CHAPTER-XI

CHAPTER NO. XI SOCIAL FACTORS IN LEPROSY

The idea of applying cultural geographic concepts to medical geography is certainly not a new one. Disease ecologists have always stressed the importance of human behaviour in host, agent vector and environment interaction. But the study of the interaction between, culture and health is specially important in under-developed countries like India, because "people in such countries, characterized by a slow rate of change, have adopted certain health practices, habits, medicaments and a general view of health along certain traditional lines What often appears to be a dogged adherence of conservative people to harmful ways is not pure stubborness -it is just that the new change adovacted do not make sense to them..... There can be no escape from facing and solving the cultural equation of medicine, health, illness and treatment". (R.P. Misra, 1970).

Thus infulence of social environment and culture on health of individuals, families, communities and nations, has been widely accepted Every culture has developed a system of medicine and medical history. At the individal

level. health status of a person depends more on his health behaviour pattern, his physical and socio- cultural environments. At the societal level, however, various other factors impinge on health. Since family is the natural basic unit of community and society, the society health largely depends on the health of individual families. Thus, family health, in turn, depends on many variables-economic status, socio-cultural milieu of the family, socialisation process in the family and so on.

But it is quite evident that no two communities are similiar in beliefs, habits, taboos, etc. related to food, feeding practice, faith in cure of disease, sanitation, hygine and so on, which have a bearing on health status. Culturally conditioned habits some times go counter to healthy habits (A.M. Kurup, 1991). The 'Supernatural theory of disease; for e.g., arose out of the belief of the primitive man who attributed all sufferings, including disease to wrath of gods and the invasion of the body by evil sprits. To top them all, is the poverty syndrome, characterised by low incomes, low educational level, poor sanitary conditions, diminished food intake, repeated episodes of infectious disease, too many and too closely

spaced births, low parental attention which are all directly related to health care system which impinge on health status. Thus it becomes of utmost importance to take into account the socio-cultural factors which help promotion of health care and prevention of morbidity.

11.1 Geographical Importance :

From the above discussion a question arises, how cultural factors can help medical geographers to understand spatial patterns of health care delivery. Eyles and Woods (1991) have made a strong case for viewing health care provision in its entire cultural and social context. Studies of disease and health, they believe, should look at such factors as class structure, health belief and the constraints that society sets on the ways in which treatment is provided. Many geographic and non-geographic studies exist that describe health care systems within cultural contexts. They also examine the role of cultural variable like ethnicity and deal with culture-influence behaviour. A health care system is composed of three components of culture, viz., artifacts, socio-facts and mentificats and all of these componets influence spatial

patters of delivery.

The cultural traits like ethnicity, language, religion, political economic system and behaviour are quite familiar to geographers. But such cultural traits may differ from place to place. Thus there is little doubt that medical geography would benefit from further investigation into how health care systems vary from place. Regional comparision put one's own health care delivery system into perspective and suggest both limits to, and possibilities for, change. Further regionalization can aid in deciding what factors are common to health care system everywhere and what features appear to be culture-specific. This distinction has clear policy implications.

11.2 Classification of Leprosy Cases by Different Ethnic Groups

The occurence of leprosy shows considerable variation among different ethnic groups in different countries. Such variation are often more geographic than ethnic. However, where variations are observed among different ethnic groups living in the same country or area and apparantly

sharing the same environment the variations are obviously due to factors other than geographical (S.K. Noordeeen, 1985). Such ethnic differences have been observed in Vadodara district where several types of caste and communities are present. According to 1981 Vadodara district census hand book the caste classification has been done in two major groups as schedule caste and schedule tribes. The different categories of leprosy cases found during survey can be classified into three major groups, viz, Schedule Caste, Schedule Tribes and others, caste groups. Out of the 770 cases surveyed, 246 or 32% are schedule caste, 332 or 43% are schedule tribes and the remaining 192 or 25% belong to other caste groups among general population as shown in table 11.1.

Table 11.1 : Castewise classification of Leprosy cases traced during survey.

Sr. No.	Name of Caste	Child cases	Relapse cases	Adult cases	RFT cases	Total Cases	% from Sub-total
I	**Schedule Caste**						
1	Bariya	5	4	27	37	73	29.8
2	Dhanak	-	-	-	4	4	1.6
3	Gamti	-	-	1	2	3	1.2
4	Harijan	7	-	8	22	37	15.0
5	Koli	-	-	-	5	5	2.0
6	Kharva	-	-	2	-	2	0.8
7	Kachiya	1	-	-	-	1	0.4
8	Luhar	2	-	2	-	4	1.6

Cont...

