and 2 it is seen that the Miju and Khampti show the age pyramid characterized by broad base which narrows slowly to the upper age groups. It indicates high birth rates in these two population groups.

Age, sex and sex-ratio in pre-fertile, fertile and post-fertile age groups:

Table II.3 and figure 3 display the distribution of age, sex and sex-ratio in the pre-fertile (0-14 years), fertile (15-49 years) and post-fertile (50 and above years) age groups among the Miju and Khampti.

Miju: The fertile age-group exhibits almost half of the individuals (male: 51.46% and female: 57.25%) whereas, post-fertile age group shows considerably lower percentage (male: 9.02 and female : 13.75) than the pre-fertile age group (male: 39.34% and female: 29.00%).

The males out number the females in Pre-fertile age-group (sex ratio 123.08:100) and the reverse is true in other two age groups.

However, a drastic fall is observed in sex-ratio value from pre-fertile to post-fertile age groups through fertile age group.

Khampti: The pre-fertile and fertile age groups show almost similar percentage value (pre-fertile: 45.76; fertile:45.20) whereas, the post-fertile age group shows considerably low percentage value (male : 7.45; female : 10.51).

FIG.3 : SEX RATIO IN THE PRE-FERTILE, FERTILE
AND POST-FERTILE AGE GROUPS

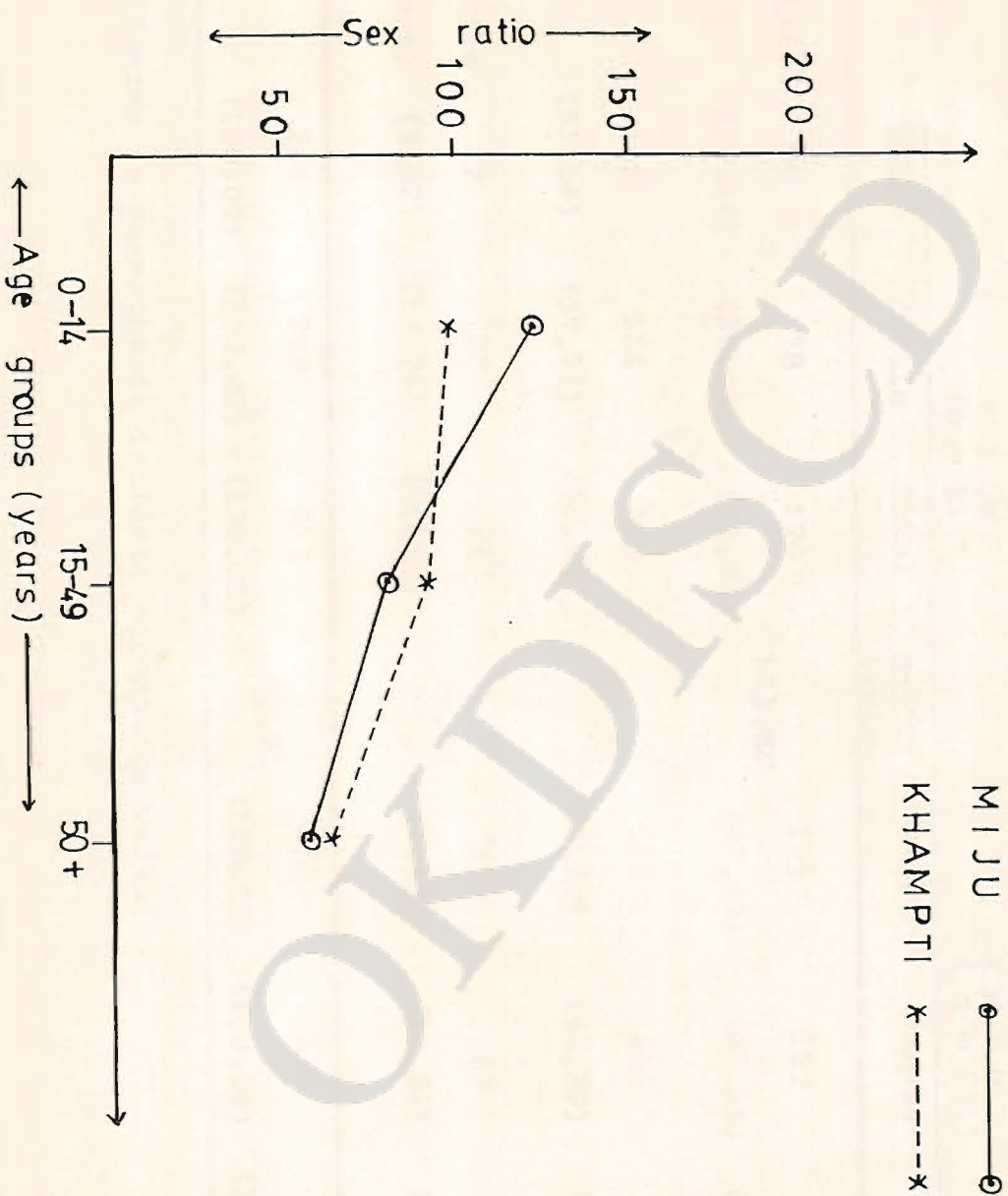


Table - II.3 : Distribution by age, sex and sex-ratio in pre-fertile, fertile and post-fertile age groups

Age group	M I J U (n = 513)			K H A M P T I (n = 531)		
	Male	Female	Total Sex ratio	Male	Female	Total Sex ratio
Pre-fertile (0 - 14)	96 (39.34)	78 (29.00)	174 (33.92) 123.08	121 (47.45)	122 (44.20)	243 (45.76) 99.18
Fertile (15-49)	126 (51.64)	154 (57.25)	280 (54.58) 81.82	115 (45.10)	125 (45.29)	240 (45.20) 92.00
Post-fertile (50 & above)	22 (9.02)	37 (13.75)	59 (11.50) 59.46	19 (7.45)	29 (10.51)	48 (9.04) 65.52
Total	244 (100.00)	269 (100.00)	513 (100.00) 90.71	255 (100.00)	276 (100.00)	531 (100.00) 92.39

