

# FREQUENCY OF DEPRESSION IN PATIENTS SUFFERING FROM PULMONARY TUBERCULOSIS

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## ABSTRACT

**Objective:** To determine the frequency of depression in patients suffering from pulmonary tuberculosis.

**Methodology:** This Cross-sectional descriptive study was conducted in OPD of pulmonology and psychiatry Mardan Medical Complex Mardan. First 265 patients diagnosed with tuberculosis based on sputum smear positive for AFB were selected. After collecting demographic and laboratory details structured questionnaire of Hamilton Rating Scale for depression (Urdu Version) was applied on all the patients for diagnosis of depression.

**Results:** Out of 256 patients 154 (60.16%) were male and 102 (39.84%) were female. Age of patients ranged from 18 to 59 years with mean of  $43.14 \pm 14.9SD$ . Over all frequency of depression in patients suffering from pulmonary tuberculosis was 80.1%. In which 52 (20.3%) have mild, 102(39.8%) have moderate and 51 (19.9 %) have severe depression. Depression was more common in females (61.95 %) as compared to male patients (38.04 %).

**Conclusion:** There was high incidence of depression that is 80 % in pulmonary tuberculosis patients. The prevalence of depression was found to be more among females than the male TB patients.

**Key Words:** Frequency; Depression; Pulmonary Tuberculosis

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## INTRODUCTION

**T**uberculosis is a chronic infectious disease caused by mycobacterium tuberculosis. Almost one third of the world population i.e. approximately two billions peoples are infected with Mycobacterium tuberculosis.<sup>1</sup> Despite excellent progress in expanding the Directly Observed Short Treatment Course (DOTS) strategy the global Tuberculosis incidence continue to grow.<sup>2</sup> WHO estimates that 9.27 million new cases of tuberculosis occurred in 2007 (137 per 100000 population). The incidence of tuberculosis in Pakistan reported in 2007 was 1.63 millions.<sup>3</sup> Pakistan ranks 6th in the world countries with highest prevalence of tuberculosis.<sup>4</sup> A depressive disorder is an illness that involves the body, mood and thoughts. It affects the way one sleeps, eats, thinks about surrounding world and the way one feels about oneself. Peoples suffering from depression can not merely pull themselves together and get better, without treatment depressive illness lasts for weeks, month or years.<sup>2</sup>

Depression is often associated with chronic illness, which may be either due psychological reaction to the

pain and hardship caused by the illness or it may due to physical changes associated with chronic illness or there is possibility of coincidence. In a study conducted at the Department of Chest Medicine DHQ & Red Crescent T.B Hospital, Faisalabad Depression was present in about 80% of the hospitalized TB patient. It was more common in males about 86%, while in the females it was about 71%.<sup>2</sup>

Similarly in another study from Nigeria reported that Eighteen (27.7%) of the patients had depression, comprising 14 (21.5%) with mild depression and four (6.2%) with moderate depression.<sup>5</sup> Depression and lack of perceived control over illness in those suffering from Pulmonary Tuberculosis independently associated with poor adherence, therefore treating psychological problem with Pulmonary Tuberculosis may improve adherence.<sup>6</sup>

Tuberculosis is chronic disease in which both mental and physical health deteriorates. Treating tuberculosis will improve adherence, thus it will improve quality of life and prevent drug resistant tuberculosis. Therefore this study is aimed at to determine the frequency of depression in patients suffering from

pulmonary tuberculosis. The result of this study may help other health professionals like pulmonologists and psychiatrists who will help to initiate early management in terms of counseling for mild cases and pharmacotherapy in cases of moderate to severe depression.

**METHODOLOGY**

This Cross-sectional and descriptive study was conducted in Outpatient department of the Pulmonology and Psychiatry Mardan medical complex Mardan. Study duration was one year that was from 12th August 2014 to 11th August 2015. Ethical approval for the study was obtained from the ethical committee of the hospital. First 265 patients diagnosed with tuberculosis were selected in a consecutive manner. Sample size was calculated using 45% proportion of depression in tuberculosis,<sup>2</sup> 95% confidence level and 6% margin of error, with WHO software for sample size determination. Only sputum smear positive patients were included in the study. Patients with other form of TB like millitary TB, multi drug resistant (MDR) / or re-treatment tuberculosis patients were excluded from study in order to avoid the confounding influence of variable duration of treatment and different regimes required in these TB patients. After taking written informed consent, detailed medical history of all patients documented, physical examination performed and sputum report for AFB obtained from the same hospital laboratory. We used Hamilton Rating Scale for Depression (HAM-D) for diagnosis and quantification of depression. Structured questionnaire of Hamilton Rating Scale for depression (Urdu Version) were presented to all the patients. The cut off score were 6 and those having score above 6 were considered to have depression. Those having score between 7-17 were labeled as