Sr. No.	Name of Caste	Child cases	Relapse cases	Adult cases	RFT cases	Total Cases	% from Sub-total
I	Schedule Caste						
9	Mali	-	-	2	4	6	2.4
10	Pamar	6	2	14	28	50	20.8
11	Prajapati	3	1	4	-	8	3.2
12	Rana	-	-	3	-	3	1.2
13	Rohit	2	1	1	10	14	5.6
14	Solanki	-	-	-	5	5	2.0
15	Vaghodia	-	-	6	3	9	3.6
16	Vankar	-	-	-	14	14	5.6
17	Vadhala	-	-	-	2	2	0.8
18	Vanjara	2	1	1	-	4	1.6
19	Vaniya	1	-	-	-	1	0.4
20	Yadav	1	-	-	-	1	0.4
	Sub total(%)	30(12)	9(4)	71(27)	136(55)	246(100)	100.0
	% from GT	26	25	40	31	32	-
II	Schedule Tribe						
21	Bhoi	-	-	-	6	6	1.8
22	Bhil	6	-	4	19	29	8.7
23	Bharvad	2	-	3	-	5	1.5
24	Bhaliya	1	1	-	-	2	0.6
25	Dungar Bhil	2	1	-	5	8	2.4
26	Machi	1	-	4	2	7	2.1
27	Nayak	8	1	12	17	38	11.6
28	Pava	-	-	-	3	3	0.9
29	Rathava	8	2	11	32	53	16.0
30	Rabari	2	-	-	2	4	1.2
31	Vasava	21	5	8	65	99	29.8
32	Tadvi	10	7	20	41	78	23.4
	Sub-Total(%)	61 (18.3)	17 (5.1)	62(18.6)	192 (58)	332(100)	100.0
	% from GT	54	47.3	35	43	43	-

III	Others Caste	Child cases	Relapse cases	Adult cases	RFT cases	Total cases	% from Sub-Total
33	Brahmin	-	-	6	4	10	3.2
34	Chauhan	4	1	3	12	20	10.4
35	Gohil	-	-	-	14	14	7.3
36	Jaswal	1	-	-	-	1	0.5
37	Maratha	1	-	5	3	9	4.8
38	Mansoor	1	-	4	-	5	2.6
39	Marwadi	-	1	-	-	1	0.5
40	Nepali	-	1	-	-	1	0.5
41	Pathan	3	-	2	6	11	5.7
42	Patidaar	2	2	3	16	23	12.2
43	Rathodia	5	3	6	29	43	22.3
44	Rajput	4	2	9	25	40	20.8
45	Sheik	1	-	4	4	9	4.6
46	Vohara	-	-	2	3	5	2.6
	Sub Total(%)	22(11.4)	10(5.2)	44(23)	116(60.4)	192(100)	100.0
	% from GT	19.6	27.7	25	26	25	
	Grand Total (GT)	113	36	177	444	770	

N.B. : The caste classification is based on 1981 census of Vadodara. Among the tribes maximum occurence is found amongst communities such as Vasava (29.8%), Tadvi (23.4%), Rathava (16.0%)), Nayak (11.6%) and Bhil as shown in figure 11.1a. Similiarly among the Schedule Caste Bariya Community has the largest number of cases (29.8%) followed by parmar (20.8%) and Harijan (15.0%) as shown in Figure 11.1b. Among the remaining population the Rathodia Community had highest number of cases (22.3%) followed by Rajput (20.8%), Patidaar (12.2%) and Chauhan (10.4%) as

