Original Article

A Prospective Study on Patterns of Psychiatric Morbidity in Patients with Pulmonary Tuberculosis at a Tertiary Care Hospital in Northern India

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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 which was conducted over a period of one-and-half year. A total of 198 patients were recruited for the study. Baseline psychiatric morbidity was assessed after two weeks of diagnosis and at the end of intensive phase. Psychiatric morbidity was assessed using *Diagnostic and Statistical Manual of Mental Disorders*, 4th edition (DSM IV) based Mini-Plus.

Results. In the present study 62.1% of patients with pulmonary TB had morbid baseline psychiatric disorders. Major depressive episode was the most common morbid psychiatric disorder (40.9%) followed by panic disorder (12.6%), agoraphobia (2.5%) and generalised anxiety disorder (2%). The psychiatric morbidity dropped to (11.6%); major depressive episode (10.1%) followed by panic disorder (1.5%) were the only diagnosis on follow-up.

Conclusion. In view of high burden of psychiatric morbidity associated with pulmonary TB, there is a need for psychiatric services to be made available to these patients. **[Indian J Chest Dis Allied Sci 2019;61:63-67]**

Key words: Anxiety disorders, Morbidity, Depression, Pulmonary tuberculosis.

Introduction

Tuberculosis (TB) is one of the leading causes of mortality worldwide. It is a disease of poverty affecting mostly young adults in their most productive years. The vast majority of TB deaths are in the developing world.[1] TB patients have to face social rejection and isolation because they are considered to be a source of infection for the healthy individuals.[2] In a few studies; TB patients themselves reported that they experienced negative emotions, such as anxiety and fear.[2,3]

The socio-economic status of the patients deteriorates due to functional impairment.[4] Because of the chronic psychogenic and somatic pain, frequent admissions in hospitals and dependency on medical and nursing personnel, severe functional impairment occur in patients with TB. In addition to that, in our country social stigma is associated with TB as well as psychiatric illnesses. So the patients with TB are at increased risk of having anxiety, adverse psychological reaction about life and are neglected not only by the society but also by their care-givers.[5]

Another reason for the frequent comorbidity is that there are commonly shared risk factors,[6] for the development of a variety of psychiatric and medical disorders (smoking, low socio-economic status, etc).[7] Psychiatric illness may develop subsequent to TB infection, and mood disorders seem to be particularly common in TB patients compared with those with other medical diagnoses.[8,9] Studies report that prevalence of depression significantly correlates with severity and duration of the TB.[10]

Despite the fact that mental ill health has far reaching consequences for the treatment adherence and health outcomes in the patients with TB, psychological distress has rarely been investigated among these patients, especially in low-resource countries.[11]

Material and Methods

This study was a prospective, observational study conducted in the Postgraduate Department of Psychiatry in collaboration with Department of Chest Medicine, Government Medical College, Srinagar from April 2015 to August 2016. Written informed consent was obtained from all the patients. Our study patients were the newly diagnosed, treatment-naive pulmonary TB patients attending the Department of Chest Medicine, Government Medical College Srinagar. Confirmation of diagnosis of pulmonary TB was based on specific constitutional symptoms and signs, radiological examination (chest radiograph) and sputum examination for acid-fast bacilli.[12]

The diagnosis of pulmonary TB was made by the consultant Pulmonologist; 198 patients were included in the study. Patients with hypertension, hypothyroidism, diabetes mellitus, etc were excluded from the study. Detailed history, physical examination and relevant investigations

were done by the psychiatrist before screening for any psychiatric diagnosis.

All the cases were interviewed for socio-demographic parameters, like age, gender, employment, educational level, marital status, and socio-economic level. Baseline assessment for the psychiatric morbidity was done after two weeks of the diagnosis of pulmonary TB, final assessment was done at the end of intensive phase. The socio-economic status was established by the Kuppuswamy's scale.[13] The study was approved by the Ethical Institutional Committee of the college. For the diagnosis of psychiatric morbidity, MINI International Neuropsychiatric Interview Schedule PLUS (MINI PLUS)[14] was used.

