

## A Study on Socio Demographic Profile of Pulmonary Tuberculosis Patients Attending Dots Centre of Field Practice Area of Rajendra Institute of Medical Sciences, Jharkhand

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### Abstract

**Background:** Tuberculosis remain a worldwide public health problem despite the fact that the causative organism was discovered more than 100 years ago and highly effective drugs and vaccine available making tuberculosis a preventable and curative disease. India is highest tuberculosis burden country in the world in the term of absolute number of incident cases that occurs each year.

**Aims and objectives-** To study sociodemographic profile of pulmonary tuberculosis patients attending DOTS centre.

**Material and method:** A cross-sectional, descriptive and community based study was conducted at field practice area(Kanke Block) of RIMS, Ranchi. A total of 300 patients of age group 14 years and above were included in the study. Pre tested, semi structured questionnaire were used for data collection. Data were entered in MS excel and analysed in spss software.

**Results:** Out of 300 patient's majority were male (70%), between age group of 15-25 years (27.7%), Hindu (42.7%), nontribal (52%), from rural area (83.7%), educated upto secondary (33.3%), self employed (22.7%), married (56.3%), having joint family (60.3%), belonged to class IV socio economic status (B G Prasad) (58.7%).

**Conclusion:** An overall improvement in living condition, education, socioeconomic status and sanitation is necessary to decrease the prevalence of tuberculosis.

**Key words:** Sociodemographic, Tuberculosis, Dots centre

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### I. Introduction

Tuberculosis (TB) is one of the oldest diseases known to mankind since time immemorial and continues to be a major public health problem even in today's modern world. It is a preventable and curable disease, but still million of people suffer every year and a number of them die from this disease, resulting in a heavy impact on social and economic development.<sup>(1)</sup> Its causative organism Mycobacterium tuberculosis was one of the disease is clearly understood. A vaccine against tuberculosis has been available for close a century. Effective treatment against the disease has been available for sixty years. Yet the disease is close to its highest level ever and so, the World Health Organisation declared tuberculosis as a global public health emergency in 1993.<sup>(2-5)</sup>

Tuberculosis primarily affect the lung but can affect part of the body such as intestine, bones, joints, meninges, lymph glands, skin and other tissues of the body. Pulmonary tuberculosis account for over eighty percent of the total cases suffering from tuberculosis. Transmission occurs by airborne spread of infection droplets and droplet nuclei containing the tubercle bacilli, when a person inhale, those micro particles get lodge in the terminal bronchiole and the alveoli to infect a person.<sup>(6)</sup> The source of infection is a person with sputum smear positive pulmonary tuberculosis.<sup>(7)</sup> Each sputum positive case can infect 10-15 individual in a year, if not treated.<sup>(8)</sup>

There was an estimated 9.6 million (5.4 million among men, 3.2 among women, 1.0 million among children) incident cases of tuberculosis and 1.5 million people died from this disease globally in 2014.<sup>(9)</sup> Tuberculosis is second only to HIV/AIDS as the greatest killer worldwide due to a single infectious agent.<sup>(10)</sup> In 2015, the WHO South East Asian Region reported around 4.5 million prevalent cases, about 3.4 million incident cases and 450,000 deaths due to tuberculosis. It carries about 39.5% morbidity and 48% mortality of the global burden of tuberculosis.<sup>(11)</sup> It kills more women in reproductive age group than all other causes of maternal mortality combined, and it may creat more orphans than any other infectious disease. The indirect impact of the tuberculosis patients is considerable, as nearly one-fifth of school age children of tuberculosis patients either leave school or take up employment to help support their families. The disruption caused to society and the economy is incalculable. A patient with advanced stage of tuberculosis takes an average of 3 or 4 months to recuperate even after Successful treatment, thus losing that much of income. The loss is disastrous for those

struggling against poverty and under development. <sup>(12)</sup> According to Biggs the homeless, friendless, dependent, dissipated vicious consumptive individual are likely to be most dangerous to the community. <sup>(13)</sup>

