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Original Research Article

Faces of tuberculosis: a riveting exploration into demographics and health profiles of patients in rural Jharkhand

Putul Bagti*, Bharath Jagadeesh, Neelima Tirkey

Public Health, Tata Steel Foundation, Jamshedpur, Jharkhand, India

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***Correspondence:**
Dr. Putul Bagti,
E-mail: drputul.bagti@tatasteelfoundation.org

ABSTRACT

Background: Tuberculosis is a pressing health concern in Jharkhand, India, claiming 13,000 lives annually. This retrospective study, conducted by Tata steel foundation, delves into the health and sociodemographic profiles of TB patients in the tribal-dominated East Singhbhum district. Noteworthy findings include risk factors such as Anaemia, Diabetes compounded by challenges like limited access to health facilities. TSF's initiatives, including Nikshay Mitra and support for NTEP, are crucial components in addressing TB in the region.
Methods: A retrospective study (September to November 2023) analyzed records from TSF's DOTS centre in East Singhbhum. Data from 2019-2023 were extracted and analyzed using descriptive statistics.
Results: The average age of 293 patients was 37.36±14.97 years, with 83.6% belonging to Scheduled Tribes. Sputum analysis revealed a 61.4% positive rate for Acid Fast Bacillus. Notably, 85.3% completed treatment, and abnormal chest radiographs were observed in 99.3% of cases.
Conclusions: The proposed way forward outlines actionable strategies to further strengthen TB awareness, focus on challenging districts, engage communities, and collaborate with government health centers. Regular research and monitoring, coupled with periodic impact assessments, will be crucial for adapting and refining interventions in alignment with the dynamic landscape of TB prevalence.

Keywords: Tuberculosis, Tribal populations, Nikshay Mitra, DOTS center

INTRODUCTION

Tuberculosis (TB) is a significant health issue in Jharkhand, India, with about 13,000 people dying from the disease each year. The state has a predominantly tribal population, with 28% of the population belonging to various tribal groups such as Santhal, Munda, Ho, Oraons, Kharia, and Bhumij. The East and West Singhbhum Districts are identified as difficult districts due to their low case detection rates and poor supervision.[1] The risk factors for tuberculosis in Jharkhand, India, include various social and behavioral elements. A study conducted in tribal-dominant districts of Jharkhand found that respondents reported local liquor consumption and smoking as causes of TB, while the reported modes of transmission included cough droplets, proximity to an infected person, and airborne transmission.[1] Additionally, ignorance about TB symptoms, addiction to alcoholic drinks, difficulty reaching health facilities due to long distances, lack of communication and transport, and other morbidities such

as malaria, diabetes, hypertension, and malnutrition were identified as risk factors for TB in tribal-dominated districts.[2]

Furthermore, a study on trends in TB mortality across India revealed a notable increase in TB deaths among tribal populations in Jharkhand, indicating the vulnerability of this demographic group to TB.[3] Nikshay Mitra is an initiative under the national tuberculosis elimination program (NTEP) in India that seeks to provide additional support to tuberculosis patients undergoing treatment.

Nikshay mitras can be individuals, NGOs, co-operative societies, faith-based organizations, corporates etc.[4] Tata steel foundation is supporting NTEP program by providing nutritional support through Nikshay Mitra initiative and supporting TB case detection and management through DOTS centre in Karandih Panchayat of East Singhbhum district. This study was done retrospectively based on the records available at DOTS centre.

Objectives

Objectives of current study were; to describe the health profile of TB patients who visited TSFs DOTS centre and to describe the sociodemographic profile of the study population.

METHODS

A retrospective record-based study was conducted between September 2023 to November 2023. Convenience sampling was done to obtain data which was extracted from the registers maintained in the TSFs DOTS centre at Karandih panchayat, Golmuri cum Jugsali block of East Singhbhum district of Jharkhand from the year 2019 to 2023. Relevant data was entered in the excel sheet and analysis was done using descriptive statistics like frequency, proportion, mean, standard deviation etc. Data which was complete was included in the study, incomplete or partially available data was excluded.

