

## Leprosy among tribal population of Chhattisgarh state, India

AS Kumar<sup>1</sup>, S Kumar<sup>1</sup>, S Abraham<sup>2</sup>, PSS Rao<sup>3</sup>

Received : 30.09.2010 Revised : 11.01.2011 Accepted : 25.01.2011

Chhattisgarh state is still endemic for leprosy and has a large tribal population. During 2003-2009, a total of 1530 untreated leprosy cases reported to the Leprosy Mission Referral Hospital in Champa, of which 151 (9%) were classified as belonging to the scheduled tribes. The characteristics of these new tribal patients are described and compared with other patients and to the demographics of the tribals in the general population of the State. While tribals were accessing the leprosy services similar to the other social groups, the delay in reporting, high BI and other features pose more serious problems in the transmission of leprosy and in management of complications due to the harsh environment and occupational patterns of the tribals. Appropriate strategies and more community based approaches will be necessary if these groups are also targeted for eradication of leprosy.

**Key words:** Leprosy, Tribals, Chhattisgarh

### Introduction

The Chhattisgarh state has been carved out of Madhya Pradesh and came into existence since 2000 (Govt of India 2009). Several health and development activities were initiated by the new government taking into account the difficult terrains and large areas of forests. The 'Mitandin' programme (community health volunteer) is a successful initiative made since 2001 by the newly formed state government under integrated health and population policy later absorbed into NRHM (Chhattisgarh 2007). The state has India's

oldest tribal communities, the earliest living in Bastar for over 10,000 years (Govt of India 1998, Sharma and Tiwari 2002). Currently, the tribal proportion in the state is significantly high with 31.8% comparing the national average of 8.2% (Govt of India 2009).

Due to relative inaccessibility, harsh environmental conditions and scarce transportation facilities, there seems to be a large element of underutilization of health services (Govt of Chhattisgarh 2006a, Panda 2006). Leprosy has been endemic and in some parts hyperendemic.

---

AS Kumar, MS, Deputy Superintendent  
S Kumar, MD, Medical Superintendent  
S Abraham, MD, Medical Superintendent  
PSS Rao, DrPH, Head

<sup>1</sup>TLM Community Hospital, Champa-495 671, Chhattisgarh, India

<sup>2</sup>TLM Community Hospital, Nandnagari, Shahdara, Delhi-110095, India

<sup>3</sup>Research Resource Centre, B-13/A, Institutional Area, Sector-62, Noida-201 307, UP, India

**Correspondence to :** PSS Rao **Email:** sundarraopss@rocketmail.com

The state with 2% of the country's population has about 4% of new leprosy cases (Addlakha and Seeborg 2003, Govt of Chhatisgarh 2006b). Pandey (2008) in a study of new cases referred from the Regional Leprosy Training & Research Institute, Raipur during 2005-2006, mentions a significant non/delayed registration at PHC/CHC due to a number of reasons including health service factors. Several studies have highlighted the need for monitoring and strengthening leprosy services in the post integration phase (Gupta 2004, Joshi et al 2007, WHO 2009).

Due to hyperendemicity of leprosy at the beginning of this century, The Leprosy Mission established first a '*Bethesda Home for Lepers*' in 1903 in Champa town of Janjgir district which later became a hospital and at present providing comprehensive services as a leprosy referral centre, attracting patients from all parts of Chhattisgarh, including the tribal belts. A descriptive epidemiological study was carried out on all leprosy cases reporting to TLM Hospital, Champa during 2003 to 2009, in order to compare the profile of new cases among the tribal population with the rest of the Janjgir district in terms of essential indicators such as MB %, child % and grade 2 disability % etc. The major findings are presented in this paper and the implications discussed.

### Materials and Methods

The Leprosy Mission Hospital at Champa, was established earlier on as a home for debilitated patients in 1902 and attracts patients from all parts of Chhattisgarh state including the tribal belts. At present the hospital has modern infrastructure for diagnosis and management of leprosy and its complications. It has a total staff strength of 52 consisting of trained medical officers, physiotherapists, lab-technicians and others, a total of 273 new leprosy patients and nearly 6000 revisits were seen in the outpatient department (OPD) and another 400 as inpatients per year. The suspects and new cases are thoroughly screened for cardinal signs and

entered on individual medical records with complete body charting, physio-sensory assessment and smear examination. The cases were confirmed by the medical officer and further classified into MB and PB category based on the count of skin and nerve lesions. The new cases were referred to PHC of their respective area for MDT after administering the first pulse of respective MDT regimen but were given the choice of continuing treatment at his centre. All patients are given professional counseling and necessary social support.