The Tuberculosis (TB) burden in India is truly staggering. About 40% of the adult population of the country is estimated to be already infected with *Mycobacterium tuberculosis*. Based on National survey for annual risk of tuberculosis infection (ARTI) which is 1.5%, the incidence of new smear positive tuberculosis cases in the country is estimated as 75 new smear positive TB cases per 100,000 populations. Once infected, an individual has an average 10% life time risk of developing TB disease. Every year nearly 2.2 million new TB cases occur, of which nearly 800,000 are infectious (smear positive pulmonary) TB cases. India has more people with active TB disease than any other country in the world. Also, an estimated 2.34 million individual in India are now living with Human immuno-deficiency virus (HIV)/ Acquired immuno-deficiency syndrome (AIDS). HIV infection is being recognized as the most potent risk factor for progression from TB infection to active disease. Hence, the potential impact of the HIV epidemic on TB control in India is large. <sup>(6)</sup>

Jharkhand is one of the major TB burden states of the India. About 13,000 people die of Tuberculosis every year in this state i.e. more than 35 people every day. <sup>(14)</sup> According to TB India 2013 RNTCP Annual Status Report, out of 1,63,133 TB suspects examined, total number of sputum positivity patients diagnosed were 22,509. <sup>(15)</sup> In this study we tried to know the socio demographic profile of the study subject.

## **II. Material And Methods**

This study was a cross-sectional, descriptive and community based study. The present study was carried out in Kanke Block of Ranchi district which is one of the field practice area attached to RIMS, Ranchi. The kanke block was chosen randomly for present study. Kanke is a Block in Ranchi District of Jharkhand State, India. Total population of Kanke Block is 1,026,448 living in 174,814 houses, Spread across total 193 villages and 37 panchayats. Males are 543,496 and Females are 482,952. Total 863,495 persons lives in town and 162,953 lives in rural. <sup>(16)</sup> Designated Microscopic Centre (DMC) is situated in Community Health Centre Kanke (covering approx. 1.5 lakh population) where sputum microscopy is done of suspected patients and anti TB drugs is provided to the patients.

Those patients, who were > 14 years, having history of cough of two weeks or, more were taken as study subjects. All patients registered in DOTs centre were interviewed by the use of pre-tested, semi structured questionnaire. A total of 300 patients were interviewed between April 2014 to June 2015. Tuberculosis Patients < 14 years, TB patients not willing to participate in the study and extra pulmonary tuberculosis patients were excluded from study. A pre-tested, semi structured questionnaire was used for data collection which contains all the relevant information regarding socio-demographic profile which included their name, address, age, religion, caste, education and marital status.

### **Statistical Analysis**

Statistical analysis was done by using descriptive statistics. Data were collected in a predesigned Microsoft® Excel 2007.

## **III. Results**

In present study more than one fourth (83, 27.7%) patients were in the age group of 15-25 yrs, followed by 26-35 yrs age group (82, 27.3%) and 36-45 yrs age group (65,21.7%). Very few (10, 3.3%) patients were in age group of more than 65 yrs. This reflects that most (207, 69.4%) of the patients belonged to productive age group (26-65 yrs).

It was revealed that majority patients were male (210, 69.5%) while more than one fourth (90, 29.8%) were females. Majority (128, 42.7%) patients were Hindu followed by Sarna (a local religion) (112, 37.3%) patients. Only some of the patients were belonged to Muslim (30, 10%) and Christian (30, 10%). This finding is almost in accordance with the religion wise distribution of population in the state. Hinduism is the predominant religion of the state (68.6%) but Hindu tribe constitutes only 39.8 percent. On the basis of ethnicity, more than half (156, 52%) were non tribal and rest (144, 48%). According to 2001 census, tribal population of Jharkhand constitutes 26.3% of the total population of the state and in Ranchi district 41.8-44.6% of tribal populations are present.

As far as area is concerned majority (251, 83.7%) patients were belonged to rural area and less number (49, 16.3%) were belonged to urban area. This could be due to the fact that 75.95% of people live in the rural area and 24.95% of people live in urban area in the Jharkhand state <sup>(17)</sup>. One third (100, 33.3%) patients were educated up to secondary level followed by primary (64, 21.4%) and higher secondary (62, 20.7%). About 27 (9%) were educated up to graduate and above, 25 (8.3%) were literate and 22 (7.3%) were illiterate.