RESULTS

Average age of the study population is 37.36±14.97 years. Majority of the study population were males. Most of the sample belonged to Scheduled Tribes i.e., 83.6%. About 15.7% had family history of Tuberculosis. Pre-existing health conditions included Anaemia (25.3%), Diabetes (3.8%), HIV (0.7%). Sputum for Acid Fast Bacillus was positive in 61.4% of the patients. MTB was detected in 83.7% of the CBNAAT samples. Majority of the patients had some kind of abnormality in chest radiographs and about 1% of the patients were reactive for HIV test (Table 1). Average haemoglobin of the study population is 10.39±1.49%, average ESR was 84.59±34.98.

Table 1: Sociodemographic profile of study population (n=293).

Parameters	N	%
Gender		
Males	193	65.9
Females	100	34.1
Caste		
General	7	2.4
OBC	27	9.2
SC	14	4.8
ST	245	83.6
Family history of TB		
No	247	84.3
Yes	46	15.7
Pre-existing health conditions		
Normal	206	70.3
Anaemia	74	25.3
Diabetes	11	3.8
HIV	2	0.7
Sputum for AFB (acid fast *Bacillus*)		
Positive	180	61.4
Positive	113	38.6
CBNAAT		
MTB Not detected	22	16.3
MTB detected Rif resistant	5	3.7
MTB detected Rif not resistant	108	80.0
Chest radiography		
Any abnormality detected	291	99.3
No abnormality detected	2	1.0
HIV status		
Non-Reactive	290	99.0
Reactive	3	1.0
Treatment status		
Completed	250	85.3
Incomplete	33	11.3
Ongoing	10	3.4
Diabetic status		
Diabetic	23	7.8
Non-Diabetic	273	93.2

DISCUSSION

Tata Steel Foundation has been implementing public health activities and supporting various national health programmes in Jharkhand and Odisha. Tata Steel Foundation is supporting NTEP program by providing nutritional support through Nikshay Mitra initiative and supporting TB case detection and management through DOTS centre in Karandih Panchayat of East Singhbhum district. Tribal-dominant districts of Jharkhand, such as East and West Singhbhum, have been identified as difficult districts due to their TB burden. A study focused on these districts found that about 13,000 persons die of TB every year in Jharkhand. The survey documented knowledge about TB symptoms, causes, modes of transmission, curability, diagnosis, and treatment, as well as awareness about diagnosis and treatment available at government health centers and DOTS.[5] A cross-sectional

assessment in Jharkhand targeted a diverse profile of TB patients, including drug-sensitive TB, drug-resistant TB, pediatric TB, and extra-pulmonary TB. The study found that the treatment success rate was 83% which is similar to present study where treatment completed status is 85.3%.[6] The prevalence of HIV infection among tuberculosis (TB) patients in Jharkhand is a significant concern. A study found that the prevalence of HIV-TB co-infection in Eastern India, which includes Jharkhand, was 12.3% which is higher than the present study, the difference may be due to different time period and geography.[7]

Way forward

TB awareness and detection: Intensify awareness campaigns in East and West Singhbhum on TB symptoms and treatment. Expand Nikshay Mitra for continued nutritional support. Strengthen DOTS centers for effective TB case management. Use of Artificial Intelligence and deep learning network.[8,9] Focus on difficult districts: Increase efforts in high-burden districts with outreach programs and community-based screening. Research and monitoring: Conduct regular assessments for treatment success rates and prevalence, adapting strategies accordingly. Community engagement: Empower communities with health workers and support groups for active participation. Collaboration with Government: Strengthen ties with government health centers for a coordinated approach. Impact Assessments: Periodic assessments to measure and refine the effectiveness of interventions.

Limitations

Limitations were since It's a record-based study, more comprehensive study can be taken up to identify even more knowledge gaps in the above field.

CONCLUSION

The proposed way forward outlines actionable strategies to further strengthen TB awareness, focus on challenging districts, engage communities, and collaborate with government health centers.[10] Regular research and monitoring, coupled with periodic impact assessments, will be crucial for adapting and refining interventions in alignment with the dynamic landscape of TB prevalence.

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