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Original Article

Depression in Tuberculosis Patients and its Relationship to Socio Demographic Factors

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Abstract

Background: To study the prevalence of depression in tuberculosis patients and correlating it with various sociodemographic factors.

Methods: In this observational study patients suffering from tuberculosis presenting to or already admitted in four tertiary care hospitals and TB Hospital of Rawalpindi were recruited consecutively and screened for depression. The severity of depression was assessed using Hamilton Rating scale for Depression.

Results: Depression, in patients currently on treatment, was 49.4%. Out of whom 41.5% were mildly depressed, 34.1% were moderately depressed, 21.9% were severely depressed. Significant depression was evident in those living in rural setup(p= 0.038) and those falling in 46-60 years old category(p=0.042)

Conclusion: Nearly half of the proportions of people seeking treatment for TB in tertiary care setup suffer from depression. Early diagnosis and treatment of depression in TB patients is essential.

Key Words: Tuberculosis, Depression, DOTS

Introduction

Tuberculosis (TB) is associated with psychiatric morbidity, particularly depressive disorder, and this has been recognized as a cause of poor compliance and increased morbidity and mortality from the disease.[1] Over 95% of TB deaths occur in low- and middle-income countries.[1] Pakistan, with an estimated population of 180 million, shoulders 61% of TB burden of Eastern Mediterranean region.[2] In 2012 the prevalence of TB in Pakistan was 376 per 100,000 population with an incidence of 231 per 100,000 population.[3]

Depression is a common psychiatric disorder. Globally, more than 350 million people of all ages suffer from depression. It is the leading cause of disability worldwide, and is a major contributor to the global burden of disease.[4]The mean prevalence of depression in Pakistan is 34%.[5]

Psychiatric disorders may coincide with medical illnesses, without being etiologically related to them, but they complicate the diagnosis and management and can alter their course. The lifetime prevalence of mood disorder in patients with chronic disease is from 8.9%to 12.9%; with a 6-month prevalence of 5.8% to 9.4%.[6]The causal relationships between mental disorders and tuberculosis are complex. To be afflicted with pulmonary tuberculosis is a unique and painful experience and the emergent stress contributes to psychiatric morbidity. Severe mental disorders are associated with high risk of tuberculosis acquisition and transmission and with poorer adherence to anti-TB treatment. Conversely, diagnosis with tuberculosis increases risk of psychiatric comorbidity.[7] TB is associated with depressive disorder, and this has been recognized as a cause of poor compliance and a cause of increased morbidity and mortality from the disease.[11] Stigmatization and negative emotions resulting from the illness could result in a long-term impairment of patient's psychosocial well-being.[8] Different studies report different figures regarding prevalence of depression in TB patients with 45.5% in Nigerian tertiary care hospital[13], 39.5% in Bangalore based study[16],62% in West Bengal based study[10]. Three Pakistani studies have reported prevalence of depression in TB patients with 72% prevalence in primary care settings[14] and 80%[9] and 46%[15] in tertiary care hospital based studies which are further high than already reported mean prevalence of depression in Pakistani population i.e. 34%[5]. Our study aims to find out prevalence and severity of depression in tuberculosis patients presenting to and getting treatment from four tertiary care hospitals and one hospital exclusively treating TB in Rawalpindi, Pakistan and finding association of various socio-demographic variables with depression in TB patients.

Patients and Methods

This descriptive cross sectional study was conducted at four tertiary care hospitals namely Benazir Bhutto Hospital (BBH), Holy Family Hospital (HFH), Fauji Foundation Hospital (FFH) , District Head Quarters Hospital (DHQ)and one hospital exclusively for TB patients namely Government TB Hospital in Rawalpindi, Pakistan.Non probability consecutive sampling .The sampling was done by convenient sampling[9] and sample size was 83.Patients were recruited consecutively from 1st Dec 2015 to 31st Dec

2015.All the patients suffering from tuberculosis either in outpatient department or inpatient department were included.Patients who did not give consent and patients with a diagnosis of or who were undergoing treatment for depression prior to the onset of TB were excluded.Patients' demographics and other variables were filled in a proforma by the clinician himself.Depression was diagnosed on the basis of ICD 10 criteria and severity of depression by Hamilton Rating Scale for Depression (HAM-D)[21] which is reliable and validated scale to assess severity of depression. It is 21 item questionnaire administered by clinician and scores are calculated from first 17 items only. The severity of depression is calculated by predetermined cutoff scores.Student's t test was applied to find correlation between severity of depression and sociodemographic variables. Confidence interval was 95% and p-value <0.05 was considered significant.

