

Depression: A Neglected Comorbidity in Patients with Tuberculosis

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Abstract

Background: Psychiatric illness is often a neglected issue in patients with Tuberculosis (TB) in India. Depression among TB patients is a common comorbidity which is often unrecognised and untreated. It constitutes a major risk factor for higher default rates due to non-adherence to the treatment, thereby affecting the treatment outcome.

Aim of the study: This study was carried out to assess the prevalence of depression and its severity among TB patients.

Materials and methods: It was a cross-sectional, prospective and observational study conducted in TB patients, diagnosed and registered under directly observed treatment system (DOTS) at a tertiary care hospital in Bangalore from June 2016 to October 2016. Depression was assessed using Patient Health Questionnaire (PHQ-9).

Results: Out of the total two hundred sixty two (262) TB patients, 107 patients were found to have depression. The prevalence was found to be 40.83%. Mild to moderate depression was observed in 71.02% of the patients. Predominantly, depression was seen in the age group 20- 39 years (49.53%). Males had significant depression ($p = 0.021$). Patients with pulmonary TB (80.37%) were found to have higher depression than patients with extrapulmonary TB (19.62%). Depression was more during the first four months of the therapy. Significant depression was found among patients who were alcoholics ($p = 0.027$). There was no statistically significant association of depression with comorbidities.

Conclusion: There is high prevalence of depression among TB patients. It is more common in males and alcoholics. Patients who are in the first four months of the treatment are more likely to have depression. There should be regular screening of the patients with TB for psychiatric illness during the course of the treatment for better treatment compliance and outcome.

Introduction

Tuberculosis (TB) is a chronic infectious illness with leading cause of morbidity and mortality globally. According to the World Health Organization (WHO), in 2015 there are 10.4 million new TB cases and an estimated 1.4 million deaths due to TB worldwide. India is leading among the six countries which accounts for 60% of the total global burden with an estimated incidence of 2.8 million cases.¹ The main focus of the treatment of the disease is control of infection and cure. Factors related to treatment non-adherence are often overlooked. Depression is one of the

most common comorbidities in patients with TB.² It has been significantly associated with higher default rate (poor treatment compliance).³ It is secondary to multiple factors such as disease related, treatment related and patient related psychosocial factors.

Studies have shown psychological distress among TB patients in developing countries to be high.^{4,6} It is found that depression and anxiety rate is high among TB patients than general

population.⁷ According to the Global Burden of Disease study, depression is the fourth most important cause of disability-adjusted life-years (DALYs).⁸ Depression has a lifetime prevalence of 10% in general population.⁹ In a study conducted by Sulehri et al it was reported depression was present in 80% of hospitalised TB patients and was more common in males (86%).¹⁰ A study in India reported that 76% of TB patients on treatment developed common mental disorder.¹¹ Study in Pakistan showed 72% of TB patients had moderate to severe forms of depression and anxiety.⁵ In Nigeria, it was reported 51.9% of TB patients showed psychological distress.⁶ Studies have shown non-adherence to treatment is higher among patients with psychological distress.^{3,12}

Psychiatric illness such as depression is often a neglected issue in patients with TB in India. There is no recommendation in the guideline for the screening for psychiatric comorbidity among TB patients at the time of initiation of therapy and during the course of treatment.

The study aimed at knowing the prevalence of depression and its severity among TB patients, which is often neglected by the treating clinician, the Directly Observed Treatment Short-Course (DOTS) provider and patient himself/herself.

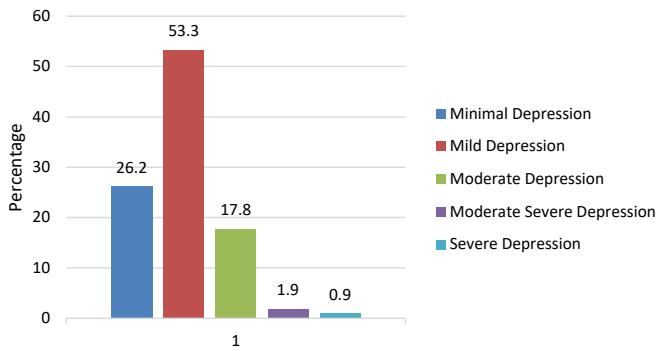
Materials and Methods

The study was of cross-sectional, prospective and observational type. It included patients diagnosed with pulmonary and extrapulmonary TB registered under DOTS at a tertiary care hospital in Bangalore from June 2016 to

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Table 1: Sociodemographic data

Social-demographic factors	N	%	Level of depression					P
			Minimal	Mild	Moderate	Moderately severe	Severe	
Gender								
Male	72	67.3	13	41	16	2	0	.021**
Female	35	32.7	15	16	3	0	1	
Age (yrs)								
< 19	10	9.3	5	3	2	0	0	.920 ^{ns}
20 – 39	53	49.5	14	29	8	1	1	
40 – 59	34	31.8	7	19	7	1	0	
≥60	10	9.3	2	6	2	0	0	
Occupation								
Student	19	17.8	8	7	3	0	1	.571 ^{ns}
Business	9	8.4	2	6	1	0	0	
Employee	27	25.2	4	14	8	1	0	
Labor	17	15.9	2	11	3	1	0	
Painter	6	5.6	1	3	2	0	0	
Farmer	4	3.7	1	2	1	0	0	
Homemaker	25	23.4	10	14	1	0	0	

Severity of Depression**Fig. 1: Majority of the patients had mild depression**

October 2016. The study was approved by Institutional Ethics Committee.

