Research Paper Psychology

A Study of Psychiatric Morbidity in Patients Suffering from Pulmonary Tuberculosis

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ABSTRACT

Aims: To study the psychiatric morbidity in patients with pulmonary tuberculosis and to see the relationship between socio demographic data, clinical variables and outcome variable (psychiatric morbidity).

Methods and Material: After getting Institutional Ethics Committee (IEC) clearance and informed consent, sixty subjects with pulmonary tuberculosis were recruited for the study. Screening of psychiatric morbidity was done using MINI 6.0 and patients with depression/anxiety were further administered HAM-D/HAM-A. Chi square test was used for statistical analysis.

Results: 23 (38%) out of 60 patients with pulmonary tuberculosis had psychiatric co-morbidity. Among these 23 patients, 17 patients had depression and 6 patients had anxiety disorder. Statistical significant association was found between clinical variables like positive family history of psychiatric illness (x2= 4.006; 'p' value = 0.045), inpatient care (x2= 6.332; 'p' value = 0.012) and longer duration of illness (x2= 10.972; 'p' value = 0.001).

KEYWORDS : Psychiatric morbidity, Pulmonary tuberculosis, Depression, Anxiety

Introduction

Tuberculosis is one of the leading causes of mortality worldwide.[1,2] Recently, there has been an increasing concern about psychiatric co-morbidities in infectious diseases.[3]

Mental illnesses make noteworthy contribution to disease burden worldwide.[4]Mood disorders like depression, anxiety are common in patients with pulmonary tuberculosis.[5,6,7] Mental illness have a chronic course and can have an impact on the patient's ability to take care of his health.[8,9] Presence of psychiatric morbidity can have an impact on treatment adherence. Identifying and treating psychiatric co morbidities can increase the cure rates of tuberculosis.[10] This research was undertaken to study the psychiatric morbidity in patients with pulmonary tuberculosis and to see the severity of illness, relationship between socio demographic data, clinical variables and outcome variable (psychiatric morbidity).

Methodology

Source of data

After getting Institutional Ethics Committee (IEC) clearance and informed consent, subjects for the study were selected from the department of TB & Chest Medicine, of a tertiary care hospital which is a DOTS (Directly Observed Treatment Short Course) Centre established under Revised National Tuberculosis Control Programme (RNTCP). Government of India is providing anti-tubercular drugs according to patients' need at free of cost through these centres.

Sampling Technique

60 subjects who were diagnosed as having pulmonary tuberculosis were chosen by purposive sampling (judgmental sampling) method from the department of TB & Chest Medicine of the tertiary care hospital

Sampling Procedure

Initial contact was made in the department of TB & Chest Medicine of the hospital. They were diagnosed either by X-ray examination or sputum examination. An informed written consent was obtained from those who were willing to participate in the study.

Patients satisfying the inclusion and exclusion criteria were recruited for the study. Socio-demographic data of the patients were collected on a semi structured proforma, and they were assessed for psychiatric disorders using MINI (The Mini-International Neuro-psychiatric Interview) and severity of the psychiatric illness was assessed using HAM-A (Hamilton Anxiety Rating Scale) and HAM-D (Hamilton Rating Scale for Depression) by the psychiatrist.

Inclusion Criteria

1. Patients diagnosed as having pulmonary tuberculosis by x-ray and/or sputum examination.

2. 18 years of age and above.

3. Availability of informed consent

Exclusion criteria

1. Patient already having psychiatric illness prior to the diagnosis of pulmonary tuberculosis.

2. Patients having any other chronic medical illness.

Type of study

Cross sectional study

Instruments of Assessment:

a) kuppusamy scale for socio-economic status- a composite score

of education and occupation of the head of the family along with monthly income of the family and was used in assessing socioeconomic status.

b) Mini International Neuropsychiatric Interview- brief structured interview for the major axis I psychiatric disorders in DSM-IV and ICD-10

c) HAM-D SCALE- highly validated, multiple item questionnaire to rate the severity of depression.

d) HAM-A SCALE -widely used and well-validated tool for measuring the severity of a patient's anxiety.