Results

Majority were recruited form Benazir Bhutto Hospital (Table 1). 49.3% were admitted patients and 50.7% were seeking treatment from OPD.60% were males and 40% were females. Majority belonged to lower middle class (56.6%) (Table 2). Forty one patients (49.4%) currently on treatment were found to be depressed according to Hamilton Rating Scale for depression. Out of 49.4% depressed patients 41.5% were mildly depressed, 34.1% were moderately depressed, 21.9% were severely depressed and 1 patient was profoundly depressed (0.02%) (Table 3). The mean difference among gender groups showed females were more depressed than males though the values were not statistically significant. Depression was significantly seen more in patients between 46-60 years of age. Widow/widowers were more depressed though it was not statistically significant. No association was found between depression and educational level of patients.

Table 1: Frequency of distribution of sample in five hospitals

Hospital	No(%)
Benazir Bhutto Hospital	23(27.7)
Holy Family Hospital	20(24.1)
TB centre	14(16.9)
Fauji Foundation Hospital	14(16.9)
District Head Quarters Hospital	12 (14.5)

Patients who were retired, those with clerical duties and unskilled labourers were most depressed amongst various occupational categories though the association of depression and occupational categories was not significant. Patients belonging to lower and lower middle class showed more depression than upper class (Table 4).Significant depression was evident in those living in rural setup. Those individuals with longest duration of illness (10-12 months), greater duration of therapy, positive family history of depression were more depressed though no significant association was found. No difference in trend of depression was observed between outpatients and inpatients presenting with TB.

Table 2: Frequency of distribution of sample according to sociodemographic variables

Variables	No (Percentage)
Age	
18-30	35(42.2)
31-45	34(41.0)
45-60	14(16.9)
Gender	
Male	50(60.2)
Female	33(39.8)
Marital status	
Single	34(41.0)
Married	37(44.6)
Divorced	5(6.0)
Separated	2(2.4)
Widow/Widower	5(6.0)
Education	
Illiterate	15(18.1)
Grade 5	22(26.5)
Grade 8	2(2.4)
Grade 10	24(28.9)
Grade 12	10(12.0)
Graduate	9(10.8)
Postgraduate	1(1.2)
Occupation	
Unemployed	10(12.0)
Unskilled labour	15(18.1)
Skilled labour	9(10.8)
Clerical	13(15.7)
Professional	12(14.5)
Retired	4(4.8)
Housewife	13(5.7)
Others	7(8.4)
Socioeconomic Status	
Lower	24(28.9)
Lower middle	47(56.6)
Upper middle	12(14.5)
Residence	
Urban	59(71.1)
Rural	24(28.9)
Duration of Illness	
<3months	25(30.1)
4-6months	33(39.8)
7-9months	18(21.7)
10-12months	7(8.4)
Duration of Therapy	
<3months	52(62.7)
4-6months	20(24.1)
7-9months	11(13.3)
Family Hx of Depression	
Present	32(38.6)
Absent	51(61.4)

Table 3: Frequency and severity of depression

Diagnosis	No(%)	HAM-D cutoff scores
No depression	42(50.6)	1-7
Mild depression	17(20.5)	8-13
Moderate depression	14(16.9)	14-18
Severe depression	9(10.8)	19-22
Profound depression	1(1.2)	23 above
Total	83(100.0)	

Discussion

Hamilton rating scale for depression, a validated tool to diagnose and assess the severity of depression was used in our sample.[21] Nearly 50 %(49.4%) of the patients suffering from tuberculosis currently on treatment were suffering from depression. Depression was directly related to advancement in age (46-60years) and those living in rural set up.A study conducted in hospitalized TB patients in Pakistan by Sulehri et al showed prevalence of depression to be 80% by using Beck Depressive Inventory-II which is much higher rate than prevalence found in our study (49.4%). Similarly there were more moderately (45.8%) and severely (37.5%) depressed patients as compared to our study (34.1% and 24.9% respectively). No statistical significant association of genders and ages was found with respect to depression in this study, although reportedly more depression was found in young and elderly like our study and males were more depressed (86%) as compared to females unlike our study. This huge difference may have been due to subjective vs. objective assessment of severity of depression in both studies as well as inpatients being only representatives of sample in Sulehri et al's study.[9] Basu G et al found the prevalence of TB in patients presenting to a DOTS clinic in India to be 62% on basis of Patient Health Questionnaire-9 which is a little higher than prevalence found in our study. Amongst those 2/3rd fell in category of mild and moderate depression. Socioeconomic status was inversely related to severity of depression unlike our study.[10]

