

## Original Research Article

# Occurrence of psychiatric disorders in the patients of multi drug resistant tuberculosis under treatment

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**Received:** 01 October 2018

**Accepted:** 05 October 2018

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### ABSTRACT

**Background:** Tuberculosis (TB) is considered as one of the leading causes of mortality worldwide. Even though fatality of TB is well known, treatment non-adherence is major barrier related to management of TB. Studies have shown that there is strong association between psychiatric disorders and treatment nonadherence to TB. Psychiatric issues present a challenge in the treatment of patients with multi drug-resistant tuberculosis (MDR-TB). Both baseline psychiatric disorders and development of psychiatric complications related to anti-tuberculosis drugs require aggressive management for better management of TB. The objective of the present endeavour was to study the occurrence of psychiatric complications in patients of MDR-TB during treatment

**Methods:** Patients of MDR-TB registered at PMDT centre situated at a tertiary level hospital were screened for psychiatric disorder by using GHQ-12 and assessment was done using structured clinical interview for DSM-IV-TR (SCID-1) research version. Diagnosis of psychiatric disorder was made on the basis of DSM-IV-TR.

**Results:** Psychiatric disorders were already present in 8 (6.15%) patients before the start of MDR-TB treatment and development of psychiatric disorder in 12 (9.23%) patients after initiation of the treatment. Depressive disorder (n=9; 6.9%), anxiety disorder (n=5; 3.8%) and psychosis (n=4; 3.1%) were most frequent psychiatric disorders.

**Conclusions:** GHQ-12 was found to be very useful screening instrument for detection of psychiatric disorders. The regimen IV anti tubercular drugs used for the treatment of MDR-TB drug resistant tuberculosis, significantly increases the risk of development of psychiatric disorders.

**Keywords:** General health questionnaire, Multi drug resistance tuberculosis, Psychiatric disorders, Prevalence

### INTRODUCTION

More than 50 years after the advent of effective therapy, tuberculosis (TB) remains one of the leading causes of adult deaths in the world, disproportionately affecting people in developing countries. MDR-TB has existed in India virtually since anti-TB drugs were invented and introduced into the country. India had the second highest total number of estimated MDR TB cases (99,000) in 2008, after China (100,000 cases) (WHO, 2010).<sup>1</sup>

Psychiatric disorders have been found co-morbid with anti-tuberculosis therapy since very long.<sup>2,3</sup> Psychiatric disorders and tuberculosis are important global public health problems, contributing 2.5% and 2.0% respectively, to Global Burden of Disease (GBD), as measured by Disability Adjusted Life Years (DALYs) in 2010.<sup>4</sup> Although significant psychiatric symptomatology has been most commonly associated with cycloserine (CS) and isoniazid (INH), other drugs like ethionamide (ETH), ethambutol (EMB) and the fluoroquinolones has

also been implicated to produce severe psychiatric manifestations including psychosis, anxiety, depression, euphoria and suicidal behaviour and/or attempts have been reported to occur in 9.7%-50% of individuals receiving CS.<sup>3,5-7</sup> In addition to drug toxicity, psychosocial factors contribute to psychiatric complications during MDR-TB therapy, and consequently affects patient's adherence to these regimens.<sup>8</sup> It is apparent that psychiatric complications occur even in the absence of drug therapy. Apart from disease itself, some of the psychosocial issues that are often of prominent concerns to individuals with MDR-TB include: social stigma and discrimination; fear and guilt associated with tuberculosis; the socio-economic and psychological burdens of living with a chronic, life-threatening illness; increased dependence on others; multiple treatment failures and being told in health centers that no further therapy is available; losing family members to the disease; and concomitant poverty. While adverse effects associated with MDR-TB treatment may be managed effectively, certain side effects require special attention. In particular, psychiatric complications, such as anxiety, depression, and psychosis, can greatly impact patient quality of life, as well as physicians' attitudes toward MDR-TB therapy.

Successful control of psychiatric symptoms is therefore crucial not only for favourable patient outcome, but also for patients' overall well-being and physicians' comfort with managing MDR-TB therapy. Several authors have described how these psychosocial factors complicate adherence to drug regimens and emphasize the importance of attention to mental health needs to ensure positive treatment outcomes.