Statistical analysis

Descriptive statistics was done to describe the socio-demographic data, clinical variables, psychiatric morbidity, HAM-A, and HAM-D. Associations between the independent qualitative variables and the outcome (psychiatric morbidity) were analyzed by chi-square test.

Results

Descriptive statistics

Mean age was 44.88 and standard deviation was 11.016

There were 44 males (73%) and 16 females (27%) in this study. Forty five (75%) patients were from rural area, 9 (15%) patients were from semi urban area and 6 (10%) patients were from urban area. There were 31 (51.7%) illiterates and 29 (48.3%) were literates in our study population. Socio economic statuses were assessed using Kuppusamy's scale and for the interpretation convenience, upper middle and upper lower class were grouped to middle class. There were 35 (58.3%) patients who belonged to middle class and 25 (41.7%) patients who belonged to the lower socio economic status. There were 55 (91.7%) patients who were married, 3 (5%) patients who were unmarried and 2 (3.3%) patients who were married and then separated.

In the study population 39 (65%) patients were having illness less than 6 months and 21 (35%) patients were having illness for a duration more than 6 months. 38 patients (63.3%) in the study group were taking treatment on outpatient basis and 22 patients (36.7%) were treated under inpatient care. Among the sample 5 (8.3%) patients had history of psychiatric illness in the family.

Table 1- Socio – demographic profile of the patients

Variables	Frequency	Percentage
Age < 45 yrs	31	51.7%
Age > 45 yrs	29	48.3%
Males	44	73%
Females	16	27%
Low Socio-economic status	25	58.3%
Middle Socio-economic status	35	41.7%
Literate	29	48.3%
Illiterate	31	51.7%
Married	55	91.7%
Unmarried	5	8.3%

Table 2: Psychiatric morbidity in patients with pulmonary tuberculosis

Diagnosis	Frequency	Percent
Depression	17	28.3%
Anxiety disorder	6	10%
Nil Psychiatric illness	37	61.7%
Total	60	100%

In this study 23 patients were diagnosed to have psychiatric morbidity, 8 were having another co-morbid psychiatry illness. Five patients with the diagnosis of depression were also having anxiety disorder, two patients with the diagnosis of depression were also having alcohol dependence syndrome and one patient with anxiety disorder was also having alcohol dependence syndrome.

Among the 17 patients with depressive disorders, 3 patients (17.6%) had mild depression, 11 (64.7%) had moderate and 3 (17.6%) had severe depression (on applying Hamilton Depression scale). Among the six patients diagnosed with anxiety disorders, one (16.6%) patients had mild anxiety, two (33.3%) had mild to moderate and three (50%) had moderate to severe levels of anxiety (on applying Hamilton Anxiety Scale).

Inferential statistics

For analytical purpose, we grouped depression and anxiety disorders into a single entity – psychiatric morbidity, since the number of patients with tuberculosis and co morbid individual psychiatric disorders was small. Associations between the independent qualitative variables of interest and the study outcome variable (psychiatric morbidity) were analyzed by chi-square test.

On applying chi-square test to find the association between the two variables - age and psychiatric morbidity, we found that there was no statistical significance (x^2=1.856;'p' value = 0.762).There was no statistical significant association between sex and the psychiatric morbidity (x^2=0.271; 'p' value= 0.603).There was no significant association between the independent variable – background (rural/urban) and the outcome variable psychiatric morbidity(x^2=1.951; 'p' value = 0.377). There were no statistical significant associations between the independent variables like marital status(x^2=1.224; 'p' value = 0.542) and family type(x^2= 0.006; 'p' value = 0.936) and the outcome variable (psychiatric morbidity).

Table 3: Socioeconomic status Vs psychiatric morbidity

Significant Association Present		Psychiatric morbidity		Total
		Absent		
SES	Middle	7	28	35
		20.0%	80.0%	100.0%
	Lower	16	9	25
		64.0%	36.0%	100.0%
Total		23	37	60
38.3%		61.7%	100.0%	
Chi square value (x^2)= 11.944			'p' value = 0.001**	

The above table indicates that psychiatric morbidity is more common in patients with pulmonary tuberculosis belonging to lower socio economic status.

