

LEPROSY-SURVEY : TIRUPATI : 1965

by

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Through the ages, Leprosy as a disease has been superstitiously feared and its victims have been treated with revulsion and prejudice. Even at present, the very word Leprosy still arouses unreasonable dread. This distorted image of the disease, has no place in modern times.

HISTORY

Leprosy is a disease of great antiquity. Originated in Africa, it spread early to India and China. From India it spread Eastwards to Eastern Mediterranean. From Egypt, it spread to Europe, and later to America by middle of 16th Century. Indian literature 'Sushruta Sahimata' (600. B. C.) mentions under the head of Vat-Rakta or Vat-Shomita and Kusta. Lowe (1942) mentions in Vedic writing of India. Rogers and Muir (1950) state that leprosy is mentioned as Kushta in Vedas of about 1400 B. C. Egyptian records mention about leprosy in 1350 B. C. and Chinese records refer in 600 B. C.

THE PRESENT DISTRIBUTION IN WORLD

The World Health Organisation estimates that there are 12 to 15 million patients with leprosy, mainly in the tropics. One-fourth of them, are severely crippled. Total number of patients with leprosy is estimated to be 50 Lakhs, out of which India, China, Africa have ten lakhs each. In India the incidence per thousand in West Bengal 14.1, Madras 8.4, Orissa 7.5, Andhra Pradesh 4.2, Bombay 3.5, Bihar 4, Madhya Pradesh 3, Uttar Pradesh 1.4 and Punjab 0.11.

Incubation period of leprosy is not measured in days, as most infectious diseases, but in years. It has been said to vary from six months to 20 years, with an average of three years. This long incubation-period is the silent phase of the disease. The classification of leprosy has been discussed at length and in depth by leprologists and the subject is still debated. Modern classification is based on (1) the gross appearance of clinical lesions, together with the information derived from (2) the study of the bacteriologic status. (3) the immunologic response as revealed by skin-test with lepromin (4) Histopathology of biopsied specimens.

Leprosy is classified into two polar groups. (1) Lepromatous (2) Non-Lepromatous. There is an indeterminate-group which is unstable and now termed as N?L. The lepromatous is clinically further subdivided into Macular, Diffuse-infiltrative and Nodular. The non-lepromatous is further subdivided into Maculo-anasthetic, Tuberculoid-Major, Tuberculoid-Minor and Polyneuritic. The intermediate-group is further subdivided into Border-line and Indeterminate.

The early diagnosis of leprosy is the most important single factor, in the treatment and public health aspect of the disease. As stated by Ramos e Silva, the diagnosis

depends on three features. 1. Finding of Hansen's bacillus. 2. Alteration of neural sensitivity. 3. Histological study.

Various types of survey have been used with success, and it is impossible to dogmatize as to which type is likely to prove most valuable in a given situation. In all cases, the survey is futile, unless a high level of co-operation is offered by local people. Twentyfive years ago considerable attention was given to intensive-surveys, to establish reliable epidemiological studies. During 1930's intensive-surveys, were undertaken in Bengal by Lowe (1938), and Dharmendra and Santra (1946), and Guinto and Rodriguez (1941) being amongst the most distinguished. Propaganda, treatment and survey was the slogan in India, inspired by Muir and associated with other Indian-workers as *Santra*.

PLACE OF SURVEY

Tirupati is a famous pilgrim-centre of South-India, is in Chandragiri Taluk, of Chittoor District of Andhra Pradesh State. It is situated 550' above sea level. The details of meteorological data are given.

METEOROLOGICAL DATA OF TIRUPATI

Month	Rain Fall 1959	Temperature		R. H.
		Dry-Bulb	Wet Bulb	
January	1.59"	20.55°C	19.13°C	88
February		21.48°C	20.13°C	88
March		24.13°C	22.95°C	91
April	2.75"	26.57°C	25.03°C	91
May		30.42°C	26.07°C	71
June	13.99"	229.23°C	28.13°C	92
July		27.06°C	26.06°C	92
August		25.68°C	24.68°C	92
September		28.°c	26.87°C	92
October	17.19"	24.58°C	23.58°C	92
November		22.05°C	21.05°C	92
December		23.08°C	23.03°C	92

Total Rain fall 35.5"
Elevation from Sea Level—550'
Average Rain fall in 1965—2"
N. B. Index—R. H. Relative Humidity.

Its average rainfall per year is $2\frac{1}{2}$ " and its relative-humidity varies from 84.66 to 92.33 and Temperature varies between 19.13°C to 28.13°C (Wet Bulb). There is a Leprosoria situated in North-East to Tirupati, in a Hamlet called Akkarampalli about 2 miles from Tirupati. In this Leprosoria, there is provision for 150 in-patients, with Physiotherapy and Occupational and Rehabilitation Departments. In addition there is a Training and Research Centre attached. This has prompted the present survey work.

DESCRIPTION OF WORK

The area surveyed is about ten miles radius round Tirupati. The area was divided into 4 zones. The details of the zones and its relationship with other taluks are given in the map.

The survey team was divided into 4 batches, each batch allotted to survey one zone. Each batch of survey-party consists of one Medico-Social-Worker who was trained in leprosy work, and six trainees who are undergoing training in Non-Medical Assistant Course at the Centre. The work of each batch was supervised by Supervisors who in turn were supervised by the Medical Officer. The survey work in each village was preceded by propaganda, by the Propaganda and Publicity branch on the training centre, for the people to co-operate in survey-work. Each team used to complete survey work in one village before proceeding to the other. They used to get the help of village-Head-Man, for getting details of population and age, and also for examination of the people. In open and doubtful-cases, skin-clip, nasal scrapings were done and the slides for bacteriological examination used to be sent to Akkarampalli centre.