(Figures in parenthesis indicate percentage value)

sex-ratio is almost 1:1 in pre-fertile age group. The other two age groups show more number of females than males.

However, it appears that in both the populations number of females is considerably higher than the number of males.

Childless mothers :

The percentage value of childless mothers have been shown in table -II.4 for the Miju and Khampti. It appears that in both the populations there are some recently married women who are yet to give birth of child. Percentage value of childless mothers is slightly higher among the Miju (i.e. 6.50) than the Khampti (i.e. 4.17).

Table - II.4 : Childless mothers

Popula- tion	No.of ever married women	No. of Moth- ers	Childless Mothers			
			Recently In: married	fertile In: Age group (-45yrs)	post ferti- le age group (45+ yrs)	Total
Miju	123	115	5 (4.06)	1 (0.81)	2 (1.62)	8 (6.50)
Khampti	120	115	3 (2.50)	1 (0.83)	1 (0.83)	5 (4.17)

(Figures in parenthesis indicate percentage value)

Infant mortality:

Table II.5 exhibits the percentage value of infant deaths among the Miju and Khampti. Two categories of infant deaths have been made here viz. (i) neo-natal deaths - i.e. from birth to one month of age and (ii) post-neo-natal deaths - from one month to one year of age.

Table -II.5: Infant mortality.

Popu- lation	No.of mothers	Total No.of live births	Neo-natal deaths			Post neo-natal deaths			Total infa- nt de- aths
			M	F	T	M	F	T	
Miju	115	429	10 (2.33)	9 (2.10)	19 (4.43)	17 (3.96)	13 (3.03)	30 (6.99)	49 (11.42)
Khampti	115	397	8 (2.01)	7 (1.76)	15 (3.78)	12 (3.02)	8 (2.01)	20 (5.04)	35 (8.82)

(Figures in parenthesis indicate percentage value)

The Khampti show considerably a lower level of infant deaths (i.e. 8.82%) than the Miju (i.e. 11.42%). In both the populations percentage value of post neo-natal deaths is higher than the neo-natal deaths. It is evident that both the Miju and Khampti show more number of male infant deaths than the females.

