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Prevalence of Tuberculosis Patient in Industrial Area of M.P. District: A Case Study

Shailendra Singh[1*], Himesh Soni[1]
[1]D. H. S. Bhopal, Madhya Pradesh, India

Abstract: One of the eldest human diseases is tuberculosis (TB), for which there is molecular evidence dating back more than 17,000 years. Unfortunately, TB is still one of the top 10 infectious diseases that kill people worldwide, second only to HIV, despite advances in detection and treatment. The World Health Organization (WHO) claims that TB is an international pandemic. It is the main cause of death for those with HIV. In India, the fight against TB has largely been divided into three eras throughout its history: the early era, before the development of x-ray and chemotherapy; the post-independence era, when national TB control programmes were started and put into place; and the current era, when an ongoing WHO-assisted TB control programme is in place. Today's DOTS in India. In the present case study, a survey of patient near industrial area carried out on the bases of age group and gender including MDR patient.

Keywords: Mycobacterium tuberculosis, MDR, Industrial area & Control measures.

Case Report

***Corresponding Author:**
Shailendra Singh
D. H. S. Bhopal, Madhya Pradesh, India

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INTRODUCTION

One of the primogenital diseases known to man, tuberculosis (TB) co-evolved with humans for at least several million years before that. The oldest known DNA evidence of tuberculosis was found in 9000-year-old human bones that were discovered in a neolithic town in the Eastern Mediterranean and in a fossil of an extinct bison (Pleistocene bison) that was radiocarbon dated at 17,870230 years [1]. The pulmonary form of TB was linked to "tubercles" by Dr. Richard Morton as early as 1689, but due to the disease's wide range of symptoms, TB was not recognised as a single illness until the 1820s. It was finally given the term "tuberculosis" by J. L. Schönlein in 1839. Robert Koch discovered Mycobacterium tuberculosis, the bacillus that causes tuberculosis, in 1882. In 1905, he was given the Nobel Prize in physiology or medicine for this discovery. The Mycobacterium tuberculosis complex is a collection of bacterial species that cause tuberculosis. Mycobacterium tuberculosis is currently the main cause of human tuberculosis. *M. bovis*, *M. microti*, and *M. africanum* are additional M. tuberculosis complex members that have been linked to tuberculosis. While M. africanum infections are extremely uncommon and M. microti is not known to cause TB in people, *M. bovis* has a wider host range and is the principal cause of tuberculosis in other animal species. *M. bovis* typically infects humans through milk, milk products, or meat from infected animals [2]. Millions of people are still afflicted with and dying from TB despite advancements in diagnostic and therapeutic methods. TB is one of the top three infectious diseases that claim lives worldwide, along with HIV/AIDS and malaria, which each claim the lives of 3 million people annually [3-7].

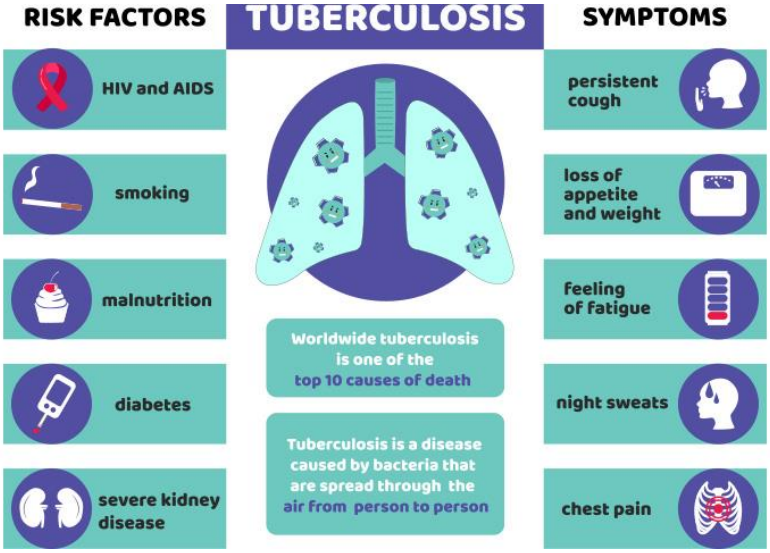

Figure 1: Risk Factor and Symptoms of Tuberculosis

In the current case study, a survey of patient near industrial area of Satna district (M.P.) carried out on the bases of age group and gender including MDR patient.