RESULTS

The details of number of cases in each village surveyed and consolidated incidence are given in Table II and III.

As seen total number of villages surveyed are 141. Population of the pilot-area surveyed are 74,152 out of which only 48,005 were examined. Total number of Leprosy-cases found are 1,400 (2.9%) and open-cases are 290 (20.8%). Highest age-incidence is between 20 to 40 years. The sex incidence is almost equal in both females and males, slightly more towards females (53.57%). Highest incidence of leprosy is in Rayalcheruvu area (14.4%) in a village Durgasamudram. The familial incidence observed in this survey on average is only 10.91%. Most of the cases are seen in low economic-status.

Table II
SHOWING THE DETAILS OF SURVEY OF THE AREAS

	Chandra giri.	Padi-peta	Rayal-cheru	Renigunta	Total	Remarks
No. of villages	38	35	36	32	141	
Total population	24,358	19,785	15,879	14,130	74,152	
Population surveyed	16,358	13,219	9,730	8,728	48,005	
Total No. of leprosy case	507	231	406	256	1,400 (2.9%)	
Case type rate	21.9% (111)	28.14% (65)	15.5% (63)	2.31% (52)	20.8%	
Sex rate	43.9%	50.65%	47.2%	46%	46.43%	
Child-hood rate	28.2%	23.81%	24.39%	26.95%	26.14%	
CONTACT RATE						
Familial-contact	13.02%	5.63%	10.84%	11.72%	10.91%	
Unknown contact	2.86%	6.5%	2%	Nil	2.65%	
No History of contact	82.25%	87.8%	87%	88.3%	86.44%	

INDEX :—Case type rate:—No. of open cases per 100 cases of leprosy.

Sex Rate:—No. of male patients per 100 cases of leprosy.

Child-hood rate:—No. of children (below 14 years) per 100 cases of leprosy.

Familial contact:—No. of patients with familial contacts.

Table III
SHOWING DETAILS OF MAIN AND SUB TYPES OF LEPROSY
CASES SEEN IN SURVEY AREA

Name of the area	Lepromatous			Non-Lepromatous			N. ? L.			Remarks
	M.	D.	N.	M.A.	MT.	mt.	P.N.	I.	B.	
Chandragiri Area (A)	44	59	8	111	104	13	149	13	6	—
Padipeta Area (B)	29	35	1	73	12	11	59	3	8	—
Rayalacheru Area (C)	21	35	6	220	20	9	78	7	9	—
Renigunta Area (D)	19	29	4	121	12	6	50	6	9	—
Total	113	158	19	525	148	39	336	29	32	

Total No. lepromatous:—290.

Total No. of non-lepromatous:—1,048.

Total No. of N. ? L.:—61.

INDEX :

M. A.—Macular anesthetic	P. N.—Polyneuritic	M.—Macular
M. T.—Major tuberculoid	I—Indeterminate	D.—Diffuse infiltrative
m. t.—Minor tuberculoid	B—Border line	N.—Nodular

DISCUSSION

The incidence of Leprosy in the pilot area surveyed is 2.9% which is rather a high figure. Most probably the high incidence in this area is partly because of pilgrim-centre and partly because of migration from Madras-State, which is border to this district, where Begger-Act was introduced.

Highest incidence of leprosy cases are seen in Chandragiri area (507) where number of open cases of leprosy (III) are more out of the four areas surveyed. The most important factors in transmission of leprosy in a given area, are the presence and incidence of open cases and the risk of infection through contact with open-cases.

The ratio between open and closed cases is 20.8 : 79.2. The proportion of open-case in our survey was a little lower.

The belief that males are more susceptible to Leprosy, than are females, is not shown in our survey and in our survey the incidence is almost equal in both sexes.

SUMMARY

A survey of incidence of leprosy in a pilot-area of radius of 10 miles round Tirupati was done. The incidence is found to be 2.9%. Open-cases are 20.8%. In both sexes the incidence was found almost equal. Highest incidence was found in a village Durgasamudram (14.4%) in Rayalcheruvu area. Familial contact incidence was found to be 10.0% and child-hood incidence to be 26.14%.

1. Area surveyed :—Project area 10 miles of Tirupati.				
2. Total No. of villages	..	..	..	141
3. Population surveyed	..	..	..	74,152
4. Population examined	..	..	..	48,005
	Male	Female	Children	
	14,278	15,759	17,968	
5. Total No. of leprosy cases and incidence	..	..	..	14,000 2.9%
6. No. of Lepromatous and incidence	..	..	..	290 20.8%
a. No. of non lepromatous and incidence	..	..	..	1,049 74.9%
b. No. of N ? L and incidence	..	..	..	61 4.3%

**TOTAL No. OF CASES LEPROMATOUS AND NON LEPROMATOUS
AND ITS SUB TYPES**

	Lepromatous			Non Lepromatous				N ? L	
	Macular	Diffuse Infiltration	Nadular	M. A.	m. T.	M. t.	P. N.	I	B
	113	158	19	525	39	148	337	29	32
7. Highest incidence	14.4%	
8. Lowest incidence	0.3%	
9. Case type rate i. e. No. of open cases per 100 cases of leprosy	20.8%	
10. Sex rate i. e. No. of male patients per 100 cases of leprosy	46.43%	
11. Child rate i. e. No. of childhood patients per 100 cases of leprosy	26.14%	
12. CONTACT RATE :									
a. No of patients with familial contacts per 100 cases of leprosy	10.91%	
b. No. of patients with contacts unknown per 100 cases of leprosy	2.65%	
c. No. of patients with no history of contacts per 100 cases of leprosy	86.44%	

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