

# PSYCHIATRIC COMORBIDITY IN PATIENTS SUFFERING FROM MULTI DRUG RESISTANT TUBERCULOSIS

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## ABSTRACT

**Introduction-** Tuberculosis continues to be a major health problem in India even after two government run program for its control and eradication. The development of resistant to drugs is also making the scenario poor. The tuberculosis is causing stress in patient specially infected by its drug resistant form that is leading to development of psychiatric illness. These psychiatric disorders are causing great challenge in the management of multidrug resistant tuberculosis (MDR- TB). The Anxiety disorders and psychosis developed in these patients affect their quality of life, as well as physicians' attitudes toward MDR-TB therapy. Successful control is very crucial for favorable outcome, and for overall well-being of patient. A great chunk of patient suffering from MDR Tuberculosis developed significant stress, subclinical depression and anxiety symptoms at sub syndrome level which do not came to notice of patient as well as physician. All above reason led to analysis of patterns of psychiatric illnesses in the patients diagnosed with MDR tuberculosis in a tertiary care hospital of north India.

**Methodology-** Hundred patients of MDR TB visiting Tuberculosis unit OPD were undergo a detail psychiatric evaluation by a consultant psychiatrist and diagnoses were considered as per ICD-10 DCR criteria. Hamilton Depression rating scale (HAM-D), Hamilton Anxiety Rating scale (HAM-A) and Perceived Stress scale (PSS) were applied to assess Depressive symptom, anxiety symptoms and perception of stress respectively. The statistical analyses were conducted using Statistical package for the social sciences (SPSS version 16) software. The statistical significance was defined at  $P < 0.05$ .

**Results-** Most common psychiatric diagnosis in our study was Depressive disorder (30%), Anxiety disorders (20%), Psychotic Disorders 7% and Stress 15%.

**Conclusion-** A significant level of psychological stress and psychiatric comorbidity was found to be associated with MDR-TB in patients. It is bringing major social and financial challenges to patient and their families.

**Keywords-** Multidrug resistant tuberculosis (MDR-TB), psychiatric comorbidity, HAM-D, HAM-A

**Introduction-** Tuberculosis is one of top ten leading cause of death worldwide and continues to be a major global health concern. It is affecting most of the countries of world but African countries and countries like India, china, Indonesia are worse affected<sup>1</sup>. In 2018 TB caused 1.2 million deaths among HIV negative patients and 251,000 deaths among HIV positive patients<sup>2</sup>. The development of drug resistant strains of *M. tuberculosis* is increasing challenge to public health. It is a well established fact that primary transmission of drug-resistant bacteria (as opposed to acquired resistance) is the dominant mechanism sustaining the global transmission of drug-resistant TB (DRTB) cases<sup>3</sup>. The two main reasons of Drug resistance are improper uses of antibiotics and incomplete course of treatment.<sup>4</sup> The development of psychiatric disorders make management of patients with multidrug resistant tuberculosis (MDR-TB) difficult. These disorders are due to complications related to use of anti-tuberculosis drugs like Cycloserine or due to other psychosocial factors associated with MDR TB. These disorders affect patient quality of life, as well as physicians' attitudes toward MDR-TB therapy<sup>5</sup>. Therefore Successful control of psychiatric symptoms is crucial<sup>6</sup>. The most commonly reported management strategy to control psychiatric symptoms is to remove the offending agent which is not possible in case of MDR TB because of possibility of worsening of illness. A few published reports describe management strategies that avoid the discontinuation of the drug, for example lowering the dose or simultaneously administering antidepressant or antipsychotic therapy.<sup>7,8</sup> A significant population of patient suffering from MDR Tuberculosis also develop significant stress, subclinical depression and anxiety symptoms. We intended to conduct a study aiming to analyze the stress and patterns of psychiatric illnesses in the patients diagnosed as MDR tuberculosis in a tertiary care hospital.