Role of Industries in Tuberculosis Patient

Indoor air pollution (IAP) is a recognized risk factor for various diseases. The role of indoor solid fuel exposure in the risk of mycobacterium tuberculosis (TB) in India had been direct impact on Tuberculosis patient. Using a cross-sectional design, subjects were screened for a history of active TB and lifelong exposure to IAP sources, such as solid fuel burning and kerosene. The TB prevalence rate in the study area was 1117 per 100 000 population. Every year, increase in solid fuel exposure was associated with a three percent higher likelihood of a history of active TB. Subjects exposed to solid fuel and kerosene use for both heating home and cooking showed significant associations with TB. Age, household expenditure (a proxy of income), lung function, and smoking also showed significant associations with TB. Smokers and solid fuel–exposed subjects were four times more likely to have a history of active TB than non-smoker and unexposed subjects. These finding calls strategies to mitigate solid fuel exposure, such as use of clean cookstove and ventilation, to mitigate the risk of TB which aligns with the United Nations' goal of "End TB by 2030" [8].

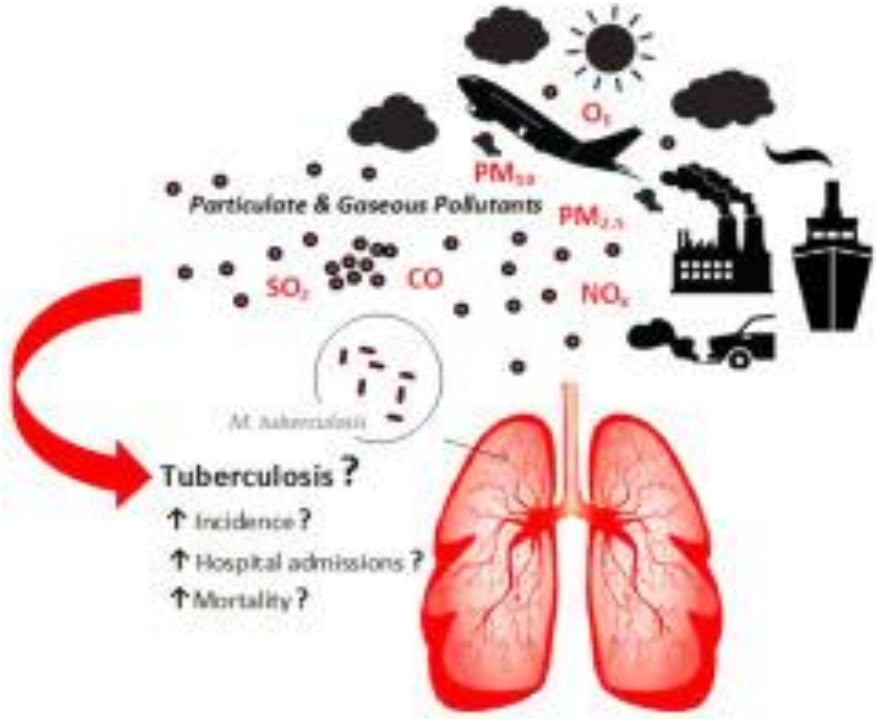

Figure 2: Role Air Pollution in Prevalence of Tuberculosis

Table 1: Case study of total Tuberculosis patient

Year	Total	Age group in years				
		Paediatric	15-30	31-45	46-60	Above 60
2021	3993	174	1774	988	680	377
2022	8063	390	3194	1959	1518	1003