Table 4: Family history of psychiatric illness vs psychiatric morbidity

Significant Association Present		Psychiatric morbidity		Total
		Absent		
Family history of Psychiatric illness	Present	4	1	5
		80.0%	20.0%	100.0%
	Absent	19	36	55
		34.5%	65.5%	100.0%
Total		23	37	60
38.3%		61.7%	100.0%	
Chi square value (x^2)= 4.006				'p' value = 0.045*

We infer that psychiatric morbidity is common in patients with pulmonary tuberculosis who had a positive family history of psychiatric illness.

Table 5: Duration of illness Vs Psychiatric morbidity

Significant Association Present		Psychiatric morbidity		Total
		Absent		
Duration of Illness	Less than 3 months	9	30	39
		23.1%	76.9%	100.0%
	More than 3 months	14	7	21
		66.7%	33.3%	100.0%
Total 38.3%		23	37	60
		61.7%	100.0%	
Chi square value (x^2)= 10.972 P value= 0.001 '				

Psychiatric morbidity is more in patients with longer duration of the pulmonary tuberculosis.

Table 6: Type of care given Vs Psychiatric morbidity

Significant Association Present		Psychiatric morbidity	
		Absent	
Care given	Out patient	10	28
		26.3%	73.7%
	In patient	13	9
		59.1%	40.9%
Total 38.3%		23	37
		61.7%	
Chi square value (x^2)= 6.332			P value= 0.012

Psychiatric morbidity is more among the patients with pulmonary tuberculosis who were treated under inpatient care.

Overall when psychiatric morbidity was computed against various variables,there were significant associations between socioeconomic status,duration of illness, type of treatment, family history of psychiatric illness and the psychiatric morbidity.

Discussion

In the present study, 23(38%) out of 60patients with pulmonary tuberculosis had comorbid psychiatric disorders. Among these 23 patients, 17 patients had depression and 6 patients had anxiety disorder. Eight out of these 23 patients withpsychiatric morbidity also had another co-morbid psychiatric illness i.e., 7 patients with the diagnosis of depression were also having another comorbid psychiatric illness (5 patients had anxiety disorderand 2 patients had alcohol dependence syndrome along with depression), and one patient with the diagnosis of anxiety disorder was also having co-morbid alcohol dependencesyndrome. The above findings are comparable with studies done by Gupta et al[11] and Megnani et al[12]which had 41.6% and 53.6% of psychiatric morbidity respectively.

However our findings are different from other studies done by Yadav et al,[13]Tandon et al,[14]John Mathai et al,[15]Westaway et al[16] and various other authors.

Yadav et al[13]found29.4% psychiatric morbidity in their study- 19.5% were diagnosed with depression, 6.6% anxietyneurosis, 1.5% paranoid reaction, 1.1% mental retardation and 1% hysteria.

Tandon et al[14]found that 32% of patients had depressive disorder. John Mathai et al[15] found 29% psychiatric morbidity in patients with tuberculosis, depressive neurosis (55%), anxiety neurosis (25%), hysterical neurosis (5%), alcohol dependence (10%) and schizophrenia (5%) were the psychiatric comorbidities in their study.

Westaway et al[16] found high comorbid depression (68%) in patients with tuberculosis. In this study, among the patients who were depressed 32% had mild depression, 56% had moderate depression and 12% had severe depression. In our study among the seventeen (28.3%) patients with depression, 17.6% had mild depression, 64.7% had moderate and 17.6% had severe depression.

Aghanwa et al[17] found 30.2% of psychiatric disorders as co morbid illness, mild depressivedisorders constituted the majority of cases in their study.

In a study done by Immerman et al[18] psychiatric morbidity was 64.7%, they found depression constituting the majority (84.7%) of the psychiatric morbidity.

Vinogradov et al[19] found 18.4% anxiety – depressive reaction, hypochondriac (13.6%), and paranoid (9.1%) as psychiatric morbidity.