Child mortality: The percentage value of child mortality have been shown in table II.6 for both the Miju and Khampti. Here, the child deaths are divided into two categories, viz.

- (i) toddler mortality - death between 1-4 years of age and
- (ii) juvenile mortality - death between 5-14 years of age.

Table II.6: Child Mortality

Population	No. of Mothers	No. of live births	Toddler Mortality			Juvenile mortality		
			M	F	T	M	F	T
Miju	115	429	17 (3.96)	13 (3.03)	30 (7.00)	12 (2.80)	8 (1.86)	20 (4.66)
Khampti	115	397	10 (2.52)	8 (2.01)	18 (4.53)	6 (1.51)	7 (1.76)	13 (3.27)

(Figures in parenthesis indicate percentage value)

It appears that in both the categories the Khampti show a lower percentage of child deaths than the Miju. In case of toddler mortality the Miju exhibit considerably a higher percentage (i.e. 7.00) of child deaths than the Khampti (i.e. 4.53). Both the populations show a lower percentage of juvenile mortality (Miju: 4.66 Khampti : 3.27).

The males died in more number than the females in both the categories for the Miju and in the category of toddler mortality for the Khampti. The percentage value of juvenile mortality for the Khampti is slightly higher among the females than the males.

Mortality before reproductive age :

In table II.7, sex-wise distribution of mortality before the reproductive age (i.e. 0-14 years) has been shown. It is evident that the Miju exhibit considerably a higher percentage (i.e. 23.08) of deaths than the Khampti (i.e. 14.10) in this group. It is to be noticed that both the populations show more number of male deaths than the females in this group.

Table II.7: Sex-wise distribution of mortality before the reproductive age (0-14 years)

Population	No. of Mothers	Total No. of live births	Deaths before the age of 15yrs.		
			Male	Female	Total
Miju	115	429	56 (13.05)	43 (10.02)	99 (23.08)
Khampti	115	397	36 (9.07)	20 (5.03)	56 (14.10)

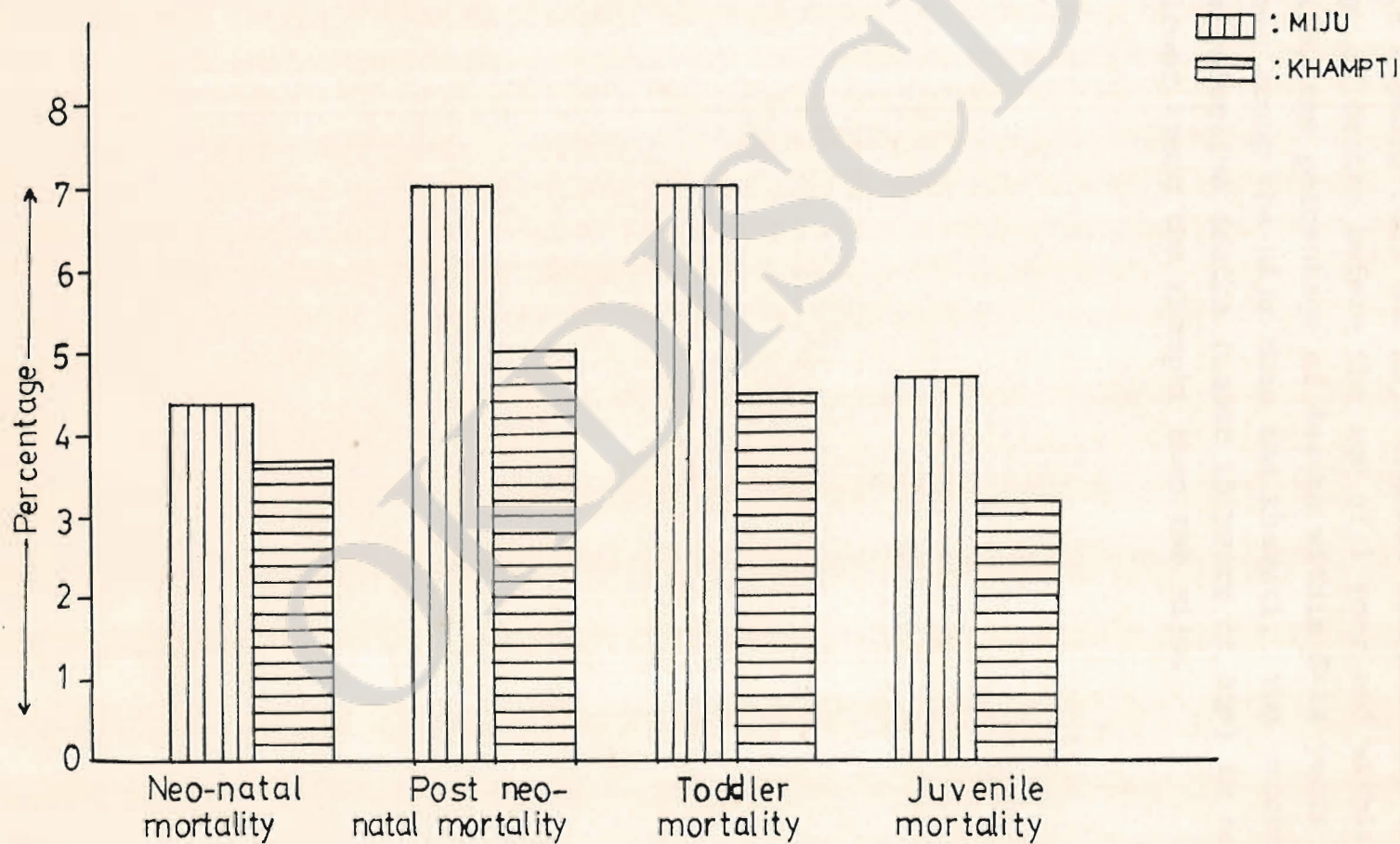
(Figures in parenthesis indicate percentage value)