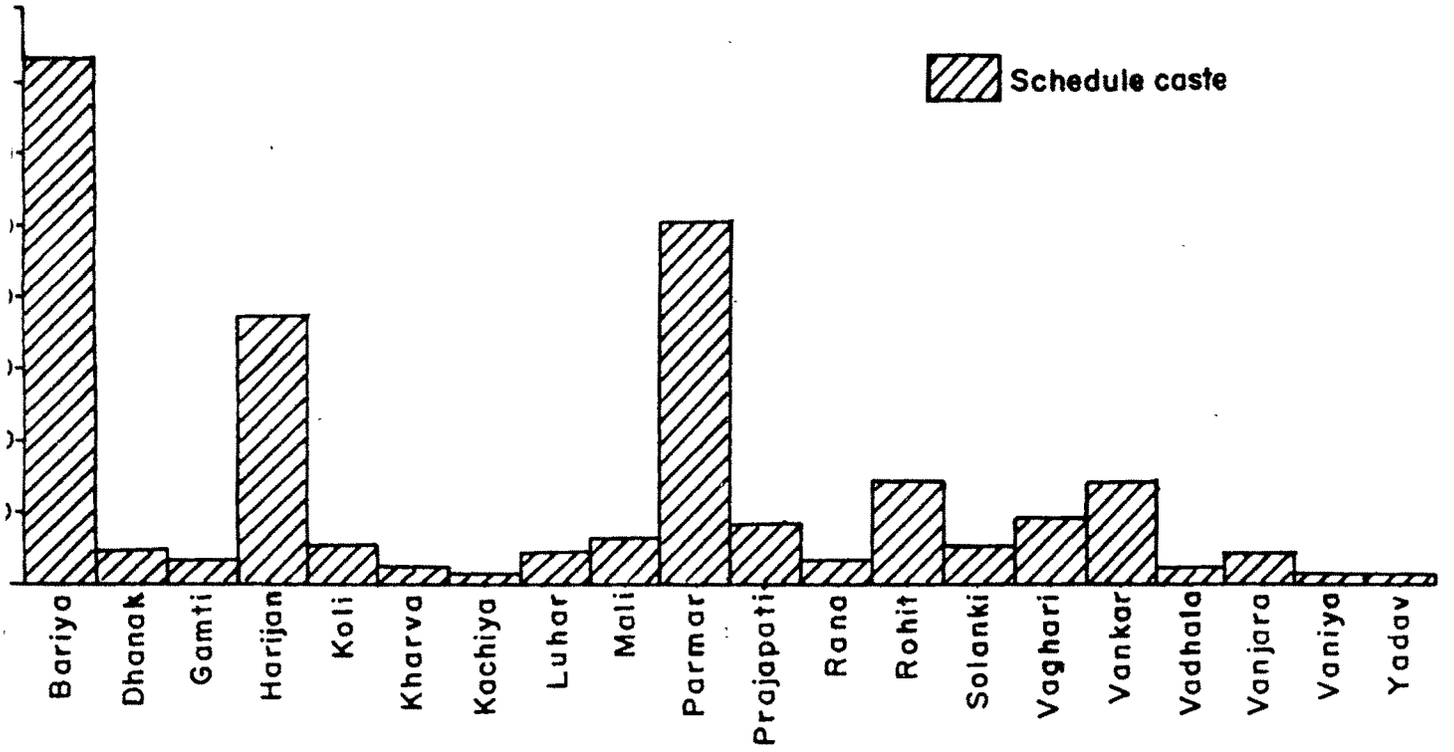

Fig. II-1a

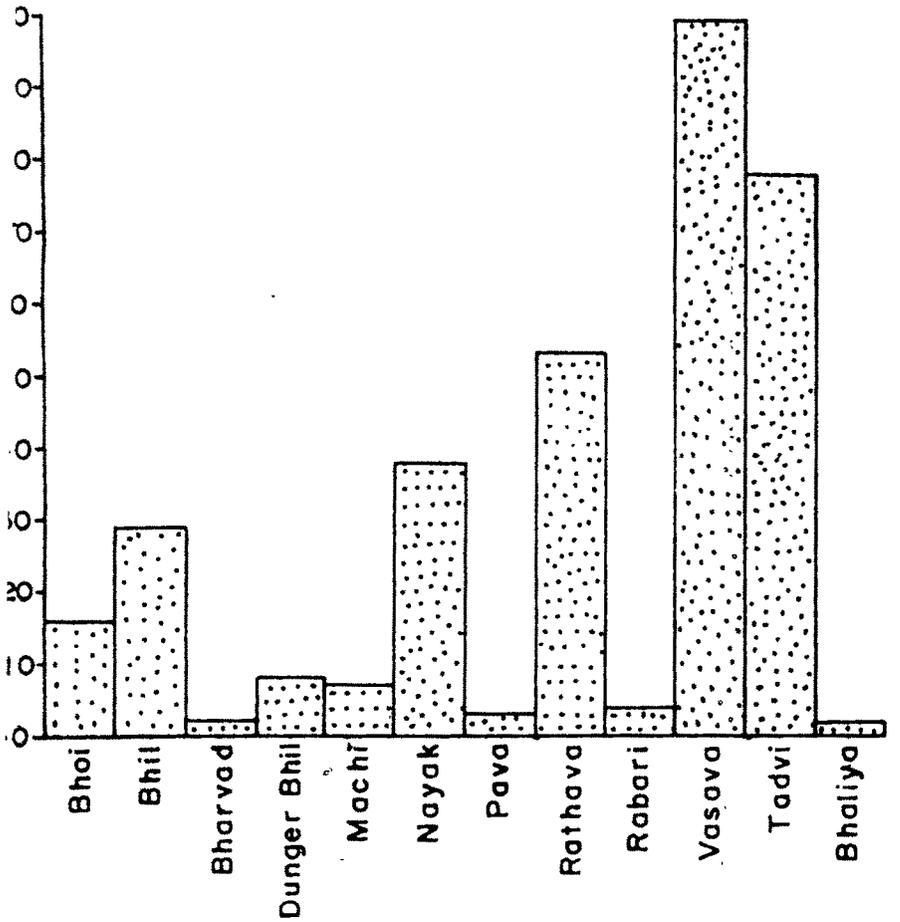

Fig. II-1b

shown in Figure 11.1c. The prepondenance of cases among backward and minority communities is thus very prominent.