The socio-demographic details from the registration data and all other clinical and laboratory findings in the patient file are extracted and entered in the computer database. The data were analysed using SPSS 11.0 software.

### Results

A total of 1530 new untreated leprosy cases were registered from the Janjgir district during 2003 to 2009. Of these 996 (65.1%) were males and 151 (9.1%) belonged to scheduled tribes. The numbers in each year for each community are shown in Table 1. The mean (SD) age of the newly detected leprosy patients according to the community and year is displayed in Table 2. There seems to be a marginal increase in age among the ST group, although not statistically significant. The percentages of female patients by year and community are given in Table 3. Although there seems to be an increase in the proportion of female patients among the newly detected cases from 2003 to 2009 in ST and SC groups, the differences do not reach statistical significance. The percentages of leprosy by year and community are presented in Table 4. In general, there is a large but not statistically significant decline in the proportion of MB cases among the newly detected in all the communities. The proportions of newly detected cases who reported with grade 2 disabilities in each year and community are shown in Table 5. There are declines in all communities but more so in the ST group but none of the differences are statistically

**Table 1 : Number of newly detected leprosy patients according to the year and community**

Year	Community			Total
	ST	SC	OBC	
2003	15	57	167	239
2004	9	36	92	137
2005	12	46	116	174
2006	21	47	117	185
2007	28	84	189	301
2008	32	65	133	230
2009	32	86	146	264
Total	149	421	960	1530

**Table 2 : Mean (SD) of age (years) according to year and community**

Year	Community		
	ST	SC	OBC
2003	31.93(17.67)	31.61(14.3)	33.28(15.1)
2004	27.55(11.86)	30.86(14.64)	30.97(15.39)
2005	24.75(14.6)	28.56(15.18)	33.83(14.58)
2006	35.47(15.45)	32.4(18.24)	30.9(14.05)
2007	37.32(15.09)	35.03(15.21)	34.39(16.32)
2008	32.72(15.5)	32.4(15.28)	33.83(16.55)
2009	39.59(14.23)	31.44(14.6)	36.07(17.37)

**Table 3 : Percentage of female patients according to year and community**

Community	Year							Total
	2003	2004	2005	2006	2007	2008	2009	
ST	22.8	33.3	43.5	40.4	41.7	29.2	37.2	35.6
SC	26.7	22.2	41.7	66.7	42.9	40.6	43.8	43.0
OBC	29.9	27.2	41.4	28.2	34.9	36.1	33.6	33.2

**Table 4 : Percentage of MB patients according to year and community**

Community	Year						
	2003	2004	2005	2006	2007	2008	2009
ST	77.2	58.3	71.7	68.1	71.4	55.4	68.6
SC	86.7	55.6	50.0	81.0	64.3	46.9	78.1
OBC	83.8	63.0	70.7	66.7	68.3	60.2	71.2

**Table 5 : Number of patients in grade 2 according to year and community**

Community	Year						
	2003	2004	2005	2006	2007	2008	2009
ST	26.7	11.1	8.3	14.3	17.9	18.8	9.4
SC	19.3	5.6	17.4	21.3	25.0	12.7	12.8
OBC	15.6	7.6	11.2	16.2	18.0	11.7	11.6

**Table 6 : Number of patients within the district according to year and community**

Community	Year						
	2003	2004	2005	2006	2007	2008	2009
ST	66.7	55.6	75.0	57.1	64.3	59.4	59.4
SC	73.7	91.7	91.3	78.7	79.8	80.0	81.4
OBC	79.6	85.9	75.0	82.9	78.8	76.7	74.0

**Table 7 : Comparison of social groups among new cases and in the district population**

Social group	New leprosy cases		District population	Difference P<
	No	%		
ST	151	9.1	11.6	0.001
SC	431	28.1	22.5	0.05
Others	948	62.0	65.9	Not significant
Total	1530	100.0	100.0	-

**Table 8 : Sex ratios (females per 1000 males) among the new cases compared to the population in various social groups**

Social group	New cases	Population
ST	736	1050
SC	550	1000
Other	502	976
Total	536	976

**Table 9 : Type of leprosy (MB/PB) by social group**

Social group	MB (%)		PB (%)	
	No.	%	No.	%
ST	101	66.9	50	33.1
SC	293	68.0	138	32.0
Other	660	69.6	288	30.4
Total	1054	68.9	476	31.1

**Table 10 : Slit-skin smear status among new MB cases by social group**

Social group	No.	Positive bacteriological index	
		No.	%
ST	101	50	49.5
SC	293	150	51.2
Other	660	341	51.7
Total	1054	541	51.3

significant. The percent of cases hailing from the Janjgir district, in which the TLM hospital is located, are displayed in Table 6. No significant changes over the years are seen in any of the communities.