For a clear view, in Table II.8 a record of conception and fertility has been given for both the Miju and Khampti. Whereas, figure 4 exhibits different infant and child mortalities among the same populations.

Table - II.8: Record of conception and fertility.

Total no. of conception	MIJU (n=115) 449		KHAMPTI (n=115) 412	
	No.	%	No.	%
Live birth	429	95.54	397	96.36
Died within 1 yr.	49	11.42	35	8.82
Died within 1-4 yrs.	30	7.00	18	4.53
Died within 5-14yrs.	20	4.66	13	3.27
Died within 0-14yrs.	99	23.08	56	14.10
Still alive	330	76.92	341	85.89

FIG.4: NEO-NATAL , POST NEO-NATAL , TODDLER AND JUVENILE MORTALITY



It appears that the Miju exhibit considerably higher percentage of deaths before the age of 1 year and within 1-4 years while, the percentage of deaths within 5-14 years is slightly higher among the Miju than the Khampti. The percentage of pre-reproductive deaths (under 15 years of age) is considerably lower among the Khampti than the Miju.

CHAPTER - III: BIOSOCIAL PROXIMATES

Mosley and Chen²² have proposed in their analytical framework that all social and economic determinants of child mortality necessarily operate through a common set of biological mechanism, or proximate variables, to exert an impact on mortality. It is well established that many biosocial proximates are involved for survival and well being of a child. To understand different biosocial proximates in relation to infant and child mortality and their survival it is essential to study different biosocial habits in a community.

In this section altogether 11 biosocial proximates have been dealt for the Miju and Khampti. These are :

- 1) medical treatment of child,
- 2) instrument used to cut the umbilical cord,
- 3) immunization of expectant mother,
- 4) regular medical check-up of mother during pregnancy,
- 5) place of delivery,
- 6) birth attendant,
- 7) sense of personal hygiene of mother,
- 8) immunization of child,
- 9) education of mother,
- 10) mother's age at first child birth and
- 11) mother's age at marriage

The data collected in the second phase have been taken into consideration in this section i.e. the mothers who experienced at least one infant or child death during the last decade. And the cases of last deaths only have been studied here.

