



## **A Case Series Analysis of Multidrug-Resistant Tuberculosis Patients' Clinical and Sociodemographic Characteristics**

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### **Introduction**

According to the World Health Organization's definition, multidrug-resistant tuberculosis, also known as MDR-TB, is characterised by resistance to both isoniazid and rifampicin, with or without resistance to additional antituberculosis drugs. MDR-TB is a subtype of multidrug-resistant tuberculosis (also known as MDR-TB). This is rapidly becoming a significant public health problem on a global scale, and it presents a threat to ongoing efforts to combat TB. Recent findings from the monitoring of anti-TB medication resistance indicate that rifampicin- or multidrug-resistant tuberculosis affects 18% of previously treated patients and 5.2% of newly diagnosed cases around the globe. This is the percentage of newly diagnosed cases of tuberculosis that have been found. In 2019, there were approximately 800,000 new cases of MDR- and RR-TB reported worldwide. Out of the 1.5 million new cases of tuberculosis that are diagnosed every year in India, it is anticipated that 82,000 of those cases will be MDR-TB. This year, a new case of TB that is resistant to several drugs is expected to be diagnosed in around 91,000 people in the United States. Because the symptoms of pulmonary tuberculosis that are seen on a chest X-ray are dependent on characteristics such as age and immunological state, it may be helpful to recognise the influence that HIV has on the appearances of MDR-TB on a chest X-ray. Inadequate treatment of drug-sensitive as well as drug-resistant tuberculosis has led to an increase in the prevalence of multidrug-resistant tuberculosis, which is becoming an increasingly critical problem. Treatments for both multidrug-resistant tuberculosis and regular tuberculosis may be effective, but they may be too expensive, take too long, or even be dangerous in some cases. There have only been a few studies that have looked at the demographic and clinical aspects of MDR-TB. The social and demographic environment of MDR-TB is the focus of this study, which strives to improve our understanding of the disease.

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### **Methodology**

This hospital-based case series study was carried out by researchers at Index Medical College in Indore. It comprised a total of five hundred patients who had been diagnosed with MDR pulmonary TB. The research was carried out in a number of hospitals in the Indore area. Patients who had an established diagnosis of MDR-TB in the lungs were invited to participate in the trial. Using the patient's record form, information such as the patient's complete blood count, random blood sugar, and retroviral status were extracted from the patient's existing medical record. This information was taken from a previous record that was kept at the office. Sputum samples were collected from patients identified by GeneXpert as having MDR pulmonary TB symptoms. From this point forward, the term "MDR patients" will be used to refer to each and every GeneXpert patient who has a positive test result for Rifampicin resistance. MDR stands for "multidrug-resistant," which refers to a condition that is resistant to many therapy choices.

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### **Results**

There are about 500 people throughout the globe who have been identified as having tuberculosis that is resistant to several drugs. Because they flat-out refused to participate with the researchers, ten participants in the study's test group were booted out of the study and removed from the group. There were a total of 300 patients who satisfied the requirements for participation, and according to the socio-demographic profile of the people who took part in the study, 63% of them were male and 39% were female. Patients had an average age of 35.75 years, and male patients made up 64% of the total. Nearly two-thirds of patients were from families whose incomes were lower than the federal poverty level, and around one-third of patients were entirely from the Indore region. Samples were collected from 77% of industrial workers and 30% of those whose families had a history of tuberculosis infection. People who have body mass indices that are much higher than the usual range make up 88% of the sample. It is anticipated that around one-quarter of the study's total of 300 participants will be first-ever occurrences. The diagnosis of multidrug-resistant tuberculosis was obtained after patients had been treated for their symptoms for an average of 8.311.51 months. Patients who have just been given a diagnosis nevertheless spend an average of 5.76 months (plus or minus 0.55) coping with symptoms before getting an official diagnosis. This was the case despite the fact that the patients may or may not have been receiving treatment. Coughing was the initial symptom that was encountered by every patient in the study, making it

the most prevalent symptom. After that point, the patient's condition started to deteriorate gradually, and they started experiencing symptoms such as fever, difficulty breathing, loss of appetite, and hemoptysis.

Twenty-three percent of the 300 patients had a sputum pyogenic culture and sensitivity test performed, and the results showed that ten percent of the samples showed no growth, whereas twelve percent of the samples showed growth of *Klebsiella* in five percent, *Moraxella* in three percent, and *Burkholderia* in four percent.

The patient's mean haemoglobin was 11.34, his ESR was 32.05, his total leukocyte count was 11.90, his red blood cell count was 13.87, and his total leukocyte count was 13.87. The patient also had a mean red blood cell count of 13.87. These values may be found in the table that follows. There were a total of 190 people who were tested for HIV, and the positive result rate was 5%, which means that five of those people tested positive. Seventy-nine percent of patients had positive results for the presence of AFB in their sputum, while the other patients received negative findings.

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## Conclusion

Patients under the age of 60 are more likely to have cases of tuberculosis that are resistant to many drugs. It is necessary to have a high index of suspicion in order to diagnose pulmonary tuberculosis in a patient, even if the patient's sputum test comes back negative for acid-fast bacilli. This is due to the fact that around one-third of patients' sputum samples taken at the time of diagnosis came back with unfavourable findings from acid-base bacteria testing.

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