Statistical Analysis

Descriptive statistics are reported as mean ± standard deviation for continuous variables; and percentage for categorical variables. A p-value less than 0.05 was considered statistically significant. Data were analysed using the Statistical Package for the Social Sciences (SPSS, version 20.0).

Results

During the one-and-half-year study period, a total of 211 patients who were diagnosed with pulmonary TB from the Department of Chest Medicine were enrolled as per our inclusion and exclusion criteria. However, out of these enrolled, 13 patients lost to follow-up and, therefore, were excluded from the study. The socio-demographic and clinical variables of 198 studied patients were studied. Their mean age was 29.7±11.4 years. Males slightly outnumbered females; two-third of our study patients belonged to rural area and one-third to urban area. More than half of the patients belonged to nuclear family followed by joint and extended nuclear family. Maximum number of patients belonged to upper-low class followed by lower-middle, upper-middle, lower and upper class, respectively (Table 1). Two-third 135 (68.2%) of the patients belonged to Category 1 and one-third 63 (31.8%) belonged to Category 2.

In the present study, 123 (62.1%) out of 198 patients with pulmonary TB which were studied had morbid psychiatric disorders at baseline as compared to 23 (11.6%) of pulmonary TB patients at the end of intensive phase.

Most common psychiatric disorder in our patients at baseline was major depressive episode followed by the panic disorder. Major depressive episode was seen in 41.9% of patients at baseline as compared to 10.1% at the end of intensive phase. Panic disorder was second common diagnosis in 12.6% of patients at baseline as compared 1.5% at the end of intensive phase. Agoraphobia, adjustment disorder, generalised anxiety disorder and mixed anxiety and depression was present in 2.5%, 2.5%, 2% and 1.5%, respectively at baseline while as none of these patients meet the diagnostic criteria for any psychiatric illness on follow-up at the end of intensive phase (Tables 2 and 3). There was

statistically significant difference between baseline versus psychiatric morbidity at the end of intensive phase with a p-value of 0.0001 (<0.05).

Table 1. Socio-demographic characteristics of the patients

Socio-demographic Characteristics	Pulmonary Tuberculosis Cases	p-value
Mean age	29.7±11.4	0.0001
Male:Female ratio	111:87	0.088
Rural:Urban ratio	129:69	0.0001
Nuclear:Joint:Extended family	136:35:27	0.0001
Socio-economic status*		
Upper class	2 (1%)	
Upper middle class	20 (10.1%)	
Lower middle class	55 (27.8%)	
Upper low class	102 (51.5%)	0.0001
Lower class	19 (9.6%)	

* as per Kuppuswamy's scale

p-value was significant for all socio-demographic variables except male to female ratio.

Table 2. Comparison of baseline *versus* final psychiatric diagnosis in the study patients

Initial Psychiatric Diagnosis	Final Psychiatric Diagnosis				t-test
	No Diagnosis	PD	MDE	Total	
No diagnosis	83	0	0	83	
Panic disorder	22	3	0	25	
Major depressive episode	62	0	19	81	0.0001
Agoraphobia	5	0	0	5	
Generalised anxiety disorder	3	0	1	4	
Total	**175**	**3**	**20**	**198**	

Definitions of abbreviations: PD=Panic disorder; MDE=Major depressive episode

Table 3. Initial and final psychiatric diagnosis of the study patients.

Variable		Final Psychiatric Diagnosis (n=198)		p- value
		No	Yes	
Initial psychiatric diagnosis	No	75	0	0.001
	Yes	100	23	
Total		**175**	**23**	

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.[15] The lifetime prevalence of mood disorder in patients with chronic diseases is 8.9% to 12.9%, with a 6-month prevalence of 5.8% to 9.4%.[16,17]

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. This in turn could have increased their TB exposure risk. Published data also suggests that 80% of those infected in industrialised nations are aged 50 years and above, while 75% of those in developing countries are less than 50 years.[18]