The reason for considering the last deaths is that complete information regarding that particular delivery is available. But if we consider the earlier deaths we have to depend mainly on recall method in which there are strong

possibilities of recall lapses. So, for the shake of accuracy of data we have restricted our observations only on last deaths. For this purpose 32 Miju and 30 Khampti mothers were specially interviewed. It is to be noted here that as per the views of these mother the investigator could not find any difference in male and female child care among the two populations.

Table III.1 shows the frequencies of various biosocial proximates in relation to infant and child mortality among the Miju and Khampti population groups. It is seen that in respect of each of the proximates there exist considerable differences between these two populations. However, since this table is self explanatory it needs no further description, but occasional reference to this table will be made while dealing with each proximate.

Table - III.1: Biosocial proximates among the Miju and Khampti.

Proximates	MIJU (n=32)		KHAMPTI (n=30)	
	No.	%	No.	%
1	2	3	4	5
1. <u>Medical treatment of child:</u>				
a) Regular	7	21.87	18	60.00
b) At times	25	78.13	12	40.00
2. <u>Instrument used to cut the umbilical cord:</u>				
a) Indigenous	20	62.50	10	33.33
b) Modern	12	37.50	20	66.67
3. <u>Immunization of expectant mother during pregnancy:</u>				
a) Completed	8	25.00	12	40.00
b) Incomplete or not taken	24	75.00	18	60.00

Contd.

1	2	3	4	5
4. <u>Regular medical check-up of mother during pregnancy:</u>				
a) Yes	6	18.75	10	33.33
b) No	26	81.25	20	66.67
5. <u>place of Delivery:</u>				
a) Home	25	78.13	13	43.33
b) Hospital	7	21.87	17	56.67
6. <u>Birth attendant:</u>				
a) Unskilled	25	78.13	10	33.33
b) Medical	7	21.87	20	66.67
7. <u>sense of personal hygiene of mother:</u>				
a) Yes	9	28.12	13	43.33
b) No.	23	71.88	17	56.67
8. <u>Immunization of Child:</u>				
a) completed	4	12.50	10	33.33
b) partly complete	10	31.25	12	40.00
c) Not taken	18	56.25	8	26.67
9. <u>Education of Mother:</u>				
a) Illiterate	19	59.37	7	23.33
b) Just literate	10	31.25	9	30.00
c) Primary & above	3	9.38	14	46.67
10. <u>Mothers' age at first child birth:</u>				
a) 14-18 years	27	84.37	14	46.67
b) 19-23 years	3	9.38	13	43.33
c) 24 + years	2	6.25	3	10.00
11. <u>Mother's age at Marriage:</u>				
a) 13-17 years	26	81.25	13	43.33
b) 18-22 years	4	12.50	14	46.67
c) 23 + years	2	6.25	3	10.00

To find out whether there exist significant differences or not for each of the proximates between the Miju and Khampti two statistical methods have been applied on the basis of the findings of Table III.1. These are:

- (i) binomial test of equality of proportion (Table III.2a) and
- (ii) χ^2 - test (Table III.2b).

All the 11 proximates have been described below separately.

Table III.2a: Binomial test of equality of proportion in relation to biosocial proximates.

Proximates	MIJU	VS	KHAMPTI
	T_1	T_2	Inference
1. Medical treatment of child	0.3800	0.1247	S
2. Instrument used to cut the umbilical cord	0.2917	0.1270	S
3. Immunization of expectant mother during pregnancy	0.1500	0.1187	N.S
4. Regular medical check-up of mother during pregnancy	0.1458	0.1111	N.S
5. place of delivery	0.3478	0.1238	S
6. Birth attendant	0.4479	0.1260	S
7. Sense of personal hygiene of mother	0.1521	0.1216	N.S.

Note: S = Significant
N.S = Not significant.

Table III.2b: χ^2 -test in relation to biosocial proximates

Proximates	MIJU	VS	KHAMPTI
	χ^2 -value		Inference
1. Immunization of child	6.54		Significant
2. Education of mother	12.65		Significant
3. Mother's age at first child birth	10.52		Significant
4. Mother's age at marriage	10.03		Significant

1. Medical treatment of Child: From the binomial test of equality of proportion it appears that in respect of medical treatment of child (regular or at times) significant differences exist between the Miju and Khampti (table III.2a). It is seen that the Khampti prefer regular treatment by medical doctors more than the Miju (table III.1). This may be considered as one of the probable reason for higher infant and child mortality among the Miju than the Khampti.