On the basis of occupation majority (68, 22.7%) of patients were self employed followed by industrial/factory worker (51, 17%) and daily wages worker (45, 15%). 38 (12.7%) patients were housewives and 27 (9%) each for were in govt. service and farmer. Only few patients were unemployed (15, 5%) and in

private job (12, 4%). On the basis of marital status, more than half (56.3%) were married patients followed by unmarried (30%) patients. 32 (10.7%) patients were widow/widower. Very few (9, 3%) patients were divorced.

More than half (181, 60.3%) of the patients belonged to joint family and rest (119, 39.7%) were from nuclear family. Out of 300 patients, more than half (176, 58.7%) of the patients belonged to class IV followed by class V (81, 27%). Very few patients belonged to class I (12, 4%) and II (17, 5.6%) and III (14, 4.7%). Majority of the tuberculosis patients belonged to lower socioeconomic class (class IV & V).

#### **IV. Discussion**

From present study it was found that More than one fourth (83, 27.7%) patients were in the age group of 15-25 yrs, followed by 26-35 yrs age group (82, 27.3%) and 36-45 yrs age group (65, 21.7%). Very few (10, 3.3%) patients were in age group of more than 65 yrs. This reflects that most (207, 69.4%) of the patients belonged to productive age group (26-65 yrs). Maske et al<sup>(18)</sup> conducted study in Maharashtra and found that 66.7% were at productive age group. Another study conducted by Ibrahim et al<sup>(19)</sup> in Nigeria also found that 61% were within the age of 25-44 year.

Majority patients were male (210, 69.5%) while more than one fourth (90, 29.8%) were females. This could be due to more exposure of males to outside environment and female often used to ignore their initial symptom due to their responsibilities towards their families as well as children. Phalke Deepak Baburao et al<sup>(20)</sup> found in their study on tuberculosis cases under RNTCP attending Designated microscopy centre from 2006-2008 at Pravara Rural hospital, Loni reported that most of the study subject were males (66%). Aarti Kaulagekar and Anjali Radhekar<sup>(21)</sup> assessed tuberculosis scenario during National family health survey-2 in which they found percentage of males of male versus female as 57.8% and 42.2% respectively.

Majority (128, 42.7%) patients were Hindu followed by Sarna (112, 37.3%) patients. Only some of the patients were belonged to Muslim (30, 10%) and Christian (30, 10%). This finding is almost in accordance with the religion wise distribution of population in the state. Hinduism is the predominant religion of the state (68.6%) but Hindu tribe constitutes only 39.8 percent. On the basis of ethnicity, more than half (156, 52%) were non tribal and rest (144, 48%). According to 2001 census, tribal population of Jharkhand constitutes 26.3% of the total population of the state and in Ranchi district 41.8-44.6% of tribal populations are present. In a study conducted by Jethani et al<sup>(22)</sup> found that 74.3% patients were Hindu and 16.9% were Muslim. As far as ethnicity is concerned Maske et al<sup>(18)</sup> found that 57.9% were non tribal and 29.8% were tribal.

As far as area is concerned majority (251, 83.7%) patients were belonged to rural area and less number (49, 16.3%) were belonged to urban area. This could be due to the fact that 75.95% of people live in the rural area and 24.95% of people live in urban area in the Jharkhand state<sup>(17)</sup>. There is lack of qualified health care professional and lesser availability of health services. In a study done by Gupta et al<sup>(23)</sup> found in their study that 91.4% patients were from rural area and 7.7% of patients were from urban area. Haider S et al<sup>(24)</sup> revealed in the study that 89.3% of patients were belonged from rural area.

About one third (100, 33.3%) patients were educated up to secondary level followed by primary (64, 21.4%) and higher secondary (62, 20.7%). About 27 (9%) were educated up to graduate and above, 25 (8.3%) were literate and 22 (7.3%) were illiterate. The level of education is very much important in health seeking behavior of tuberculosis patients. Jethani et al<sup>(22)</sup> observed in their study that 66.4% patients were illiterate and 33.6% were literate. Maske et al<sup>(18)</sup> found that 23.7% patients were illiterate and 43.2% were literate.