**Methodology-** This cross-sectional descriptive study was based on the interview of the patients diagnosed as MDR

tuberculosis coming for treatment in Institute of Medical sciences, BHU, Varanasi. Hundred patients of MDR TB underwent a detailed psychiatric evaluation by a consultant psychiatrist. Psychiatric diagnoses were considered as per ICD-10 DCR criteria. Hamilton Depression rating scale (HAM-D) (HDRS) was used to assess Depressive symptoms and Hamilton Anxiety Rating scale (HAM-A) was used to assess anxiety symptoms. Perceived Stress scale (PSS) was used to assess the perception of stress.

**Hamilton Depression rating scale (HDRS)** – also known as HAM-D is a most widely used clinical administered scale for assessment of depression. The original version contains 17 items pertaining to symptoms of depression experienced over the last week. A Score of 0-7 is generally accepted to be within the normal range, while a score of 20 or higher indicate clinical Depression. Score 8-13 indicate mild, 14-18 indicate moderate, 19-22 indicate severe more than 23 indicate very severe Depression<sup>9</sup>.

**Hamilton Anxiety Rating scale (HAM-A)** - The HAM-A is one of the first scales developed to assess symptoms of anxiety disorder and most widely used in both clinical and research setting. The scale consists of 14 items pertaining to psychological and physical complaints related to anxiety. Each item is scored on a scale of 0 (not present)-4 (severe), with a total score ranging from 0-56. Total score less than 17 indicates mild, 18-24 indicates moderate and 25-30 indicates severe anxiety<sup>10</sup>.

**Perceived Stress scale (PSS)**- PSS is the most widely used scale to measure perception of stress. It is a measure of the degree to which situations in one's life are appraised as stressful. It has 10 items scored on a scale 0 (Never)- 4 (most often). Total Score Ranges from 0-40 with higher scores indicating higher perceived stress. Total score ranging from 0-13 would be considered low stress, 14-26 moderate stress, 27-40 high perceived stress<sup>11</sup>.

The statistical analyses were conducted using Statistical package for the social sciences (SPSS version 16) software. The statistical significance was defined at P < 0.05.

**Results**

In this study we included hundred patients of MDR TB coming to Tuberculosis unit for treatment in Institute of medical sciences, Banaras Hindu University, Varanasi. The Socio-demographic characteristics of the subjects are presented in table 1.

**Table1. Socio- Demographic data of subjects**

Variable	Number	Percentage
SEX		
Male	60	60%
Female	40	40%
Marital Status		
Single/Divorced	42	42%
Married	58	58%
Family Type		
Nuclear	57	57%
Joint	43	43%
Residence		
Rural	30	30%
Urban	70	70%
Occupational Status		
Unemployed	65	65%
Employed	35	35%
Education		
Primary	2	2%
High	25	25%
Inter	23	23%
Graduate	37	37%
Postgraduate	13	13%
Socio Economic Status		
Lower	7	7%
Upper Lower	46	46%
Middle	44	44%
Upper Middle	3	3%

The mean age of patients was 29.5 years (±6.5) in present study. Majority of patients were Male belonging to upper lower socioeconomic status and from urban area around Varanasi. As shown in Table -2, most common psychiatric diagnosis in our study was Depressive disorder (30%) followed by anxiety disorders (20%). 7 (7%) MDR patients also

suffered from Psychotic Disorders. Past history of psychiatric illness was only present in 4 patients, 3 had past history of depression and 1 patient had psychosis. In our subjects tobacco was most common substance abused (40%) followed by alcohol 8% & cannabis (2%).

**Table2- clinical characteristic of subjects**

Psychiatric Diagnosis	Number	Percentage
Depressive Disorder	30	30%
Anxiety Disorder	20	20%
Psychotic Disorder	7	7%
Dissociative Disorder	1	1%
<b>Substance Abuse</b>		
Tobacco	40	40%
Alcohol	8	8 %
Cannabis	2	2%
<b>Past History of Psychiatric Illness</b>		
Nil	96	96%
Psychosis	1	1%
Depression	3	3%

**Table 3- HAM-D, HAM-A & PSS Score**

HAM-D score	Number	Percentage
Mild		
Moderate	15	50%
Severe	6	20%
Very Severe	5	20%
	4	10%
<b>HAM-A Score</b>		
Mild	9	45%
Moderate	9	45%
Severe	2	10%
<b>PSS Score</b>		
Low	13	13%
Moderate	67	67%
High	20	20%

Hamilton Depression rating scale showed that significant proportion (30%) of patients were suffering from severe or very severe depressive symptoms. Proportion of patients suffering from moderate to severe anxiety symptoms was also high (55%). 20% of patients had perceived very high level of stress (Table-3).