It is apparaent from table 11.1, that the largest number total child cases belong to the tribal community. Maximum adult cases are found among schedule caste followed closely by schedule tribes. The relapse cases are also maximum amongst the tribals. The above findings suggest that greater care must be provided the children of tribal community. (Figure 11.2).

The large number of relapse cases in tribal communities may be due to their negligence towards leprosy treatment. All these seem to indicate that socio-economic conditions including literacy, income, living standards and occupation may have a significant role to play in the occurence of the disease. The fact that the disease does occur even amongst higher caste, although with lesser frequency seems to strengthen this assumptions. So the relationship of the disease with ethnic groups seems to operate more through the socio-economic factors.

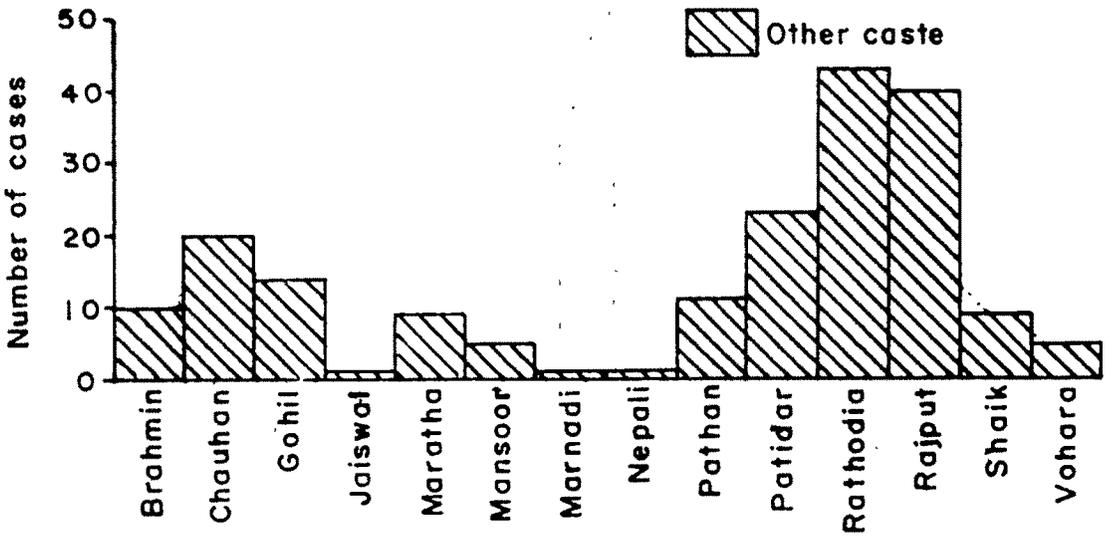

Fig. II-1c

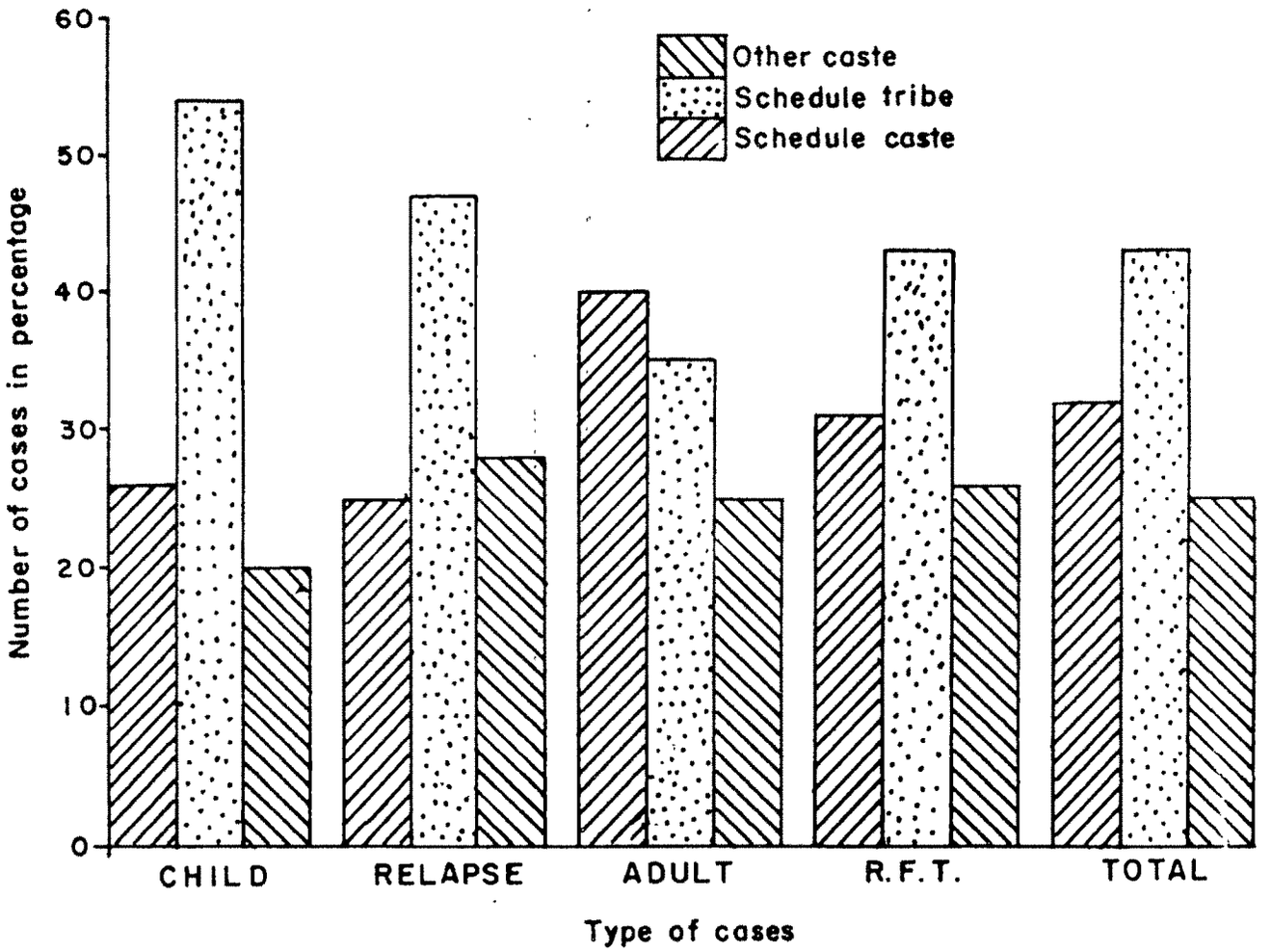

 Fig. II-2

11.3 Religion :

As already known that leprosy can effect any one irrespective of caste, culture and religion. Nearly all type of caste and religion are found in Vadodara district but the majority are Hindus. Thus amongst those affected 80% are Hindus, 15% are Musilims, 3% are Sikh and 2% are Christians. The occurence of the disease in different ethnic has been discussed earlier in this chapter.

11.4 Literacy :

According to field survey mostly illiterate people are the victims of the disease as shown in the table.

TABLE 11.2 : Leprosy cases according to their education.

Education	Child Cases		Adult Cases		Relapse Cases		RFT Cases	Total Cases		
	No	%	No	%	No	%	%	No	No	%
Literate	93	74	19	7	8	22	98	22	208	28
Illitarate	30	26	158	93	28	78	346	78	562	73
Total	113	100	177	100	36	100	444	100	770	100

From the total cases traced during survey 27% were literate while 73% were illitrate. But in child cases, 74% are literate and remaining 26% are illitrate. Among the later groups there are of course some children who have yet to attain school-going age. The higher percentage of