The objective of the present endeavor was to study occurrence of psychiatric disorders in the patients of Multi Drug Resistant Tuberculosis (MDR-TB) and during Revised National Tuberculosis Control Programme (RNTCP) category IV treatment.

**METHODS**

Patients of MDR pulmonary tuberculosis registered at PMDT centre situated at a tertiary level hospital were screened and selected in the study on the basis of inclusion and exclusion criteria.

**Inclusion criteria**

- All diagnosed MDR-TB Patients registered in PMDT (Programmatic Management of Drug resistant TB) Centre
- Availability of a key informant and informed consent.

**Exclusion criteria**

- Other physical co-morbidities like HIV
- Chronic obstructive airways disease

- Diabetes mellitus and hepatitis.

**Following tools were applied**

- General Health Questionnaire (GHQ-12)- The GHQ-12 is a screening tool for identifying psychiatric disorders in the general population and within community or non-psychiatric clinical settings such as primary care or general medical out-patients.<sup>9</sup>
- Diagnostic assessment of selected patients was done by structured clinical interview for DSM-IV-TR (SCID-I) (research version)- The structured clinical interview for DSM-IV axis I disorders (SCID-I) is a diagnostic examination used to determine DSM-IV axis I disorders i.e. major psychiatric disorders.<sup>10</sup>
- Diagnostic and Statistical Manual-IV TR (DSM-IV-TR)- The diagnostic and statistical manual of mental disorders, 4th Edition, DSM-IV is the official manual of the American Psychiatric Association, which is used for classifying psychiatric disorders and defining diagnostic criteria for the disorders listed.<sup>11</sup>

All diagnosed MDR-TB Patients, registered in PMDT centre, between December 2015 to June 2016 were selected for the study, on the basis of inclusion and exclusion criteria. The diagnosed patients of MDR-TB were screened for psychiatric symptoms by applying GHQ-12. All the screened patients were taken to the Department of Psychiatry, where diagnostic assessment was done by consultant psychiatrist on the basis of SCID-I and DSM-IV-TR. The patients were evaluated for presence of psychiatric diagnosis at baseline and thereafter follow up was done at 3 months and then every 6 months.

**RESULTS**

Socio-demographic profile of the patients is shown in Table 1. The minimum age of patient is 11 years and maximum age of the patient was 70 years. The mean age of presentation was 29.70 years with majority (63.1%) belonged to lower age group (<30 years). Males were over represented (61.5%). And among 20 patients who had psychiatric illness, 9 females (45%) and 11 males (55%).

**Table 1: Socio-demographic profile of the patients.**

Parameters	No. of patients	Percentage %
Age (in years)	<30	82 63.1
	>30	48 36.9
Gender	Males	80 61.5
	Females	50 38.5
Habitat	Urban	57 43.8
	Rural	73 56.2

Most number of the patients 73 (56.2%) were from rural background and 57 (43.8%) from urban background.

Majority of patients (n=15; 75%), who had psychiatric illness, were not working. This group include students (n=8; 40%) and housewife (n=5; 25%).

Pre-treatment screening and classification of the patients by GHQ-12 are shown in Table 2. All the patient (n=4) with GHQ scores between 9-12 had comorbid psychiatric disorders. However, GHQ score between 5-8 had 18.1% and GHQ score between 1-4 had no psychiatric comorbidity in pre-treatment group.

**Table 2: Pre-treatment screening and classification of the patients by GHQ-12\*.**

No. of patients screened	GHQ scores of the screened patients	After screening no. of patients with psychiatric diagnosis
104	1-4	0
22	5-8	4 (18.1%)
4	9-12	4 (100%)
Total=130		8 (6.1%)

Psychiatric illness profile of the screened patients is summarized in Table 3. Pre-treatment psychiatric disorders were present in 8 patients, out of which depressive disorders, anxiety disorders and psychotic disorder were 4 (50%), 3 (37.5%) and 1 (12.5%) respectively. Twelve newly diagnosed psychiatric patients were found, out of which depressive disorders, anxiety disorders, psychotic disorders and other psychiatric disorders were 5 (41.6%), 2 (16.6%), 3 (25%), and 2 (16.6%) respectively.