**Discussion**

India contributes to one-fourth of the global burden of multidrug-resistant tuberculosis<sup>12</sup> (MDR-TB). The reason behind its' are chronic devastating nature of illness causing significant morbidity and mortality, development of multi drug resistance and poor drug adherence. The development of psychiatric comorbidity further complicates the situation. In our study we not only looked at psychiatric comorbidity which are tip of iceberg but also evaluated sub-clinical depression and anxiety. Psychiatric comorbidity was found in about 57% patients. Depression was the most common psychiatric comorbidity (30%) in our study followed by anxiety disorder (20%) and psychotic disorder (7%). 50% patients had co-morbid substance dependence; Tobacco was most common substance abused (Table-2). Our study results are in line with the other studies from Northern India. Panchal et al (2011) screened 600 patients of pulmonary TB admitted in Hospital for Chest Diseases and Tuberculosis, Jaipur. They assessed patients using Beck depressive inventory scale. Depression was present in 82% female tuberculosis inpatients and in 52.6% males immediately after the diagnosis<sup>13</sup>. Chaudhri et al (2013) evaluated 214 outpatients registered at DOTS Centre in Kanpur, India. They found 82.2% had psychiatric comorbidity; out of which 85.2% had anxiety neurosis, and 14.8% had depression<sup>14</sup>. Chandrashekar et al (2012) observed 100 patients hospitalized for pulmonary tuberculosis in Bangalore. They used MINI International Neuro Psychiatric Interview Scale and found 46% of psychiatric morbidity, majority were depressive disorders (36%) followed by anxiety disorders (24%) comorbidity of depressive and anxiety disorders in 16% of patients<sup>15</sup>. Supriyanto, et al. studied medical records of MDR-TB patients admitted for MDR-TB treatments to Sardjito Hospital from January 2014 to July 2016 and screened for psychiatric disorders found that 32.8% MDR-TB patients admitted to Sardjito Hospital were diagnosed with psychiatric disorders and 52.4% of them had psychotic symptoms & Depression was the most common diagnosis<sup>16</sup>.

In our study perceived stress was moderate to high in significant proportion of patients (87%). The significant high level of stress noted in our study highlights the importance of stress management for better psychological health of the MDR patients. It is important because it causes various somatic symptoms like destructive changes in the body such as

ulcers, back pain, headaches, raised blood pressure, indigestion which is in addition to various psychological problems<sup>17</sup>. The Neuroimmune axis gets over stimulated and the breaks down causes neuroendocrine/ immune imbalances. It may lead to a state of chronic low-grade inflammation, a possible prelude to various illnesses<sup>18</sup>. A big sample size is needed to further evaluate the findings.

The strength of study is use of validated specialized scales for assessment of Depression, anxiety and stress, detailed evaluation by qualified psychiatrist. Stress was independently assessed it came out to most ignored factor causing high psychological distress to the MDR patients.

### **Conclusion**

This study found significant psychological stress and psychiatric comorbidity in patient suffering from MDR-TB. It also noted significant social and financial challenges which MDR Tuberculosis brings to their families. There is an urgent need for developing a program focusing on giving psychosocial support to MDR-TB patient and their caregivers. The purpose is to mitigate the negative effects of stigma, and to manage the associated psychological stressors. The present study also found lack of focus in managing several relevant issues important in bringing positive outcome in the MDR Tuberculosis patients. Brief and focused psychosocial intervention strategies should be planned, which could help the MDR-TB patients to cope with their psychosocial challenges. It may lead to improved treatment adherence, reduced default and TB transmission rates.

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