mild, with score 18-24 as moderate and those having score above 24 were labeled as severe depression. All information was recorded on proforma for analysis using Statistical Software for Social Sciences (SPSS) version 10. Frequency and percentages were calculated for categorical variables, while mean ± SD was calculated for numerical variables. Depression was stratified among age and gender to see the effect modifications. All results were presented in the form of tables and graphs.

**RESULTS**

In this study, we observed 256 patients suffering from pulmonary tuberculosis. Of these 154 (60.16%) were male and 102(39.84%) were female patients. Male to female ratio was 1.5:1. Patients age was divided in four categories, out of which most presented in above middle age i.e. 46-60 years which were 101 (39.5%) while 66 (25.8%) patients were in the age range of less than or equal to 30 years, 66 (25.8%) were of age range 31-45 years and 23 (9.0%) presented at age more than 60 years. The study included age ranged from 18 up to 59 years. Average age was 43.14 years ± 14.9SD.

Over all frequency of depression in patients suffering from pulmonary tuberculosis was 80.1%. In which 52 (20.3%) had mild, 102 (39.8%) had moderate and 51 (19.9%) were suffering from severe depression. While 51 (19.9%) patients had no depression (Table 1).

Majority of the patients 128 (50%) were illiterate, 76 (29.69%) had education primary or below, 26 (10.16%) had education between primary and metric level, 26 (10.16%) were intermediate or higher level. Age wise analysis of pulmonary tuberculosis shows that age has no such role over depression in our study and the association of depression with the different age group was not statistically significant (p > .05). However the

Table 1: Frequency of depression in pulmonary tuberculosis

	Frequency	Percentage
<b>No Depression</b>	51	19.9
<b>Mild</b>	52	20.3
<b>Moderate</b>	102	39.8
<b>Severe</b>	51	19.9
<b>Total</b>	256	100

Table 2: Gender wise frequency of depression in pulmonary tuberculosis

Gender	Depression				Total
	No Depression	Mild	Moderate	Severe	
<b>Male</b>	24 (23.5 %)	12 (11.8 %)	41 (40.2 %)	25 (24.5 %)	102 (100 %)
<b>Female</b>	27 (17.5 %)	40 (26 %)	61 (39.6 %)	26 (16.9 %)	154 (100 %)
<b>Total</b>	51 (19.9 %)	52 (20.3 %)	102 (39.8 %)	51 (19.9 %)	256 (100 %)

association of depression with gender of patients was statistically significant ( $p < .05$ ) that is depression was more common in females with pulmonary tuberculosis as compared to male patients (Table 2).

## DISCUSSION

It has been known from various studies that tuberculosis causes depression and which in turn may affect the response to treatment, recovery rate and final outcome of the illness. The role of antidepressants in patients has been studied by Purohit and team with encouraging results.<sup>7</sup>

The present study shows depression in pulmonary tuberculosis patients. It also shows the effect modification among the gender and age. In present study 80.1 % of the patients have depression which has pulmonary tuberculosis.

In a study conducted by Mirza and others in Karachi in 2004.<sup>8</sup> Prevalence of depression and anxiety was about (47%) in TB patients. Mean prevalence of anxiety and depression in Pakistan found to be around 34% (range 29.66% for women and 10.33% for men) in community based population. However, the results of our study relating to depression in TB patients are more i.e. 80% and also higher in females than males. This may be due to low socioeconomic status, the long duration of treatment, stigmatization, fear and threat of high risk that the air-borne TB disease could spread to families and communities.

Higher prevalence of depression in females could be attributed to more vulnerability to TB and depression due to their life style, exposure to predisposing factors like indoor living and stigmatization. They have to bear more stress of excessive responsibilities of their families and have to face more stigmatization as compare to men in the community. A study conducted at DHQ hospital Faisalabad in Dermatology Department,<sup>9</sup> showed that 51.97% patients were found to have psychiatric co-morbidity depression and it was more in females 85% as compared to males 15%.