An outpatient DOTS clinic based study in Nigeria by Issa et al found 27.7% TB patients to be depressed which is nearly half the prevalence found in our study. The sample size of that study was very small. However significant association was found between higher age (>35 years) and financial status of patients by Issa et al, like our study.[11] A previous study in Nigeria by Aghanva et al found prevalence to be further low i.e. 11.3%.[12]

Table 4: Differences in Mean and Standard Deviation among various variables on total score of depression based on HAM-D

Group	No	Mean	S.D.	p-value
Gender				0.853
Male	50	1.90	1.147	
Female	33	1.94	1.059	
Age				0.042
18-30	35	1.86	1.115	
31-45	34	1.71	.906	
46-60	14	2.57	1.342	
Marital status				0.652
Single	34	1.82	1.114	
Married	37	1.95	1.104	
Divorced	5	1.80	1.095	
Separated	2	1.50	.707	
Widow/widower	5	2.60	1.342	
Education				0.651
Illiterate	15	2.07	1.223	
Grade 5	22	2.00	1.113	
Grade 8	2	2.50	2.121	
Grade 10	24	1.63	.770	
Grade 12	10	2.30	1.252	
Graduate	9	1.67	1.414	
Postgraduate	1	2.00		
Occupation				0.121
Unemployed	10	1.70	.823	
Unskilled labour	15	2.27	1.223	
Skilled labour	9	1.67	1.118	
Clerical	13	2.46	1.266	
Professional	12	1.25	.452	
Retired	4	2.50	1.291	
Housewife	13	1.85	1.068	
Others	7	1.71	1.254	
Socioeconomic status				0.243
Lower	24	2.00	1.251	
Lower middle	47	2.00	1.103	
Upper middle	12	1.42	.669	
Residence				0.038
Urban	59	1.75	1.010	
Rural	24	2.33	1.239	
Duration of Illness				0.358
<3 months	25	1.64	1.075	
4-6months	33	2.00	1.173	
7-9months	18	1.94	.998	
10-12months	7	2.43	1.134	
Duration of treatment				0.316
<3months	52	1.94	1.195	
4-6months	20	1.65	.933	
7-9months	11	2.27	.905	
Family Hx of Depression	32	2.19	1.120	0.464
Present	51	1.75	1.074	
Absent				
Setup of treatment				0.063
Inpatient	41	1.83	1.046	
Outpatient	42	2.00	1.169	

Ige et al used HAM-D similar to our study to find out prevalence of depression in patients and caretakers presenting to a Nigerian DOTS clinic. 45.5% of patients and 13.4% of carers were depressed according to his

study, the percentage is very close to that found in our study. Depression was significantly more prevalent in elderly, extensive duration of illness, nuclear family and unmarried individuals.[13]Siddiqui et al used Hospital Anxiety and Depression Scale (HADS) in TB patients presenting to primary care setting and found 72% were moderately and severely anxious and depressed which is higher than combined percentage of moderately and severely depressed patients of our study i.e. 56%.[14] The reason may be use of different instrument as well as smaller sample size. Husain MO et al's used HADS as well in order to assess depression and anxiety in Pakistani setup and found 46.3% patients had depression nearly similar to our study.[15]

Our study didn't use Illness Perception Questionnaire to assess the perception of patients about TB unlike some of the above mentioned studies.[9, 16] However like other chronic illnesses e.g. dermatological diseases , end stage renal disease, cancer , hepatic diseases .Prevalence of depression is higher in TB patients as well compared to prevalence of depression in general population of Pakistan.[17-21]

Conclusion

1.Nearly half of the proportions of people seeking treatment for TB in tertiary care setup suffer from depression. Most vulnerable sociodemographic variables being female gender, elderly, widower/widow, those belonging to low socioeconomic group, those with family history of depression, those from rural setup, greater duration of illness and greater duration of therapy.

2. Early diagnosis and treatment of depression in TB patients is essential to improve treatment adherence, minimize stigma, preventing relapse due to lack of compliance and decreasing chances of MDR-TB as well.

3.General practitioners and medical officers involved in treatment of TB should have knowledge about early recognition and treatment of depression in this highly vulnerable group.

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