2. Instrument used to cut the umbilical cord: This proximate also exhibits a similar trend with the earlier proximate. It appears that to cut the umbilical cord the Khampti used modern instrument more in number than the Miju (Table III.1).

3. Immunization of expectant mother during pregnancy: Regarding immunization of the expectant mothers, no such significant differences exist among the Miju and Khampti (Table III.2a). This is also quite apparent from Table III.1.

4. Regular medical check-up of mother during pregnancy: This proximate also shows a similar trend like the earlier proximate i.e. in this case also no significant difference has been found in two populations (table III.2a). Both the Miju and Khampti show considerably lower number of mothers who go for regular medical check-up during pregnancy.

5. Place of Delivery:

Taboo related with birth among the Miju: It has been mentioned in the District Census Handbook of Lohit, 1981¹ that according to the Digaru and Miju custom a parturient woman can not deliver inside her dwelling house. A small temporary shed is erected in the jungle near her house before the expected time of delivery. And no male person is allowed to that shed except the females. Immediately after delivery the mother is to come back home alongwith the newly born baby and to remain in her own bed room for eleven days in case of a male child and for ten days in case of a female child and these days are observed as taboo during which the mother never goes out and does any work even

inside the house. On the last day of the taboo an offering is made by sacrificing a fowl for the well being of the mother and child.

The same trend is prevalent till today among the Miju. But during fieldwork while interviewing the mother the author faced some educated mothers who have preferred hospital to deliver their baby instead of their home. It is found that their number is comparatively lower than the mothers who delivered their baby at home.

Table III.2a indicates that in respect of place of delivery the two populations differ significantly. It is observed that considerably a higher percentage of Miju mother (i.e. 78.13) delivered their baby at home than the Khampti (43.33%). It may be well assumed that medical care must be much better in hospital than at home.

6. Birth attendant : In case of birth attendant significant differences exist between the two populations (Table. III.2a). It is evident from table III.1 that the number of deliveries attended by the medical personnel is higher among the Khampti (i.e. 66.67) than the Miju (21.87).

7. Sense of personal hygiene of mother : Regarding the sense of personal hygiene of mother there exists no significant differences between the two populations (table III.2a.). From Table III.1 it appears that the Khampti mothers have comparatively better sense of personal hygiene than the Miju mothers.

8. Immunization of Child: In case of immunization of child it is found that the Khampti differ significantly from the Miju (table III.2b). It is observed from table III.1 that considerably more number of Khampti children have completed immunization than the Miju.

9. Education of mother: Table III.2b indicates that in respect of education^{of} mother the two populations differ significantly. The Miju exhibit higher percentage of illiterate mothers (i.e.

59.37) than the Khampti (23.33). It is well known that education of mother plays an important role in child survival and child mortality in a community.

10. Mother's age at first child birth : This proximate also shows a similar trend like the earlier proximate i.e. in this case also significant difference has been found between two populations (Table III.2b). It appears that a high percentage of Miju mother (i.e. 84.37) show the age at first child birth in the category of lower age group (i.e 14-18 years). Whereas, the Miju mothers show considerably a lower percentage (i.e. 46.67) in the lower age group.

11. Mother's age at marriage: Regarding the mother's age at the time of marriage there exist significant differences between the Miju and Khampti (table III.2b). From table III.1 it appears that the Miju mothers show lower age at marriage in higher percentage (i.e. 81.25) than the Khampti (43.33).

It is well known that like the low age of mother at first child birth, low age of mother at marriage is also a probable cause of higher rate of infant and child mortality in a community. So, like the earlier findings this finding can also be taken into consideration as a probable cause for higher rate of infant and child mortality among the Miju than the Khampti.