Another study was done in a Tertiary Care Hospital of Pakistan<sup>10</sup> and it showed that in diagnosed cancer patients 52% had symptoms of Anxiety and depression or both. In the current study depression among TB patients is 80%, it may be due to the long duration of treatment, stigmatization and threat of high risk to infect other family members of the TB patients who were in contact with him. A study conducted at hemodialysis units of Shalimar and Shaikh Zayed Hospital Lahore in 2006<sup>11</sup> showed that the patients getting regular hemodialysis for more than three months, majority of them 56.1% were moderately to

severely depressed. Another study was conducted by Dogar and colleagues<sup>12</sup> to assess the co-morbidity of anxiety and depression in the patients suffering from various hepatic diseases in liver centre of DHQ hospital, Faisalabad and 88.2% patients were found to have anxiety and depression.

Tandon<sup>13</sup> found 32% had depressive disorder. Johan Mathai<sup>14</sup> found 28.87% psychiatric morbidity among them depressive neurosis constituted 55%, anxiety neurosis 25%, hysterical neurosis 5%, Alcohol dependence 10% and schizophrenia 5%. Westaway<sup>15</sup> found 8% of depression, among them 22 with mild depression, 38 with moderate depression and 8 with severe depression.

Aghanwa<sup>16</sup> found 30.2% of psychiatric disorders mild depressive disorders constituted the majority of cases. In Immerman's<sup>17</sup> study psychiatric morbidity was 64.7%, among them those with depression was 84.7%. Vinogradove<sup>18</sup> found 18.4% anxiety-depressive reaction, hypochondriac 13.6% and paranoid 9.1% as psychiatric morbidity. Bhatia<sup>19</sup> 126 found 78% psychiatric disorders, in which the commonest being was the mixed anxiety and depressive disorders. Manoharam<sup>20</sup> found 17.3% psychiatric disorders in pulmonary tuberculosis patients. Depression was the common diagnosis. There were more number of males, majority were at the age of 40 years, married, widows, illiterate and those having financial problems had more depressive disorders.

Bagadia<sup>21</sup> found psychiatric morbidity in 36% of the patients who had medical disorders, in which 24% pure psychiatric disorders like anxiety neurosis, depression in 12.8%, 10.1% hysterical neurosis, 1.5% hypochondriac neurosis and 12% have another organic problems.

Sachadev<sup>22</sup> found 31% psychiatric morbidity among medical patients depression 51.6%, hysteria 19.3%, organic brain syndrome in 16.1%, anxiety neurosis in 9.7% and schizophrenia 3.2%.

Sriram<sup>23</sup> found 31% had simultaneous medical illness and psychiatric illness. The possible reasons for high psychiatric morbidity in this study is patients taken from inpatients department, in which the sampling procedure was purposive sampling leads to the sampling bias.

Depressive disorders in different age groups were compared and the difference was not statistically significant, which is comparable to Yadav,<sup>24</sup> Purohit,<sup>7</sup> John Mathai,<sup>14</sup> Manoharam<sup>20</sup> but differs from the study by Sriram<sup>23</sup> in which psychiatric disorders among patients showed high morbidity in 26-35 years of age group and in those above 55 years. Bhatiam found

those in the age group of 25-30 years had more illness.

In this study depressive disorders in different sex is compared and the difference is statistically significant. This finding is comparable with studies by Bagadia,<sup>21</sup> Sriram,<sup>23</sup> and Gupta,<sup>24</sup> Manoharam,<sup>20</sup> while it in contrast with studies reported by Yadav,<sup>25</sup> Purohit<sup>7</sup> and John Mathai.<sup>14</sup>

## CONCLUSIONS

It is concluded that 80% patients suffering from TB were depressed. The prevalence of depression was found to be more among females than the male TB patients having depression. Depression leads to hopelessness and decreased resistance to infections, so it adversely affects the patient's compliance to TB treatment. It is important to diagnose and treat depression in time to get the desired results of TB treatment all over the world and especially in under developing countries like Pakistan.