literate children affected indicates the possibility of contracting infection from the school. In adult cases just the reverse is found i.e, the possiblity of getting this disease is less among the literates. While it is high among illiterates. Thus it may be said that illiteracy could be a major factor which is causing hinderance in importing health education among the community.

11.5 Per Capita Income (PCI) :

It is an important factor which determines to what extent a sufferer can take preventive measures or afford a nutritious diet or maintain good health or avail of medical facilities.

TABLE 11.3 : Classification of per capita income (per month) of all (Adult, Child, Relapse and RFT) types of leprosy cases surveyed.

PCI CLASS	PCI VALUE PER MONTH	FREQUENCY	PERCENTAGE
Very low	1 - 450	528	69
Low	451 - 900	192	25
Fair	901 and above	50	6
TOTAL		770	100

It is evident that 94% of the leprosy patients belong to the economic category which is below the poverty line, while only 6% are just above the poverty line. So the relationship between economic status and leprosy is vary apparent. It is, however, possible that there are some leprosy cases reported among higher economic classes. But such patients usually get treatment from private practitioners and their cases are never reported rarely come to light.

11.6 Family Income and Family Size :

Family income also plays a major role in order to judge the socio-economic status. The living standard generally depends upon the family income and also family size. The survey details of family income in various family size is shown in table 11.4.

TABLE 11.4 : Number of leprosy cases in various family income groups according to their family size.

Family Income Per Month (Rs)	Family Size 1	2	3	4	5	6	7	8	Total Cases (%)
Below 100	5	14	26	42	52	60	7	4	210 28
100 - 200	2	10	18	22	30	32	1	5	120 16
201 - 300	3	4	8	20	27	30	1	1	94 12

Cont...