On the basis of occupation majority (68, 22.7%) of patients were self employed followed by industrial/factory worker (51, 17%) and daily wages worker (45, 15%). 38 (12.7%) patients were housewives and 27 (9%) each for were in govt. service and farmer. Only few patients were unemployed (15, 5%) and in private job (12, 4%). This reveals that daily wages worker and industrial/factory worker were more vulnerable for getting infection with tuberculosis. Maske et al<sup>(18)</sup> revealed in their study that 30% patients were laborers and 28.8% were farmer. Gupta S et al<sup>(23)</sup> concluded in their study that majority of study subjects were laborers by occupation.

On the basis of marital status, more than half (56.3%) were married patients followed by unmarried (30%) patients. 32 (10.7%) patients were widow/widower. Very few (9, 3%) patients were divorced. This may be attributed to the fact that married people used to consult health care centre early by their counterparts so as to live a healthy life. Married women reported abandonment, isolation within the household and a lack of proper care from family members, particularly in-laws. Maske et al<sup>(18)</sup> found in their study that 32.25% were married, 41.2% were unmarried and 33.3% were widow/divorced/separated/cohabitating.

More than half (181, 60.3%) of the patients belonged to joint family and rest (119, 39.7%) were from nuclear family. The reason for this is that still in India, joint family system is more common. Jethani et al<sup>(22)</sup> reported in their study that maximum subjects were from joint family. While Q H Khan<sup>(23)</sup> revealed that nearly all (94.74%) of the study population were from joint family. Out of 300 patients, more than half (176, 58.7%) of the patients belonged to class IV followed by class V (81, 27%). Very few patients belonged to class I (12, 4%) and II (17, 5.6%) and III (14, 4.7%). Majority of the tuberculosis patients belonged to lower socioeconomic

class (class IV & V). Very few patients belonged to upper socioeconomic class (class I & II). It reveals that patients from low socioeconomic class get easily infection from outside environment due to poverty and undernutrition. Q H Khan<sup>(23)</sup> found in his study that high prevalence rate of tuberculosis (21.88/1000) in lower socioeconomic class.

**Table 1-** Socio-demographic profile of TB patients.

Socio-demographic Variable	Number (n=300)	Percentage (%)
<b>Age (in completed years)</b>		
15-25	83	27.7
26-35	82	27.3
36-45	65	21.7
46-55	35	11.7
56-65	25	8.3
>65	10	3.3
<b>Sex</b>		
Male	210	70
Female	90	30
<b>Religion</b>		
Hindu	128	42.7
Muslim	30	10
Christian	30	10
Sarna*	112	37.3
<b>Ethnicity</b>		
Tribal	144	48
Non-tribal	156	52
<b>Area</b>		
Urban	49	16.3
Rural	251	83.7
<b>Education</b>		
Illiterate	22	7.3
Literate	25	8.3
Primary	64	21.4
Secondary	100	33.3
Higher secondary	62	20.7
Graduate & above	27	9
<b>Occupation</b>		
Govt. service	27	9
Private job	12	4
Farming	27	9
Self employed	68	22.7
Daily wages	45	15
Industrial/ Factory worker	51	17
Student	17	5.6
Unemployed	15	5
Housewife	38	12.7
<b>Marital status</b>		
Married	169	56.3
Unmarried	90	30
Divorced	9	3
Widow/Widower	32	10.7
<b>Type of family</b>		
Nuclear	119	39.7
Joint	181	60.3
<b>Socioeconomic status*</b>		
I	12	4
II	17	5.6
III	14	4.7
IV	176	58.7
V	81	27

\*Modified BG Prasad classification 2014

## V. Conclusion

Our study revealed that majority of the TB patients are of productive age group and are from rural background. In rural area, there is lack of qualified health care professionals and lesser availability of health services. Lower literacy status of vulnerable group to become TB patients due to their ignorance or, less knowledge about TB and its transmission serving as potent risk factors of tuberculosis. Self-employed, farmers and daily wagers were more vulnerable for getting infection with Tuberculosis. Majority of the patients belonged to joint family and lower socioeconomic status. It may be due to the fact that still in India, joint family

system is more common and lower socioeconomic status are most vulnerable group to be infected with tuberculosis infection due to poverty, ignorance and lack of health care services.

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