

Psychiatric Morbidity in Patients of Pulmonary Tuberculosis According to Sociodemographic Profile

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ABSTRACT

Background: An association has been described between tuberculosis (TB) and common mental disorders. We aimed to evaluate the patterns of psychiatric morbidities in patients with pulmonary TB.

Methods: This was a prospective study conducted over a period of 1 year. A total of 100 patients were recruited for the study. Baseline psychiatric morbidity was assessed after 2 weeks of diagnosis and at the end of an intensive phase (IP).

Results: In the present study, 56% of patients with pulmonary TB had morbid baseline psychiatric disorders. The major depressive episode was the most common morbid psychiatric disorder (39%), followed by panic disorder (9%), generalized anxiety disorder (GAD) (6%), and agoraphobia (2%). The psychiatric morbidity dropped to 15%. Major depressive episode dropped to 13%, followed by GAD and panic disorder (1%) each at the end of an IP.

Conclusion: Because of high burden of psychiatric morbidity associated with pulmonary TB, there is a need for psychiatric services to be made available to these patients.

Keywords: Chest disease, Pulmonary, Tuberculosis.

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ABBREVIATIONS USED IN THIS ARTICLE

GAD = Generalized anxiety disorder; IP = Intensive phase; MDE = Major depressive episodes; MINI = Mini International Neuropsychiatric Interview; PD = Panic disorder; PTB = Pulmonary tuberculosis; TB = Tuberculosis.

INTRODUCTION

Tuberculosis (TB) is a communicable disease that is a major cause of ill health and one of the leading causes of death worldwide. Until the coronavirus (COVID-19) pandemic, TB was the leading cause of death from a single infectious agent, ranking above HIV/AIDS.¹

Tuberculosis, mostly in the underdeveloped world, is due to poverty, the absence of healthy living environments, and the lack of adequate medical care. Another problem related to poverty is the prevalence of common mental disorders, including depression, anxiety, and somatoform disorders.² In recent years, mental disorders burden continues to grow with significant impacts on health and principal social, human rights, and economic consequences in all countries associated with increased functional disability and mortality.³

Chronic infections and psychological problems have a complex relationship. Tuberculosis is a chronic disease and there are very high chances of the existence of various psychological problems in TB patients.⁴

Pulmonary tuberculosis (PTB) is associated with psychiatric disorders, and this has been recognized as a cause of poor compliance and a cause of increased morbidity and mortality from the disease. Despite this recognition, little attention is paid to the identification of depression and other psychiatric illnesses among TB patients.⁵

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Many studies^{6–8} have shown that the prevalence of psychiatric disorders, particularly depression is high among TB patients. Studies^{8,9} also suggest that TB patients are at higher risk to develop psychological problems. Tuberculosis patients who were found to be depressed when treated with cognitive therapy have resulted in less percentage of default rate and increased number of treatment completion. A person suffering from TB can develop depression in due course of time owing to a number of factors, namely, the long duration of treatment for TB, stigmatization faced by the patient due to the disease, and lack of family support.

Due to the frequent comorbidity of TB and associated mood disorders, particularly depression, it is very important for general physicians and psychiatric specialists to be mindful of depression while treating patients with TB.¹⁰

Table 1: Sociodemographic characteristics of the patients

Sociodemographic characteristics	Pulmonary TB cases	p-value
Mean age	40.9 years	
Male:female ratio	61:39	0.02
Rural:urban ratio	62:38	
Married:unmarried:widow/widower	71:24:5	
Socioeconomic status		
Upper class	2	
Upper middle class	6	
Lower middle class	27	
Upper lower class	30	
Lower class	35	

MATERIALS AND METHODS

A hospital-based prospective study of 100 patients with PTB was conducted in the Institute of Respiratory Diseases, Department of Respiratory Medicine, S.M.S. Medical College, Jaipur from July 2020 to June 2021. The study was conducted after obtaining necessary permissions from the Ethics Committee and Research Review Board.

Written informed consent was obtained from all patients. Patients of newly diagnosed PTB over 18 years of age were included in the study.

Patients having a chronic illness (silicosis/diabetes mellitus/hypertension/malignancy/hypothyroidism/HIV, etc.), respiratory insufficiency, drug-resistant PTB cases, history of addiction in the last 1 year (alcohol/smoking/substance abuse, etc.) and previously diagnosed psychiatric morbidity were excluded. The socioeconomic status was established by the modified BG Prasad classification, updated 2020.¹¹ For the diagnosis of psychiatric morbidity, Mini International Neuropsychiatric Interview (MINI),¹² a structured psychiatric interview was used.