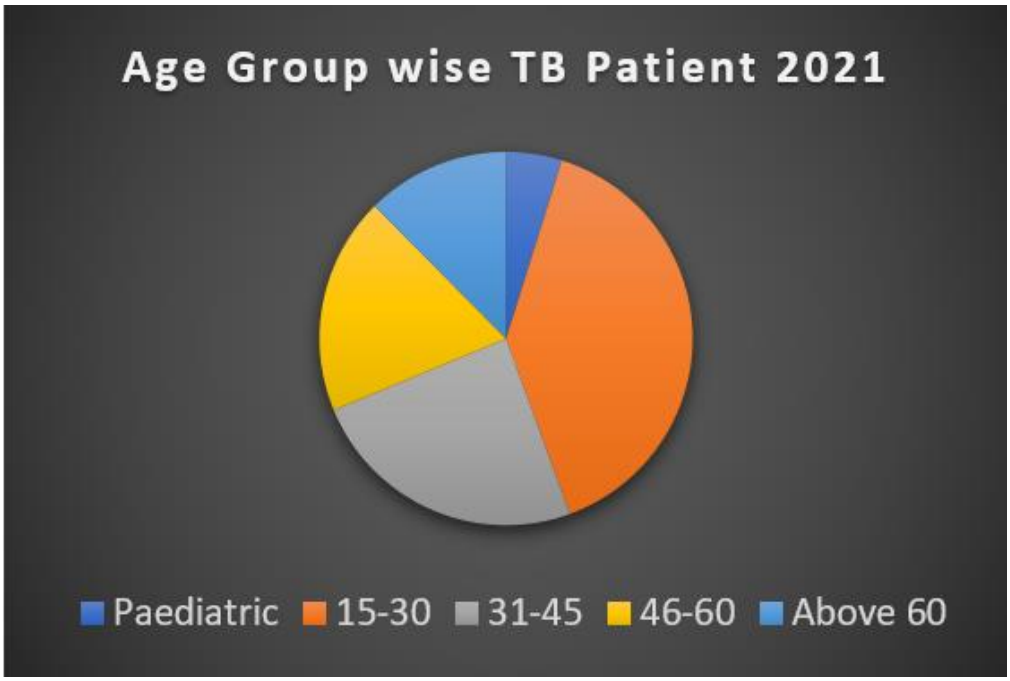

Figure 3: Age Group wise TB Patient 2021

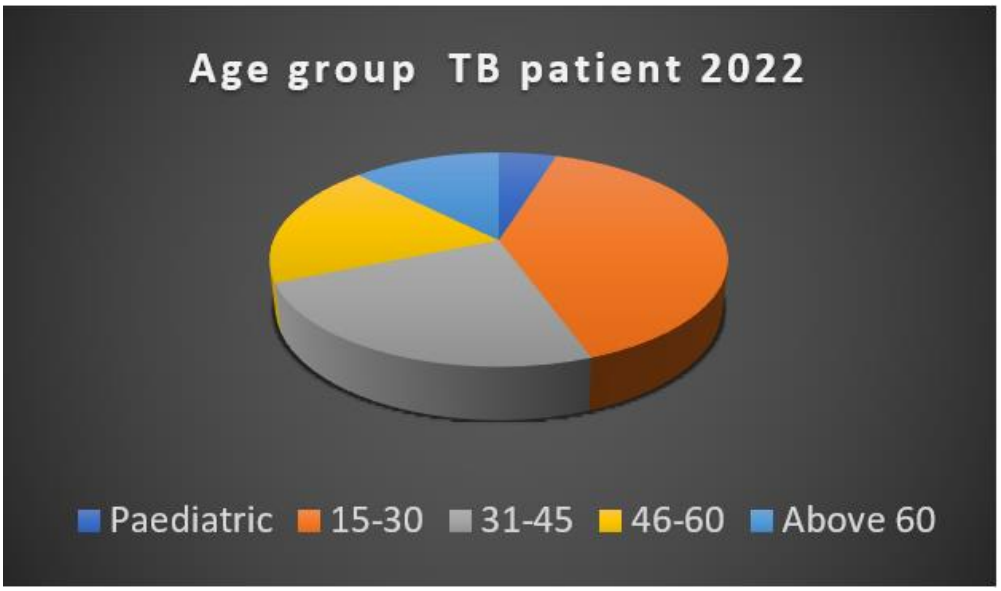

Figure 4: Age group TB patient 2022

Table 2: Case study of total Tuberculosis patient gender wise

Year	Gender			
	Male	Female	Transgender	MDR Patient
2021	2574	1418	01	97
2022	4915	3147	01	102