Taking into consideration all these bio-social proximates it is found that (table III.3) the Khampti significantly differ from the Miju in 8 proximates out of 11 proximates. In chapter II it has already been stated that both the infant and child mortality rate are considerably lower among the Khampti than the Miju. The probable reasons for the lower rate of infant and child mortality among the Khampti may be due to the fact that the Khampti largely depend on regular medical treatment of child, immunization of child and delivery in hospital rather than at home. Besides, it is found that the Khampti mothers have better education and both the ages i.e. at the time of marriage and at the time of birth of first child are higher than the Miju.

Table III.3 : Biosocial Proximates in two populations

Sl. No.	Proximates	MIJU VS KHAMPTI
1.	Medical treatment of child	significant
2.	Instrument used to cut the umbilical cord	significant
3.	Immunization of expectant mother during pregnancy	Not significant
4.	Regular medical check-up of mother during pregnancy	Not significant
5.	Place of delivery	Significant
6.	Birth attendant	Significant
7.	Sense of personal hygiene of mother	Not significant
8.	Immunization of child	Significant
9.	Education of mother	Significant
10.	Mother's age at first child birth	significant
11.	Mother's age at marriage	Significant

From the above findings it appears that health consciousness is better among the Khampti than the Miju. These observations corroborate with the findings of infant and child mortality rate observed among the two populations (chapter -II).

CHAPTER - IV : DISCUSSION

In the present study, population structure of the Miju and Khampti deals with the distribution of age and sex, sex-ratio in prefertile, fertile and post-fertile age groups and childless mothers, while the infant and child mortality deal with neo-natal, post neo-natal, toddler, juvenile and pre-reproductive deaths.

In both the Miju and Khampti population groups the females outnumber the males. Again, both the populations exhibit the age-pyramids characterizing with broad base which narrows slowly to the upper age groups, suggesting a trend of high birth rate, in each population.

In the Miju and Khampti the overall sex-ratios are 90.71 and 92.39 respectively. Among the Miju a drastic fall in sex-ratio is observed from the pre-fertile to post-fertile age group through the fertile age group, while preponderance of sex-ratio in the pre-fertile and fertile age groups over the post-fertile age group is noticed in the Khampti.

It appears that in case of deaths before the age of 1 year and within 1-4 years the Miju exhibit considerably higher percentage than the Khampti, while the percentage of deaths within 5-14 years is slightly higher among the Miju than the Khampti. The pre-reproductive deaths (under 15 years of age) is considerably lower (14.10%) among the Khampti than the Miju (23.08%).

It is to be noticed that in all these mortalities (i.e. before the age of 1 year, within 1-4 years, within 5-14 years and under 15 years of age) both the populations show more number of male deaths than the females. In most of the countries of the world it has been observed that, mortality

condition shows different trends between males and females. General experience says that, females have an overall advantage over males with respect to mortality.²⁵ In the present study we found female population in lower age groups (0-4 and 5-9 years) are more than the males in both the populations.

It has been observed that the Khampti largely depend on regular medical treatment of child, immunization of child and delivery in hospital rather than at home. This reflects their better sense of health consciousness. Besides, the Khampti mothers have better education and the ages, at the time of marriage and at the time of first child birth are also considerably higher among them than the Miju mothers. It has been found that the Khampti significantly differ from the Miju in 8 biosocial proximates out of 11.

It is well recognised that biosocial background plays a vital role in infant and child mortality and child's chances of survival in any population group. In the present study the above findings can be considered as the probable reasons for the lower level of infant and child mortality among the Khampti than the Miju.

In this connection it can be pointed out here that the Chowkham and Momong village of Chowkham administrative circle are situated in the plains area, on the road side and have good communication facilities. Tinsukia town of Assam is nearer to these Khampti villages and well connected by the highway. As a result, the Khampti of Chowkham and Momong enjoy modern transport facilities and can go for better medical treatment to Tinsukia whenever problem arises.

But the situations of Changung, Walla and Watong villages of Hawai administrative circle are quite different. These Miju villages are situated in a high altitude i.e. in the hills. There is no direct bus service from Tinsukia to this place,

which is situated in very far distance. The Miju are living there permanently decades after decade, depending mainly on shifting cultivation, who hardly come down to reach the nearest urban centre Hayuliang for other necessities. The only way to reach their area is a hanging bridge. And after crossing the bridge one has to walk the rugged terrain in the upper areas for near about two hours. In this area communication is cumbersome difficult and irregular round the year and to reach the district headquarter Tezu one has to depend mainly on defence vehicle which is irregular too. For all these reasons the availability of modern amenities and health care facilities are quite poor in this area.