The proportions of different social groups (scheduled tribes, scheduled castes and others)

**Table 11 : WHO disability grading by social group**

Social group	WHO disability grading						Total
	Grade 0		Grade 1		Grade 2		
	No.	%	No.	%	No.	%	
ST	101	66.9	25	16.6	25	16.5	151
SC	295	68.5	64	14.8	72	16.7	431
Other	641	67.6	178	18.8	129	13.6	948
Total	1037	67.8	267	17.4	226	14.8	1530

among the new cases are compared with the district population to identify any major deviations in the detection rates are displayed in Table 7. Scheduled tribe patients are significantly less as compared with the proportion in the general population while scheduled caste patients are significantly more. Whether there is a likelihood of missing 2.5% of the new cases among the scheduled tribe or the incidence is less needs to be further investigated. The new case detection rates by sex in the various social groups are given in Table 8 and compared with the sex ratios in the general population. There is an obvious gender imbalance in detection of new cases among every social group and in the total but the sex ratio among the ST population seems to be higher. The differences in the sex ratios between the new cases and in the population are highly significant ( $P < 0.01$ ). The type of leprosy as per WHO classification into MB and PB is shown in Table 9. The proportion of multibacillary patients is almost comparable and similar among the 3 social groups. Bacteriologic index (BI) as measured by slit-skin smears by a qualified technician is presented in Table 10. With half of the cases showing positive BI, there are no significant differences in the positivity of the bacteriological index among the various subgroups. The levels of disability in the different social groups are given in Table 11. In general, the pattern seems to be the same in all social groups.

### Discussion

The present study was undertaken to verify if tribal populations in Chhattisgarh were in any way

disadvantaged in availing and accessing leprosy services as compared to other subgroups in the area, due to myriad reasons (Joshi et al 2007). The tribal populations are also more prone to health disorders such as anaemia (intestinal parasites), skin diseases like scabies/leprosy, diarrhoeal illness, respiratory infections, nutritional disorders, genetic related disorders, sexually transmitted diseases etc. (NCAER 1963). The low literacy level prevailing among tribal group is an impediment in achieving better health awareness and changing their health seeking behaviour to accept modern/scientific medicine with faith (Patel 1974).

The findings show no variations by social group which implies that the scheduled castes and tribes are accessing the leprosy services in a similar manner with the same degree of delay or severity. The only disturbing feature is the disparity between the proportions by social groups among the new cases as compared to that in the general district population. Either the tribal populations are under-registered or the incidence of leprosy among them is lower than in other social groups. Reporting and registration is socially driven, depending on their knowledge of leprosy and its consequences, if not reporting early. Even if they are aware, the tribal populations might have logistical problems in accessing the leprosy services. It is possible that with better access, they may report earlier and thus have a greater chance of complete cure with no residual problems.

India is a vast country still having many people living in difficult-to-access areas who are underserved and even unserved which include a variety of tribal populations (Govt of India 2009). In collaboration with the WHO, the Government of India has implemented many innovative health programs of the government such as SAPEL utilizing locally trained health workers (community volunteers) and local chiefs which has resulted in limited successes in leprosy control (ICMR 2003). In the post-elimination era, the Government of India has taken several steps to improve the coverage and quality of services especially in the inaccessible areas (Joshi et al 2007, WHO 2009).

In addition to geographical accessibility, cultural inaccessibility may be more serious, as there are no ready made solutions available, unless their concerns are addressed in depth with a help of an anthropologist (Panda 2006). Although the findings from the study reveal no major differences between tribals and other social groups, the statistical data may not identify the real problems of the tribals in reporting early or continuing treatment regularly or even reporting complications early due to geographical and other constraints (Govt of India 2002).