Family Income Per Month (Rs)	Family Size								Total Cases	(%)
	1	2	3	4	5	6	7	8		
301 - 400	1	3	10	16	25	11	2	4	72	9
401 - 500	1	4	6	18	24	7	1	4	65	8
501 - 600	2	1	4	10	12	13	2	4	48	6
601 - 700	1	4	4	8	12	7	2	2	40	5
701 - 800	-	-	6	10	11	6	2	3	38	5
801 - 900	-	-	4	5	10	8	5	1	33	4
901 - 1000	-	-	6	4	8	8	2	2	30	4
1001 +	-	-	-	6	5	7	1	1	20	3
Total	15	40	92	161	216	189	26	31	770	100
Percentage	2	5	12	21	29	24	3	4	100	

Table 11.4 shows that highest number of cases occurs in the income group of below Rs. 100 and in the family size of five members. On the whole, about 73% of the cases have a family income below Rs. 500 per month and 60% of the patients come from large families, i.e. having 5 or more members. The chances of over crowding and close contact in crowded houses are clearly indicated as causes for the spread of the disease. Figure 11.3 shows that with the increase of family income there is a sharp decline in the occurence of the leprosy cases.

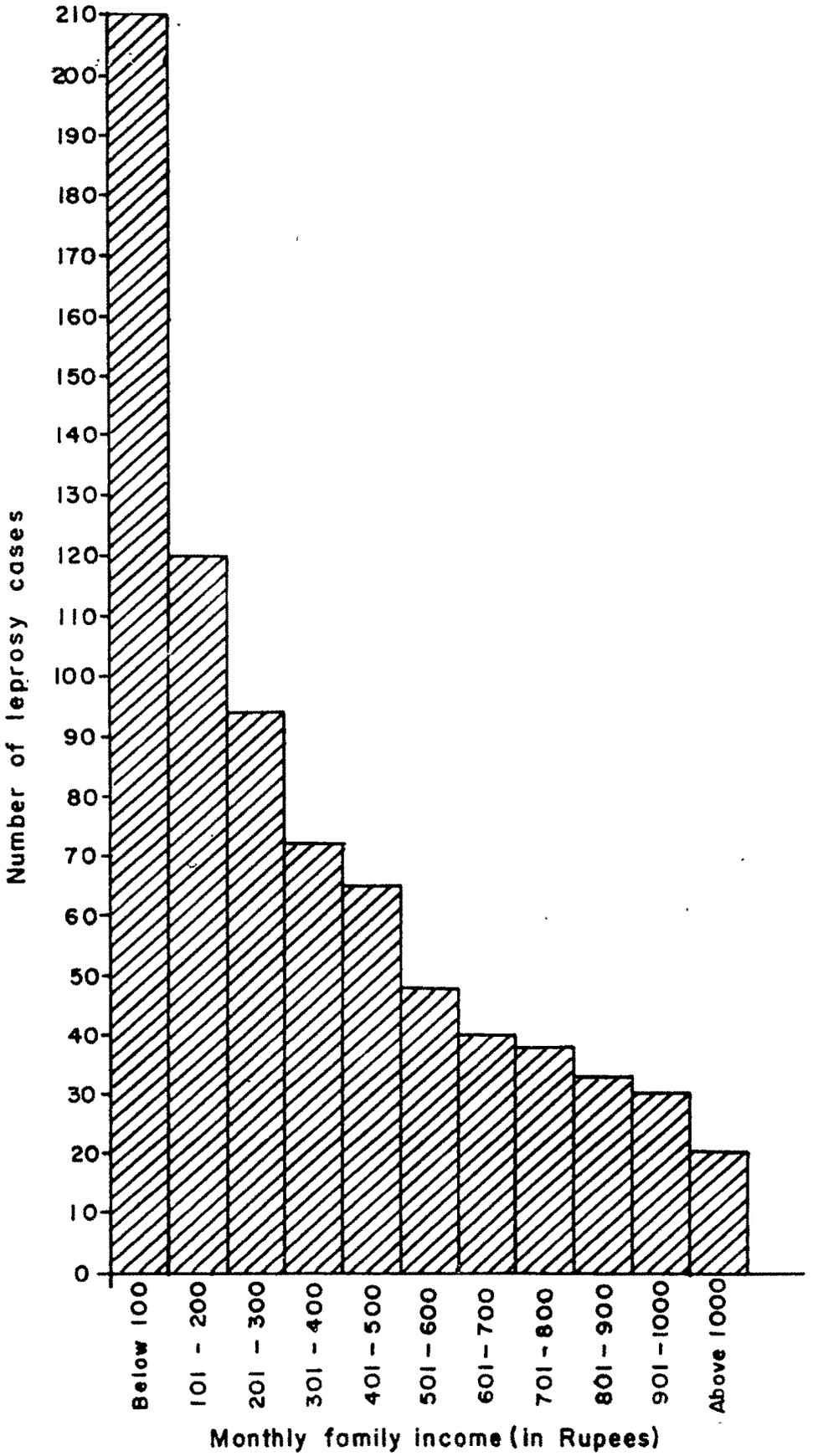
Number of leprosy cases
210
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
Below 100
101 - 200
201 - 300
301 - 400
401 - 500
501 - 600
601 - 700
701 - 800
801 - 900
901 - 1000
Above 1000
Monthly family income (in Rupees)