In our study two-third of the patients belonged to rural and one-third to urban areas. This can be explained by the overall rural and urban divide of the population in Kashmir valley where majority of the population still resides in rural areas.[19] Of the total population of Jammu and Kashmir, around 72.6% live in the villages of rural areas.[19]

In our study, more than half of the patients belonged to nuclear family 136 (68.7%), followed by joint family 35 (17.7%) and extended nuclear family 27 (13.6%). As per 2011 census of Jammu and Kashmir, prevalence of the nuclear family was 73% and extended family was 13.5% which are similar to our results.[19] It seems that urbanisation enhances nucleation of family systems and a decrease in care and support for the patients with pulmonary TB.

In community-based studies, 73% and 79% of the studies reported positive associations between number of poverty measures and common mental disorders, 19% and 15% reported no association and 8% and 6% reported negative associations, using bivariate and multivariate analyses, respectively. In facility-based studies (clinic- and hospital-based studies), trends were similar, with 76% and 69% of studies reporting positive associations, 22% and 31% reported no associations and 1% and 0% reported negative associations.[20]

In our study, two-third of the patients 135 (68.2%) belonged to category 1 and one-third 63 (31.8%) of patients to category 2. Similar results were found in another study[21] with 76.1% and 23.8% belonging to each category, respectively. The reason for a higher frequency of category 1 TB seems that most of the cases occur afresh and only a few become defaulters or fail to respond to chemotherapy.

Psychiatric disorders were seen in 62.1% of patients with pulmonary TB. Our study results are concordant with other Indian studies where approximately 39% to 70% of pulmonary TB cases have been found to have anxiety or depression.[22,23] This is in unison with most of other studies.[24,25]

In contrast to above facts, Duko et al[26] and Kumar et al[27] 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 the geographical differences in the study participants. The high prevalence of depression in this study seems to be the elderly group which is more prone to depression, because of low social support, neglect and isolation.[28]

Major depressive episode was the most common disorder in our study. Similar results were reported in several other studies,[29,30] which also documented depressive disorders to be the commonest diagnosis. Most of the studies reported that in almost half of the patients with pulmonary TB have concurrent major depressive disorders at the time of evaluation which is in accordance with our study findings of 40.9% patients. Husain et al[31] found that 50 (46.3%) cases of pulmonary TB were depressed which is similar to the results of the present study.

Anxiety disorders were seen in 34 (17.1%) of patients and panic disorder (12.6%) was the most common anxiety disorder followed by agoraphobia (2.5%) and generalised anxiety disorder (2%). Yadav et al[30] reported 6.6% anxiety neurosis and Maikandaan et al[32] report 10% anxiety disorders. This is lesser than what we observed in the present study. However, most of the studies show anxiety disorders much higher than our study results. Husain et al[31] had documented anxiety to be present in 47.2% patients. Our observations differ from the report by Kumar et al[27] 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, generalised anxiety disorder was seen in 4 (2%) of cases, consistent with another study.[33]

The negative emotions of fear, anxiety and frustration in our study at the time of diagnosis and at early stage of the disease declined considerably after the treatment. Some of the positive emotions expressed by the respondents included well-being and happiness. This positive outcome may be due to the attitude of family members and health-care workers as shown in the responses given by the TB patients. However, some studies have shown unfriendly attitude of health-care workers that made some patients feel frustrated, threatened, or uncomfortable.[3,35]

In our study percentage of psychiatric morbidity at the end of the intensive phase of the treatment was 11.6%. Most common diagnosis was major depression episode in 20 (10.1%) cases followed by panic disorder in 3 (1.5%) cases. Our results are consistent with Atif et al[35] who reported that at the start of the treatment more than 67% patients had depression (MCS score ≤ 42 NBS point). Although, proportion of the patients with depression decreased with the treatment, 23.5% patients were still with depression after the completion of their treatment. Similar findings were reported in a UK study.[36]

Results of the present study are in contrast with another study which showed that with the institution of chemotherapy and amelioration of symptoms, depression decreases in majority of their studied patients.[10] 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.

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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