Patients willing to participate in the study with no pre-existing psychiatric illness were included in the study. Their relevant clinical data was collected and depression was assessed using the nine item patient health questionnaires (PHQ-9) to assess depression and its severity. The score of each question varied from 0-3. The score of 1-4 indicates minimal depression, 5-9 mild depression, 10-14 moderate depression, 15-19 moderately severe depression and 20-27 indicates severe depression.

Statistics

Data was entered in MS Excel and Statistical Package for the Social Sciences (SPSS) was used for statistical analysis. Chi-square test was used to calculate the differences between groups at a 5% level of significance. All tests were two-tailed. P value of less than 0.05 was considered statistically significant.

Results

A total number of two hundred sixty two (262) TB patients were included in the study. Out of them, 107 patients were found to have depression. Prevalence of depression was 40.83% in our study. Pulmonary TB was found in 80.38% of the patients and extrapulmonary TB was found in 19.62% of the patients. Majority (67.28%) were males whereas 32.71% were females. The ages of the patients ranged from 18 to 69. The mean age of the patients was 43.50 years. The occupations of the patients varied. Majority were employed (25.23%). Others included homemakers (23.37%), students (17.75%), and labourers (15.89%) (Table 1).

Patients who were alcoholics were found to be 43.92% and 38.31% were smokers (Table 2).

Majority of the enrolled patients (74.77%) were in the first four months of the treatment, 39.26% were in 3-4 months and 35.51% were in 1-2 months

Table 2: Depression association with smoking and alcohol consumption

Substance abuse	N	%	Minimal	Mild	Moderate	Moderately severe	Severe	P value
Alcoholic	47	43.9	6	30	9	2	0	.027**
Non-alcoholic	60	56.1	22	27	10	0	1	
Smoker	41	38.3	6	27	7	1	0	.191 ^{ns}
Non-smoker	66	61.7	22	30	12	1	1	

Table 3: Depression and tuberculosis therapy

	N	%	Minimal	Mild	Moderate	Moderately severe	Severe	P
Duration of treatment (Months)								
1 – 2	38	35.5	8	19	9	1	1	.463 ^{ns}
3 – 4	42	39.3	11	24	7	0	0	
5 – 6	22	20.6	9	11	1	1	0	
7 – 8	5	4.7	0	3	2	0	0	
TB treatment category								
Cat 1	86	80.4	23	45	15	2	1	.927 ^{ns}
Cat 2	21	19.6	5	12	4	0	0	

Table 4: Depression and comorbidities

Co-morbid condition	N	%	Minimal depression	Mild	Moderate	Moderately severe	Severe	P
Absent	68	63.6	16	41	9	1	1	.272 ^{ns}
Bronchial asthma	4	3.7	2	2	0	0	0	
COPD	3	2.8	2	1	0	0	0	
Diabetes mellitus	11	10.3	5	4	2	0	0	
Hypertension	18	16.8	1	8	8	1	0	
Hyperthyroidism	3	2.8	2	1	0	0	0	

of the treatment. Majority of them (80.38%) were on category I DOTS regimen and had higher depression than category II DOTS regimen patients (19.62%). However, no statistical difference of depression was observed among the treatment categories (Table 3).

The associated comorbidities found among the study group included were hypertension in 16.82%, diabetes mellitus (10.28%) etc. No statistically significant association of depression with comorbidities was found. Depression was found mainly in patients without comorbidities (63.56%) (Figure 3, Table 4).

Association of TB with Depression

Depression was found higher in patients with pulmonary TB (80.37%) than extrapulmonary TB (19.62%).

Severity of Depression

Majority of the patients (53.28%) had mild depression, 26.17% had minimal depression, 17.76% had moderate depression, 1.87% had moderately severe depression and 0.93% had severe

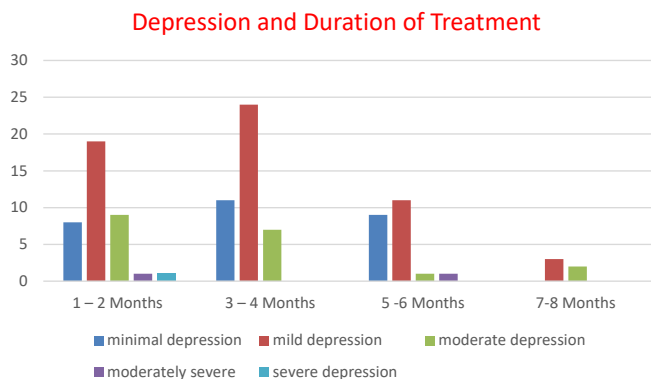


Fig. 2: Depression is observed more during the first four months of the therapy.