The proportions showing positive BI (50%) and with grade 2 deformity seem similar in all social groups, both indicating delay in starting treatment, the repercussions might be different in terms of transmissibility which depends on the environment and hence in the incidence of new infection, new case-detections, and subsequent treatment. Smear positive status increases risk of lepra reactions, onset of primary deformity and spread of infection to the society and although the proportions are similar.

Hence, measures and newer strategies are needed to detect these cases at the earliest (Merlin et al 1998). IEC activities needs to be initiated pertinent to tribal population groups in their own tribal dialect such as folk dance, puppet shows and magic shows. The community participation and social action research would

certainly explore the gaps and identify a suitable solution to bring the tribal people for early treatment (Gupta 2004). Introducing strategies to counter the inequitable situation of gender imbalance within the inaccessible tribal community by roping in the services of 'bare foot doctors' i.e. ASHA (accredited social health activist), USHA (urban social health activist), AWW (anganwadi worker) and VHN (village health nurse). Initiate conducting short orientation program for Mitans (ASHA) focusing on leprosy that would certainly facilitate detection of new cases among women (Chhatisgarh 2007). Similarly, conducting awareness campaigns among women centered groups such as self-help groups (SHG) and mahila mandal on tribal concentrated villages would certainly reach the weakest section of the society (Govt of Chhatisgarh 2006a). IEC activities using folk media would be a pertinent method to penetrate the barriers.

### Conclusion

Tribal populations were accessing leprosy services at the referral hospital similar to that of other social groups. However, the environment of the scheduled tribes and their occupational patterns may be different and perhaps more harsh. Therefore, the repercussions of delayed reporting will have more serious consequences for transmission of infection and prevention of irreversible disabilities. Special strategies for case detections and newer methods of communication using local dialects and folk-lore would be effective in promoting the health of tribal communities.

### References

1. Adlakha R and Seeberg J (2003). Towards leprosy elimination in tribal communities. Experiences from Madhya Pradesh, Orissa and Chhattisgarh - DANLEP.
2. Chhatisgarh and UN Millennium Development Goals (MDGs), Status and Progress at Half Way Mark (2007).
3. Government of India (1998). Scheduled Tribes, Scheduled Areas and Tribal Areas in India. Ministry of Social Justice and Empowerment (Tribal Division), New Delhi.

4. Government of India (2002). National Leprosy Eradication Programme (NLEP), Tenth Five Year Plan. Planning Commission of India, New Delhi.
5. Government of Chhattisgarh (2006a). Integrated health and population policy. Department of Health and Family Welfare, pp 1-25.
6. Government of Chhattisgarh (2006b). Status Report National Leprosy Eradication Programme as on March 2006.
7. Government of India (2009). Reference Manual, Chapter 1. Publications Division, Ministry of Information & Broadcasting, New Delhi, p 14.
8. Gupta AK (2004). Integrated approach for leprosy elimination in India. *J Dev Soc Transform.* **1**: 31-36.
9. Indian Council of Medical Research (2003): Health status of primitive tribes of Orissa. *ICMR Bull.* **33** (10).
10. Joshi PL, Barkakaty BN and Thorat DM (2007). Recent developments in elimination of leprosy in India. *Indian J Lepr.* **79**: 107-120.
11. Merlin VE, Miceli I, Litturi M et al (1998). Factors that make difficult the implementation of an integrated leprosy control programme in health zone II, Santa Fe Province, Argentina. *Indian J Lepr.* **70** Suppl: 83S-95S.
12. NCAER (1963). Report on socio-economic conditions of primitive tribes in Madhya Pradesh, New Delhi, p IX.
13. Panda N (2006). Tribal development-imperatives and compulsions. *Orissa Rev.* December: 37-42.
14. Pandey A (2008). A descriptive study of MDT services in Chhattisgarh. *Indian J Lepr.* **80**: 11-17.
15. Patel ML (1974). Some aspects of educational development of tribes. *Bull Cult Res Inst.* **X**: 21.
16. Sharma RK and Tiwari SK (2002). Tribal History in Central India, Vol II, Aryan.
17. World Health Organization (2009). Enhanced Global Strategy for Further Reducing the Disease Burden Due to Leprosy (2011-2015) - Operational guidelines. WHO, SEARO, New Delhi.

**How to cite this article :** Kumar AS, Kumar S, Abraham S et al (2011). Leprosy among tribal population of Chhattisgarh state, India. *Indian J Lepr.* **83**: 23-29.