Fig. 11·3

11.7 Family Type :

Examining the type of family (table 11.5 as below) from which the leprosy cases emerge, the field survey results are as follows :

SR. NO.	TYPE OF CASES	NUCLEAR			JOINT		
		MB	PB	TOTAL	MB	PB	TOTAL
1.	Child cases	15	40	55	12	46	58
2.	Relapse Cases	9	2	11	22	3	25
3.	Adult Cases	76	22	98	49	30	79
4.	RFT Cases	103	107	210	130	104	234
	TOTAL	203	171	374	213	183	396

It was found that out of the total 770 cases almost an equal proportion of cases are found in joint type of family and in nuclear type of family. There is also hardly any difference in the proportion of MB and PB cases emerging from nuclear and joint families. This suggests that occurence of leprosy cases does not depend upon the type of family. Therefore it is necessary to investigate the infectivity of the patient in the family rather than whether the family is nuclear or joint.

11.8 Profession :

Classification of profession with respect to disease gives an idea of the association of the disease with particular type of profession which in turn can be associated with physical factors influencing the incidence of the disease.

TABLE 11.6 : Classification of Leprosy cases according to Profession.

TYPE OF PROFESSION	MB CASES (%) (1)	PB CASES (%) (2)	TOTAL (%) (3)
Cultivator	67 (57)	51 (43)	118 (15)
Agricultural Labour	142 (64)	78 (36)	220 (28)
Casual Labour	70 (64)	40 (36)	110 (14)
Service	25 (55)	20 (45)	45 (06)
Craftman/Artisian	04 (36)	07 (64)	11 (01)
Pretty Bussiness	17 (55)	14 (45)	31 (04)
House Wife	47 (55)	39 (45)	86 (12)
Student	24 (40)	36 (60)	60 (08)
Old-disabled	10 (59)	07 (41)	17 (02)
Un-employed	3 (43)	04 (57)	7 (01)
Not Working	6 (09)	59 (91)	65 (09)
TOTAL	416 (54)	354 (46)	770 (100)

Note : Percentages in Column 3 are calculated from total 770 cases. Percentages in Column 1 & 2 are calculated from total in Column for respective profession.

Table 11.6 Shows that agricultural labour had the higest percentage (28%) of case, followed by cultivators (15%) and casual labourers (14%). Besides this, 12% of cases are found among housewives who share dual responsibility at home as well as at their work place (Agricultural field).

It is amply clear that with 43% of the affected persons being associated with agriculture, and some more of the category of casual labourers and housewives also engaged in agricultural work, it is this section of the population that is most vulnerable to the disease. The leprosy bacilla is known to survive in the moist soil for 46 days and the association of the diseases with certain soil zones have already been pointed out in Chapter 10. So there is a strong possibility that occupation involving the tilling of the soil has a major role to play in the occurrence of the disease. The fact that the housewife is the 4th largest category of patients consistituting 12% of the total, indicates that close physical contact with their male partners makes them vulnerable to the disease.

This, together with the duties they share in the field with their male folk, makes them a risk group.

11.9 Other Environmental Factors :

The environmental components (Physical, biological and nutrients) are not water tight compartments. They are so inextricable linked with one another that it is realistic and fruitful to view the human environment as a whole while considering the influence of environment on the health status of the popuulation. If the environment is favourable to the individual, he can make full use of his physical and mental capabilities. Protection and promotion of family and environmental health is one of the major issues in the world.

It is an established fact that environment has direct impact on the physical, mental and social well-being of those living in it. The environment factors range from housing, water supply, psychological stress and family structure through social and economic support system to the organisation of health and social welfare services in the community.

In case of disease like leprosy, environmental factors such as over-crowding, sanitary condition, hygeinic habits etc., contribute either directly or indirectly to its spread within the family or community in a region. Here some of the environmental factors are studied for the active leprosy cases who had undergrone treatment during the period of survey.

Table 11.7 : Details of living condition of leprosy sufferers (active adult cases only).