Table 5: Association of depression with TB

Level of depression	N	%	TB	
			Pulmonary TB	Extra Pulmonary TB
Minimal depression	28	26.17	23	5
Mild depression	57	53.28	45	12
Moderate depression	19	17.76	15	4
Moderate severe depression	2	1.87	2	0
Severe depression	1	0.93	1	0

depression (Figure 1, Table 5).

Males had statistically significant depression ($p = 0.021$), predominantly mild depression (38.31%) whereas 14.95% females had mild depression. Depression in alcoholics (43.92%) was statistically significant (p value 0.027).

Majority of the Pulmonary TB patients were mildly depressed (42.05%) than extrapulmonary TB (11.21%) (Table 5, Figure 4).

Depression was higher in patients who were in the first four months of the therapy, less observed in patients in last months of the treatment course (Figure 2).

Discussion

There has been increasing association of depression among Tuberculosis patients. In our study, the prevalence of depression among TB patients was found to be 40.83%. Mild to moderate depression was found in 71.02%, predominantly in the age group 20-39 years. Males (67.28%) were more affected than females (32.71%); the reason could be lifestyle habits such as smoking, alcoholism and work stress.

In a study conducted in Nigeria, the prevalence of depression was

found to be 28% in TB patients using the PHQ scale.¹³ Natani et al. found depression in 49% of tuberculosis patients using the Beck's Depression Inventory scale.¹⁴ A study conducted in India showed that the prevalence of depression and anxiety was 19% for recently diagnosed patients with TB, 22% for defaulted TB patients and 26% for patients with multidrug resistant TB.¹⁵ Another study conducted by Basu et al. in West Bengal concluded that 74% of the patients were depressed with mild to moderate depression.¹⁶ Studies have shown male TB patients with psychological distress are affected more than females.^{10,17} In this study, it was found that depression was higher among patients with pulmonary TB and during the first four months of the treatment which was probably secondary to disease and treatment related.

Habteyes et al in Ethiopia found more psychological distress (67%) at baseline with 1- 2 months of therapy. It was higher in people who consumed alcohol and those who were previously treated.¹⁸ Decrease in depression in the later phase of the treatment was observed by Deribew et al in a study conducted in Ethiopia.¹⁹ It was also observed from our study that alcohol consumption was significantly associated with depression. Study conducted by Peltzer observed that alcohol consumption was associated with psychological stress in the TB patients.²⁰ Study by Deribew et al showed alcohol consumption was associated with significant depression.²¹ We did not find any statistical significance of depression with comorbidities. TB patients who received psychotherapy during treatment were significantly more likely to adhere to the complete

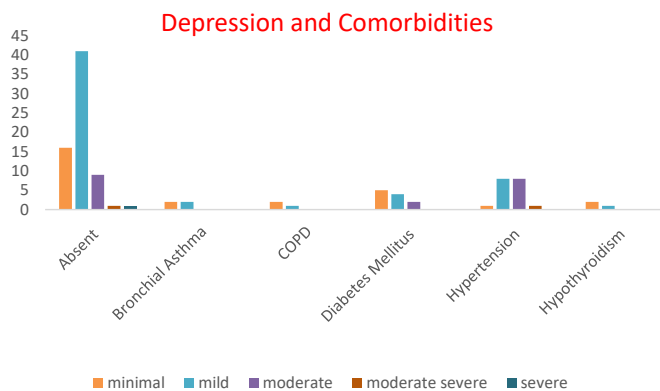


Fig. 3: No significant association of depression in patients with comorbidities

treatment.²²

Patients with depression are at high risk of defaulting treatment if neglected, especially during the intensive phase of the treatment. It is the time to focus on these patients with regular psychiatry assessment, screening and counselling at the time of initiation of the treatment and at least until the completion of the intensive phase (first two months of therapy).

Limitations of the study

As we did not carry out baseline and follow up psychological assessment, the treatment outcome of the study group could not be assessed.

Conclusion

The prevalence of depression is high in patients with pulmonary TB on the treatment, predominantly in the first four months of therapy. Depression is significantly associated in patients with alcohol consumption which can often be neglected by the clinicians and the DOTS provider.

The routine treatment strategy should include regular counselling and psychiatric assessment at least for the first two months of the intensive therapy. This would benefit the patients compliance and treatment outcome.

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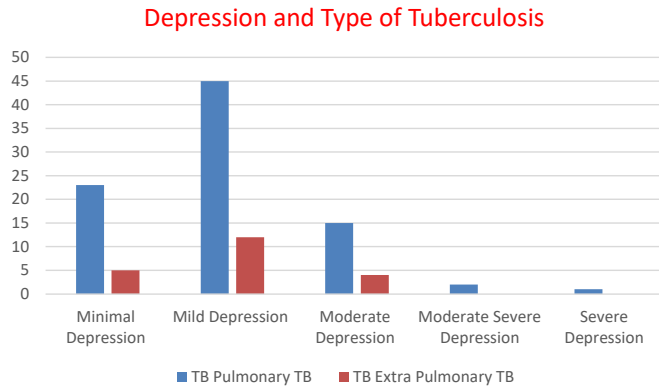


Fig. 4: Patients with Pulmonary TB has higher depression than Extra Pulmonary TB

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