Therefore, this may be the reason that because of geographical barrier and lack of proper knowledge the Miju in the present study show a poor biosocial background (chapter III, Table-1). And due to their poor biosocial background they show higher level of infant and child mortality than the Khampti.

CHAPTER - V : SUMMARY

Apart from their use as demographic measure, the level of infant and child mortality are important as the indicators of health and general standard of living of a community. For effective planning and implementation of many developmental programmes in any country the knowledge of infant and child mortality among different cultural groups and their determinants is essential. It is well recognised that biosocial background plays a vital role in mortality pattern.

Though a few studies in this aspect have been conducted on some population groups in India as well as in North-East India by different investigators at different times no such investigation has so far been undertaken among any tribal population of Arunachal Pradesh.

In the present study an attempt has been made to deal with the biosocial aspects of infant and childhood mortality among two tribal groups of Lohit district, Arunachal Pradesh.

The present study was carried out among two mongoloid populations of Lohit district namely, the Miju and Khampiti. The two populations differ from one another in culture and occupation. Agriculture is the main occupation of the Miju and they have their own animistic religious faith, whereas the Khampiti are Buddhist (Mahayana cult) by religion and mainly engaged in business like timber merchant.

The materials for the present study were collected during the months of February and March 1994 using schedules and questionnaire. Data collection was made in two phases. In the first phase altogether 123 Miju and 120 Khampiti families were surveyed. In the second phase 32 Miju and 30 Khampiti mothers were interviewed who experienced at least one infant

or child death during the last decade. In this connection the cases of last deaths were only taken into consideration.

It has been found that in both the populations females outnumber the males. Among the Miju and Khampti the number of individuals gradually decreases from 0-4 years to 10-14 years age group. In other age groups dominance of one sex on the other sex varies.

Both the populations show the age-pyramid characterizing with broad base which narrows slowly to the upper age groups, which indicates high birth rates in these two populations.

In case of childless mothers it appears that in both the populations there are some recently married women who are yet to give birth of child.

Out of 449 live births among the Miju and 412 live births among the Khampti, 11.42% and 8.82% respectively, died before the age of 1 year, 7% and 4.53% respectively died within 1-4 years of age, 4.66% and 3.27% respectively died within 5-14 years of age. Thus, it appears that the Miju exhibit considerably higher percentage of deaths before the age of 1 year and within 1-4 years while, the percentage of deaths within 5-14 years is slightly higher among the Miju than the Khampti.

The percentage of pre-reproductive deaths (under 15 years of age) is considerably lower (14.10%) among the Khampti than the Miju.

It is interesting to note that in case of all these mortalities both the populations show more number of male deaths than female deaths.

In respect of different biosocial proximates related with infant and child mortality and their chances of survival it has been noticed that among both the populations there exist considerable differences between two populations. The Khampti largely depend on regular medical treatment of child,

immunization of child and delivery in hospital rather than at home. Besides, Khampti mothers are better educated and among them both the ages i.e. at the time of marriage and at the time of birth of first child are higher than that of the Miju. It has been found that the Khampti significantly differ from the Miju in 8 proximates out of 11 proximates.

In the present study the above findings may be the probable reasons for the lower level of infant and child mortality among the Khampti than the Miju.

In this connection it can be mentioned here that because of rugged terrain in the Miju area of Hawai Circle communication is cumbrous difficult and irregular. As a result, the availability of modern amenities and health care facilities are quite poor in this area.

But the Khampti villages of the present study are situated in the plains area, on the road side and have good communication facilities. Tinsukia town of Assam is nearer to these villages and well connected by the highway. Due to this the Khampti of the present study enjoy modern transport facilities and can go for better medical treatment to Tinsukia when problem arises.

Therefore, perhaps because of geographical barrier and lack of proper knowledge the Miju of the present study show a poor biosocial background and due to their poor biosocial background they show higher level of infant and child mortality than the Khampti.

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