RESULTS

The study sample consists of 100 patients suffering from PTB. The mean age was 40.98 years. The proportion of males ($n = 61$, 61%) was significantly higher than females ($n = 39$, 39%). Rural patients dominate ($n = 62$, 62%) than urban ($n = 38$, 38%). In total, there were ($n = 71$, 71%) married ($n = 24$, 24%), unmarried, and ($n = 5$, 5%) widow/widower patients (Table 1). In the present study, patients with PTB had psychiatric evaluations done after 2 weeks and follow-up done at the completion of the intensive phase (IP) of DOTS. At baseline (at the end of 2 weeks), 56 (56%) patients had psychiatric disorders as comorbid conditions. Among them, major depressive disorders were found in 39 (69.24%) patients. At the end of IP, there was a significant reduction in psychiatric morbidity to 15 (15%), among which major depressive disorders were observed in 13 patients (Table 2). At the end of IP, the psychiatric evaluation revealed more psychiatric morbidity among age group 18–25 years ($n = 8$) (Table 3).

At the end of IP, females showed slightly more prevalence of psychiatric morbidity (6/39) than males (9/61) (Table 4). Urban patients had major depressive episodes slightly higher than rural patients (Table 5). At the end of the IP, unmarried and widow/widowers were more psychiatrically ill (Table 6) and major depressive episodes were more associated with the lower class (V) (Table 7).

Table 2: Comparison of psychiatric morbidity at 2 weeks and at the completion of IP of DOTS

Psychiatric morbidity	After 2 weeks of diagnosis	At the completion of IP of DOTS
No psychiatric morbidity	44	44
Agoraphobia ^{†††}	2	0
Generalized anxiety disorder ^{†††}	6	1

DISCUSSION

Tuberculosis often leaves its impact physically, socially, and mentally on patients. Patients tend to be worried, frustrated, or disappointed by their diagnosis, but it is not known how emotional health changes with the treatment. Patients with TB may experience depression and anxiety, both of which can make the overall burden of the disease more difficult to carry.¹³ The lifetime prevalence of mood disorder in patients with chronic diseases is 8.9–12.9%, with a 6-month prevalence of 5.8–9.4%.^{14,15}

Majority of patients in our study were in the younger age group, which could be attributed to their age-specific role that would require them to have many social contacts. In our study, two-third of the patients belonged to rural areas. Psychiatric disorders were seen in 56% of patients with pulmonary TB. Our study results are concordant with other Indian studies where approximately 39–70% of pulmonary TB cases have been found to have anxiety or depression.^{16,17} In contrast, Duko et al.¹⁸ and Kumar et al.¹⁹ found psychiatric morbidity to be present in 84.9 and 74% cases, respectively, which is quite high than the results of our study. The reason for higher percentage seems to be the difference in comorbidity of study participants, data collection, sensitivity of screening tool, and geographical differences in the study participants.

Major depressive episode was the most common disorder in our study. Similar results were reported in several other studies,^{20,21} which also documented depressive disorders to be the commonest diagnosis. Husain et al.²² reported 50 (46.3%) cases of pulmonary TB were depressed which is similar to the results of the present study.

In our study, generalized anxiety disorder (GAD) was seen in 6% of patients, panic disorder in 9% and agoraphobia in 2% of the patients. Yadav et al.²¹ reported 6.6% anxiety neurosis similar to us. While Maikandaan et al.²³ reported anxiety disorders to be present in 10% of patients. Husain et al.²² had documented anxiety to be present in 47.2% patients. Our observations differ from the report given by Kumar et al.¹⁹ who found anxiety disorders to be the commonest psychiatric morbidity. The variation in results may be due to the sensitivity of screening tool used, study design and population. In our study, the percentage of psychiatric morbidity at the end of the IP of the treatment was 15%. Most common diagnosis was major depression episode in 13 cases followed by GAD and panic disorder 1 each. Atif et al.²⁴ reported 23.5% patients still with depression after the completion of their treatment. Similar findings were reported in a UK study.²⁵

In our study, psychiatric ailment was more in females, which may be due to the fact that females are still neglected in our part of world. Most of our cases belonged to rural areas and lower middle and lower class of socioeconomic status as we cater mostly that population.