**Table 3: Psychiatric illness profile of the screened patients.**

Type of psychiatric diagnosis	Pre-treatment patients	No. of patients after start of MDR-TB therapy	Total
Depressive disorders	4 (50%)	5 (41.6%)	9 (45%)
Anxiety disorders	3 (37.5%)	2 (16.6%)	5 (25%)
Psychotic disorders	1 (12.5%)	3 (25%)	4 (20%)
Others	0 (0%)	2 (16.6%)	2 (10%)
Total	8 (40%)	12 (60%)	20

Majority of the patients (n=13; 65%) with psychiatric illness improved within three months of psychiatric treatment. Five patients (25%) improved in between 3 to 9 months and only 2 (10%) patients had residual psychiatric symptoms even after nine months of psychiatric treatment. Overall 70% of patients (n=14) who had psychiatric illness had good outcome in terms of MDR treatment.

Two patients died at 5<sup>th</sup> and 6<sup>th</sup> month respectively.

**DISCUSSION**

In this study 130 patients were randomly screened in which 80 patients were males (61.5%) and 50 patients were females (38.5%). The mean age of presentation was 29.70 years with majority belonged 21-30 years of age group. Males were over-represented in the age groups between 11-40 years. Most of the patients in each age group were belonged to rural background (56.2%). Present study revealed that prevalence of psychiatric disorders in males (55%), was higher than females (45%), in contrast to previous study done by Singh et al, which showed higher prevalence in females.<sup>12</sup>

This study was done to find out the possible relation between development of psychiatric disorders with the usage of anti tubercular medications. Authors found that out of the 130 patients who were screened for this study, 104 patients did not reveal any psychiatric disorder despite 15 months of follow up. GHQ score of these patients was between 1-4. Four out of twenty-two patients, who’s GHQ score was between 5-8, suffered psychiatric problems. Similarly, four patients who scored between 9-12 on GHQ, all of them developed psychiatric disorders. In contrast to study by Singh et al, and Gupta et al, prevalence of psychiatric disorders was significantly lower in the present study (70% vs 41.6% vs 15.38%).<sup>12,13</sup>

Follow up of the patients on regimen IV anti tubercular medications showed that, 12 patients, who had no psychiatric disorder before, developed it during treatment. So, incidence of psychiatric disorder in patients of MDR TB was 9.8%. This finding was almost 1.5 times of the prevalence of already existing psychiatric disorders in the sample i.e. 8 patients out of 130 sample size (6.15%).

Present study reveals that anti tubercular medications regime IV used for treatment of MDR-TB was found to be strongly associated with development of psychiatric disorders. Most common psychiatric disorder found was depressive disorder (N=9; 6.9%). Second most prevalent psychiatric problem revealed was anxiety disorder (N=5; 3.8%). Prevalence of psychotic disorders was found to be around 3.1% (N=4). Rest 1.5% of the cases comprised other psychiatric problems like somatoform disorders etc. Study done by Singh et al, and Tandon et al, found depression in 77% and 32% respectively, while we found prevalence of depression 6.9% in patients of tuberculosis.<sup>12,14</sup>

Study done by Vega P et al, showed incidence of depression, anxiety and psychosis was 13.3%, 12% and 12% respectively, in contrast to present study which found it to be 3.84%, 1.5% and 2.3% respectively.<sup>15</sup>

The outcome of the patient, who developed psychiatric symptoms, was not significantly different from those who were normal.

## CONCLUSION

GHQ-(12) was found to be very useful screening instrument for detection of psychiatric disorders. This study also calls into question the regimen IV anti tubercular drugs used for the treatment of must drug resistant tuberculosis, since it significantly increases the risk of development of psychiatric disorders. Further investigation is likely warranted.

*Funding: No funding sources*

*Conflict of interest: None declared*

*Ethical approval: The study was approved by the Institutional Ethics Committee*

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**Cite this article as:** Kumar A, Chaudhari D, Anand R, Verma SK, Kumar A, Chaudhri S. Occurrence of psychiatric disorders in the patients of multi drug resistant tuberculosis under treatment. Int J Res Med Sci 2018;6:3538-41.