Type of house	Density of houses			Total cases	percentage of cases
	High	Low	Isolated		
Kuccha House	77	18	6	101	57
Semi-Pucca House	35	12	4	51	29
Pucca House	18	5	2	25	14
Total	130	35	12	177	100
Percentage	73	20	7	100	

Note : Criteria for:

	Wall	Floor	Roof
- Kucca house	Mud/Mat	Mud	Thached/Cloth
- Semi Pucca house	Bamboo/Tin	Mud	Abestos/Bamboo
- Pucca house	Concrete	Tile/Concrete	Concrete

Density of persons per room	Frequency	Percentage
1 - 2	13	7
3 - 4	29	16
5 - 6	92	53
7 or more	43	24
Total	177	100

Facilities found in the house

Lavatory	Frequency	Percentage
No separate Lavatory	147	83
Lavatory with sewage	16	9
Lavatory connected to Septic tank	14	8
Total	177	100

Collection of Garbage	Frequency	Percentage
Daily	8	4.5
Sometimes	15	8.9
Never	123	69.4
Alternate day	20	11.2
Weekly	6	3.3

Water connection	Frequency	Percentage
With water connection	41	23
Without water connection	136	77
Total	177	100

Flooding	Frequency	Percentage
No Flooding	28	16
Only the day it rains	51	29
During the rainy seasons	72	40
Through out the year	26	13
Total	177	100

Bathroom	Frequency	Percentage
With bathroom	26	15
No Bathroom	79	45
Using own courtyard	72	40
Total	177	100

Waste water disposal	Frequency	Percentage
Soak pit	14	8
Open drain	64	36
Covered drain	16	9
Open space	45	25
Along roadside	38	22
Total	177	100

Water source	Distance in Km					Tot	%
	5	10	15	20	20+		
Stand Post	35	16	-	-	-	51	37
Hand pump	19	10	-	-	-	29	21
Open Wall	28	15	-	-	-	43	32
Stream/River	-	6	-	3	2	11	8
Water Tank	-	-	-	-	1	1	2
Total	82	47	-	3	3	136	100

Water source	Times in minutes					Tot	%
	5	10	15	20	20+		
Stand Post	-	48	3	-	-	51	37
Hand Pump	20	9	-	-	-	29	21
Open Well	26	17	-	-	-	43	32
Stream/River	-	-	8	3	-	11	8
Water Tank	-	-	-	-	1	1	2
Total	46	74	11	3	1	136	100

More than half of the sufferes were found to live in kuccha houses, and together with those who live in semi-puucca houses, constitute more than three-fourth of the total. Most of them are huddled in single room houses with no lavatories or water connection. The unhygenic surroundings are evident from the fact that the garbage is never, or only sometimes cleared from these areas and water logging is a problem not only during the rainy season, but also throughout the year in at least 26% of the cases.

11.9.1 Composite Score for Social Condition :

The composite score for judging the socio-culture environment of the leprosy patients was obtained using variables related to housing and sanitation. The best conditions for each variable was given the highest score.

Table 11.8 Criteria of Social Composite Score

1. Type of settlement density	POINT
- High	0
- Low	1
- Isolated	2

		Point
2.	Type of house occupied	
	- Kuccha house	1
	- Semi-Pucca house	2
	- Pucca house	3
3.	Accomodation style	
	- One room	1
	- Two room	2
	- Three room & plus	3
	- Separate Kitchen	1
	- Separate bathroom	1
	- Separate Lavatory	
	- with sewage system	2
	- connected to septic tank	1
	- Defaecating in open space	0
	- One ventilation	1
	- Two ventilation	2
	- Three ventilation	3
4.	Animals share the room	YES - 0 ; NO - 1
5.	Source of Water	
	- Individual connection	3
	- Stand post / Hand Pump	2
	- Stream/River/Water tank/Open Well/Pond	1

		Point
6.	Distance travelled to get water	
	- 0-5 Km	4
	- 6-10 Km	3
	- 11-15 Km	2
	- 16-20 Km	1
	- Above 20 Km	0
7.	Time consumed to get water	
	- 5 Minutes	4
	- 10 Minutes	3
	- 15 Minutes	2
	- 20 Minutes	1
	- Above 20 Minutes	0
8.	Where the Individual takes bath	
	- In own bathroom	3
	- In own courtyard	2
	- Near river/Canel/Pond/Water tank Open village well/Road side	1
9.	Whether bath taken daily	YES = 1 ; NO = 0
10.	Where waste water is dispossed off	
	- Covered drain	5

	Point
- Soak pit	4
- Open drains	3
- Along the road side	2
- Open space	1

11. Area got flooded during the rainy season

- No	3
- Yes	
- Only the day it rains	2
- Through out the rainy season	1
- For most of the time in the year	0

12. Collection of Garbage by the authority

- Daily	5
- Alernate days	4
- Weekly	3
- Monthly	2
- Sometimes	1
- Never	0

The maximum score, a leprosy sufferer could have was 44; if he is living in very hygeinic conditions. Here the highest score was 36 and the lowest was 1. Seeing the highest score, the social composite score of the sufferers are catogorized into three groups.

SOCIAL COMPOSITE SCORE GROUP	COMPOSITE SCORE CLASS	FREQUENCY	PERCENTAGE
Low composite Score	1 - 12	127	71
Moderate Composite Score	13 - 24	40	23
High Composite Score	25 - 36	11	6
Total		177	100

Majority of cases (71%) have low social composite score which once again proves that the disease is more likely to affect poor people living in very unhygeinic conditions.