Table 3: Cross-tabulation of age groups and psychiatric morbidity at the completion of IP of DOTS

Age group	Psychiatric morbidity at the completion of IP of DOTS				Total
	No diagnosis	GAD	MDE	PD	
18–25					
No.	21	0	7	1	29
%	72.4%	0.0%	24.1%	3.44%	100%
26–35					
No.	20	0	0	0	20
%	100%	0.0%	0.0%	0.0%	100%
36–45					
No.	10	1	0	1	12
%	83.3%	8.33%	0.0%	8.33%	100%
46–55					
No.	11	0	2	0	13
%	84.6%	0.0%	15.3%	0.0%	100%
56–65					
No.	13	0	2	0	15
%	86.6%	0.0%	13.4%	0.0%	100%
>65					
No.	10	0	1	0	11
%	91%	0.0%	9%	0.0%	100%
Total					
No.	85	1	13	1	100

Chi-square value–19.97, *p*-value–0.17. MDE, major depressive episodes; PD, panic disorder

Table 4: Cross-tabulation of gender and psychiatric morbidity at the completion of IP of DOTS

Gender	Psychiatric morbidity at the completion of IP of DOTS				Total
	No diagnosis	GAD	MDE	PD	
Female					
No.	33	0	5	1	39
%	84.6%	0.0%	12.8%	2.56%	100%
Male					
No.	52	1	8	0	61
%	85.2%	1.63%	13.1%	0.0%	100%
Total					
No.	85	1	13	1	100
%	85%	1%	13%	1%	100%

Chi-square value –2.20, *p*-value–0.53

Table 5: Association of residence and psychiatric morbidity at the completion of IP of DOTS

Residence	Psychiatric morbidity at the completion of IP of DOTS				Total
	No diagnosis	GAD	MDE	PD	
Rural					
No.	53	0	8	1	62
%	85.4%	0.0%	12.9%	1.61%	100%
Urban					
No.	32	1	5	0	38
%	84.2%	2.63%	13.1%	0.0%	100%
Total					
No.	85	1	13	1	100
%	85%	1%	13%	1%	100%

Chi-square value–2.25, *p*-value–0.52

Results of the present study are in contrast with another study¹⁰ which showed that with the institution of chemotherapy and amelioration of symptoms, depression decreases in majority of their studied patients. Regular intake of drugs improves patient’s condition, fear of prolonged suffering and death and the confidence, thus gained leads to easing of psychological stress. Also return to work upon relief of symptoms reduces

financial stress which again makes the patient less vulnerable to depression.

Our study has few limitations that there was no control group for comparison. Psychiatric morbidity at the end of the treatment was not assessed, which should have revealed residual morbidity expected, given the chronic and destructive nature of pulmonary TB.

Table 6: Marital status and psychiatric morbidity at the completion of IP of DOTS

Gender	Psychiatric morbidity at the completion of IP of DOTS				Total
	No diagnosis	GAD	MDE	PD	
Married					
No.	62	1	7	1	71
%	87.3%	1.4%	9.85%	1.4%	100%
Unmarried					
No.	19	0	5	0	61
%	79.2%	0.0%	20.8%	0.0%	100%
Widow/widower					
No.	4	0	1	0	5
%	80%	0.0%	20%	0.0%	100%
Total					
No.	85	1	13	1	100
%	85%	1%	13%	1%	100%

Chi-square value=2.52, p-value=0.47

Table 7: Socioeconomic status and psychiatric morbidity at the completion of IP of DOTS

Socioeconomic status	Psychiatric morbidity at the completion of IP of DOTS				Total
	No diagnosis	GAD	MDE	PD	
I (upper class)					
No.	2	0	0	0	2
%	100%	0.0%	0.0%	0.0%	100%
II (upper middle)					
No.	6	0	0	0	6
%	100%	0.0%	0.0%	0.0%	100%
III (middle class)					
No.	23	0	3	1	27
%	85.1%	0.0%	11.2%	3.7%	100%
IV (lower middle)					
No.	25	1	4	0	30
%	83.3%	3.3%	13.4%	0.0%	100%
V (lower class)					
No.	29	0	6	0	35
%	82.8%	0.0%	17.2%	0.0%	100%
Total					
No.	85	1	13	1	100
%	85%	1%	13%	1%	100%

Chi-square value=2.20, p-value=0.53

CONCLUSIONS

In view of high psychiatric morbidity associated with pulmonary TB, there is enough scope for psychiatric services to be made available to these patients. In addition, personnel involved in the treatment of these patients should be trained for early detection of psychiatric symptoms for better treatment outcomes.

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