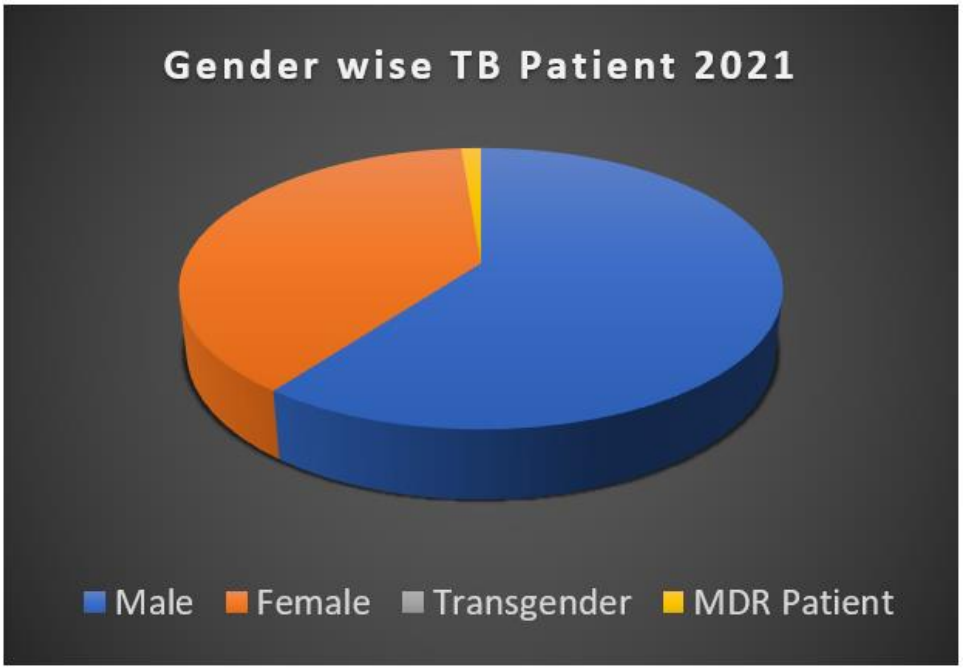

Figure 5: Gender wise TB Patient 2021

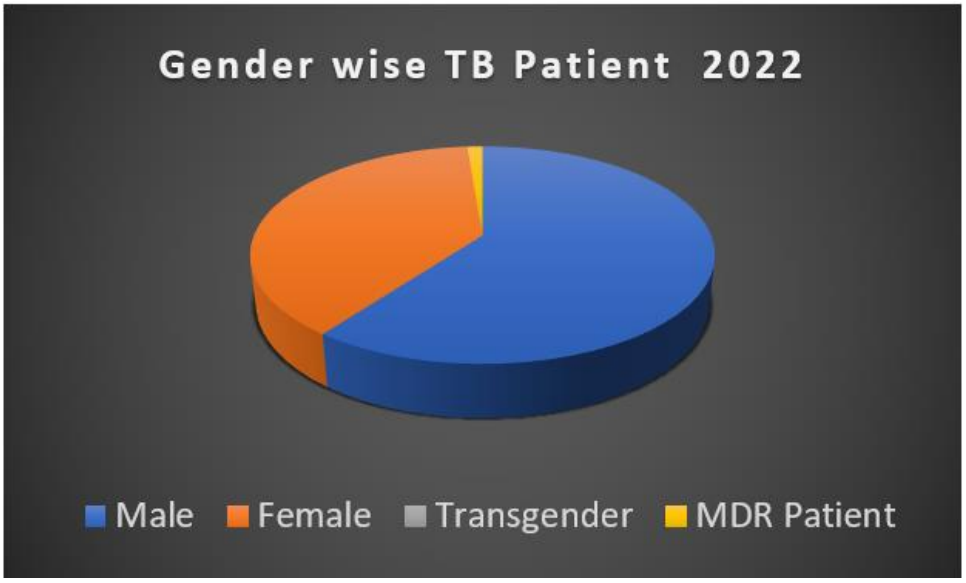

Figure 6: Gender wise TB Patient 2022

SUMMARY AND CONCLUSION

Tuberculosis represents a health problem with a very high incidence and associated deaths worldwide. Only one in ten MDR-TB patients receive an appropriate treatment and the poor implementation of efficacious and rapid diagnostic methods for resistance detection hinders the correct treatment of MDR-TB. However, a global decrease in TB has been observed during the last decade as a consequence of hard work in implementing prevention and control campaigns. In the present case report, we observed increased number of patients in year 2021 & 2022 along with conversion of Pulmonary tuberculosis patient to MDR. It might be due dose dumping of drug, comorbid of other disease or due to addition of tobacco /alcoholism. It is estimated that 30 % of the adult world population (1.250 million approximately) are smokers, 45 % of men (around 1.000 million) and 12 % of women (250 million). As commented, TB presents a strong association with multiple socioeconomical factors, such as malnutrition, alcohol abuse, drug abuse, tobacco consumption and social inequality. Preventive measures should be taken by people near industrial area with routine line checkup if any presumptive symptoms are observed. Contact tracing of member is necessary with tuberculosis treatment preventive therapy for prevention of spread bacteria.

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