## REFERENCES

- Hussain MO, Dearman S, Chaudry I, Rizvi N, Riaz A, Waheed W. The relationship between anxiety, depression and illness perception in TB Patients in Pakistan. *Clin Pract Epidemiol Ment Health* 2008; 4:z144-5
- Sulehri MA, Dogar IA, Sohail H., Prevalence of Depression Among Tuberculosis Patients. *A.P.M.C* 2010; 4(2):133-7.
- Global Tuberculosis Control Epidemiology, Strategy, Financing. Geneva: World Health Organization; 2009.
- Khan J, Irfan M, Zaki A, Beg M, Hussain S, Rizvi N. Knowledge, attitude and misconception regarding tuberculosis in Pakistani patients. *J Pak Med Assoc.* 2006; 56:211-4
- Baba A Issa, Abdullah D Yussuf, Suleiman I Kuranga. Depression comorbidity among patients with tuberculosis in a university teaching hospital outpatient clinic in Nigeria. *Ment Health Fam Med* 2009; 6(3): 133-8.
- Habib F, Baig L. Cost of DOTS for TB patients. Department of community health sciences, medical and dental college Karachi. *J Pak Med Assoc* 2006; 56(5): 207-10.
- Purohit DR, Purohit SD, Dhariwal ML. Incidence of depression in hospitalized T.B patients. *Ind J Tuberc* 1978; 25:147.
- Mirza I, Jenkins R. Risk factors, prevalence, and treatment of anxiety and depressive disorders in Pakistan: systematic review. *BMJ* 2004; 328:794-8.
- Dogar IA, Maan MA, Bajwa A, Bhatti A, Naseem S, Kousar S. Dermatological disorders; psychiatric co-morbidity. *Professional Med J* 2010;17: 334-49
- Dogar I A, Azeem M W, Kiran M, Hussain I, Mehmood K, Hina I. Depression and anxiety in cancer patients. *Park J Med Sci* 2009; 25: 734-7.
- Anees M, Barki H, Masood M, Ibrahim M Kausor T, Mumtaz A. Depression in hemodialysis patients. *Pak J Med Sci* 2008; 24: 560-5.
- Dogar IA, Rasool G, Ahmad M, Haider N, Naseem S, Bhatti A. Anxiety and depression disorders as psychiatric co-morbidity in hepatic disease. *APMC* 2009; 3z90-4.
- Tandon AK, Jain SK, Tandon RK, Asare R. psychosocial study of tuberculosis patients. *Ind J Tub* 1980; 27: 172-4 121.
- Mathai JP, Ravidran P, Joshi P, Sundaram P. Psychiatric morbidity in pulmonary tuberculosis. A clinical study. *Ind J Psychiat* 1981; 23(1):66-8.
- Westaway MS, Wolmarans L. Depression and self esteem: rapid screening for depression in black, lw literacy, hospitalized tuberculosis patients. *Soc Sci Med* 1992; 35: 1311-5.
- Aghanwa HS. Erahaviour GE demographic/socioeconomic factors in mental disorders associated with tuberculosis in southwest Nigeria. *J Psychosom Res* 1998; 45(4):353-60.
- Immerman KL, Pankratova LE. Characteristics of the nature and dynamics of neuropsychic disorders in patients with newly detected pulmonary tuberculosis undergoing intensive chemotherapy. *ZhNevropatolPssikhiatriIm SS Korsakova.* 1988; 88(6):109-13
- Vinogradov MV, Cherkashina II, Perel'man ML. Mental state of patients with restricted forms of pulmonary tuberculosis. *Probl Tuberk* 1991;10: 41-3
- Bhatia MS, Dubey KK, Bhasin SK, Sindhi N. Psychiatric morbidity in tuberculosis patients. *Ind Med Gezette* 2000;134(1): 5-6
- Manoharam E, John KR, Joseph A, Jacob KS. Psychiatric morbidity. Patient's perspectives of illness and factors associated with poor medication compliance among the tuberculosis in vellore, Soth India. *Ind J Tub* 2001; 48:77

21. Bagadia VN, Ayyar KS, Lakdawala PD, Sheth SM, Acharya VN, Pradhan PV. Pshychiatric morbidity among patients attending medical outpatients department. Ind J Psychiat. 1986; 28(2):139-44.
22. Sachdeva JS, Shergill CS, Sidhu BS. Prevalence of psychiatric morbidity among medical in-patients. Ind J Psychiat 1986; 28(4): 293-6
23. Sriram TG, Shamasunder C, Mohan KS, Shanmugham V. Psychiatric morbidity in the medical outpatients of a general hospital. Ind J Psychiat 1986; 28(4):325.
24. Gupta LN, Bhatia L, Godara C, Vyas N, Singhal. Life events, physical illness and psychiatric morbidity. Ind J Pshchiat 1981;25(4):317-21.
25. Yadav BS, Jain SC, Sharma G, Mehrotra NIL, Kumar A. Psychiatric morbidity in pulmonary tuberculosis. Ind J Tub 1980; 27(4):147-51.