Bhatia et al[20] found 78% psychiatric comorbidity and they reported mixed anxiety and depressive disorders as the commonest co morbid psychiatric illness.

Manoharam et al[21] found 17.3% psychiatric disorders in patients with pulmonary tuberculosis and they found depression as the common diagnosis.

Silverstone et al[22] found 27.2% had psychiatric disorders; among them depressive disorders were seen in 16 patients, 18 patients had anxietydisorder and 17 patients had alcohol dependence.

From the various studies quoted above the percentage of psychiatric co morbidity varies from 17.3% to 73 % in patients with tuberculosis, the psychiatric co morbidity in our study (38%) lies within this range.

The percentage of depressive disorders ranges from 12.8 to 84.7% according to the review of literature, our study finding(28.3%) also lies within this range.

The percentage of anxiety disorders ranges from 6.6% to 25% and the percentage of anxietydisorders in patients from our study (10%) also lies within the range mentioned in the literature.

When we tried associating psychiatric morbidity and different age groups of our study, there was no statistical significance as compared-to the studies done by various authors like Yadav et al,[13]Purohit et al,[23] John Mathai et al[15]and Manoharam et al.[21]

There was no significant association between sex and psychiatric morbidity in our study which is similar to the studies done by Purohit et al,[23]Yadav et al[13]and John Mathai

et al[15]whereas the studies done by Bagadi et al,[24]Sriram et al[25] and Gupta et al,[11]

Manoharam et al[21]differ from our study and they have found significant association between sex and psychiatric morbidity in general medical conditions.

In this study, psychiatric morbidity was not associated with areas of domicile. It is comparable with earlier studies done by Yadav et al[13] and John Mathai et al.[15]

In this study there was no association between marital status and psychiatric morbidity which is similar to the studies done by Purohit et al,[23]Yadav et al,[13]John Mathai et al[15]and different from the studies done by Sriram et al,[25]Manoharam et al.[21]

In this study psychiatric morbidity was high in patients with family history of Psychiatric illness ('p' value = 0.045). It is difficult to compare and comment with the above mentioned studies as this particular independent variable(positive family history) is not studied in these studies.

A highly significant ('p' value = 0.001)association was found between lower socio economic status and the psychiatric morbidity i.e., more psychiatric morbidity in patients with pulmonary tuberculosis was seen in lower socio economic status. It could be due to financial burden contributing as a psychological stressor and also pulmonary tuberculosis by itself can cause physical strain and impairment in their occupation leading to financial crisis. This finding is comparable with studies done by Purohit et al,[23]Yadav et al,[13]John Mathai et al[15] and Guptha et al[11] and not comparable with the study by Manoharam et al.[21]

Psychiatric morbidity is high in patients with longer(>6months) duration of tuberculosis ('p' value = 0.001). This could be explained by the fact that prolonged duration of illness may cause helplessness, thereby leading to financial burden and depression. This finding is on par with the studies done by Purohit et al,[23] John Mathai et al,[15] Bhatia et al[20] and it differs from Yadav et al[13] study in which duration of illness was not related to the psychiatric morbidity.

In this study patients who were treated as inpatients had more psychiatric morbidity ('p' value =0.012). Generally the severity of the tuberculosis dictates the need for admission and the increased psychiatric morbidity seen in inpatients could be directly related to severity of the tuberculosis and its complications.

Conclusion

The prevalence of psychiatric morbidity in patients suffering from pulmonary tuberculosis was 38% in this study. Psychiatric morbidity was more common in patients suffering from pulmonary tuberculosis, who belonged to lower socioeconomic status, who had positive family history of psychiatric disorder, who were treated under inpatient care and who had longer duration of the tuberculosis illness.Understanding the degree of severity of the depression and anxiety and how it affects these patients with pulmonary tuberculosis may help in facilitating the implementation of pharmacological and psychological therapies to improve the psychological well-being and thus reducing the morbidity and the cost of treatment in these patients.

Our results, thus, recommend for incorporating a routine mental health assessment in patients with tuberculosis and ifnecessary, appropriate and adequate treatment for the psychiatric co morbidities-by liaising with the mental health professionals.

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